

SELF-EVALUATION REPORT FOR EVALUATION OF RESEARCH ORGANIZATIONS IN THE SEGMENT OF HIGHER EDUCATION INSTITUTIONS IN YEAR 2025

HIGHER EDUCATION INSTITUTION NAME: UNIVERSITY OF WEST BOHEMIA IN PILSEN

COMPANY REGISTRATION NUMBER (CRN): CZ49777513

THE LIST OF EVALUATION UNITS IN MODULE 3:

FACULTY OF APPLIED SCIENCES (FAS)

FACULTY OF ARTS (FOA)

FACULTY OF ECONOMICS (FEC)

FACULTY OF EDUCATION (FOE)

FACULTY OF ELECTRICAL ENGINEERING (FEE)

FACULTY OF HEALTH CARE STUDIES (FHC)

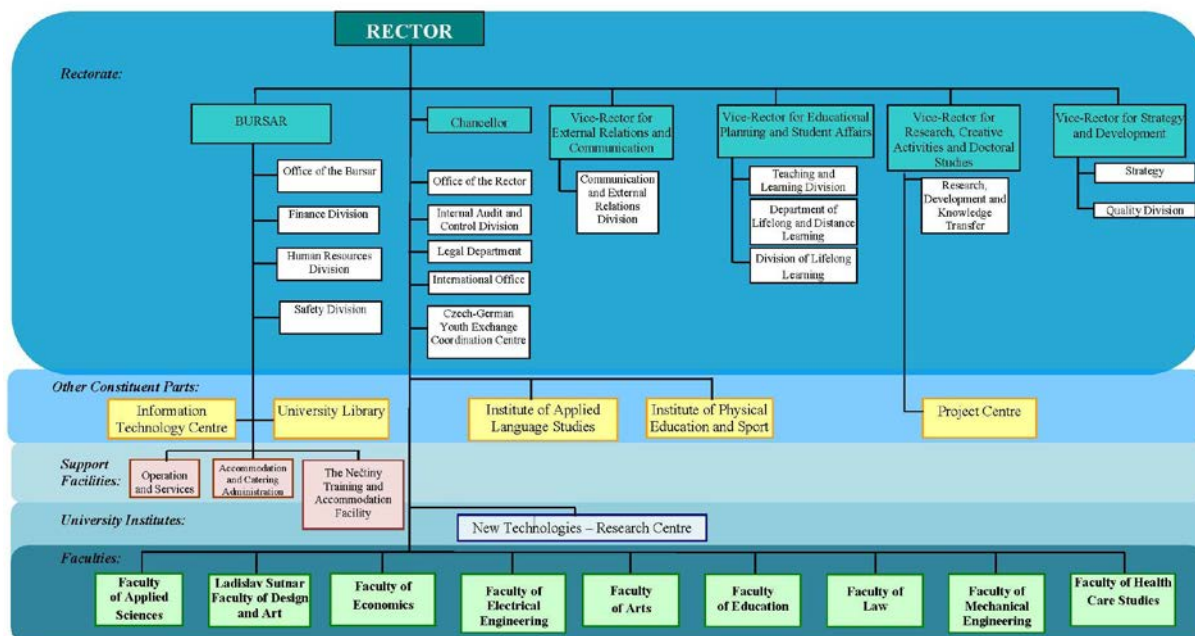
FACULTY OF LAW (FOL)

FACULTY OF MECHANICAL ENGINEERING (FME)

LADISLAV SUTNAR FACULTY OF DESIGN AND ART (FDA)

NEW TECHNOLOGIES - RESEARCH CENTRE (NTC)

ORGANIZATIONAL STRUCTURE OF THE HIGHER EDUCATION INSTITUTION



HIGHER EDUCATION INSTITUTION WEBSITE (HTML LINK): <https://www.zcu.cz/en/>

THE HIGHER EDUCATION INSTITUTION CONTACT PERSON

Name and surname: Ing. Tomáš Görner, Ph.D.

Position: Head of Research, Development and Knowledge Transfer Department

Phone number: +420 377 631 039

E-mail: vyzkum@rek.zcu.cz

prof. RNDr.
Miroslav
Lávička, Ph.D.

Digitálně podepsal prof.
RNDr. Miroslav Lávička,
Ph.D.
Datum: 2025.04.30
12:47:45 +02'00'

Signature (Rector), stamp

Introductory information about the evaluated higher education institution

The HEI briefly introduces itself. The organizational chart, the position of the HEI within the research, development and innovation system and the system of HEIs in the Czech Republic may be commented on, the mission and vision, the size of the HEI, and the number and focus of the units evaluated will be briefly presented.

Maximum 500 words.

Description:

The University of West Bohemia is a public higher education institution offering a wide range of study programs in the fields of engineering, humanities, economics, law, education, natural sciences, social sciences, healthcare and arts.

Its history dates back to 1948, when the Faculty of Education was founded in Pilsen as a branch of the Faculty of Education of Charles University in Prague. From 1953 it operated as an independent Higher Pedagogical School, and in 1964 it became an independent Faculty of Education. A year later (1949), the College of Mechanical and Electrical Engineering (VŠSE) was established in Pilsen, initially as part of the Czech Technical University in Prague. In 1953 it gained independent status. In 1960, the VŠSE was divided into two faculties - those of mechanical engineering and electrical engineering. Another two new faculties - of applied sciences and economics - were established in 1990. The University of West Bohemia was established on 28 September 1991 by the merger of the former College of Mechanical and Electrical Engineering (then with four faculties - of mechanical engineering, electrical engineering, applied sciences and economics) with the independent Faculty of Education. In 1993, the Faculty of Law was added, and in 1999 the Faculty of Humanities was established (since 2005 the Faculty of Arts). In 2000, the university institute New Technologies - Research Centre was founded; a second university Institute of Art and Design was established in 2004, and the Faculty of Health Care Studies was added along with the Institute of Applied Language Studies in 2008. In 2013, the Institute of Art and Design became the Ladislav Sutnar Faculty of Design and Art. Three faculty research centers were established last. In 2014, the New Technologies for the Information Society (NTIS) research center was opened, followed a year later by the Regional Technology Institute (RTI), and in 2016 by the Regional Innovation Centre for Electrical Engineering (RICE).

Until the end of 2024, UWB had 9 faculties and 2 university institutes (from 1 January 2025 there is only one university institute), which are the basic organizational units ensuring educational and scientific activities. More than 11,000 students study at the University of West Bohemia and within the Czech Republic's higher education system it belongs to medium-sized universities. It ranks among universities with a balanced ratio of basic and applied research and is an important education and research center in West Bohemia. It actively contributes to technological and innovative developments, thus strengthening not only its academic prestige but also the competitiveness of Czech industry. The constituent parts of the University of West Bohemia are focused on the fields of engineering and natural sciences, humanities and social sciences, economics, law, education, healthcare and art. In the field of research and innovation, UWB focuses mainly on technical and interdisciplinary fields with an applied relevance. It plays a key role in the system of research, development and innovation, especially through its four research centers.

UWB's mission is to engage in higher education, research and innovation with an emphasis on the quality and applicability of graduates and research outputs in practice. It follows the rich tradition of European university education and actively tackles the complex challenges of today's world. The University relies on international cooperation with an emphasis on capitalizing on the potential of UWB's membership in the European University Alliance EUPeace, and at the same time integrates

itself into regional development and technology transfer.

UWB's vision is to be a recognized center of education, creative activities and innovation with effective development of excellence in research. The University also strives to enhance international competitiveness and improve its connections with industry. In doing so, the University invests responsibly in talent development, technology and collaboration to bring new knowledge, promote sustainable development, and preserve as well as strengthen the values it recognizes and on which our society is built.

The organizational structure meets the legal requirements and needs of the University, and is divided into several main levels and sections to ensure the effective management and functioning of the University. The Rector, who is responsible for the overall management and representation of the University, is the University's highest representative, elected for a four-year term by the UWB Academic Senate. The Vice-Rectors are responsible for specific areas such as studies and student affairs, science and research, external relations and communication, strategy and development. The Bursar is responsible for the economic and operational affairs of the University while the Chancellor manages the Rector's office and provides administrative support to the University management. The Academic Senate is a self-governing body composed of elected representatives from among academic staff and students. It has legislative and control functions, approves the budget and strategic documents, and elects the Rector. The Scientific Council, an advisory body to the Rector, is composed of distinguished scientific and professional figures. It deals with issues of science, research and education. The Board of Directors is the supervisory body that oversees the management of the University and the fulfillment of its mission. The Internal Evaluation Council oversees the quality of education and research through systematic evaluation and review. It monitors compliance with accreditation standards, analyzes feedback from students and academics, prepares evaluation reports, and proposes remedial measures. The Council collaborates with the University management on strategic development and innovation in education and science.

SWOT ANALYSIS

Strengths

- A unified learning environment with sufficient elements of individual approach
- Heterogeneity and compactness reflected in science/studies (broad portfolio that can be communicated to all target groups)
- Existence of top scientific teams with a significant scope and intensity of international cooperation, mainly affiliated with research centers
- Significant regional position, anchored in / connected to practice (companies, organizations, schools)
- Membership in the international alliance EUPeace

Weaknesses

- Room for improvement in the internationalization of the University environment, low number of international students and staff
- Insufficient digitalization of the University and its processes, outdated information system
- Differences in the intensity and quality of creative activities between the University's constituent parts, between various fields of study and between teams
- Low success rate in obtaining research projects, especially excellent ones
- Ambiguous/poor public perception of UWB, ignored by the authorities

Opportunities • Temporarily positive demographic development • Harnessing the potential of AI, including process automation • Multidisciplinarity of the University, new research topics • Strategic position (location) of the University and the proximity to border regions • The region's environment with a large representation of the private sector in UWB's fields of study (especially technical)	Threats • Difficult to predict the future, uncertain external environment • Insufficient state funding for education and research • Failure to identify significant topics in time, change in "demand" for fields of study or research, i.e., our competitors are developing more dynamically than we are • Failure to take advantage of the current positive demographic trend, long-term demographic development • Transformation of values and expectations of Generations Z and Alfa, lack of interest in studying at UWB • Departure of high-quality employees, poorly managed generational turnover and long-term dependence on inbreeding • Failure to address critical issues such as security, digital transformation and the implementation of modern technologies to support teaching, research and university administration

THE LIST OF EVALUATION UNITS IN MODULE 3:

FACULTY OF APPLIED SCIENCES (FAS)

FACULTY OF ARTS (FOA)

FACULTY OF ECONOMICS (FEC)

FACULTY OF EDUCATION (FOE)

FACULTY OF ELECTRICAL ENGINEERING (FEE)

FACULTY OF HEALTH CARE STUDIES (FHC)

FACULTY OF LAW (FOL)

FACULTY OF MECHANICAL ENGINEERING (FME)

LADISLAV SUTNAR FACULTY OF DESIGN AND ART (FDA)

NEW TECHNOLOGIES - RESEARCH CENTRE (NTC)

MODULE 3:
FACULTY OF APPLIED SCIENCES (FAS)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Applied Sciences

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The Faculty of Applied Sciences (FAS) of the University of West Bohemia (UWB) in Pilsen was established in 1991 during the reorganization of higher education institutions in Pilsen. However, its roots go back to a technical college focused on mechanical and electrical engineering. This college was established in Pilsen after World War II and became part of the UWB in 1991. FAS has always focused on top-notch education and research in a unique combination of technical and natural science disciplines.

Primary goals of FAS include education of prominent experts in disciplines developed at FAS and implementation of excellent research through close cooperation across natural science and technical disciplines and with numerous partners. Given its modern infrastructure for education and research and high-quality study programs, FAS research teams manage to address challenging research and development goals while supporting education and training of early carrier and female researchers.

The current *structure of FAS* consists of 6 educational departments in the fields of mathematics, cybernetics, physics, informatics, geomatics and applied mechanics, and the research centre “NTIS – New Technologies for the Information Society”. The NTIS centre had been established with the support of the European funds as the European Centre of Excellence in 2010-2014. Since 2014, FAS has been in a new building equipped with modern infrastructure for higher education and research.

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

The *management of FAS* consists of the dean, vice-deans, and the academic secretary. They meet once a week to discuss operational issues. Meetings of the dean's board, that also includes chairmen of the departments and the NTIS research centre, are held every month. Other bodies, that participate at the faculty's management, are the academic senate and the scientific board. Additionally, non-academic researchers, who cannot participate at activities of the academic senate, have their own body that is involved in the management of the faculty.

Since its establishment in 1991, FAS has provided *high-quality education* in the fields of mathematics, physics, new materials, cybernetics, informatics, applied mechanics, geomatics and civil engineering. FAS has accredited 10 bachelor's, 12 master's and 6 doctoral study programmes at the end of the evaluation period. An annual number of all students was relatively stable during the entire evaluation period. Around 900 students (of which 180 women and 70 foreigners) can be divided between 620 bachelor's, 210 master's and 120 doctoral students.

The *research team of FAS*, comprising more than 30 research groups, includes 19 professors, 43 associate professors, 64 assistant professors and 80 scientific workers. By the end of the evaluation period, FAS had a total of 258 FTE employees (of which 42 women). Towards the end of the evaluation period, the number of researchers decreased slightly due, among other things, to the end of support for large research projects, fierce competition from industry in some fields (e.g., IT) and consequences of the pandemic.

The *focus of FAS activities* has been primarily on research and development of advanced information technologies and new materials. In addition to classic topics in the individual fields, FAS performs activities in emerging areas of research and development, such as artificial intelligence, quantum physics or biomedicine. R&D activities across FAS are balanced between basic and applied research, with natural science fields leaning more towards basic research and technical fields towards applied research. In terms of official fields of research and development (FORDs), the largest share of results and the largest research and development capacity of FAS is in the field of electrical engineering, electronics and information engineering, with approximately 40 %. Other significant FORDs at FAS include mathematics, computer science and mechanical engineering. Likely this portfolio will not change dramatically in the close future.

Most of the *research and development activities of FAS* are carried out by the NTIS research centre. Its research teams publish around 90 journal papers in high-quality international journals annually (70 % of all publications are in the 1st and 2nd quartiles of their distribution according to AIS). The research teams solve a significant number of projects in the field of basic and applied research every year, often in cooperation with other universities, research centres, renowned companies and institutions. The projects are supported by domestic and foreign grant schemes and donors. Research teams of FAS have attracted numerous projects funded from abroad including projects of the European frame programmes, European Space Agency, or US Naval Laboratory. FAS also participates in research projects funded by the European cohesive funds, most notably in a large multi-institutional project within the call Excellence in Research focused on quantum technologies. R&D&I activities at FAS are strongly interdisciplinary and involve a significant number of students.

Contract research of FAS has a growing tendency and plays an important role in its research and development activities. Main partners of FAS in this area include technology companies in the Pilsen metropolitan area, other regions of the Czech Republic and Europe. FAS benefits from the presence of a strong industrial base in the region and from its strategic location between the capital city of Prague and the region of Bavaria. Research teams at FAS also cooperate with spin-off companies and start-ups, often initiated by FAS employees. Income from contract research in

combination with other non-public support (especially within collaborative projects of the Technology Agency of the Czech Republic) is unusually high, which has been repeatedly positively assessed by various evaluators.

R&D&I results, that research teams of FAS create every year, contribute to knowledge in individual fields but also have broad social applications. Results nominated for evaluation within the national methodology for evaluating research institutes often receive excellent ratings in the case of results nominated for their scientific contribution as well as social relevance. FAS research teams achieve excellent internationally recognized results, and FAS ranks among the leading research institutions in the Czech Republic and beyond.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / of which women					
	2019	2020	2021	2022	2023	Total
Professor	19.040/1.000	20.077/1.000	19.715/1.000	18.505/1.000	18.609/1.000	95.946/5.000
Associate Professor	40.760/3.500	40.026/3.500	41.910/3.501	45.321/3.500	43.949/3.483	211.966/17.484
Assistant Professor	71.530/8.700	72.659/8.021	64.155/7.400	64.319/8.567	64.251/8.994	336.914/41.682
Assistant	2.480/1.000	2.075/1.000	8.600/2.500	8.700/2.500	8.013/1.830	29.868/8.830
R&D Personnel ³	6.400/1.600	2.765/1.885	1.742/0.742	1.350/1.350	1.000/1.000	13.257/6.577
Researchers in other categories ⁴	105.220/14.030	100.616/17.252	96.654/14.015	96.077/11.743	79.364/7.318	477.931/64.358
Technical and economic staff ⁵	38.440/21.100	38.402/19.560	31.456/17.156	31.182/15.791	29.354/15.077	168.834/88.684
Scientific, research and development staff involved in teaching activities	76.327/ 11.115	67.346/11.258	60.350/9.574	67.367/9.104	56.894/7.619	328.324/48.670
Early career researchers ⁶	25.650/4.600	13.323/1.566	17.384/3.508	17.695/5.220	11.980/3.170	86.032/18.064
Total ⁷	309.520/55.530	289.943/53.784	281.616/49.822	283.149/49.671	256.520/41.872	1,420.748/250.679

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	4	0	4	1	8	0	9	0
Associate Professor	0	0	3	0	29	2	2	1	4	0	7	1
Assistant Professor	0	0	25	2	33	1	13	4	8	2	0	0
Assistant	0	0	2	1	1	0	0	0	0	0	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	38	7	99	15	13	5	5	1	1	1	2	0
Technical and economic staff ¹¹	6	4	4	1	18	14	4	3	7	2	0	0
Scientific, research and development staff involved in teaching activities	25	5	63	10	10	2	2	1	0	0	1	0
Early career researcher ¹²	3	1	49	6	3	0	1	0	0	0	0	0
Total ¹³	44	11	133	19	98	22	28	10	28	5	18	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	2	0	5	1	3	0	11	0
Associate Professor	0	0	0	0	29	1	9	2	3	0	5	1
Assistant Professor	0	0	9	1	41	6	14	2	8	1	2	0
Assistant	0	0	2	0	1	0	3	1	3	0	0	0
R&D Personnel ¹⁵	0	0	0	0	1	1	0	0	0	0	0	0
Researchers in other categories ¹⁶	36	7	65	10	23	2	0	0	1	0	1	0
Technical and economic staff ¹⁷	2	0	4	1	12	9	6	5	3	2	2	1
Scientific, research and development staff involved in teaching activities	26	4	56	12	13	2	1	0	0	0	1	0
Early career researcher ¹⁸	2	0	40	7	1	0	1	0	0	0	0	0
Total ¹⁹	38	7	80	12	109	19	37	11	21	3	21	2

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	605	123	621	122	579	110	557	97	601	94	2,963	546
Master's ²⁰	209	51	178	45	170	40	209	53	193	42	959	231
Doctoral	110	25	133	24	111	19	110	18	114	21	578	107
Lifelong Learning Courses	0	0	0	0	0	0	0	0	0	0	0	0
Total	924	209	932	191	859	169	876	168	908	157	4,509	884

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	9/0	0/0	9/0	0/0	9/0	0/0	9/0	1/0	11/0	1/0	17/0	1/0
Master's	9/0	0/0	10/0	1/0	11/0	1/0	11/0	1/0	12/0	1/0	16/0	1/0
Doctoral	5/2	0/0	7/2	0/0	10/4	0/0	9/4	0/0	12/6	0/0	17/8	0/0
Lifelong Learning courses	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Total	23/2	0/0	26/2	1/0	30/4	1/0	29/4	2/0	35/6	2/0	50/8	2/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics	15	Basic Research	38
	1.2 Computer and information sciences	15	Balanced basic and applied research	
	1.3 Physical sciences	3	Basic Research	
	1.4 Chemical sciences	0	Zvolte položku.	
	1.5 Earth and related environmental sciences	5	Balanced basic and applied research	
	1.6 Biological sciences	0	Zvolte položku.	
	1.7 Other natural sciences	0	Zvolte položku.	

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

2. Engineering and Technology	2.1 Civil engineering	0	Zvolte položku.	62
	2.2 Electrical engineering, electronic engineering, Information engineering	40	Balanced basic and applied research	
	2.3 Mechanical engineering	15	Balanced basic and applied research	
	2.4 Chemical engineering	0	Zvolte položku.	
	2.5 Materials engineering	7	Balanced basic and applied research	
	2.6 Medical engineering	0	Zvolte položku.	
	2.7 Environmental engineering	0	Zvolte položku.	
	2.8 Environmental biotechnology	0	Zvolte položku.	
	2.9 Industrial biotechnology	0	Zvolte položku.	
	2.10 Nanotechnology	0	Zvolte položku.	
	2.11 Other engineering and technologies	0	Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine	0	Zvolte položku.	0
	3.2 Clinical medicine	0	Zvolte položku.	
	3.3 Health sciences	0	Zvolte položku.	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries	0	Zvolte položku.	0
	4.2 Animal and Dairy science	0	Zvolte položku.	
	4.3 Veterinary science	0	Zvolte položku.	
	4.4 Other agricultural sciences	0	Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences	0	Zvolte položku.	0
	5.2 Economics and Business	0	Zvolte položku.	
	5.3 Education	0	Zvolte položku.	
	5.4 Sociology	0	Zvolte položku.	
	5.5 Law	0	Zvolte položku.	
	5.6 Political science	0	Zvolte položku.	
	5.7 Social and economic geography	0	Zvolte položku.	
	5.8 Media and communications	0	Zvolte položku.	
	5.9 Other social sciences	0	Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology	0	Zvolte položku.	0
	6.2 Languages and Literature	0	Zvolte položku.	
	6.3 Philosophy, Ethics and Religion	0	Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)	0	Zvolte položku.	
	6.5 Other Humanities and the Arts	0	Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019-2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

FAS has been widely recognized for its research activities in several scientific disciplines within the Czech Republic as well as abroad. According to the national methodology for evaluation of research institutes, it ranks among the best faculties within the Czech Republic in the fields of electrical engineering, cybernetics, informatics, material engineering, plasma physics, mathematics and applied mechanics. In the selected fields, it is also visible and recognized at the international level as confirmed by involvement of FAS employees in international professional associations, editorial boards of scientific journals or evaluation committees of international funding programmes. Selected examples are provided below to confirm its position within respective research communities.

In 2019-2023, faculty members and students of FAS received several significant *professional awards* for significant contributions to their disciplines and activities in international professional societies, see Table 3.2.1. One could highlight, for example, Jindřich Musil (recognized for his exceptional contribution to plasma technologies by the PSE Leading Scientific Award of the European Committee for Plasma and Ion Surface Engineering), Michal Šprlák (received the Guy Bomford Prize awarded every four years by the International Association of Geodesy for outstanding contribution to geodesy) or Pavel Drábek (received the Silver Medal of the Chairman of the Senate of the Parliament of the Czech Republic).

Faculty employees have also served as *members of editorial boards* of renowned international journals, e.g., *Opuscula Mathematica* (Petr Stehlík), *Journal of Geodesy* (Pavel Novák), or *Computers & Graphics* (Václav Skala), all Q1 or Q2 journals according to AIS. More details are provided in Table 3.2.2 below.

Employees of FAS acted as *elected members or fellows of international associations*, e.g., executive committees of the International Association of Geodesy and IUGG's Commission on Mathematical Geophysics (Pavel Novák), Board of the Czech National Infrastructure for Biological Data (Lucie Houdová), and Advisory Committee of Horizon Europe (Martin Čech). Other memberships include the Committee for Scientific Activities, University Council of the Czech Republic (Vlasta Radová, chairwoman), International Society for Condition Monitoring (Jindřich Liška), IEEE (Jindřich Duník, Vlasta Radová, Ondřej Straka), and scientific boards of several universities, e.g., Miloš Železný – University of Jan Evangelista Purkyně in Ústí nad Labem and Charles University Prague; Vlasta Radová – Technical University Liberec; Josef Psutka and Ondřej Straka – Czech Technical University Prague.

Employees and students of FAS also delivered numerous *invited talks* at international events or other institutions, both in Czechia and abroad. Selected examples are provided in Table 3.2.3 below. On the other hand, some renowned experts paid their visit to FAS to discuss scientific issues and/or give their lectures, see Table 3.2.4 for selected examples.

Professors of FAS were involved in *evaluation of project applications* submitted to both national and international funding schemes, see Table 3.2.5 for selected examples. At the national level, the most important programmes include those of the Czech Science Foundation (supports basic research) and Technology Agency of the Czech Republic (supports applied research). At the international level, FAS employees were involved in the frame programmes of the European Union, calls of the European Research Council and several national science foundations, such as the Engineering and Physical Sciences Research Council UK, German Science Foundation, or Swiss National Science Foundation, Slovak Research and Development Agency. One must also mention the involvement of FAS employees in the evaluation of research results within the national methodology for evaluation of research institutes.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
Pavel Drábek, prof.	Silver Medal of the Chairman of the Senate of the Czech Republic	Senate of the Parliament of the Czech Republic
Michal Šprlák, assoc. prof.	Guy Bomford Prize awarded every 4 years for outstanding contribution to geodesy	International Association of Geodesy
Miloš Schlegel prof.; Jana Königsmarková, PhD.; Pavel Balda, PhD.; Jaroslav Sobota	Honorary recognition for the project Power Regulator for the Research Nuclear Reactor LVR-15	Engineering Academy of the Czech Republic
Marek Hružík, PhD.; Jakub Kanis, PhD.; Zdeněk Krňoul, PhD.	First place in the HANDS19 Challenge competition for the SW product Hands 2019 – Challenge	Reality Labs
Josef Psutka, prof.; Aleš Pražák, PhD.; Vlasta Radová, assoc. prof.; Zdeněk Loose; Josef Psutka, PhD.	2020 Award in the Society Category for the project Elimination of Language Barriers for Handicapped Viewers of Czech Television. The project also won in the audience category CZECH IDEA and became the absolute winner across all categories.	Technology Agency of the Czech Republic
Jindřich Duník, assoc. prof.	2020 IEEE AESS Harry Rowe Mimno Award for Excellence in Clear Communications of Technical Material	IEEE Aerospace and Electronic Systems Society
Jindřich Matoušek, assoc. prof.	International competitions The Voice Challenge 2022 (2nd and 6th places in two categories) and The VoiceMOS Challenge 2023 (1st place in one category)	Nagoya University (Japan), National Institute of Informatics (Japan), Academia Sinica (Taiwan)
Jindřich Liška, PhD.; Jan Jakl, PhD.; Sven Künkel	Len Gelman Award 2022 for the best paper published in the Proceedings of the International Condition Monitoring Conference, London, UK	British Institute of Non-Destructive Testing

Lukáš Pícek, PhD.	Joseph Fourier Prize	French Embassy, Prague
Jindřich Musil, prof.	PSE Leading Scientific Award	European Committee for Plasma and Ion Surface Engineering

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Tomáš Kaiser, prof.	Journal of Graph Theory, 0364-9024
Pavel Novák, prof.	Journal of Geodesy, 0949-7714
Václav Skala, prof.	Computers & Graphics, 0097-8493
Ivana Kolingerová, prof.	Machine Graphics and Vision, 1230-0535
Dalibor Fiala, assoc. prof.	Journal of Informetrics, 1751-1577
Ondřej Straka, assoc. prof.	IEEE Transactions on Aerospace and Electronic Systems, 1557-9603
Eduard Rohan, prof.	Archive of Applied Mechanics, 0939-1533
Michal Hajžman, assoc. prof.	Advances in Mechanical Engineering, 1687-8132
Eduard Rohan, prof.	Applications of Mathematics, 0862-7940
Jan Vimmr, prof.	Applied and Computational Mechanics, 1802-680X

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Zdeněk Ryjáček, prof.	Thomassen's and Matthews-Sumner's conjectures: beyond claw-free graphs	4th Xi'an International Workshop on Graph Theory and Combinatorics, Xi'an, China	2019
Roman Nedela, prof.	Classification of discrete groups of small genera up to the topological equivalence	4th International Conference on Group Actions and Symmetrical Graphs, keynote speaker, Shenzhen, China	2023
Tomáš Koutný, assoc. prof.	Artificial intelligence for diabetes	IEEE Symposium on Computers and Communications, Tunis, Tunisia	2023
Václav Skala, prof.	Radial basis functions: Meshless interpolation and approximation methods	7th International Conference on Computer and Information Science and Technology, Prague, Czech Republic	2022
Michal Šprlák, assoc. prof.	Advancing the theoretical apparatus of physical geodesy	27th General Assembly of the International Union of Geodesy and Geophysics, Montreal, Canada	2019

Pavel Novák, prof.	On the correct definition and use of normal heights in geodesy	General Assembly 2023 of the European Geosciences Union, Vienna, Austria	2023
Jiří Houška, prof.	Pathways for the preparation of technologically important metal oxides	37th Spring Meeting of the European Materials Research Society, Nice, France	2019
Petr Zeman, prof.	Self-formation of metastable structures in W-Zr thin-film alloys: Opportunity for advanced functional coating	13th Asian-European International Conference on Plasma Surface Engineering, Pusan, South Korea	2023
Eduard Rohan, prof.	Modelling of advection-diffusion transport in liver tissue using the homogenization approach	8th European Congress on Computational Methods in Applied Sciences and Engineering, Oslo, Norway	2022
Eduard Rohan, prof.	Homogenization of the perfusion and contrast fluid transport in the liver lobules	18th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Paris, France	2023

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Jeffrey Webb, prof.	University of Glasgow, UK	Global solutions of fractional equations via a new Gronwall inequality	2022
Stephen Robinson, prof.	Wake Forest University, Winston-Salem, USA	On the variational iteration method and its application to Klein-Gordon problems	2023
Ingo Schiermeyer, prof.	Technical University Freiberg, Germany	3-colourability, diamonds and spindle graphs	2023
Václav Křemen, assoc. prof.	Mayo Clinic, Rochester, USA	Machine learning, data management and system engineering for medical science	2023
Philippe Blache, prof.	CNRS & Aix-Marseille University, Marseille, France	Predictive coding, good-enough processing and constructions: A neuro-cognitive model for dialogue	2023
Robert Tenzer, prof.	The Hong Kong Polytechnic University, Hong Kong, China	Monitoring water storage changes by multiple geodetic techniques	2019
Jeon G. Han, prof.	Sungkyunkwan University, Seoul, South Korea	Functional thin film synthesis by plasma nano processing	2023
Michael Stingl, prof.	Friedrich-Alexander-University Erlangen-Nürnberg, Germany	A new stochastic descent method for the efficient solution of structural optimization problems with infinitely many load cases	2019

Andrii Khrabustovskyi, prof.	Technische Universität Graz, Austria	Periodic media with predefined spectral gaps	2019
Thibault Lemaire, prof.	Université Paris-Est Créteil, France	An example of bone's mechanome. Sensitivity to mechano-electrical signals: strains, microcracks, streaming potentials, piezo-electricity and flexo-electricity	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting authority/guarantor of the project/programme call	Year
Roman Nedela, prof.	ERC Consolidator Grants	European Research Council, European Commission	2019
Dalibor Fiala, assoc. prof.	EPSRC Fellowships	Engineering and Physical Sciences Research Council, UK	2020
Ivana Kolingerová, prof.	Standard, junior and bilateral projects	Czech Science Foundation	2019-2020
Pavel Novák, prof.	Standard projects	Swiss National Science Foundation	2021, 2022
Martin Střelec, PhD.	Horizon 2020 and Horizon Europe	European Commission	2019-2023
Miloš Schlegel, prof.	Expert Panel Electrical Engineering	Council for Research, Development and innovations, Czech Republic	2019-2023
Pavel Hering, PhD.	Programs Theta, Trend, Theta2	Technology Agency of the Czech Republic	2019-2023
Pavel Hering, PhD.	Standard projects	Slovak Research and Development Agency, Slovakia	2019-2023
Jindřich Duník, assoc. prof.	ERC Starting Grants	European Research Council, European Commission	2023
Jan Vimmr, prof.	Vice-chair of the evaluation panel Mechanical Engineering, member of the Discipline Committee on Technical Sciences	Czech Science Foundation	2021-2023

Note: Provide up to 10 examples

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

1. *Structural properties of classes of graphs characterized by forbidden subgraphs* (20-09525S, Czech Science Foundation, EUR 320 thousand, 2020-2023) was a project of basic research in graph theory – a field of mathematics with an overlap to theoretical computer science. Many important graph properties can be characterized in terms of forbidden induced subgraphs or become more tractable when considered in terms of such graph classes. The project focused mainly on forbidden subgraphs guaranteeing certain Hamilton-type properties, and on Hamiltonian and chromatic properties of graphs from classes defined by forbidden induced subgraphs. The outputs of the project include 22 papers in impacted journals and two international workshops organized by the team members. The results obtained extend the knowledge in the area in several aspects: several novel proof techniques (e.g., special closure operations for Hamilton-type properties, or techniques for handling Hamilton-type properties in line graphs of hypergraphs) have been developed and used to prove results related to long-standing open problems. Equivalent versions of Thomassen's conjecture have been developed, characterizations of families of forbidden subgraphs guaranteeing certain Hamilton-type properties and graph colouring properties have been proved, etc. Presumed applications of the obtained results will be mainly in subsequent research of other authors, and potentially also in development of algorithms that are efficient for graphs from special classes, although these problems are algorithmically very difficult in general.

2. *Digital urban European twins for smarter decision making* (870697, Horizon 2020, EUR 4.5 mil., 2020-2022) provided cost-effective virtual city replicas which made it easy to understand the complex interrelation between traffic, air quality, noise and other urban factors. Powerful analytics model the expected impacts of potential changes to help public authorities make better evidence-based operational decisions and longer-term policy choices. Acting as a container for models, data and simulations, applied architecture facilitates the flow of information from diverse static, historic, open, and real-time data sources, translating it into easily digestible output and insights for smart city decision-makers. As more and more cities begin to realize the full potential of urban data and digital technologies, digital twins offer more opportunities to drive sustainable growth and competitiveness, in Europe and beyond. Stakeholders can engage in a meaningful discussion to explore and co-create effective policy interventions in the key Horizon 2020 target areas of

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

transportation, environment, and health. In this respect, digital twins act as a conversation starter, an enabler of two-way policy dialogue that brings citizens closer to smart cities.

3. *Challenging environments tolerant smart systems for IoT and AI* (876362, Horizon Europe, EUR 371 thousand, 2020-2023) was a large-scale project with 37 partners from 10 European countries. The research team from FAS together with another project participant from the Czech Republic, ÚJV Řež, carried out research and development of a non-standard robotic system for specific use in the field of non-destructive testing of welded pipe joints in the environment of nuclear power plants. Based on the requirements of the main investigator, FAS developed both a special robot architecture and advanced robot motion control, so that the robot could be used for testing welds of complex geometries, which could only be carried out manually until now. Robotization of the testing process brings a fundamental increase in accuracy in this regard, and especially in the repeatability of performing non-destructive tests. The key benefit was the implementation of intuitive robot control, which, due to its ergonomics, allows the robot to be programmed directly by operators in the field of non-destructive testing. In the project under consideration, the research team demonstrated the possibilities of research and development of non-standard robotic solutions for highly specialized applications in which it is very difficult or even impossible to use commercial solutions in the form of available industrial robots. It should be emphasized that existing manual, semi-automatic or fully automatic solutions for non-destructive testing of welded joints do exist, however, their customization or expansion for specific or complex tasks is essentially impossible due to the closed nature of the solutions of leading manufacturers. In close cooperation with specialists in the field of non-destructive testing established and further deepened within the CHARM project, the FAS team could expand its portfolio of turnkey robotic solutions to streamline implementation of non-destructive testing in a key area of the energy sector.

4. *Advanced algorithms and techniques for resilient time provision* (NAVISP-EL1-056, European Space Agency, EUR 81 thousand, 2022-2023) dealt with the development of a device for a combination of outputs of multiple time source units (particularly, caesium and H-maser clocks)) to provide one superior ensemble time scale. The ensemble (or composite) time scale outperforms any of the clocks in terms of accuracy and stability, and, in the end, it may co-define the global time scale. The accurate and resilient composite time scale is truly essential for today's society as it affects almost all aspects, from telecommunication and navigation services to power distribution and financial transactions. The time synchronization device with software and hardware components has been developed for the Time Laboratory of the European Space Agency under NAVISP call by the researchers and scientists from HULD company and FAS. HULD is the main contractor, and FAS is the subcontractor. Within the project, the HULD team developed the hardware of the clock synchronization device. The FAS team was responsible for the software and algorithmic part and developed algorithms for clock combination, identification, and fault detection. State-of-the-art algorithms have been implemented, and novel methods for identification and detection have been developed. The performance of the developed device was successfully verified in a series of nominal and faulty scenarios at the premises of the ESA Time Laboratory, and the conclusion was that it is a unique device across all European time laboratories. The device can produce the composite time scale with sub-picosecond accuracy. The long-term measurement and verification campaign is currently being planned.

5. *Automatic voice banking and reconstruction for patients after total laryngectomy* (TH02010307, Technology Agency of the Czech Republic, EUR 134 thousand, 2017-2020) significantly contributed to an innovative solution in the field of automatic voice preservation and reconstruction, especially in patients after total laryngectomy. The developed tools – from sentence databases with appropriate phonetic coverage, through applications for supervised and unsupervised voice

recording to modules for automatic creation of voice inventories and models – created a comprehensive platform that allows users to easily and without visiting a specialized workplace to preserve their unique voice identity even in the event of loss of the vocal cords. The application potential is significant – the resulting technology can be directly used in the clinical practice and other healthcare facilities. It helps patients preserve their own voice identity and really improve their quality of life and social integration, which has significant social, psychosocial and rehabilitation benefits. The social impact goes beyond the healthcare sector – there is a potential to extend the solution to other target groups who may lose their voice for various reasons, whether due to illness or injury, or to users with other communication problems. The project significantly fulfilled the university's mission by connecting cutting-edge research with real-world practice in various fields (healthcare, informatics, artificial intelligence, speech technologies or linguistics). The research team was highly interdisciplinary – it connected experts from the academic (FAS as the main investigator of the project) and medical (Faculty of Medicine of Charles University in Prague and Motol University Hospital) environment with experts from the private sector (CertiCon and SpeechTech). This broad interdisciplinary team could comprehensively address the automatic voice preservation, from the quality of obtained recordings, through data validation and processing, to the final voice synthesis tailored to the individual needs of patients.

6. Lightweight switchable smart solutions for energy saving large windows and glass facades – Switch2Save (869929, Horizon 2020, EUR 281 thousand, 2019-2023,) was an international project in the framework of Innovation Action, involving 11 European partners (from academia and industry) and coordinated by Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology in Dresden. The project focused on the development of advanced technologies for the preparation of new thin-film materials applied to glass-based building components with aim to significantly reduce the energy consumption required for air conditioning and ventilation in buildings during the summer season. Electrochromic (EC) and thermochromic (TC) systems have been selected as suitable candidates for creating lightweight energy smart insulating glass units. While EC systems rely on materials that change their light transmittance by applying a low electrical voltage, TC systems are based on smart materials that change their infrared reflection properties with increasing temperature. The research team at FAS, leveraging their extensive expertise in the synthesis and properties of strongly thermochromic VO₂-based coatings, focused on developing these coatings on ultrathin (0.1 mm) flexible glass at reduced temperatures (below 350 °C). A key milestone was the successful transfer of this technology from a laboratory setup (sample size: 25 × 50 mm²) at FAS to a large-scale roll-to-roll device compatible with industrial production (dimensions of the moving roll of flexible glass: 0.3 × 6 m) at the Fraunhofer Institute in Dresden. This objective was successfully achieved and the research team at FAS made significant contributions to the overall success of the project.

7. Intelligent motion control under Industry 4.E (ECSEL-2020-2-RIA, Horizon Europe, EUR 218 thousand, 2021-2023) was a large-scale project with 46 partners from 13 EU countries. The project consortium included large companies (e.g., Philips, Siemens, Analog Devices, Nexperia), innovative SMEs (ITML, Emdalo, Reden, IMST, SOCe) and major research institutions (TU/e, Fraunhofer, Tyndall, VTT). The main objective of the project was to develop vertically distributed edge-to-cloud intelligence for machines, robots and other cyber-physical systems that contain actively controlled moving elements. These systems face ever-increasing demands for long-term energy efficiency, size, speed of movement, accuracy, adaptability, self-diagnosis, safe integration or new cognitive functions with respect to humans. The two main pillars of the project were digital twins and the principles of artificial intelligence (machine/deep learning). The subsequent mission of the project is to bring adequate "edge" intelligence to the instrumentation and control layer, analyse and process machine data at the appropriate levels of feedback control loops, and synchronize digital twins with either the simulated or real physical world. Artificial intelligence techniques can be used

at all levels. The final applications were in the areas of semiconductor industry, packaging machines, industrial robotics, and smart healthcare. The FAS team was responsible for the preparation of the entire project, played the role of technical coordinator, leading the key integration package of WP6 and the main results of BB7 (building block - smart servo-converter with vertically distributed control - repetitive control) and Use Case 4 - modular robotic platform and its advanced control. It also contributed to the library of smart control algorithms and wireless industrial.

8. Cognitive system development for automatic robot guidance in 7D for laser hardening, welding, cladding and cutting (FV10668, Czech Ministry of Industry and Trade, EUR 55 thousand, 2016-2019) was carried out in cooperation with LaserTherm (main beneficiary) in the total extent of CZK 11.8 mil. The project was focused on the research and development of advanced methods for identifying the 7D trajectory of robotic systems in the task of laser hardening, welding, surfacing and cutting. The aim of the project was to significantly reduce the preparation time of laser technologies using the proposed methods and thus increase the productivity of currently used robotic systems. The research of methods and algorithms was focused primarily on the detection of objects in the robot's workspace, recognition and digitization of workpieces, identification of subject parts (edges, holes) of workpieces to be machined and on the generation of a control code for a specific robotic platform. The main results of the project are SW, prototype and pilot operation of a system for detection and identification of machine parts. The results were successfully applied in practice in cooperation with LaserTherm. The integration of high-power laser technologies combined with the project results significantly facilitates the implementation of modern laser methods in commercial contracts. The absence of complex robot programming has increased the interest of companies in robotics technology, while increasing LaserTherm's competitiveness on the local and international markets. For the effective development of the commercial use of a combination of robotic and laser technologies, the cognitive module for automatic trajectory generation has a significant impact. LaserTherm generated sales of CZK 32.4 mil. between 2020 and 2022 using the project results. LaserTherm further distributes the results of the project in the form of integration into single-purpose laser production facilities through its systems division.

9. Turbo machinery retrofits enabling flexible back-up capacity for the transition of the European energy system (764545, Horizon 2020, EUR 282 thousand, 2017-2019) with a total support of EUR 8.4 mil. brought together a total of 29 academic institutions and industrial companies under the leadership of General Electric Deutschland Holding to address the challenges of flexible energy. The aim of the project was to use the installed fossil capacity to provide backup energy for higher use of renewable resources in the power grid. Technologies developed within the Turbo-Reflex project have reduced the minimum load, increased start-up speed and reduced production cycle costs. This has been achieved through new compressor designs for off-the-design operability, technologies in the hot gas, combustion unit and turbine paths, and new materials models and sensors to monitor and ensure mechanical integrity in flexible operation. The main result developed at FAS is the HCF Analysis Tool software for high-cycle fatigue (HCF) analysis of steam turbine blades. It enables the monitoring of HCF during changes in operating parameters (e.g., power, pressure) in the design and non-design operating states of the turbine, even newly developed blades that do not yet have a sufficient operational reference. The HCF Analysis Tool became part of the Turbo Life Care System platform at Doosan Škoda Power which is a monitoring and diagnostic platform for steam turbines. The use of the result brings customers a significant benefit in the form of the potential to reduce downtime or extend the time between turbine shutdowns regarding the information on the condition of the blades obtained thanks to the HCF Analysis Tool.

10. *Nonlinear acoustics and transport processes in porous periodic structures* (GA21-16406S, Czech Science Foundation, EUR 235 thousand, 2021-2023) was a basic research project in the field of applied mechanics that was concerned with the multi-time scale modelling of nonlinear phenomena related to acoustic wave propagation in periodic porous structures. Besides mechanical fluid-structure interaction, the mass-heat transfer was examined in the context of acoustic streaming influenced by temperature gradients and deforming solid scaffolds containing piezoelectric components and resonating tuneable parts. Microstructure geometry, interface roughness, porosity and cavitation have been respected to model mass and/or heat fluxes in response to acoustic waves. Using analytical and numerical methods based on the perturbation theory and time-space homogenization, multi-scale models were derived and implemented to provide computational basis for simulations of the above-mentioned effects and to optimize the composition and geometry of periodic scaffolds. Algorithms for reduced order modelling have been developed to allow for efficient treatment of the slowly evolving dynamic systems driven by acoustic waves. The research outputs contributed to improved designs of thermo-acoustic engines.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
Ministry of Education, Youth and Sports (MEYS), CZ	Sustainability support of the centre NTIS – New Technologies for the Information Society (LO1506)	49,898/ 1,968,363	27,046/ 1,066,903			
MEYS, CZ	Exploitation of virtual human model for reducing injury risk of PTW riders (LTC17001)	251/ 9,901				
MEYS, CZ	Multi-modal interface based on gestures, speech and sign language for control of an assistive mobile information robot (LTARF18017)	2,612/ 103,037	2,050/ 80,868	414/ 16,331		
MEYS, CZ	Internal doctoral educational grant (IDEG-IND-2021-002)			222/ 8,757	537/ 21,183	
MEYS, CZ	Internal doctoral educational grant (IDEG-IND-2021-007)			182/ 7,179	577/ 22,761	
MEYS, CZ	Internal doctoral educational grant (IDEG-2021-009)			263/ 10,375	799/ 31,519	
MEYS, CZ	Internal doctoral educational grant (IDEG-2021-027)			425/ 16,765	637/ 25,128	
MEYS, CZ	Framework of key enabling technologies for safe and autonomous drones' applications (8A19004)	161/ 6,351	2,450/ 96,647	2,490/ 98,225	1,991/ 78,540	12/ 473

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

MEYS, CZ	Challenging environments tolerant smart systems for IoT and AI (8A20013)		1,603/ 63,235	2,671/ 105,365	2,868/ 113,136	2,261/ 89,191
MEYS, CZ	Smart, digitalized components and systems for data-based agriculture and forestry (9A22008)					3,764/ 148,481
MEYS, CZ	Optimization of electric vehicle autonomy (9A22007)					1,768/ 69,744
European Regional Development Fund, EU	Research and development of intelligent components of advanced technologies for the Pilsen Metropolitan Area (CZ.02.1.01/0.0/0.0/17_048/0007267)	16,740/ 660,355	16,259/ 641,381	18,628/ 734,832	23,773/ 937,791	
European Regional Development Fund, EU	Research cooperation for higher efficiency and reliability of blade machines (CZ.02.1.01/0.0/0.0/16_026/0008389)	2,391/ 94,320	3,633/ 143,314	4,747/ 187,258	7,266/ 286,627	
European Regional Development Fund, EU	Application of modern technologies in medicine and industry (CZ.02.1.01/0.0/0.0/17_048/0007280)	5,100/ 201,183	5,276/ 208,126	6,130/ 241,815	6,879/ 271,361	
European Regional Development Fund, EU	Quantum materials for applications in sustainable technologies (CZ.02.01.01/00/22_008/0004572)					2,437/ 96,134
Czech Science Foundation (GACR)	Active approach to fault diagnosis in stochastic large-scale systems (18-08531S)	1,061/ 41,854	1,074/ 42,367	81/ 3,195		
GACR	Experimental and computational modelling of free-surface flow of non-Newtonian fluids with dispersed particles (18-25734S)	1,253/ 49,428	1,204/ 47,495	154/ 6,075		
GACR	Theory of processing higher-order geopotential gradients and their applications in geodesy (18-06943S)	1,008/ 39,763	871/ 34,359			
GACR	Modern geometric-numerical methods in simulation of incompressible turbulent flow for large-scale real-world problems (19-04006S)	2,274/ 89,704	2,344/ 92,465	2,180/ 85,996	574/ 22,643	
GACR	Fully trainable deep neural network based Czech text-to-speech synthesis (19-19324S)	1,880/ 74,162	1,912/ 75,424	1,814/ 71,558	171/ 6,746	
GACR	Dynamic and nonlinear behaviour of smart structures; modelling and optimization (19-04956S)	1,383/ 54,556	1,383/ 54,556	1,477/ 58,264	186/ 7,337	

GACR	Advanced hydrogen-gas sensing nanomaterials with a tailored architecture (19-13174S)	1,490/ 58,777	1,417/ 55,897	1,490/ 58,777		
GACR	Design of novel functional materials, and pathways for their reactive magnetron sputtering, using advanced computer simulations (19-14011S)	1,581/ 62,367	1,631/ 64,339	1,712/ 67,535		
GACR	Differential equations with special types of nonlinearities (18-03253S)	2,667/ 105,207	2,116/ 83,471			
GACR	Rough models of fractional stochastic volatility (18-16680S)	700/ 27,613	700/ 27,613	27/ 1,065		
GACR	Representation and processing methods for three dimensional dynamic shapes (20-02154S)		1,013/ 39,961	1,316/ 51,913	1,376/ 54,280	
GACR	Structural properties of graph classes characterized by forbidden subgraphs (20-09525S)		2,516/ 99,250	2,399/ 94,635	2,562/ 101,065	637/ 25,128
GACR	Regularity properties of mappings and applications (20-11164L)		825/ 32,544	794/ 31,321	775/ 30,572	152/ 5,996
GACR	Intelligent distributed estimation architectures (20-06054J)		1,996/ 78,738	2,000/ 78,895	2,082/ 82,130	
GACR	Fast flow-field prediction using deep neural networks for solving fluid-structure interaction problems (21-31457S)			1,293/ 51,006	1,378/ 54,359	1,519/ 59,921
GACR	Nonlinear acoustics and transport processes in porous periodic structures (21-16406S)			1,802/ 71,085	2,055/ 81,065	2,095/ 82,643
GACR	High-performance thermochromic VO ₂ -based coatings with a low transition temperature prepared using reactive pulsed plasmas (21-28277S)			2,230/ 87,968	2,230/ 87,968	2,230/ 87,968
GACR	Uncertainty estimates for integral transformations in geodesy (21-13713S)			1,718/ 67,771	2,222/ 87,653	2,763/ 108,994
GACR	Generalized symmetries and equivalences of geometric data (21-08009K)			1,489/ 58,738	1,907/ 75,227	1,839/ 72,544
GACR	Nonlinear problems with non-standard diffusion (22-18261S)				2,144/ 84,576	2,499/ 98,580
GACR	Tensor decomposition in active fault diagnosis for stochastic large-scale systems (22-11101S)				1,303/ 51,400	1,511/ 59,606

GACR	Transformers of multiple modalities for more natural spoken dialog (22-27800S)				2,074/ 81,815	2,183/ 86,114
GACR	Novel functional thin-film materials based on metallic glasses and dual-phase structure (22-18760S)				2,056/ 81,105	2,056/ 81,105
GACR	Advanced nanostructured metal coatings with superior mechanical properties and high thermal stability (23-07924I)					1,266/ 49,941
GACR	Identification and compensation of imperfections and friction effects in joints of mechatronic systems (23-07280S)					1,446/ 57,041
GACR	Ellipsoidal modelling of planetary gravitational fields (23-07031S)					1,386/ 54,675
GACR	Data compression paradigm based on omitting self-evident information (23-04622L)					1,364/ 53,807
GACR	Flexoelectric periodic structures for fluid transport and energy harvesting (23-06220S)					1,201/ 47,377
GACR	Meshless methods for large scattered spatio-temporal vector data visualization (17-05534S)	762/ 30,059				
GACR	Methods of identification and visualization of tunnels for flexible ligands in dynamic proteins (17-07690S)	587/ 23,156				
GACR	Nanostructured coatings synthesized using highly reactive pulsed plasmas (17-08944S)	1,577/ 62,209				
GACR	Nonlinear dynamics of rotating systems considering fluid film instabilities with the emphasis on local effects (17-15915S)	1,241/ 48,955				
Ministry of Culture, CZ	Development of the centralized interface for the web content and social networks data mining (DG18P02OVV016)	1,677/ 66,154	1,677/ 66,154	1,646/ 64,931	1,813/ 71,519	
Ministry of Culture, CZ	Digital archive of the NKVD/KGB files related to Czechoslovakia (DG20P02OVV018)		2,060/ 81,262	2,846/ 112,268	3,355/ 132,347	
Ministry of Culture, CZ	The database of the historical sources concerning political repressions against Czechoslovakian citizens and compatriots in the Soviet Union (DH23P03OVV073)					2,687/ 105,996

Ministry of Culture, CZ	System for permanent preservation of documentation and presentation of historical sources from the period of totalitarian regimes (DG16P02B048)	2,231/ 88,008				
Ministry of Culture, CZ	Access to a linguistically structured database of enquiries from the Language Consulting Centre (DG16P02B009)	2,006/ 79,132				
Ministry for Regional Development, CZ	Modern access to historical sources (211)	125/ 4,931	148/ 5,838	70/ 2,761		
Ministry for Regional Development, CZ	Screw motor research and development (90)	34/ 1,341	34/ 1,341	21/ 828		
Ministry for Regional Development, CZ	Use of modern information technologies for neurorehabilitation of patients with acquired brain damage (191)	67/ 2,643	136/ 5,365	160/ 6,312	77/ 3,037	
Ministry for Regional Development, CZ	Industry 4.0 without borders (24)	9/ 355				
Ministry for Regional Development, CZ	OptiPro4.0: Optimization of industrial processes – Industry 4.0 in the Bavarian-Czech border area (91)	7/ 276				
Ministry for Regional Development, CZ	CrossEnergy: Cross-border energy infrastructure – visions for a changing region (36)	39/ 1,538				
Ministry for Regional Development, CZ	Virtual human model for prevention, treatment and rehabilitation of shoulder disease (38)	101/ 3,984				
Ministry for Regional Development, CZ	Peregrinus Silva Bohemica – Multimedia and digital tourist guide for cross-border historical routes in the Bavarian Forest and Šumava (60)	408/ 16,095		0.3/ 12		
Ministry for Regional Development, CZ	A brainwave-controlled computer assistance system for people with limited momentum (85)	89/ 3,511	5/ 197			
Ministry of Industry and Trade, CZ	Energy consultation and information center					86/ 3,393
Technology Agency of the Czech Republic (TACR)	Secure power flexibility for grid control and market purposes (TK01030078)	3,459/ 136,450	3,279/ 129,349	3,306/ 130,414	2,459/ 97,002	2,458/ 96,963
TACR	UWB commercial opportunities support II (TP01010042)		922/ 36,371	1,038/ 40,947	817/ 32,229	

TACR	Optimizing the use of real estate in the municipality's property (TL02000373)	280/ 11,045	281/ 11,085	123/ 4,852		
TACR	Automatic voice banking and reconstruction for patients after total laryngectomy (TH02010307)	1,700/ 67,061	1,700/ 67,061			
TACR	National set of spatial objects (TITIMV706)	312/ 12,308				
TACR	National set of spatial objects (TITIMV706IP01)		2,848/ 112,347	2,234/ 88,126		
TACR	Development of technology to automate the creation of seamless maps and automated OCR indexing (TIROCUZK918)		859/ 33,886	783/ 30,888		
TACR	Innovative approaches to mathematical traffic modelling for sustainable development of cities and regions (CK01000096)		1,246/ 49,152	1,812/ 71,479	1,891/ 74,596	
TACR	Detection, identification and monitoring of animals by advanced computer vision methods (SS05010008)				1,391/ 54,872	1,824/ 71,953
TACR	Modern methods for shape optimization of Francis turbines (TK04020250)				2,632/ 103,826	2,674/ 105,483
TACR	Centre of advanced nuclear technology II (TN02000012)					4,403/ 173,688
TACR	Centre for advanced machines and manufacturing technology (TN02000028)					2,223/ 87,692
TACR	Data science tools for the regulatory domain (TK05010177)					1,406/ 55,464
TACR	Telemedicine self-examination of speech and memory for rapid detection of cognitive impairments using machine learning methods (TQ01000332)					606/ 23,905
TACR	Centre for advanced nuclear technologies (TE01020455)	1,905/ 75,148				
TACR	Centre for intelligent drives and advanced machine control (TE02000103)	3,900/ 153,846				
MEYS, CZ	Czech national infrastructure for biological data			60/ 2,367		
Pilsen Region, CZ	Cyber summer training for advanced students (PUM/2023/10)					90/ 3,550

European Regional Development Fund, EU	Modern access to historical sources (211)	2,081/ 82,091	2,551/ 100,631	1,181/ 46,588	4/ 158	
European Regional Development Fund, EU	Screw motor research and development (90)	578/ 22,801	576/ 22,722	362/ 14,280		
European Regional Development Fund, EU	Use of modern information technologies (191)	1,408/ 55,542	2,366/ 93,333	2,858/ 112,742	1,346/ 53,097	
European Regional Development Fund, EU	CrossEnergy: Cross-border energy infrastructure — visions for a changing region (36)	1,463/ 57,712		20/ 789		
European Regional Development Fund, EU	Peregrinus Silva Bohemica – Multimedia and digital tourist guide for cross-border historical routes in the Bavarian Forest and Šumava (60)	8,434/ 332,702				
ELIXIR Hub, CZ	Transfer and development of cancer sequencing data analysis to Faculty of medicine in Pilsen, Charles University with focus on single cells (CZ-2019-SEP-18)		1/ 39			
Air Force Office for Scientific Research, US	Nonlinear estimation framework for optimized target tracking, estimation, and self-assessment (FA9550-16-1-0511)	1,844/ 72,742				
Office of Naval Research Global, US	Anticipative point-mass method for high-performance estimation and navigation (N62909-20-1-2073)			506/ 19,961	830/ 32,742	
Total		130,774/ 5,158,738	100,008/ 3,945,089	79,174/ 3,123,235	87,037/ 3,433,412	54,846/ 2,163,550
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
MEYS, CZ	Digital research infrastructure for language technologies, arts and humanities (LM2018101)	1,368/ 53,964	4,009/ 158,146	3,878/ 152,978	4,073/ 160,671	
MEYS, CZ	Digital research infrastructure for language technologies, arts and humanities (LM2023062)					3,539/ 139,606

²⁷ Ibid.

MEYS, CZ	Czech national infrastructure for biological data (LM2018131)		1,770/ 69,822	1,552/ 61,223	1,612/ 63,590	
MEYS, CZ	Czech national infrastructure for biological data (LM2023055)					1,845/ 72,781
MEYS, CZ	The study of climate change on honeybee colonies through biological analysis and artificial intelligence (LUAUS23128)					697/ 27,495
MEYS, CZ	Language research infrastructure in the Czech Republic (LM2015071)	1,236/ 48,757				
European Regional Development Fund, EU	Research infrastructure for language technologies – extension of the repository and its computational power (CZ.02.1.01/0.0/0.0/16_013/0001781)	486/ 19,172				
European Regional Development Fund, EU	Artificial intelligence and reasoning (CZ.02.1.01/0.0/0.0/15_003/0000466)	1,731/ 68,284	1,700/ 67,061	1,550/ 61,144	1,626/ 64,142	928/ 36,607
European Regional Development Fund, EU	Robotics for industry 4.0 (CZ.02.1.01/0.0/0.0/15_003/0000470)	718/ 28,323	596/ 23,511	607/ 23,945	617/ 24,339	405/ 15,976
European Regional Development Fund, EU	Extension of the repository, services and computing cluster of the research (CZ.02.1.01/0.0/0.0/18_046/0015782)		40/ 1,578	0.13/ 5	400/ 15,779	
European Regional Development Fund, EU	Implementation of Regional Action Plan 2 in the Karlovy Vary region (CZ.02.3.68/0.0/0.0/19_078/0017823)			76/ 2,998	148/ 5,838	204/ 8,047
GACR	Graph covers: symmetries and complexity (20-15576S)		886/ 34,951	1,209/ 47,692	1,315/ 51,874	
GACR	Study of dynamic stall flutter instabilities and their consequences in turbomachinery application by mathematical, numerical and experimental methods (20-26779S)		1,329/ 52,426	1,341/ 52,899	1,416/ 55,959	
GACR	Mechatronic tensegrities for energy efficient light robots (20-21893S)		807/ 31,834	1,095/ 43,195	1,166/ 45,996	
GACR	Prosodic phrase in current spoken Czech: meaning, balance, stochastic patterns (21-14758S)			558/ 22,012	627/ 24,734	660/ 26,036
GACR	Thermo-hydrodynamic effects of boundary slip and surface texturing in sliding contacts (22-29874S)				1,197/ 47,219	1,286/ 50,730

GACR	Controllable metamaterials and smart structures: Nonlinear problems, modelling and experiments (22-00863K)				809/ 31,913	1,417/ 55,897
GACR	Ab-initio guided investigation of refractory metal-based high entropy ceramic coatings (23-05947S)					616/ 24,300
GACR	Fluid acoustics in periodic micro-architectures (17-01618S)	832/ 32,821				
GACR	Ramsey-like aspects of graph colouring (17-04611S)	454/ 17,909				
GACR	Strength of materials and mechanical components based on iron: multi-scale approach (17-2925S)	110/ 4,339				
Czech Ministry of Industry and Trade	Multimodal identification, authorization and verification of persons (CZ.01.1.02/0.0/0.0/17_107/0012507)		2,267/ 89,428			
Czech Ministry of Industry and Trade	New technology for intelligent robot's motion planning in industrial processes (FV20597)	2,650/ 104,536	2,740/ 108,087	1,937/ 76,410		
Czech Ministry of Industry and Trade	Research and development of novel pulsed plasma technologies for deposition of advanced thin-film materials (FV30177)	1,000/ 39,448	900/ 35,503	100/ 3,945		
Czech Ministry of Industry and Trade	Braided composite construction in electrical engineering (FV30382)	855/ 33,728	855/ 33,728	465/ 18,343		
European Regional Development Fund, EU	Research and development of intelligent robotic technology to automate the production of power tube cathodes and grid (CZ.01.1.02/0.0/0.0/15_019/0004569)	1,978/ 78,028				
Czech Ministry of Industry and Trade	Advanced control platform for intelligent machines and robots (FV10427)	1,955/ 77,120				
Czech Ministry of Industry and Trade	Research and development of advanced collaborative robotic platform and its application in manufacturing of electronic components (FV10044)	2,185/ 86,193				
Czech Ministry of Industry and Trade	Cognitive system development for automatic robot guidance in 7D for laser hardening, welding, cladding and cutting (FV10668)	1,392/ 54,911				

European Regional Development Fund, EU	Research and development of an intelligent care system in social services using assistive technologies (CZ.01.1.02/0.0/0.0/17_176/0015556)	200/ 7,890	855/ 33,728	96/ 3,787		
European Regional Development Fund, EU	Research of neural networks and application of its results for software development solutions for digitization of cultural heritage (CZ.01.1.02/0.0/0.0/19_262/0019716)		468/ 18,462	913/ 36,016	1,558/ 61,460	
European Regional Development Fund, EU	Research and development of an intelligent PAS system for health protection in the workplace and improvement of working conditions (CZ.01.1.02/0.0/0.0/19_262/0020048)		213/ 8,402	766/ 30,217	1,697/ 66,943	
European Regional Development Fund, EU	Artificial intelligence for extracting structured data from archival documents (CZ.01.01.01/01/22_002/0000463)					638/ 25,168
European Regional Development Fund, EU	Edge computing and deep learning for traffic data collection and vehicle identification (CZ.01.01.01/06/23_014/0001360)					491/ 19,369
European Regional Development Fund, EU	Real-time tool for describing audiovisual data using artificial intelligence (CZ.01.01.01/01/22_002/0000974)					948/ 37,396
European Regional Development Fund, EU	Advanced recognition and extraction of handwritten texts using neural networks (CZ.01.1.02/0.0/0.0/20_321/0024760)			949/ 37,436	787/ 31,045	750/ 29,586
European Regional Development Fund, EU	Innovation of technologies and processes for the development of a modular e-shop (CZ.01.1.02/0.0/0.0/20_324/0023584)			323/ 12,742	553/ 21,815	9/ 355
European Regional Development Fund, EU	Research and development of ICZ, a.s. in the use of artificial intelligence in the processing of medical records (CZ.01.1.02/0.0/0.0/20_321/0024835)			611/ 24,103	3,111/ 122,722	1,269/ 50,059
European Regional Development Fund, EU	Advanced methods for subtitling and archivation of TV broadcasts and documents (CZ.01.1.02/0.0/0.0/15_019/0004983)	1,129/ 44,536				
Czech Ministry of Industry and Trade	Development of processes applicable to development and production of components for the space industry (FV10400)	960/ 37,870				
European Regional Development Fund, EU	Strength calculations (CZ.01.1.02/0.0/0.0/16_054/0009202)	566/ 22,327				
European Regional Development Fund, EU	Multimodal identification, authorization and verification of persons (CZ.01.1.02/0.0/0.0/17_107/0012507)	1,682/ 66,351				

European Regional Development Fund, EU	DMS new generation (CZ.01.1.02/0.0/0.0/21_374/002676)				2,210/ 87,179	793/ 31,282
Czech Ministry of Interior	Robust processing of recordings for operations and security (VJ01010108)		876/ 34,556	3,941/ 155,464	3,656/ 144,221	4,218/ 166,391
Czech Ministry of Health	Polymorphisms in the NK cells receptors and their ligands within the Czech population (NV18-03-00277)	975/ 38,462	1,000/ 39,448	1,011/ 39,882		
TACR	Centre for Applied Cybernetics 3 (TE01020197)	2,849/ 112,387				
TACR	National competence centre for cybernetics and artificial intelligence (TN01000024)	7,814/ 308,245	7,814/ 308,245	5,320/ 209,862	3,370/ 132,939	
TACR	Robot for inspection and diagnostics of the transmission and distribution networks (TH02020319)	697/ 27,495	693/ 27,337			
TACR	Composite insulating constructions in electrical engineering (TH03020355)	828/ 32,663	828/ 32,663			
TACR	Using the model checking for testing of I&C systems in nuclear power engineering (TK01020068)	2,195/ 86,588	2,242/ 88,442	2,206/ 87,022		
TACR	Transformation of journalism ethics in the advent of artificial intelligence (TL02000288)	1,223/ 48,245	1,259/ 49,665	1,371/ 54,083		
TACR	National centre for energy (TN01000007)	1,674/ 66,036	2,759/ 108,836	1,289/ 50,848		
TACR	Research and development of advanced technologies to increase the efficiency of in-service inspections of NPP components using advanced robotic technologies with intuitive positioning programming (TK02020142)	600/ 23,669	1,824/ 71,953	2,392/ 94,359	2,829/ 111,598	
TACR	Lightweight axial fan blade for harsh operating conditions (FW01010153)		1,265/ 49,901	1,422/ 56,095	1,403/ 55,345	404/ 15,937
TACR	Artificial intelligence, media and law (TL03000152)		271/ 10,690	539/ 21,262	1,091/ 43,037	1,020/ 40,237
TACR	Smart metering 4 regulators and society (TK03010175)		463/ 18,264	901/ 35,542	1,208/ 47,653	
TACR	Smart flow meters for engine compartment and other industrial applications (FW03010199)			1,050/ 41,420	1,106/ 43,629	1,055/ 41,617

TACR	Development of the method of autonomous laser modification of surfaces for the purpose of cleaning and structuring of parts in the automotive, railway, aviation and energy industry (FW03010452)			1,941/ 76,568	1,984/ 78,264	1,984/ 78,264
TACR	Using a multimedia monolingual dictionary for modern teaching of Czech (TL05000546)			583/ 22,998	984/ 38,817	1,027/ 40,513
TACR	Therapeutic rehabilitation robot controlled by brain signals (FW03010025)			1,359/ 53,609	1,449/ 57,160	1,410/ 55,621
TACR	Flexible robotic workplace for small series production (FW03010501)			2,500/ 98,619	2,936/ 115,819	2,589/ 102,130
TACR	Advanced robotics for non-destructive inspection in harsh environments (TM03000049)				811/ 31,992	1,607/ 63,393
TACR	Smart grippers and workpiece holder for collaborative robotics in smart factories (TM03000018)				2,763/ 108,994	4,104/ 161,893
TACR	Dynamic digital street model for the usage of autonomous mobility in Pilsen (CK03000179)				2,203/ 86,903	2,554/ 100,750
TACR	Technological demonstrator – radiation orbital monitor based on the Spacepix sensor (TH04010294)				150/ 5,917	
TACR	Improving the reliability of steam turbine operation considering radial bearings life (TK04020057)				1,413/ 55,740	1,318/ 51,992
TACR	Decentralized control of distribution system (TK04020195)				1,195/ 47,140	2,956/ 116,607
TACR	Online monitoring of the operating condition and evaluation of the service life of industrial fan blades (TK04020200)				1,197/ 47,219	1,240/ 48,915
TACR	Development of a proven technology of a robotic workplace for non-contact measurement of car windows (FW06010545)					670/ 26,430
TACR	Advanced AI-based robotics of complex industrial component inspection and assembly and its demonstration applications (TM04000031)					3,515/ 138,659

TACR	Design of a high-speed ring spindle using a digital twin (FW06010052)					2,558/ 100,907
TACR	Robust navigation system (TM04000019)					2,681/ 105,759
TACR	Research and development of new applications of fibrous materials with functional properties (FW06010192)					540/ 21,302
TACR	Thin-film strain gauge with high sensitivity and durability prepared by magnetron sputtering (FW06010462)					810/ 31,953
TACR	National centre for energy II (TN02000025)					597/ 23,550
TACR	Božek vehicle engineering national centre of competence (TN02000054)					937/ 36,963
TACR	Advanced sensors and sensor data processing methods (TE02000202)	2,000/ 78,895				
TACR	Reliable time-sensitive networks in distributed cyber-physical systems for real-time control Industry 4.0 applications (TF04000048)	882/ 34,793				
TACR	Centre of research and experimental development of reliable energy production (TE01020068)	2,460/ 97,041				
TACR	Unified exchange format digital technical maps (TITSMV705)	592/ 23,353				
Research and Innovation programme, Horizon 2020, EU	Intelligent motion control platform for smart mechatronic systems (737453)	1,700/ 67,061	2,230/ 87,968			
Research and Innovation programme, Horizon 2020, EU	Turbomachinery retrofits enabling flexible back-up capacity for the transition of the European energy system (764545)	1,427/ 56,292	2,567/ 101,262	756/ 29,822		
Research and Innovation programme, Horizon 2020, EU	From the cloud to the edge – smart integration and optimization technologies for highly efficient image and video processing systems (783162)	307/ 12,110	595/ 23,471	657/ 25,917		
Research and Innovation programme, Horizon 2020, EU	Aggregate farming in the cloud (783221)	971/ 38,304	2,228/ 87,890	2,383/ 94,004	298/ 11,755	

Research and Innovation programme, Horizon 2020, EU	Lightweight switchable smart solutions for energy saving large windows and glass façades (869929)		3,205/ 126,430	2,322/ 91,598	937/ 36,963	148/ 5,838
Research and Innovation programme, Horizon 2020, EU	Framework of key enabling technologies for safe and autonomous drones' applications (826610)	24/ 947	1,800/ 71,006	1,236/ 48,757	1,355/ 53,452	6/ 237
Research and Innovation programme, Horizon 2020, EU	Digital urban European twins for smarter decision making (870697)	51/ 2,012	702/ 27,692	1,069/ 42,170	569/ 22,446	
Research and Innovation programme, Horizon 2020, EU	Challenging environments tolerant smart systems for IoT and AI (876362)		432/ 17,041	517/ 20,394	1,069/ 42,170	1,291/ 50,927
Research and Innovation programme, Horizon 2020, EU	Smart spaces safety and security for all cities (883522)		92/ 3,629	917/ 36,174	1,133/ 44,694	0.5/ 20
Research and Innovation programme, Horizon 2020, EU	Data-driven bioeconomy (732064)	2,076/ 81,893				
Research and Innovation programme, Horizon 2020, EU	Intelligent motion control under Industry 4.E (101007311)				3,005/ 118,540	2,515/ 99,211
Research and Innovation programme, Horizon Europe, EU	Large scale system approach for advanced charging solutions (101056756)					1,022/ 40,316
Research and Innovation programme, Horizon Europe, EU	Smart, digitalized components and systems for data-based agriculture and forestry (101095835)					1,834/ 72,347
Research and Innovation programme, Horizon Europe, EU	Optimization of electric vehicle autonomy (101097267)					727/ 29,679
ERASMUS+	Locally organized transitions for urban sustainable spaces (2019-1-DE01-KA203-004973)	16/ 631	226/ 8,915	158/ 6,233	721/ 28,442	
European Regional Development Fund, EU	A brainwave-controlled computer assistance system for people with limited momentum (85)	1,529/ 60,316	78/ 3,077			
European Regional Development Fund, EU	Fostering innovation in the Danube region through knowledge engineering and IPR management (DTP2-076-1.1)	3,214/ 126,785	1,377/ 54,320	745/ 29,389		

European Regional Development Fund, EU	Industry 4.0 without borders (24)	175/ 6,903				
European Regional Development Fund, EU	OptiPro4.0: Optimization of industrial processes – Industry 4.0 in the Bavarian-Czech border area (91)	86/ 3,393				
European Regional Development Fund, EU	Motion-capture 3D sign language resources (105)			1,499/ 59,132	670/ 26,430	
European Regional Development Fund, EU	Virtual human model for prevention, treatment and rehabilitation of shoulder disease (38)	511/ 20,158				
European Regional Development Fund, EU	Applied research on exoskeleton for use in rehabilitation (BYCZ01-007)					227/ 8,955
European Space Agency	Advanced algorithms and techniques for resilient time provision (NAVISP-EL1-056)				507/ 20,000	1,549/ 61,105
COST Action	Scientific and technical innovations for safer powered two wheelers (TU1407MC)	33/ 1,302				
Total		60,396/ 2,382,485	56,261/ 2,219,369	58,110/ 2,292,313	66,934/ 2,640,394	65,609/ 2,588,126

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Advanced Technology Group, Ltd.	Modification of the Cogniguide software for transforming data from scanners/ profilometers into robot trajectories				494/ 19,487	
AbCheck, Ltd.	Production and testing of prototype micro fluidic chips	30/ 1,183				
AbCheck, Ltd.	Production and testing of prototype micro fluidic chips		5/ 197			
ACO Industries Tábor, Ltd.	Analyses, strength and stiffness calculations of vertical tanks					38/ 1,499
Aircraft Industries, Ltd.	Design of the composition of the laminate part of the door L410GN				160/ 6,312	
Altron, JSC	Expert consultation					300/ 11,834

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

Amitia, Ltd.	Development of a SW tool to support custom creation of solutions based on artificial intelligence		399/ 15,740			
Amitia, Ltd.	Development of SW based on artificial intelligence models, methods of computer vision and image processing for an automaton, movement monitoring				200/ 7,890	
Amitia, Ltd.	Development of SW based on artificial intelligence models, computer vision and image processing methods for data mining from business documents				500/ 19,724	
AŽD Praha, Ltd.	Opinion on meeting requirements of the ČSN EN standard	175/ 6,903				
AŽD Praha, Ltd.	Research and development work	1,358/ 53,570				
AŽD Praha, Ltd.	Consultation, research work and cooperation in the development of experimental SW designed to verify the design of security codes				250/ 9,862	
AŽD Praha, Ltd.	Opinion on meeting the requirements of the ČSN EN50128 standard for the area of testing for the GP JAZZ project			90/ 3,550		
AŽD Praha, Ltd.	Research and development work		1,140/ 44,970			
AŽD Praha, Ltd.	Research and development work			2,427/ 95,740		
AŽD Praha, Ltd.	Consultations, research work and cooperation in the development of experimental SW		230/ 9,073			
Bartoň Studio, Ltd.	SW design for monitoring the reliability and functionality of the website, medium range applications				200/ 7,890	
BENZ – HMB Czech, JSC	Development of SW communication interface					60/ 2,367
BONATRANS Group, JSC	Determination of Mooney-Rivlin constants for supplied samples including analysis and reporting	96/ 3,787				
Research Centre Řež, Ltd.	Computational analysis of the dynamics of the saturator rotor and the corrosion section rotor		131/ 5,168			
COMDES CZ, Ltd.	Development of a filter for capturing heavy metals in combustion processes, process modelling and optimization ionization of flue gases during filter development of heavy metals in combustion processes				300/ 11,834	500/ 19,724
Creative Connections Ltd.	Translation of models	13/ 513				
-ČEPS, JSC	Analysis on the current use of machine learning in the global and Czech energy industry		200/ 7,890			

ČEPS, JSC	Analysis of losses in the transmission system of the Czech Republic, data model of the transmission system, analysis of observability area determination			1,000/ 39,448		
ČEPS, JSC	Report on the status of open-source tools for analytical calculations and visualization of transmission system models			200/ 7,890		
ČEPS, JSC	ARTIC – development of AI applications				3,128/ 123,393	
ČEPS, JSC	Analysis of open-source computing tools for estimating the state of the transmission system, creation of source codes of predictors of technical losses respecting the modified period of input data					951/ 37,515
Český chřest, Ltd.	Acquisition of ICT and SW equipment for measuring and predicting crop growth conditions	457/ 18,028				
Czech National Marrow Donor Registry	Development of the results within the project TA04010727	968/ 38,185				
Czech National Marrow Donor Registry	R&D of methods for validation and methods for automatic verification of system functionality, design, development and implementation of application interfaces for the gradual introduction of modules		1,112/ 43,866			
Czech National Marrow Donor Registry	R&D of components for automatic communication of IS ČNRDD within the framework of international cooperation			1,494/ 58,935		
Czech National Marrow Donor Registry	Architecture design and implementation of a technical solution for system decomposition regarding system optimization				1,499/ 59,132	
Czech National Marrow Donor Registry	Development of applications and services for compensation functionality of RDKD3 with respect to the planned Match-Connect integration					2,084/ 82,209
ČEZ Distribution, JSC	Baseline parameterization of the XzY type of sampling points (including the connection of the production plant) at the LV level in two categories					650/ 25,641
ČEZ, JSC	Diagnostic measurements and rotor-stator detection	454/ 17,909				
ČEZ, JSC	ETUII TG2 traffic measurement		55/ 2,170			
ČEZ, JSC	Diagnostic measurement and detection, localization and analysis of rotor-stator contact events, blade vibration monitoring, run-up evaluation of TG21 and TG 22 turbines		83/ 3,274	441/ 17,396		

ČEZ, JSC	Long-term measurement and evaluation of rotor vibrations and rubbing of turbogenerators, monitoring of turbine rotor vibrations and evaluation of rubbing in ETE using RAMS equipment		1,554/ 61,302	1,632/ 64,379	2,176/ 85,838	2,176/ 85,838
ČEZ, JSC	Evaluation of the run-in of turbines TG23,24 in the Tušimice power plant				67/ 2,643	
ČEZ, JSC	Diagnostic measurement and evaluation run-in and start-up of the TG25 turbine with use of the RAMS system at the Prunéřov 2 power plant					98/ 3,866
CTU in Prague	Development of a SW module for arm tracking	74/ 2,919				
CTU in Prague	Communication and command of the nanosatellite VZLUSAT-1		148/ 5,838			
CTU in Prague	Arm and hand motion sensing with use for mirror therapy of trapezius and plegia		41/ 1,617			
CTU in Prague	Ideomotor feedback information from the cerebral cortex		41/ 1,617			
CTU in Prague	Visualization of rehabilitation exercises in virtual reality			30/ 1,183		
CTU in Prague	Design and implementation of a research study on the effect of robotic support of fine motor skills of the arm EEG and pre-pulse inhibition				41/ 1,617	
ČZ, JSC	Modal analysis of a turbocharger wheel with a laser vibrometer			130/ 5,128		
Daikin Industries Czech Republic, Ltd.	Software modification for line detector by AGV		165/ 6,509	104/ 4,103	57/ 2,249	
Daikin Industries Czech Republic, Ltd.	Software modification for line detector by AGV				295/ 11,637	
Daikin Industries Czech Republic, Ltd.	Optimizing communication of the AGV control board (PCB) and the control microcomputer which communicates with external systems					125/ 4,931
Doosan Škoda Power, Ltd.	Measurement of vibrations on a steam turbine	143/ 5,641				
Doosan Škoda Power, Ltd.	Production and delivery of 12 functional modules including material	56/ 2,209				
Doosan Škoda Power, Ltd.	Analysis and evaluation of ETE vibration signals	52/ 2,051				
Doosan Škoda Power, Ltd.	Performance of steam turbine measurements and vibrations	248/ 9,783				
Doosan Škoda Power, Ltd.	Provision of services for technical assistance and control measurement of the stator winding of the generator at the Tula power plant (Mexico)	88/ 3,471				
Doosan Škoda Power, Ltd.	Development of elements and functions of the RMS153600 web client environment	154/ 6,075				

Doosan Škoda Power, Ltd.	SW for data collection systems	495/ 19,527				
Doosan Škoda Power, Ltd.	Production and delivery of 7 functional modules	36/ 1,420				
Doosan Škoda Power, Ltd.	Development and testing of HW and SW platform	125/ 4,931				
Doosan Škoda Power, Ltd.	Development of a library of functions for data filtering in Matlab	88/ 3,471				
Doosan Škoda Power, Ltd.	Design and development of the user interface in the SW form		240/ 9,467			
Doosan Škoda Power, Ltd.	Monitoring of turbine rotor vibrations and evaluation of rubbing in ETE		340/ 13,412			
Doosan Škoda Power, Ltd.	Measurement of vibrations, detection and localization of rubbing		90/ 3,550			
Doosan Škoda Power, Ltd.	Technical assistance in rotor balancing of the TG 3 generator at the Tula project, Mexico		310/ 12,229			
Doosan Škoda Power, Ltd.	Design, implementation and validation of new RMS diagnostic system modules			499/ 19,684		
Doosan Škoda Power, Ltd.	Development of new modules and RMS modifications			1,494/ 58,935		
Doosan Škoda Power, Ltd.	Determining the probability of measurement uncertainty				46/ 1,815	
Doosan Škoda Power, Ltd.	Development of a module for the automated import of data from the Orlen Plock power plant into the RMS system				72/ 2,840	
Doosan Škoda Power, Ltd.	Diagnostic measurement and detection, localization and analysis of rotor-stator contact events at the Dolvi 175 MW power plant, India				318/ 12,544	
Doosan Škoda Power, Ltd.	Design, implementation and validation of new RMS diagnostic system modules				501/ 19,763	
Doosan Škoda Power, Ltd.	Use of machine learning methods and mobile tools in the RMS system platform environment				800/ 31,558	
Doosan Škoda Power, Ltd.	Development of elements and functions of the web client environment of the RMS system				151/ 5,957	
Doosan Škoda Power, Ltd.	RMS mobile client development for iOS				1,268/ 50,020	
Doosan Škoda Power, Ltd.	Analysis and CFD calculations within the project Thermal Loading					200/ 7,890
Doosan Škoda Power, Ltd.	Diagnostic measurement and detection, localization and analysis of rotor stator contact events, Wolfsburg (Germany)					505/ 19,921
Doosan Škoda Power, Ltd.	Design, implementation and validation of new modules of the RMS diagnostic system					494/ 19,487

Doosan Škoda Power, Ltd.	Development of advanced modules for work and management in the TLCS system					494/ 19,487
Doosan Škoda Power, Ltd.	Diagnostic measurement and detection					263/ 10,375
Doosan Škoda Power, Ltd.	Development of elements and functions of the web environment client of the RMS system					75/ 2,959
EDIP, Ltd.	Design of an innovative architecture and development of procedures for a new generation of SW tools for traffic engineering calculations					198/ 7,811
Energetické opravny, JSC	Monitoring of blade vibrations KV FK4 ELE			260/ 10,256		
ENGIE Services, JSC	Assessment of a mechanical linkage	30/ 1,183				
ENGIE Services, JSC	Research on the effect of bearing compliance	50/ 1,972				
ENGIE Services, JSC	Stiffness measurement	14/ 552				
ENVI-PUR, Ltd.	Strength and stiffness calculations of ceilings intended to cover the wastewater treatment plant according to the specification				121/ 4,773	
EXON, Ltd.	SW development – mathematical model environment including an interface for entering supply chain parameters		399/ 15,740			
EXON, Ltd.	Development of a feasibility study					489/ 19,290
Faculty Hospital Plzeň	SW for creating a prospective database focused on collection, analysis and evaluation	288/ 11,361				
Faculty Hospital Plzeň	Creation of an internal database of HOO transplanted patients				124/ 4,892	124/ 4,892
Framatome, Ltd.	Working package 1 OMPS SW evaluation		323/ 12,742			
Institute of Physics of the Czech Academy of Sciences	Development of a SW algorithm for efficient rescheduling		413/ 16,292			
G – Team, JSC	Diagnostic measurements, detection, localization and analysis of rotor-stator contact events	75/ 2,959				
G – Team, JSC	Diagnostic measurements, detection, localization and analysis of rotor-stator contact events		62/ 2,446			
G – Team, JSC	Diagnostic measurements, detection, localization and analysis		55/ 2,170			
G – Team, JSC	Diagnostic measurements, detection, localization and analysis of rotor-stator contact events on the EPR2 TG25 plant			18/ 710		

Gear Service, Ltd.	Design and implementation of a SW module for identifying signals with the occurrence of vibration shocks			168/ 6,627		
Gear Service, Ltd.	Remote monitoring of measuring units				148/ 5,838	
Gear Service, Ltd.	Monitoring of measuring units					178/ 7,022
Gear Service, Ltd.	Remote monitoring of measuring units					45/ 1,775
G-Team TEDOS, Ltd.	Diagnostics measurements, localization and analysis of rotor-stator contact events at the Ledvice TG6 NZ power plant				139/ 5,483	
GTW Bearings, Ltd.	Verification and refinement of the results of hydrodynamic calculations		246/ 9,704			
GTW Technik, Ltd.	Bearing function analysis		62/ 2,446			
Guhring, Ltd.	Research and development services		61/ 2,406			
HF Servis, Ltd.	Checking the effects and actions of the primary anti-corrosion protection					100/ 3,945
HVM Plasma, Ltd.	Research of sensory coatings in terms of their structure, electrical and mechanical properties and thermal stability				300/ 11,834	
I&C Energo, JSC	Analytical and development work	24/ 947				
I&C Energo, JSC	Analytical and development work	528/ 20,828				
ICZ, JSC	Feasibility study of automatic coding of diagnoses	60/ 2,367				
Ionbond Czechia, Ltd.	Analysis of the architecture of functional piston ring coatings using electron microscopy		45/ 1,775			
Ionbond Czechia, Ltd.	Investigations of worn protective coatings using electron microscopy				150/ 5,917	
Ionbond Netherlands BV	Analysis of optical properties of carbon films by spectroscopic ellipsometry		124/ 4,892			
Ionbond Netherlands BV	Analysis of phase composition of carbon films doped by tungsten by the Raman spectroscopy		81/ 3,195			
Ionbond Netherlands BV	Advanced analysis of optical properties of carbon-based thin films using combination of spectroscopic ellipsometry and spectrophotometry					38/ 1,499
ITAREG, Ltd.	Virtual simulation models for control systems in process automation					320/ 12,623
JALUD Embedded, Ltd.	Neural model design and training for the acoustic event detection task from short recordings					500/ 19,724

KINKELDER BV	Analyses of structure and mechanical properties of protective coatings			179/ 7,061		
KUVAG CR, Ltd.	Carrying out strength and stiffness calculations of a power rail holder according to the load and material tests specified by a client				152/ 5,996	
LaserTherm, Ltd.	Design, development and implementation of guidance and inspection software for tank welding line	100/ 3,945				
LaserTherm, Ltd.	Design and implementation of a robot guidance system for tank welding	96/ 3,787				
LaserTherm, Ltd.	Design and implementation of a robot guidance system for tank welding, part 2	140/ 5,523				
LaserTherm, Ltd.	Development and modification of SW for the cognitive module automatic guidance of the robot in the task laser welding		90/ 3,550			
LaserTherm, Ltd.	Modification of the guidance algorithm and interface in the application of guidance from the image and development of the algorithm for manual verification of coatings			183/ 7,219		
LaserTherm, Ltd.	Development and modifications of the SW for the cognitive module of automatic guidance of the robot in the task of laser welding				149/ 5,878	
LaserTherm, Ltd.	Development, testing and creation of a presentation in the role of robotic laser cleaning				16/ 631	
LaserTherm, Ltd.	Analysis of data for welding and ironing of butt-jointed pipes in Škoda JS					49/ 1,933
LaserTherm, Ltd.	Commissioning of the automatic system guidance of the robot in the laser task welding					66/ 2,604
Leuze Engineering Czech, Ltd.	Development of the SW equipment of the camera workplace for testing the condition of the sensor displays			185/ 7,298		
Leuze Engineering Czech, Ltd.	Training and support for software equipment				75/ 2,959	
Logic Elements, Ltd.	Analysis and processing of diagnostic data			208/ 8,205		
Logic Elements, Ltd.	Analysis and processing of diagnostic data				128/ 5,049	
McKinsey & Company, Inc.	Knowbot – algorithm development	699/ 27,574				
McKinsey & Company, Inc.	Development of a virtual communication assistant algorithm		835/ 32,939			

Ministry for Regional Development CZ	Processing of documents for the technical specification of the information systems of the Building Identification Number			200/ 7,890		
ModemTec, Ltd.	R&D of algorithms for detection and calculation of characteristics of partial discharges in a noisy signal and localization of the place of their origin	128/ 5,049				
ModemTec, Ltd.	R&D of algorithms for detection and calculation of the characteristics of partial discharges in a noisy signal		202/ 7,968			
Novibra Boskovice, Ltd.	Software modification for OROS		90/ 3,550			
Novibra Boskovice, Ltd.	Expansion of SW on each channel, modification for NVB3 SW		343/ 13,531			
Novibra Boskovice, Ltd.	SW for the statistical evaluation of measured data		64/ 2,525			
Novibra Boskovice, Ltd.	Development of modules for existing NVB3 stand applications		232/ 9,152			
Novibra Boskovice, Ltd.	Module for loading CSV files			46/ 1,815		
Novibra Boskovice, Ltd.	Development of the SW interface for controlling the movement of electro spindles ELSA and MaRS, modification of SW tools of the experimental stand NVB9/B			726/ 28,639		
Novibra Boskovice, Ltd.	Implementation of the noise measurement method in SW NBB9 and in the SW library FlexLogger				130/ 5,128	
Novibra Boskovice, Ltd.	Validation of a method for identifying mutual angles between imbalances				121/ 4,773	
OKTE, JSC	R&D in the field of statistical data analysis, modelling and synthesis of baseline methods in the energy sector				589/ 23,235	
City Transport of Pilsen	Evaluation of SW analysis outputs					87/ 3,432
POSCO	Development of barrier coatings	1,261/ 49,744				
PROFESS, Ltd.	System RAMS monitoring of L turbine blade vibrations		785/ 30,966			
PROFESS, Ltd.	SW modifications for torsion measurements in Chile		51/ 2,012			
PROFESS, Ltd.	Development of a RAMS system for detecting of rubbing at ETU			3,854/ 152,032		
PROFESS, Ltd.	System RAMS for monitoring of LMZ turbine blade vibrations in Estonia				789/ 31,124	
PROFESS, Ltd.	Turbogenerator blade vibration monitoring					446/ 17,594
PROFESS, Ltd.	Turbogenerator blade vibration monitoring					255/ 10,059

PROFESS, Ltd.	Complementing a RAMS system with SW modules for communication and interpretation of superior data systems HVB1 and HVB2 at the Temelín nuclear power plant					4/ 158
ProMinent Systems, Ltd.	Formulation of a mathematical model	185/ 7,298				
REX Control, Ltd.	Development of the OPC UA server for a measuring device with Keysight centres	70/ 2,761				
REX Control, Ltd.	Development of the AIC platform and improving its integration into the REXYGEN system		150/ 5,917			
REX Control, Ltd.	Translation application PID Hinf Desinger					50/ 1,972
REX Control, Ltd.	Development of the OPC UA server					70/ 2,761
Robot-servis, Ltd.	Design and development of SW for planning and exporting trajectories of industrial robots in robotic painting tasks based on 3D modelling			160/ 6,312		
Sécheron Hasler CZ, Ltd.	Update of the DynPaC simulation SW	293/ 11,558				
Siemens Healthcare, Ltd.	Individual project agreement No. 7			185/ 7,298	267/ 10,533	
Siemens Healthcare, Ltd.	Development of drive modelling methodology in medical facilities				255/ 10,059	62/ 2,446
Slovak Power, JSC	Cost-benefit assessment for the project level indicator B8.1 for TYNDP 2022				837/ 33,018	
Speech Tech, Ltd.	Research and development of a SW library for foreign speech synthesis	200/ 7,890				
Speech Tech, Ltd.	Development of a SW library for subtitling support	200/ 7,890				
Speech Tech, Ltd.	Development of a SW module for subtitling support	439/ 17,318				
Speech Tech, Ltd.	Development of a SW module for subtitling support, production of live subtitles for TV shows	1,841/ 72,623	2,249/ 88,718	2,420/ 95,464	1,860/ 73,373	1,784/ 70,375
Speech Tech, Ltd.	Research and development of new acoustic models				200/ 7,890	
Speech Tech, Ltd.	Research and development of a SW library for teaching-style prosodic modelling of spoken speech				299/ 11,795	
Speech Tech, Ltd.	Creating a digital impression of Karel Gott's voice within the Czech Radio project GOTT FOREVER					135/ 5,325
Škoda Auto, JSC	Design of a self-locking differential with prescribed characteristics	388/ 15,306				
Škoda Auto, JSC	Drum brake noise analyses for MEB41		129/ 5,089			

Škoda Auto, JSC	Noise analysis of drum brakes for MEB41		90/ 3,550			
Škoda Auto, JSC	Development and building a testing state for analyses of friction ratios between lamellae				30/ 1,183	
Škoda Auto, JSC	Analysis and optimization of drive oscillation chain and impacts on the inter-axle coupling in the Fabia RS Rally 2 car					143/ 5,641
Škoda Electric, JSC	Modification of SW for development and operation of wheeled vehicles with respect to the new EU legislation on cyber security of wheeled vehicles					250/ 9,862
Škoda JS, JSC	Modifications of the Athena SW in 2019	650/ 25,641				
Škoda JS, JSC	Development of the Palladium SW	150/ 5,917				
Škoda JS, JSC	Modifications of the Athena SW in 2020		650/ 25,641			
Škoda JS, JSC	Development of the Palladium SW		150/ 5,917			
Škoda JS, JSC	Modifications of the ATHENA SW for the VVER-1000 reactor – year 2021			350/ 13,807		
Škoda JS, JSC	Modifications of the ATHENA SW for the VVER-440 reactor – year 2021			300/ 11,834		
Škoda JS, JSC	Development of the Palladium SW			150/ 5,917		
Škoda JS, JSC	Modifications of the ATHENA SW for the VVER-1000 reactor – year 2022				200/ 7,890	
Škoda JS, JSC	Modifications of the ATHENA SW for the VVER-440 reactor – year 2022				450/ 17,751	
Škoda JS, JSC	Development of the Palladium SW				150/ 5,917	
Škoda JS, JSC	Development of algorithms and software for optimization of VVER-1000 type reactor batches					390/ 15,385
Škoda JS, JSC	Development of algorithms and software for optimization of VVER-440 type reactor batches					260/ 10,256
Škoda JS, JSC	Development of the graphic environment Palladium – optimization of TNR bets					150/ 5,917
Škoda Machine Tool, JSC	Measurement of eigen frequencies in a production hall	28/ 1,105				
Škoda Transportation, JSC	Development of calculation modules for simulating oscillations of an undercarriage of a rolling stock	113/ 4,458				
Škoda Transportation, JSC	Development of calculation modules for simulating oscillations of a flexible box of a rolling stock		160/ 6,312			

Škoda Transportation, JSC	Development of calculation modules for simulating vibrations of the chassis of a rolling stock			150/ 5,917		
Škoda Transportation, JSC	Development of calculation modules for simulating rolling stock vibration					150/ 5,917
TechConcept, Ltd.	Numerical simulations of compressible fluid flow, evaluation and presentation of results				200/ 7,890	
TechConcept, Ltd.	Development of the methodology of the design of reverse sampling dampers for modes with very low flows					200/ 7,890
Technical University Liberec	Research and implementation of the control unit for a membrane filtration system		25/ 986			
Technology Platform	Elaboration of the study	29/ 1,144				
Teknal Engineering, JSC	Consultation for the construction of a 3D map concept		130/ 5,128			
ÚJV Řež, JSC	Development of the VVER 1000 reactor oscillation method and calculation tools	180/ 7,101				
ÚJV Řež, JSC	Analysis of clearances and friction characteristics in the connection of tongues and grooves in the lower part of the reactor cylinder	100/ 3,945				
ÚJV Řež, JSC	Determination of force effects in bonds of the VVER100/320 dynamic model when excited by a real spectrum of exciting pressure fluctuations		140/ 5,523			
ÚJV Řež, JSC	Development, maintenance and innovation of methods and SW tools for the analysis of elements of the construction of fuel sets and cartridges		180/ 7,101			
ÚJV Řež, JSC	Calculation of force effects in the links of the VVER440/320 dynamic model depending on the size of the clearance considered		120/ 4,734			
ÚJV Řež, JSC	Calculation of force effects in the links of the dynamic model VVER440/213 (EDU) in response to seismic excitation			100/ 3,945		
ÚJV Řež, JSC	Calculation of force effects in the VVER440/213 (EDU) dynamic model bonds in response to operational excitation from pressure fluctuations with OK3+140 fuel implementation			140/ 5,523		
ÚJV Řež, JSC	Development, maintenance and innovation of methods and SW tools for the analysis of elements of fuel sets of cartridges			198/ 7,811		
ÚJV Řež, JSC	Calculation of force effects in VVER440/213 (EDU) dynamic model bonds in response to seismic excitation with PK3+ fuel implementation			100/ 3,945		

ÚJV Řež, JSC	Modelling of fuel assemblies in the active zone of the reactor MOD2				164/ 6,469	
ÚJV Řež, JSC	Modelling of fuel assemblies in the active zone of the reactor LTA				164/ 6,469	
ÚJV Řež, JSC	Elaboration of analysis and mixed modelling active zone of the VVER 1000/320 reactor, evaluation of the internal parts of the EDU reactor VVER440 and EDU VVER1000					514/ 20,276
Unicorn Systems, JSC	Convergence of optimization tasks	80/ 3,156				
Unicorn Systems, JSC	Research on convergence of optimization tasks aimed at maximizing cross-border profiles in the expected volume		210/ 8,284			
Unicorn Systems, JSC	Development of a functional model for optimizing the offer portfolio at energy auctions			536/ 21,144		
Unicorn Systems, JSC	Research of convergence of optimization tasks focused on the maximization of cross-border profiles			163/ 6,430		
Unicorn Systems, JSC	Development of a functional component implementing optimization algorithms and methods associated with the operation and deployment of cogeneration units for the needs of providing power balance services					908/ 35,819
Unicorn Systems, JSC	Modification of a functional module to optimize the offer portfolio at energy auctions					224/ 8,836
Unicorn Systems, JSC	Research in the field of optimization operation of electromobility charging stations					379/ 14,951
Universitätsklinikum Jena	Application to monitor the end point of an instrument in the video of the online surgical suturing tutorial			455/ 17,949		
Universitätsklinikum Jena	Students' surgery suturing performance analysis during online lectures					470/ 18,540
Voestalpine Eifeler Coating, Ltd.	Analyses of structure and elemental composition of protective coatings				37/ 1,460	
Vyplašto, Ltd.	Research and development of a special acoustic signal generator prototype		132/ 5,207	70/ 2,761		
Vyplašto, Ltd.	Electroacoustic measurement and analysis converters					238/ 9,389
Research and Testing Institute Plzeň, Ltd.	Structural phase analysis of solid residues combustion in the form of a power plant ash					23/ 907
ZAT, JSC	Development of test tools for the qualification of development means of the ZAT company	720/ 28,402				

ZAT, JSC	Design, implementation and documentation of tests for the purpose of qualification of SandRA Z100 SW tools					242/ 9,546
ZAT, JSC	Assessment of eligibility of means for programming the SandRA system					700/ 27,613
ZF Engineering Plzeň, Ltd.	Research services performed based on the service agreement			93/ 3,669		
ZF Engineering Plzeň, Ltd.	Modelling bolted mechanical structures with friction based on the finite element method				232/ 9,152	
ZF Engineering Plzeň, Ltd.	Partial results of the methodology for modelling bolted mechanical structures with friction based on the finite element method				191/ 7,535	
ZF Engineering Plzeň, Ltd.	Partial results of the methodology for modelling bolted mechanical structures with friction based on the finite element method				117/ 4,615	
ZF Engineering Plzeň, Ltd.	Methodology for modelling mechanical structures with a screw connection with friction based on the finite element method					432/ 17,041
ZF Engineering Plzeň, Ltd.	Methodology for modelling mechanical structures with a screw connection with friction based on the finite element method					183/ 7,219
ZF Friedrichshafen, JSC	Development of SW for an automatic generation of finite element meshes					252/ 9,941
Total		14,269/ 562,880	15,362/ 605,996	21,138/ 833,846	21,307/ 840,513	20,121/ 793,728

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

1. *Linguistically structured software query database (LSDD)* is a linguistically structured database of queries, which was created in cooperation between the Institute of the Czech Language (ICL) of

²⁹ See Terms definition.

the Academy of Sciences of the Czech Republic and FAS. FAS created the database in terms of technology and ICL in terms of content. The database is used for structured storage of queries from the ICL language advisory service, which is also used by the employees of the language advisory service and the public. A modern web application (available at <https://dotazy.ujc.cas.cz/>) is used to access the database, which is mainly used by pupils/students or teachers of the Czech language (regardless of gender). The result was awarded a grade of 2 in the H22 evaluation in the category of social relevance (Excellent result, the use of which in practice will bring about a change with an international economic impact (real possibility of application in a foreign market, etc.), or a change with a significant impact on society (real possibility of fundamental application in areas of public interest)).

2. *BrainIn – On-line software system for neurorehabilitation* supports neurorehabilitation of patients with acquired brain injury (ABI) is the main result of the INTERREG V-A Germany/Bavaria – Czech Republic project no. 191, carried out between 2019 and 2022 in collaboration with Asklepios Klinik Schaufling, Centre for Residential and Field Social Services Zbůch, Das Bezirksklinikum Mainkofen, Donau-Isar Klinikum Deggendorf, Philipps-Universität Marburg. BrainIn (https://www.kiv.zcu.cz/en/research/downloads/product-detail-en.html?produkt_id=155) is designed for patients in institutional and home care, their families and therapists. The design considered the different needs of different target groups and the different needs of men and women. The system allows for the computer-based definition, implementation and basic evaluation of personalized neurorehabilitation tasks of varying difficulty according to the needs of each patient. BrainIn is localized into three languages (Czech, German and English) and is actively used in two countries (Czech Republic and Slovakia). By June 2023, approximately 750 therapists, experts, patients and their family members had been introduced to the system through lectures, workshops and training. Active users include, for example, the Psychiatric Hospital in Dobruška, the National Institute of Children's Diseases in Bratislava and the Centre for Residential and Field Social Services in Zbůch. The result was awarded a grade of 3 in the H23 evaluation in the category of social relevance (A result at a very good level, the use of which in practice will bring about a change with an economic impact on the Czech market or a change with an impact on society (realistic assumption of application in areas of public interest)). A better evaluation was prevented by the scepticism of the evaluators that the result has the potential to spread internationally, since it was created as part of a joint Czech-Bavarian project and yet has not yet been deployed in Bavaria).

3. *Transfer of laboratory technology for deposition of thermochromic coatings to large-scale production.* Within the Switch2Save project (Horizon 2020 – Innovative Action), the research team at FAS achieved a successful transfer of low-temperature deposition technology for VO₂-based thermochromic coatings from a small laboratory setup (sample size: 25 × 50 mm²) to a large-scale roll-to-roll device compatible with industrial production (dimensions of the moving roll of flexible glass: 0.3 × 6 m²) at the Fraunhofer Institute in Dresden. This accomplishment marks a remarkable achievement, as thermochromic coatings have not been produced on an industrial scale until now. The transfer of this technology paves the way for the mass production of these advanced thin-film materials on large glass sheets. This innovation facilitates both the retrofitting of existing low-efficiency glass windows and the manufacturing of new, high-efficiency energy-saving smart windows. These smart windows dynamically adjust their infrared reflectivity with temperature changes, thereby reducing solar heat gain during summer months without the need for additional energy input or external control systems. Notably, they can decrease energy consumption for cooling by up to 30-40 % in commercial and residential buildings and contribute substantially to reducing carbon emissions. The commercialization of the developed deposition technology is planned in collaboration with Fraunhofer Institute in Dresden, offering a sustainable and scalable solution for energy-efficient building technologies. In 2022, this result has been selected among the highlighting excellent innovations by The European Commission's Innovation Radar team.

4. *An integrated system for processing, storing and presenting scanned documents in Cyrillic (DOAZARC).* The developed software results from the project Digital archive of NKVD/KGB documents related to Czechoslovakia. It consists of several modules that can automatically process large archives of scanned documents in Cyrillic (Ukrainian and Russian) and Latin (Czech) using optical character recognition methods, save resulting electronic texts in a specially designed database and then make the archive accessible to users using a user-friendly graphical user interface. This software is of exceptional importance in terms of preserving historical heritage and cultural memory. The digital archive of NKVD/KGB documents provides access to important historical documents related to citizens of Czechoslovakia who were persecuted on the territory of Ukraine. Online data presented in a multilingual user interface (Czech, English, Russian, Ukrainian) makes this archive accessible to a wider international public. One of the benefits of the cooperation between FAS, the Institute for the Study of Totalitarian Regimes and the Ukrainian Archives is the return of automatically processed, digital documents back to Ukraine, where they will be stored together with the original paper documents. The software is equipped with a system that can automatically convert printed and written texts into electronic text. This technology is multilingual, i.e., it can recognize and convert texts written in different languages, including Russian, Ukrainian and Czech. The software can automatically detect the language of the text on document scans. Each document is indexed and stored in the database. The web archive makes more than 300 thousand scanned pages available, and it was used to process more than 1.3 million scans of original archival materials that were returned to Ukraine. The research team received the main prize in the AI awards 2023 competition for developed SW awarded by the Czech National AI Platform.

5. *Test stand for verification and qualification of SW tools of modular systems Sandra Z102.* The subject of the contractual research was the independent creation and execution of tests of the Sandra Z102 software created by a client (ZAT) for the qualification of this SW according to the IEC 60880 standard (Nuclear power plants – Control and management systems important to safety – Software aspects of computer systems performing category A functions). As part of this research, a test stand was developed for the verification and qualification of the SW tools of the Sandra Z102 modular systems. In addition to the crash qualification of this system according to the IEC 60880 standard, this stand allows for its continuous integration during further development. Subsequently, this stand was used to test the Sandra Z102 system, and a set of documents describing the testing process, the test tools used, the tests performed, and their results was created. This report was submitted to the client. Whenever the client received a new order in the field of nuclear power plant protection systems, it used this report as part of the supporting documentation required by the relevant nuclear safety authority in the given country. This contractual research therefore enabled the client to supply nuclear power plants with protective systems with the highest safety category.

6. *Development of software modules to support subtitling of live Czech Television.* As part of contractual research with SpeechTech, which officially operates the subtitling service for live programs for the Czech Television, the research team from FAS ensures updates to the subtitling software, updates to dictionaries and the language model with new current words and phrases published on the Internet, including updates to on-line decoding based on the updated dictionary and language model. The continuously updated software module significantly expands the existing functionality of the speech recognition system. New methods and specific modifications of state-of-the-art methods using deep neural networks are applied not only at the level of acoustic modelling, but also for related tasks such as speaker diarization or speech detection. The result is a high accuracy of the created subtitles. Subtitling of TV programs is intended primarily for hearing-impaired viewers of Czech Television (tens of thousands of viewers). Every year, approximately 6 thousand hours of live television programs on the TV channels ČT sport, ČT24, ČT art and ČT1 are

subtitled with developed and continuously updated SW modules. The value of contractual research for the years 2019 to 2023 exceeded CZK 7.7 mil.

7. Modular information system for streamlining the donor registry. The developed system focused on better data storage and on streamlining communication within the Czech National Marrow Donor Registry (CNMDR) was deployed in clinical practice in 2019 and became an operational part of CNMDR ICT. The system features are web accessible according to the specified roles. To streamline CNMDR activities, automated communication between CNMDR components is also implemented. The continuous innovation of the CNMDR modules is achieved by continuous knowledge gathering, its transfer and implementation of innovative modules maintaining process optimization under operational and clinical requirements, e.g., software developed in 2023 was 1) applications to support the activity and efficiency of the transplantation process coordination, and 2) RMS to support registry quality management specific needs. The result help in saving human life and with an impact on the quality of life, and therefore its greatest impact is the social one (in accelerating the performance of transplantation for patients with haemato-oncological diseases and enabling faster implementation of rescue transplantation – a faster and better-quality donor selection process leads to an increase in patients' chance of recovery and their return to life). Activities led to an increase in not only terms of time efficiency but also the economic, and to an increase in the competitiveness of the registry on a global scale, manifested in an increase in the number of CNMDR donors' cells collected for the transplantation. Based on the analyses performed, the solution within the CNMDR is widely applicable regardless of the user or organizational unit. Knowledge about gender or gender patterns was integrated in such a way as to emphasize the requirements of all user groups, especially regarding the availability and comfort of using the results, especially on the level of different expectations from the functions and technology design.

8. Pilot plant of the system for detection and identification of machinery parts. The result was created within the project Development of a cognitive system for automatic robot guidance in 7D for the task of laser hardening, welding, surfacing and cutting. The result has a significant contribution to robotic laser welding, cladding and hardening of complex structures, where saving up to 80 % of time and refining the technological process of weld or overlay placement has enabled the implementation of tasks that have been very difficult to implement so far with significant economic profit. The pilot plant enabled the subsequent practical application of the result and further commercialization of the developed solution within the active production and products offered by LaserTherm (domestic and foreign deliveries of special robotic production systems) and is further commercialized in solutions developed within contractual and collaborative research at FAS. The specific contribution of FAS (60 %) in creating the result was mainly in the calibration of the robotic workplace, the robot's working tool in the form of a laser head, a profile sensor and a robotic positioner. FAS also set up the developed software for the detection of the welded joint and the creation of a 3D model of the workpiece, the setting of the parameters of the developed software tool for identifying the trajectory of the process head and generating the robot control code regarding the required technological procedures. The result was used in the welding of the leading edges of low-pressure steam turbine blades, with sales of CZK 32.4 mil. between 2020 and 2022, of which foreign sales amounted to CZK 6 million and a profit of CZK 6.35 mil. In the evaluation of H23 prestigious results in the module 1 - Methodology 17+, it received the grade "2".

9. Advanced predictor of technical losses in transmission systems. This software module was developed in collaboration with the sole Czech transmission operator ČEPS because of an industrial applied contract research project focused on the development of an advanced prediction system for power grid losses, which ČEPS had to address through the procurement of additional energy on relevant energy markets. Ensuring the efficient procurement of energy to compensate for these

losses represents a significant economic burden, amounting to billions of CZK annually, and is heavily influenced by the accuracy of technical loss predictions. The goal of the research was to create a highly accurate technical loss prediction system tailored to various time horizons and reflective of the Czech energy market structure. This system leverages extensive datasets and integrates innovative approaches from artificial intelligence. The predictors account for a comprehensive range of external and internal factors associated with technical, operational, and market mechanisms. The resulting prediction system for technical losses has been successfully deployed in the production environment of ČEPS enabling more efficient energy procurement to cover these losses. Compared to previously used prediction systems, the new solution delivers significant qualitative improvements by utilizing more complex datasets and advanced machine learning-based prediction mechanisms. The estimated annual savings in energy procurement for loss coverage are between CZK 30 and 50 mil. From a technical standpoint, the solution achieves energy savings of approximately 1.5 MWh per hour, corresponding to a reduction in CO₂ emissions of roughly 550 kg per hour.

10. Tuning of the VVER1000 reactor model excited by real coolant pressure pulsations and analysis of the dynamic properties of the fuel assembly. Fuel assemblies in the core of nuclear reactors affect the safe operation of the plant. Their large number and complex structure motivated development of a unique mathematical model of their dynamic behaviour. The burnup of fuel tablets embedded in the zirconium coating of fuel rods change operating conditions characterised by shock interactions between components of fuel assemblies when their clamping plates are vibrating in the reactor core due to coolant pressure pulsations. The first level of newly developed methodology is based on modification, testing and tuning of the reactor dynamic model by comparing measured and calculated accelerations on the reactor pressure vessel. In the model, fuel assemblies are replaced by beam models dynamically almost identical to the detailed fuel assembly models in the monitored frequency spectrum. The vibration of the selected fuel assembly investigated using its detailed nonlinear model excited by the spatial vibration of the clamping plates represents the second level of mathematical modelling. Developed methodology allows to evaluate the complex mechanical behaviour of fuel assemblies considering the effect of fuel tablets swelling during the burnup process, to assess the abrasion of the zirconium coating of fuel rods inducing wall weakening in the contact regions during operation, and to investigate the orbits of the centres of all components and the frequency spectra of displacements and accelerations. The main contribution of this research lies in the direct link to the diagnostic and monitoring systems applied to reactors at the Temelín power station. Predicting the behaviour of fuel assemblies of different types and locations in the reactor core by mathematical modelling in combination with installed monitoring systems contributes to the safe operation of the plant.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Pilot plant	2019	Modular information system for streamlining the donor registry RIV/49777513:23520/19:43956435
Pilot plant	2019	Decentralized monitoring system of power networks for decision-making support RIV/49777513:23520/19:43957312
Pilot plant	2019	Pilot plant of the system for detection and identification of machinery part RIV/49777513:23520/19:43957396

³⁰ Specify the specific type of result. Add rows as needed.

Pilot plant	2019	UniMotion control platform employed in industrial application RIV/49777513:23520/19:43958072
Pilot plant	2019	Prototype workplace with collaborative robot of own development RIV/49777513:23520/19:43958238
Pilot plant	2019	Safety monitoring of distribution system considering lower penetration of AMM RIV/49777513:23520/19:43958338
Pilot plant	2019	Building energy monitoring system RIV/49777513:23520/19:43958352
Pilot plant	2019	Prototype implementation of signal processing unit on semiconductor wafer production machine RIV/49777513:23520/19:43958376
Prototype	2019	Prototype of the cognitive module for automatic identification of a 7D trajectory in the task of robotic hardening welding and cladding RIV/49777513:23520/19:43957394
Prototype	2019	Prototype flexible production machine with advanced cognitive functions and connectivity according to Industry 4.0 RIV/49777513:23520/19:43958076
Prototype	2019	Compact actuator prototype RIV/49777513:23520/19:43958235
Prototype	2019	Collaborative robot prototype RIV/49777513:23520/19:43958236
Prototype	2019	Prototype of the Slovak voice interactive system of the MALACH archive RIV/49777513:23520/19:43957450
Prototype	2019	TRAWIS robot prototype RIV/49777513:23520/19:43958303
Prototype	2019	Communication system prototype for unlicensed band technologies RIV/49777513:23520/19:43958231
Prototype	2019	PMU measuring device for decentralized monitoring system RIV/49777513:23520/19:43958599
Prototype	2019	Braided composite with inner structure interruption RIV/49777513:23520/19:43957174
Prototype	2019	Algorithms for creating and publishing news texts in Czech through various distribution platforms RIV/49777513:23520/19:43958004
Functional sample	2019	Demonstration application of fast wireless networks for Industry 4.0 RIV/49777513:23520/19:43958228
Functional sample	2019	Small modular reactor control system RIV/49777513:23520/19:43958244
Functional sample	2019	FT300 thruster stand RIV/49777513:23520/19:43958307
Methodology	2019	Sample files related to regulations for JVF DTM RIV/49777513:23520/19:43965761
Software	2019	System for online topic-based language model adaptation RIV/49777513:23520/19:43956290
Software	2019	Support for archiving and cataloguing of audiovisual materials RIV/49777513:23520/19:43956292
Software	2019	Development of SW module for subtitling of live TV programs broadcasted in 2019 by the Czech TV RIV/49777513:23520/19:43957329

Software	2019	Environment detection system RIV/49777513:23520/19:43957617
Software	2019	Semi-automatic data analysis RIV/49777513:23520/19:43957696
Software	2019	Liver surgery analyser RIV/49777513:23520/19:43957722
Software	2019	Software module for automatic building of voice models RIV/49777513:23520/19:43957808
Software	2019	Database of speech corpora of Czech laryngectomy patients RIV/49777513:23520/19:43957861
Software	2019	Automatic text normalization of court documents RIV/49777513:23520/19:43957865
Software	2019	Module for the automatic build of patient voice inventory RIV/49777513:23520/19:43957867
Software	2019	SW library for unit-selection teaching-style based Russian TTS RIV/49777513:23520/19:43957869
Software	2019	SW library for unit-selection teaching-style based German TTS RIV/49777513:23520/19:43957871
Software	2019	SW library for unit-selection teaching-style based British English TTS RIV/49777513:23520/19:43957872
Software	2019	The modifications and development of the graphic tool Palladium RIV/49777513:23520/13:43920984
Software	2019	Software for robotic manipulator control in technology for welding of piping systems RIV/49777513:23520/19:43958069
Software	2019	X-Bridge RIV/49777513:23520/19:43958154
Software	2019	Interactive system for spoken Czech MALACH archive RIV/49777513:23520/19:43957449
Software	2019	Hands 2019 – Challenge RIV/49777513:23520/19:43956785
Software	2019	Imcut RIV/49777513:23520/19:43958173
Software	2019	UNB Geoid Software 2019 RIV/49777513:23520/19:43961826
Software	2019	AEROBLADE 2D V2.0 – Flowpro module for blade cascade stability assessment RIV/49777513:23520/19:43957692
Software	2019	OptiPyFlow RIV/49777513:23520/19:43957598
Software	2019	Python scripts for the P300 processing and classification RIV/49777513:23520/19:43956450
Software	2019	Motol HNC database RIV/49777513:23520/19:43957413
Software	2019	SADA – Semi automatic data analysis RIV/49777513:23520/19:43957696
Research report	2019	Upgrade of the software system OPAL-ATHENA for reload patterns optimization of WWER440 type reactors RIV/49777513:23520/19:43957022

Research report	2019	Development of barrier coating for Zn coated giga-grade steel RIV/49777513:23520/19:43957199
Research report	2019	Research of possibilities of automatic coding of diagnoses based on analysis of medical documentation in the form of unstructured text RIV/49777513:23520/19:43957392
Specialized public database	2020	Linguistically structured software query database (LSSDD) RIV/68378092: /20:00523031
Pilot plant	2020	Voice conservation system for patients with voice impairment RIV/49777513:23520/20:43960858
Prototype	2020	MDR Sim RIV/49777513:23520/20:43960733
Prototype	2020	Battery management system (BMS) RIV/49777513:23220/20:43960763
Prototype	2020	Prototype of a pad of tilting pad journal bearing with polymer coating RIV/49777513:23520/20:43959925
Functional sample	2020	Functional sample of a mechatronic stand for HIL simulations and testing of advanced motion control algorithms RIV/49777513:23520/20:43960780
Functional sample	2020	Modular signal processing unit for industrial motion control applications RIV/49777513:23520/20:43960781
Functional sample	2020	Console for fixing power lines RIV/49777513:23220/20:43960390
Functional sample	2020	BASIL - brain-driven computer assistance system for people with limited mobility RIV/49777513:23520/20:43960790
Functional sample	2020	Functional sample of door handle for testing of protective antibacterial thin-film coating on a steel substrate in real environment RIV/49777513:23520/20:43960547
Functional sample	2020	Functional sample of protective antibacterial thin-film coating on DIN 1.4301 steel substrate RIV/49777513:23520/20:43960546
Functional sample	2020	Hybrid composite construction RIV/49777513:23220/20:43960568
Functional sample	2020	Braided composite with inner structure interruption – optimized structure RIV/49777513:23220/20:43960142
Functional sample	2020	Fact search and analysis tool RIV/47115068: /20:N0000001
Software	2020	Control software for data acquisition and processing from the stand Novibra NVB3 RIV/49777513:23520/20:43958723
Software	2020	NAKI-NK-TOPIC: software tool for the analysis of the document topic RIV/49777513:23520/20:43959790
Software	2020	NAKI-NK-AUDIO: Software tool for the analysis of audio files RIV/49777513:23520/20:43959791
Software	2020	Software for active and passive load anti-sway control in gantry cranes RIV/49777513:23520/20:43960776
Software	2020	Software for automatic commissioning of electrical drives RIV/49777513:23520/20:43960777
Software	2020	Software realizing advanced repetitive and iterative learning control methods for motion systems RIV/49777513:23520/20:43960778

Software	2020	Supportive SW tool for development of solutions based on artificial intelligence RIV/49777513:23520/20:43960859
Software	2020	Supportive SW tool for development of solutions based on artificial intelligence RIV/49777513:23520/20:43960860
Software	2020	Monitoring of WIFI roaming for AGV RIV/49777513:23520/20:43960866
Software	2020	Development of SW module for subtitling of live TV programs broadcasted in 2020 by the Czech TV RIV/49777513:23520/20:43960872
Software	2020	System for automatic visual fungi recognition RIV/49777513:23520/20:43960895
Software	2020	Automatic tool for coral reef detection localization and annotation RIV/49777513:23520/20:43960896
Software	2020	Complex control SW of a robotic cell in a pilot application RIV/49777513:23520/20:43960988
Software	2020	Complex control SW of a robotic cell in a pilot application RIV/49777513:23520/20:43960989
Software	2020	Digital objects database RIV/00023221:/20:N0000031
Software	2020	Software algorithm for efficient production rescheduling RIV/49777513:23520/20:43961227
Software	2020	Development of the graphic tool Palladium – 2020 RIV/49777513:23520/20:43961250
Software	2020	Software module for configuration of FPGA subsystem RIV/49777513:23520/20:43961296
Software	2020	Word embedding for punctuation detection and summarization RIV/49777513:23520/20:43961334
Software	2020	Interactive text preprocessing of court documents RIV/49777513:23520/20:43961356
Software	2020	Acoustic models for Slovak ASR RIV/49777513:23520/20:43961376
Software	2020	UNB Geoid Software 2020 RIV/49777513:23520/20:43961827
Software	2020	Data corpus for hand movement detection from EEG data RIV/49777513:23520/20:43960756
Software	2020	Complex control SW of a robotic cell in a pilot application RIV/49777513:23520/20:43960989
Software	2020	Tool set for efficient and secure cross-border ancillary services of processes and systems RIV/49777513:23520/20:43965955
Software	2020	Software for active and passive load anti-sway control in gantry cranes RIV/49777513:23520/20:43960776
Software	2020	Software for automatic creation and publication of news texts within stock exchange news RIV/47115068:/20:N0000002
Software	2020	Software realizing advanced repetitive and iterative learning control methods for motion systems RIV/49777513:23520/20:43960778

Software	2020	Software algorithm for efficient production rescheduling RIV/49777513:23520/20:43961227
Methodology	2020	Sample files related to regulations for JVF DTM RIV/49777513:23520/20:43965760
Research report	2020	Communication and Commanding of Nanosatellite VZLUSAT-1 in 2020 RIV/49777513:23220/20:43961003
Research report	2020	Cybersecurity for Railway Systems – analysis and design of technical solutions for computing large coding words RIV/49777513:23520/20:43961022
Research report	2020	Development of functional samples of a measuring jig for measuring and adjusting the clamping force of a working tool RIV/49777513:23520/20:43961024
Research report	2020	Upgrade of the software system OPAL-ATHENA for reload patterns optimization of WWER1000 type reactors RIV/49777513:23520/20:43959536
Patent	2021	A method of processing speech recordings for automatic voice conservation and a technical means of performing the method RIV/49777513:23520/21:43963648
Pilot plant	2021	Voice conservation system for patients with voice impairment RIV/49777513:23520/20:43960858
Pilot plant	2021	Technology of braided composite with inner structure interruption RIV/49777513:23220/20:43960149
Utility model	2021	Technical means for processing speech recordings for automatic voice conservation RIV/49777513:23520/21:43963670
Prototype	2021	Prototype of the tracking device RIV/49777513:23520/21:43963898
Prototype	2021	Prototype of a robotic cell equipped with a tracking device RIV/49777513:23520/21:43963905
Prototype	2021	Mechatronic vibration damping stand RIV/49777513:23520/21:43962929
Prototype	2021	Prototype of a pad of tilting pad journal bearing with special steel-polymer interface RIV/49777513:23520/21:43963149
Functional sample	2021	Equipment for testing I&C systems in nuclear power industry using model checking methodology RIV/25178636: /21:N0000001
Functional sample	2021	DronePort – Gfunc RIV/49777513:23520/21:43962934
Utility model	2021	Protective antibacterial thin layer coating RIV/49777513:23520/21:43962734
Functional sample	2021	Tool for dynamic tests of blades RIV/49777513:23520/21:43963308
Functional sample	2021	Tool for static tests of blades RIV/49777513:23520/21:43963311
Functional sample	2021	Transparent electrically conductive coating on polyethylene terephthalate substrate RIV/49777513:23520/21:43963755

Functional sample	2021	Equipment for testing I&C systems in nuclear power industry using Model Checking methodology RIV/25178636:_____/21:N0000001
Methodology	2021	Definition of the principles of unambiguous identification of spatial data objects for the purposes of NaSaPO RIV/49777513:23520/21:43967763
Methodology	2021	Relief map of Šumava Mountains and Bavarian Forest 10 x 12 x 1 m RIV/49777513:23520/21:43968286
Methodology	2021	Framework definition of NaSaPO objects including reference attributes RIV/49777513:23520/21:43967754
Methodology	2021	Administration and use of NaSaPO RIV/49777513:23520/21:43967762
Methodology	2021	Terminological and factual definition of NaSaPO objects RIV/49777513:23520/21:43967730
Software	2021	SW Novibra NVB9 for control, acquisition, processing and visualization of data from the testing stand of spindles for spinning frames RIV/49777513:23520/21:43963706
Software	2021	Laser power control software based on heat accumulation measurements during surface texturing RIV/49777513:23520/21:43963718
Software	2021	Dataset for sign language animation synthesis RIV/49777513:23520/21:43964350
Software	2021	HCF analysis tool RIV/49777513:23520/21:43961708
Software	2021	SW for intuitive programming of (not only) painting robots FANUC RIV/49777513:23520/21:43963671
Software	2021	Development of SW module for subtitling of live TV programs broadcasted in 2021 by the Czech TV RIV/49777513:23520/21:43963661
Software	2021	Sensor system data processing software, control system RIV/49777513:23520/21:43963890
Software	2021	Software for calculation and erosion monitoring of steam turbine blades RIV/49777513:23520/21:43963920
Software	2021	Automatic data analysis and knowledge generation during remote monitoring of steam turbines RIV/49777513:23520/21:43963928
Software	2021	Word embeddings for text generation RIV/49777513:23520/21:43964184
Software	2021	Behavioural analysis module for video-streams RIV/49777513:23520/21:43964355
Software	2021	Automatic line detector calibration for AGV RIV/49777513:23520/21:43962832
Software	2021	ASR Asian language RIV/49777513:23520/21:43962833
Software	2021	Simulator for use of droneport with drones RIV/49777513:23520/21:43962941
Software	2021	Mechatronic vibration damping stand – SW RIV/49777513:23520/21:43962957

Software	2021	Software for robust recognition of Cyrillic characters in scanned paper documents RIV/49777513:23520/21:43963672
Software	2021	Software for analysis of automatic online measurement, processing and vibration data in the task of GEAR SERVICE gearboxes remote monitoring RIV/49777513:23520/21:43963929
Software	2021	Dataset for simultaneous localization and mapping methods RIV/49777513:23520/21:43964376
Software	2021	Dataset for sign language animation synthesis RIV/49777513:23520/21:43964350
Software	2021	SW module for data communication in the RMS system RIV/49777513:23520/21:43963921
Software	2021	Sign language animation module RIV/49777513:23520/21:43964351
Software	2021	Module for hand pose detection and gesture analysis RIV/49777513:23520/21:43964378
Software	2021	Dataset for behavioural analysis RIV/49777513:23520/21:43964379
Software	2021	Dataset for hand pose detection and gesture analysis RIV/49777513:23520/21:43964380
Software	2021	Dataset for simultaneous localization and mapping methods RIV/49777513:23520/21:43964376
Software	2021	SW module for robot navigation in the task of laser cladding of LP steam turbine blades RIV/49777513:23520/21:43963650
Software	2021	Simultaneous localization and mapping module RIV/49777513:23520/21:43964373
Software	2021	Development of the graphic tool Palladium – 2021 RIV/49777513:23520/21:43964424
Software	2021	Acoustic model for far field recognition RIV/49777513:23520/21:43964118
Software	2021	Instrument tooltip movement analyser for the videos from the online suturing course RIV/49777513:23520/21:43964324
Software	2021	Software equipment of a camera workplace for automatic image analysis RIV/49777513:23520/21:43964319
Software	2021	Software equipment of the camera workplace for automatic image analysis II RIV/49777513:23520/21:43964321
Software	2021	Software module of camera workplace for automatic image analysis RIV/49777513:23520/21:43964320
Software	2021	Software module of camera workplace for automatic image analysis II RIV/49777513:23520/21:43964323
Software	2021	Dataset for behavioural analysis RIV/49777513:23520/21:43964379
Software	2021	Global Spherical Harmonic Package RIV/49777513:23520/21:43963979
Software	2021	Mechatronic vibration damping stand – SW RIV/49777513:23520/21:43962957

Software	2021	Open workflow for processing of standardized electroencephalographic data RIV/49777513:23520/21:43963649
Software	2021	Software for creating a continuous display of the original map of the stable cadastre and its publishing by web technologies RIV/49777513:23520/21:43964370
Software	2021	Software library for extracting descriptors and for encrypting and storing records RIV/49777513:23520/21:43962543
Research report	2021	Evaluation of an automated test system for GA RBC RIV/49777513:23520/21:43963964
Research report	2021	Upgrade of the software system OPAL-ATHENA for reload patterns optimization of WWER440 type reactors RIV/49777513:23520/21:43963917
Verified technology	2021	Sensoric NiCr coating in compressive stress prepared using HiPIMS with positive pulse after the main negative HiPIMS pulse on dielectric substrates RIV/45309787:_____/21:N0000003
Pilot plant	2022	Power system AI optimizer RIV/49777513:23520/22:43966069
Pilot plant	2022	WACloud: A centralized interface for mining big data from the web archive RIV/00023221:/22:N0000056
Pilot plant	2022	Software tool for optimizing secure flexibility margins in distribution grids RIV/49777513:23520/22:43968380
Prototype	2022	Prototype of robotic system for autonomous laser modification of surfaces RIV/49777513:23520/22:43967457
Prototype	2022	System PAS RIV/49777513:23520/22:43967686
Functional sample	2022	Functional sample of HIL simulator platform RIV/49777513:23520/22:43967046
Functional sample	2022	Robotic device for positioning NDT probes RIV/49777513:23520/22:43967602
Functional sample	2022	SpacePix radiation monitor demonstrator placed on a satellite RIV/00010669:_____/22:N0000070
Software	2022	Voice interface for a robotic platform RIV/49777513:23520/22:43966051
Software	2022	An integrated system for processing, storing and presenting scanned documents in Cyrillic RIV/49777513:23520/22:43967006
Software	2022	Droneport Orchestrator RIV/49777513:23520/22:43966089
Software	2022	Development of SW module for subtitling of live TV programs broadcasted in 2022 by the Czech TV RIV/49777513:23520/22:43967009
Software	2022	Software CogniGuide for NDT System RIV/49777513:23520/22:43967011
Software	2022	SW modules for test stands in Novibra RIV/49777513:23520/22:43967015
Software	2022	Library of SW modules with ready-to-use simulators RIV/49777513:23520/22:43967049
Software	2022	SW modules for robot cognitive guidance system in laser applications RIV/49777513:23520/22:43967241

Software	2022	SW2 Robust diarization RIV/00216305:26230/22:PR36464
Software	2022	Automatic line detector configuration tool for AGV RIV/49777513:23520/22:43967356
Software	2022	Power losses prediction system for transmission grids RIV/49777513:23520/22:43967367
Software	2022	Fault detector of transmission system models RIV/49777513:23520/22:43967368
Software	2022	A software tool for accelerating the security assessment of cross-border transmission capacities RIV/49777513:23520/22:43967369
Software	2022	Software tool for controlling and analysing the process of laser cleaning and surface structuring RIV/49777513:23520/22:43967448
Software	2022	English prosodic models for teaching-style speech synthesis RIV/49777513:23520/22:43967454
Software	2022	German prosodic models for teaching-style speech synthesis RIV/49777513:23520/22:43967493
Software	2022	Russian prosodic models for teaching-style speech synthesis RIV/49777513:23520/22:43967495
Software	2022	French prosodic models for teaching-style speech synthesis RIV/49777513:23520/22:43967515
Software	2022	Spanish prosodic models for teaching-style speech synthesis RIV/49777513:23520/22:43967517
Software	2022	Camera workstation system RIV/49777513:23520/22:43967617
Software	2022	System for automatic monitoring of blade vibrations from rotor signals RIV/49777513:23520/22:43967622
Software	2022	SW module for automatic rubbing detection in the RMS platform environment RIV/49777513:23520/22:43967624
Software	2022	SW for measurement and analysis of signals from third-party local measuring units with connection to the RMS system RIV/49777513:23520/22:43967626
Software	2022	SW module for sensing and calibrating vibration signals of the monitoring system of industrial gearboxes Gear Service, s. r. o. RIV/49777513:23520/22:43967651
Software	2022	Event detection and early warning system of a diagnostic system RIV/49777513:23520/22:43967654
Software	2022	Mobile client of the remote monitoring system of steam turbines for iOS and remote management RIV/49777513:23520/22:43967656
Software	2022	Module for automated import of signals into the remote monitoring system, continuous evaluation of the operating state and its automated output in the form of a regular report RIV/49777513:23520/22:43967657
Software	2022	Algorithms for fault detection of stochastic systems in multiple model framework RIV/49777513:23520/22:43967671
Software	2022	Development of the graphic tool Palladium – 2022 RIV/49777513:23520/22:43967708

Software	2022	Text preprocessing of numerical expression of time data and physical quantities for TTS purposes RIV/49777513:23520/22:43967887
Software	2022	Preprocessing of abbreviations typical in court text documents for TTS purposes RIV/49777513:23520/22:43967889
Software	2022	Text preprocessing containing abbreviations of titles, ranks, states and institutions for TTS purposes RIV/49777513:23520/22:43967891
Software	2022	Automatic empty images filtration for camera-trapping datasets RIV/49777513:23520/22:43967908
Software	2022	Automatic species identification for camera-trapping datasets RIV/49777513:23520/22:43967909
Software	2022	Export application RIV/00023221:/22:N0000055
Software	2022	Stationary object detection dataset for autonomous driving in Pilsen RIV/49777513:23520/22:43966624
Software	2022	BrainIn – Online software system for neurorehabilitation RIV/49777513:23520/22:43967385
Software	2022	Dynamic Traffic Modeller RIV/49777513:23520/22:43967240
Software	2022	System for automated search and download of contract terms RIV/49777513:23520/22:43967204
Software	2022	Development of SW for measurement and analysis of signals from third-party local measuring units with connection to the RMS system RIV/49777513:23520/22:43967626
Research report	2022	Ensuring cyber security in railways - further development of weighted code distribution calculations RIV/49777513:23520/22:43968009
Patent	2023	System for wireless data transmission from bovine ruminal probes RIV/49777513:23520/23:43971287
Patent	2023	Method of automatic detection of synchronous rubbing in turbine. European Patent Office, EP4308797 https://patentscope.wipo.int/search/en/detail.jsf?docId=EP420422201&_cid=P20-LT4C0U-27318-1
Verified technology	2023	Validated technology of autonomous laser cleaning of surfaces RIV/49777513:23520/23:43971029
Verified technology	2023	Validated technology of autonomous laser structuring of surfaces to create anchor base for further surfacing applications RIV/49777513:23520/23:43971030
Verified technology	2023	Information system with extensive monitoring and advanced data analysis to support social care RIV/49777513:23520/23:43970878
Pilot-plant	2023	Integrated system for parameterization and validation of flexibility integration in the market environment of the Czech Republic RIV/49777513:23520/23:43971483
Functional sample	2023	Advanced battery compartment for robotic manipulation RIV/49777513:23520/23:43968525
Functional sample	2023	Droneport robotic gripper RIV/49777513:23520/23:43968526

Functional sample	2023	7 DoF NDT robot RIV/49777513:23520/23:43971269
Functional sample	2023	Fanuc easy teaching extension RIV/49777513:23520/23:43971284
Software	2023	ArUco based navigation SW for robotic gripper RIV/49777513:23520/23:43968528
Software	2023	Application for the management of transplant patients RIV/49777513:23520/23:43967215
Software	2023	KAITOS RIV/26376326:/23:N0000001
Software	2023	WAV2VEC model for acoustic event detection RIV/49777513:23520/23:43969241
Software	2023	A software tool for retraining the WAV2VEC model and distil the knowledge into a model suitable for running on a device with low computing power RIV/49777513:23520/23:43969243
Software	2023	AGV PCB optimization RIV/49777513:23520/23:43969268
Software	2023	SW3 ASR for demanding acoustic conditions RIV/00216305:26230/23:PR37715
Software	2023	Application to support the activity and efficiency of the transplantation process coordination RIV/49777513:23520/23:43970349
Software	2023	DMS to support registry quality management specific needs RIV/49777513:23520/23:43970350
Software	2023	SW module for subtitling of live TV programs broadcasted in 2023 by the Czech TV RIV/49777513:23520/23:43970484
Software	2023	Test stand for verification and qualification of SW tools of Sandra Z102 modular systems RIV/49777513:23520/23:43970617
Software	2023	Test stand for verification and qualification of SW tools of the UB0026A1 excitation controller RIV/49777513:23520/23:43970620
Software	2023	Automatic detection of static objects in scene from a camera RIV/49777513:23520/23:43970685
Software	2023	Software tool for synthesis of robust and optimal output-concerned input shaping filters RIV/49777513:23520/23:43970780
Software	2023	Individual recognition of large carnivores RIV/49777513:23520/23:43970825
Software	2023	Speech generator for dictionaries and teaching materials RIV/49777513:23520/23:43970907
Software	2023	Multimediatization of the Internet Dictionary of Contemporary Czech RIV/49777513:23520/23:43970909
Software	2023	Mobile client of the remote monitoring system of steam turbines for Android operating system RIV/49777513:23520/23:43970924
Software	2023	Development of a system for measuring and diagnosing low-speed machines and industrial gearboxes RIV/49777513:23520/23:43970926

Software	2023	Software module for calculation and remote monitoring of steam turbine blade erosion RIV/49777513:23520/23:43971006
Software	2023	Development of the graphic tool Palladium – 2023 RIV/49777513:23520/23:43971007
Software	2023	Digital voiceprint of Karel Gott RIV/49777513:23520/23:43971171
Software	2023	Software for design and implementation of predictive controllers in explicit form RIV/49777513:23520/23:43971201
Software	2023	Software for robust and optimal design of fixed structure controllers in electromechanical systems RIV/49777513:23520/23:43971203
Software	2023	XIL models for process control RIV/49777513:23520/23:43971214
Software	2023	Software online demonstrator of the asking question framework RIV/49777513:23520/23:43971258
Software	2023	Automatic processing of production line data RIV/49777513:23520/23:43971340
Software	2023	AI surgery analyser for education RIV/49777513:23520/23:43971367
Software	2023	Optimizer of operation and deployment of cogeneration units for provision of power balance services RIV/49777513:23520/23:43971506
Software	2023	Advanced predictors of technical losses in transmission systems RIV/49777513:23520/23:43971510
Software	2023	Grid observer RIV/49777513:23520/23:43971514
Software	2023	Energy auction portfolio optimizer RIV/49777513:23520/23:43971507
Software	2023	Integration of SfePy into toolchain for massive optimization RIV/49777513:23520/23:43970871
Software	2023	AVD - an intelligent assistant to support the coding and reporting of diagnoses, codes of performed procedures, provided drugs and medical devices RIV/25145444: /23:N0000001
Research report	2023	Implementation and support for ensuring cybersecurity in Skoda Electric RIV/49777513:23520/23:43970494

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

Cooperation with industrial and social partners takes place within the framework of grant projects, contractual research, license fees, or knowledge transfer (training). FAS is involved in dozens of R&D projects every year with companies based in Czechia and abroad. *Commercialization of results* at FAS is supported by the Department of Knowledge Transfer and Contract Research (TSV) of UWB which has a qualified team of experts in intellectual property protection, knowledge transfer, marketing. The commercialization process is described in Directive 33R/2018 Protection of Intellectual Property and Transfer of Knowledge.

The *transfer of R&D results* into practice at FAS can be described as follows:

- Results with commercial potential are reported by researchers to TSV. Results with commercial potential are continuously searched for and identified by TSV.
- TSV formally checks the notification and provides an opinion on the result regarding its usability, including a form of industrial legal protection.
- Subsequently, the industrial legal protection itself is ensured.
- Negotiation of contractual terms is ensured by TSV in cooperation with the author and the legal department.
- Implementation of the commercialization process is managed by TSV in cooperation with research teams.

Users of R&D&I results are mainly companies from the fields of mechanical engineering, automotive, energy and software engineering. The R&D&I results are offered to potential users in several ways. First, they are presented in the expert database which allows companies to search for technologies with application potential. The R&D results are also presented in other databases, such as the Enterprise Europe Network or the database of the Transfera.cz association. Second, FAS researchers organize or participate in various conferences, fairs, interdisciplinary and intersectoral meetings and seminars. Social networks are also used which have by far the greatest reach and their use is relatively not time-consuming.

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

When organizing seminars, workshops and similar events, FAS researchers cooperate with important organizations in the Pilsner region and Bavaria, which focus on connecting research organizations, application entities and the public sector. Building these networks links the research teams at FAS to companies from the immediate vicinity and significantly helps in finding a suitable commercial partner for selected technologies.

Commercialization of R&D&I results at FAS also includes *spin-off and start-up companies*. FAS researchers are advised by TSV on their establishment including specifics and types of spin-off companies, procedures for establishing companies, licensing conditions and relationship with FAS. This support resulted in establishment of several successful spin-off companies that motivate other researchers at FAS to be interested in commercialization of their results. This is in many ways simpler than providing licenses to third parties.

The knowledge transfer system at FAS is set up effectively as it can be seen from Table 3.5.1. Between 2019 and 2023, there has been an increase in FAS revenues from licensing fees and spin-off companies. This trend will be supported in the coming years by creation of a spin-off academy, which will support new spin-off companies.

Examples of the successful transfer of results and commercialisation of R&D&I at FAS include:

1. *Software developed for the Czech Television* allows for automatic transcription of spoken language into text using a computer. The automatic speech recognition system recognizes an original audio track of a television program and transcribes it into text. The subtitling service is used to produce closed captions for selected live programs of the Czech Television. The service is intended primarily for hearing-impaired people to make the audio information of multimedia content of live broadcasts accessible. The software received a prestigious award of the Technology agency of the Czech Republic for its significant societal relevance.

2. *Knowledge bot and Multi-modal identification of persons*: exclusive licenses for the developed software were sold to McKinsey & Company, Inc. Prague and Palaxo Development, Ltd. BrainIn is a tool that facilitates the return to normal life for patients in the acute phase of brain disease and in the phase of long-term home rehabilitation. It is based on targeted neurorehabilitation methods and procedures as well as knowledge of information technologies. Various training tasks can be used for home and institutional rehabilitation. Thanks to its varying templates, neurorehabilitation therapists can select individual tasks and compile exercises tailored to the needs of individual patients. This is what distinguishes the BrainIn software from other similar programs.

3. *Power losses prediction system for transmission grids* is a software tool developed for the company ČEPS, the operator of the Czech transmission system. The software minimizes power losses during the transmission of electrical energy through a real electricity system. The power losses are proportional to the volume of transmitted energy. In recent years, the volume of energy transmitted through the Czech transmission system has increased significantly, so did the power losses that ČEPS had to compensate for. The software predicts the technical state of the transmission system by integrating data from various production systems, transforms them into suitable calculation forms that are further used for predicting losses on different time scales. Estimated predictions have a very significant economic impact as improvement by one percentage point leads to savings in the order of millions of Euros. The system is deployed by ČEPS.

4. *SW module for automatic rubbing detection in the RMS platform environment* is a software tool developed for the company Doosan Škoda Power in Pilsen, the leading manufacturer of turbines

for power plants. Detection of rotor contact in rotating machines (so-called rubbing) is very important information in modern devices where the clearances between the rotor and the stator are reduced to increase efficiency. Rotating machines such as steam and gas turbines, compressors, circulation pumps, etc. are essential elements in the production of electricity and their failure and subsequent failure can mean significant losses. The system developed at FAS can monitor these devices online and provide their operators with up-to-date information about their condition. The system has been successfully applied to detect rubbing at numerous rotating machines around the world.

5. *SW module for robot navigation in the task of laser cladding of LP steam turbine blades* is a software tools developed for the company LaserTherm. The software module generates a set of trajectories for a robotic laser cladding technology containing a six-axis industrial manipulator and a one-axis positioner. The robotic technology performs laser cladding of cobalt alloys to produce low pressure turbine blades with extended durability. The technology contains an algorithm for detection of a leading edge of the blade which is then used to generate a set of cladding trajectories, so-called clad beads, based on selected technological parameters to cover designated areas with a thin layer of the cobalt alloy. Furthermore, the technology contains an algorithm for collision detection and avoidance, which allows for the application of the material in the neighbourhood of blade coupling elements.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Bone Marrow Transplant Foundation (donation)	100/ 3,945	100/ 3,945		100/ 3,945	
Czech National Marrow Donor Registry (donation)	240/ 9,467	240/ 9,467	240/ 9,467	240/ 9,467	300/ 11,834
Czech News Center, JSC (licence fee)					11/ 434
Czech Television (licence fee)	750/ 29,586				
ČEZ, JSC (lecturing)			85/ 3,353		
Doosan Škoda Power, Ltd. (service fee)		58/ 2,288			
Doosan Škoda Power, Ltd. (service fee)			144/ 5,680	308/ 12,150	332/ 13,097
Doosan Škoda Power, Ltd. (service fee)		102/ 4,024		8/ 316	
Doosan Škoda Power, Ltd. (service fee)			69/ 2,722		
EC-Elektronik, Ltd. (service fee)	21/ 828	101/ 3,984	7/ 276	29/ 1,144	
EXON, Ltd. (licence fee)					564/ 22,249
EXON, Ltd. (licence fee)				267/ 10,533	861/ 33,964

JUREX VOX, Ltd. (service fee)	68/ 2,682				
LaserTherm, Ltd. (service fee)	5/ 197			11/ 434	
Logic Elements, Ltd. (licence fee)			3/ 118	6/ 237	
McKinsey & Company, Inc. Prague (licence fee)	100/ 3,945				
Novibra Boskovice, Ltd. (lecturing)		85/ 3,353			
Operation of the Voice Preservation System (donation)			50/ 1,972		4/ 158
Palaxo Development, Ltd. (licence fee)		150/ 5,917		1 230/ 48,521	
PROFESS, Ltd. (service fee)			195/ 7,692		
Prusa Research (donation)					57/ 2,249
REX Controls, Ltd. (licence fee)	16/ 631				
REX Controls, Ltd. (licence fee)					125/ 4,931
Suprock Technologies (service fee)	38/ 1,499				
Škoda JS, JSC (donation)		18/ 710	2/ 79	7/ 276	2/ 79
University of South Bohemia České Budějovice (service fee)		17/ 671			
VerifaLabs, Ltd. (licence fee)	20/ 789				
Vibration diagnostics (courses)	5/ 197				
XENO Cell Innovations, Ltd. (licence fee)					50/ 1,972
Total	1,363/ 53,767	871/ 34,359	795/ 31,361	2,206/ 87,022	2,306/ 90,966

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

FAS has two *partnership programs*, one focused on cooperation with private companies, the other on cooperation with secondary schools. In 2023, the number of partners reached 29 (14 companies and 15 secondary schools). Partnership with companies brings significant benefits and helps to fulfil strategic plans of FAS and UWB in cooperation with practice. Cooperation with partners improves the quality of teaching, science and research. Cooperation with companies in teaching includes lecturing, supervising bachelor's and master's theses, leading workshops and professional practice. Professional practice is an important educational activity that would not be possible without corporate partners. Students move to companies for 6 weeks full-time (240 hours), undergo a series of training courses and try out work in the private sector. FAS fulfils a strategy for higher education in the form of “developing competencies relevant to life and practice in the 21st century”.

FAS offers visits to its laboratories in the form of *excursions*, mainly to elementary and secondary school students. Approximately 30 excursions take place every year. FAS has a partnership program with secondary schools. The central motive for cooperation is the support of professional activities of secondary school students and the opportunity to participate in excursions, workshops and lectures organized by FAS. Every year, FAS organizes the Open Day event. In this context, an online broadcast with interviews with representatives of individual parts of FAS is prepared for potential applicants. A special website with information about the admissions process was created. The summer months are dedicated to several *summer schools* organized FAS. Faculty representatives participate regularly in various fairs and events organized for those interested in studying, as well as for the public (Scientists' Night, Gaudeamus, etc.) as part of the promotion of existing and newly accredited study programs. Faculty representatives also regularly participate in domestic and foreign conferences. Department of Mathematics organizes a series of lectures for high school students entitled "Seminars not only for the Mathematical Olympiad".

Educational partnerships with secondary schools enrich mutual relations and help to expand awareness of FAS and FAS activities. FAS proposes topics for secondary professional activities. FAS also maintains a lecture catalogue, from which schools choose topics that complement their own learning activities. FAS also invites students from partner schools to its summer schools intended for future students at the faculty. Excursions at FAS are always organized according to individual requirements of its partners.

Professionals and public had been informed about activities of FAS through standard *communication channels*, such as the university information portal, university quarterly magazine, Student Questions blog, social networks and popularization educational activities. Employees, students and graduates of FAS appeared in numerous reports disseminated by press and articles published through the university portal info.zcu.cz. FAS was repeatedly mentioned in media (322 times just in 2023).

Selected examples in the field of popularization of R&D&I and communication with the public during 2019-2023 include:

Open Day at FAS is organized every year for public and namely for students at secondary schools, research teams present their activities, infrastructure and interesting results with the main goal to attract new students.

Campo Arduino is a robotic camp or cybernetic summer workshop organized by FAS during summer holidays. During the workshop, participants engage with simple robots based on the Arduino platform. The primary target group consists of students at secondary schools or higher classes of primary schools. However, participation is open to anyone, parents or grandparents of children can join, fans of this technology can participate with their own parts and can be provided with some help how to build their own robots. The working language of the workshop is primarily Czech, but foreign (English speaking) participants are not excluded.

Campo Lampone is a higher-level summer cyber camp intended primarily for those who would be bored at Camp Arduino and want to learn more. The theme of the camp is "cybernetics as a game". However, its participants work with the Raspberry Pi single-board computer platform, or a similar one. Lecturers are researchers from FAS and its research centre NTIS.

GeoCamp is the summer school of the Department of Geomatics intended primarily for pupils of the 2nd grade of elementary schools and students at secondary schools. Its program is divided into thematic areas of activities. Outdoor activities include field measurements, geomatics orientation, etc. There are also indoor activities focused primarily on working on computers in labs, during which participants become familiar with geographic information systems. The third type of activities are mixed indoor-outdoor activities, when preparation for the outdoor part takes place in classrooms. Results of this activity are then implemented in the outdoor areas of FAS. In the past, such activities included the creation of geoglyphs or indexing with a four-tree.

MechCamp is a summer school organized at the beginning of each academic year. It is intended for high school students who enjoy mathematics and physics and want to learn something about modern materials, vehicle dynamics or biomechanics. Participants try out the production of composite samples, test them on a tearing machine, get acquainted with computer modelling of road vehicles (for example trolleybuses and formulas), and learn how computer modelling of a collision between a vehicle and a pedestrian is done. They also learn how mechanical properties of human tissues are determined or how computer simulation of blood flow in human vessels is done. They get acquainted with these topics not only in labs of FAS, but also during an excursion to a company that deals with the use of computer simulations in practice.

NanoCamp is a summer school organized annually by FAS and intended for high school students with an interest in applied physics, materials engineering, and new technologies. Participants prepare various thin-film materials using plasma technologies and explore their properties using advanced analytical methods. They also learn where new nanostructured materials with unique properties are used (smartphones, smart windows, flexible displays, anti-reflective filters, clean energy sources, intelligent sensors, high-speed machining, self-cleaning and antibacterial surfaces, biocompatible implants).

BootCamp is a summer school every year organized by FAS. The one-week school is intended for new students of FAS who have no experience with programming. The school is held two weeks before the start of each academic year. Participants attend lectures on programming theory and solve programming problems. If contact lessons are not allowed, BootCamp is held online.

AimtecHackathon is a programming event organized every spring by Aimtec in cooperation with FAS. The event is intended for public, from the youngest, to whom the event shows possibilities of IT education and later employment, to programmers and students who can learn what is happening in the tech world or join a team to solve a specific problem in a limited time. FAS employees provide participants with mentoring at the event, in which they also share their experience gained from research activities (e.g., in the field of signal processing using machine learning methods). Successful projects from previous years include a tool for slowing down spoken words in television programs, an application for identifying objects for the blind, or systems that allow computers to be controlled using facial expressions. Every year, several hundred participants take part in the event.

Days of Science and Technology is a traditional September event of UWB which popularizes science and entertains the public at the same time. FAS is involved in the event, for example, with the BrainIn exhibition, where participants can try out games for home neurorehabilitation, the aim of which is to improve the quality and effectiveness of neurorehabilitation procedures, both in the acute phase of brain disease and in the phase of long-term home rehabilitation. For this, targeted neurorehabilitation methods and procedures and current knowledge of information technologies (human-computer interface, web technologies, machine learning methods) are used.

We Innovate Pilsen is a festival held annually since 2018, the aim of which is to present new technologies, establish cooperation between the academic and private spheres and support innovation. Selected research teams of FAS regularly participate in the event and present their research results. For example, in 2023, when the record number of visitors (more than 6,000) attended the festival, the neuroinformatics research group of FAS presented the SmartTrain project, which allows controlling an electric machine only with brain waves.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

According to recommendations from the last evaluation, FAS should

1. *more priorities on international funding*: FAS is constantly trying to attract more research funding from foreign providers. There are several teams at FAS that are very successful in obtaining foreign projects (geomatrics, cybernetics, physics). In 2025, FAS plans to appoint a new manager to support research teams in preparing research proposals submitted for public calls abroad. As for foreign income, it has been slowly increasing over time. Efforts are also ongoing to host ERC or EIC projects at FAS (applications submitted by FAS staff advanced to the second round of evaluation and were close to receiving support).

2. *consider encouraging larger involvement in international projects for larger impact*: As mentioned above, FAS is making great efforts to increase its income from international projects. The number of project applications is large and increasing over time. The management of UWB and FAS is taking further steps to support research teams in these activities (e.g. a new position of international project manager at FAS).

3. consider increasing the percentage of the contract research projects: Contract research at FAS is constantly growing, see Table 3.3.2. This applies to both the absolute volume of contracted funds and the percentage of contractual research revenues in the annual FAS budget.

4. consider to further expand cooperation with the public sector: FAS research teams are constantly expanding their collaboration with partners in the public sector. There are many new partners with whom FAS is collaborating. These collaborations are also supported by a large ERDF-funded research project (the DigiTech project co-funded by the ESF supports long-term cross-sectoral collaboration).

5. implement strategy and support starting spin-off companies and cooperate more with start-ups: FAS has managed to expand its list of spin-offs and start-ups. In addition to those reported in the last SER five years ago, new spin-offs and start-ups at FAS now also include Plan4All, RoadTwin and Innoconnect.

6. set even higher priority in encouraging researchers to obtain international recognition: FAS continuously supports its researchers in gaining a higher international reputation. Its junior staff and students participate in international exchange programs, conferences and other events of international cooperation in research and education.

7. put more efforts in popularization with organizing hackathons, summer schools and similar: FAS has significantly expanded its portfolio of hackathons and summer schools, See section 3.6. These PR activities attract numerous primary and secondary school students who are potential new FAS students. These activities are supported by the new FAS PR team.

8. increase efforts in improving the gender balance in students and faculty members: FAS actively promotes itself to potential female students and supports its female staff. Women are also much more involved in the management of FAS, with women being involved in the deanship and two out of six educational departments currently chaired by women. FAS generally focuses on disciplines in which men have traditionally had a long-term and global dominance. Nevertheless, the percentage of female staff and students at FAS is above average.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Website of FAS	3.1	https://www.fav.zcu.cz/en/
Management of FAS	3.1	https://www.fav.zcu.cz/en/Faculty/About-us/deans-office.html
Structure of FAS	3.1	https://www.fav.zcu.cz/en/Faculty/departments.html
Research of FAS	3.1	https://www.fav.zcu.cz/en/Research/
Study at FAS	3.1	https://www.fav.zcu.cz/en/Admission/
NTIS Centre	3.1	https://www.ntis.zcu.cz/en/
HR Award	3.1	https://www.fav.zcu.cz/en/Faculty/Hr/
Gender Equality Plan	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=aacb3acc-2f85-4da8-858f-e8dc8a43d09b;1.0&download=0

Internal Decrees of FAS	3.1	https://www.fav.zcu.cz/en/Faculty/Important-documents/internal-decres.html
Internal Rules of FAS	3.1	https://www.fav.zcu.cz/en/Faculty/Important-documents/index.htmlinternal-rules.html
Strategic Plan 2021-2025	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=96c2ecf5-0478-4e6a-b899-eb24ae2f4572;1.0&download=0
Implementation Plan of the Strategic Plan for 2022	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=75b794d1-fac0-42c5-b837-0f3ac9cf73a7;1.0&download=0
Implementation Plan of the Strategic Plan for 2023	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=b4ebfcb0-e074-44be-9b74-8a2f6ea5f7b4;1.0&download=0
Implementation Plan of the Strategic Plan for 2024	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=5af04d1c-9eff-4e61-b362-8cc32348238f;1.0&download=0
Silver Medal Pavel Drábek	3.2.1	https://www.czechleaders.com/photogalleries/senate-president-milos-vystrcil-awards-silver-medal-to-27-czech-personalities-linked-by-their-selfless-service-to-others-25-09-2020
Guy Bomford Prize 2023	3.2.1	https://iag-aig.org/doc/GH2020/203_Guy Bomford Prize Lecture.pdf
Recognition of the Czech Engineering Academy	3.2.1	https://info.zcu.cz/image?obrazek=10453&type=orig
Hands19 Challenge	3.2.1	https://sites.google.com/view/hands2019/challenge#h.p_Y9eLuCuXYN7U
Harry Rowe Mimno Award	3.2.1	https://ieee-aess.org/awards/harry-rowe-mimno-award#recipients-2020
Len Gelman Award	3.2.1	https://www.bindt.org/events-and-awards/Len-Gelman-Award/
Joseph Fourier Prize	3.2.1	https://info.zcu.cz/Lukas-Picek-from-the-Faculty-of-Applied-Sciences-was-awarded-the-Joseph-Fourier-Prize/clanek.jsp?id=5554
AI Award 2023	3.2.1	https://www.cesnet.cz/en/news/we-contributed-to-the-project-that-won-the-ai-awards-2023-195
Journal of Graph Theory	3.2.2	https://onlinelibrary.wiley.com/page/journal/10970118/homepage/editorialboard.html
Journal of Geodesy	3.2.2	https://link.springer.com/journal/190/editorial-board
Machine Graphics and Vision	3.2.2	https://mgv.sggw.edu.pl/about/editorialTeam
Journal of Informetrics	3.2.2	https://www.sciencedirect.com/journal/journal-of-informetrics/about/editorial-board
IEEE Transactions on Aerospace and Electronic Systems	3.2.2	https://ieee-aess.org/publications/taes/technical-areas-editors

Archive of Applied Mechanics	3.2.2	https://link.springer.com/journal/419/editorial-board
Advances in Mechanical Engineering	3.2.2	https://journals.sagepub.com/editorial-board/ADE
Applications of Mathematics	3.2.2	https://link.springer.com/journal/10492/editorial-board
Applied and Computational Mechanics	3.2.2	https://acm.kme.zcu.cz/acm/about/editorialTeam
Thomassen's and Matthews-Sumner's conjectures: beyond claw-free graphs	3.2.3	https://public.kma.zcu.cz/other/ryjacek_china_2019.pdf
Classification of discrete groups of small genera up to the topological equivalence	3.2.3	https://math.sustech.edu.cn/conference/
Artificial intelligence for diabetes	3.2.3	https://2023.ieee-iscc.org/keynotes/
Radial basis functions: Meshless interpolation and approximation methods	3.2.3	https://2022.cistseries.com/
Advancing the theoretical apparatus of physical geodesy	3.2.3	https://iugg2019montreal.com/
On the correct definition and use of normal heights in geodesy	3.2.3	https://www.egu23.eu/
Pathways for the preparation of technologically important metal oxides	3.2.3	https://www.european-mrs.com/meetings/2019-spring-meeting
Self-formation of metastable structures in W-Zr thin-film alloys: Opportunity for advanced functional coating	3.2.3	http://www.aepse.org/2023/index.html
Modelling of advection-diffusion transport in liver tissue using the	3.2.3	https://www.scipedia.com/sj/eccomas2022

homogenization approach		
Homogenization of the perfusion and contrast fluid transport in the liver lobules	3.2.3	https://www.cmbbe-symposium.com/2023/
Advancing the theoretical apparatus of physical geodesy	3.3	https://iag-aig.org/doc/GH2020/203_Guy Bomford Prize Lecture.pdf
Structural properties of graph classes characterized by forbidden subgraphs	3.3	https://starfos.tacr.cz/en/projekty/GA20-09525S
Digital urban European twins for smarter decision making	3.3	https://cordis.europa.eu/project/id/870697/reporting
Challenging environments tolerant smart systems for IoT and AI	3.3	https://cordis.europa.eu/project/id/876362/reporting
Advanced algorithms and techniques for resilient time provision	3.3	https://navisp.esa.int/project/details/194/show
Automatic voice banking and reconstruction for patients after total laryngectomy	3.3	https://starfos.tacr.cz/en/projekty/TH02010307
Intelligent motion control under Industry 4.E	3.3	https://cordis.europa.eu/project/id/101007311/reporting
Cognitive system development for automatic robot guidance in 7D for laser hardening, welding, cladding and cutting	3.3	https://old.starfos.tacr.cz/en/project/FV10668
Turbo machinery retrofits enabling flexible back-up capacity for the transition of the European energy system	3.3	https://ses.jrc.ec.europa.eu/eirie/en/project/turbomachinery-retrofits-enabling-flexible-back-capacity-transition-european-energy-system

Nonlinear acoustics and transport processes in porous periodic structures	3.3	https://old.starfos.tacr.cz/en/project/GA21-16406S
Linguistically structured software query database	3.4	https://www.kiv.zcu.cz/en/research/downloads/product-detail-en.html?produkt_id=145
On-line software system for neurorehabilitation (BrainIn)	3.4	https://www.kiv.zcu.cz/en/research/downloads/product-detail-en.html?produkt_id=155
Framework definition of NaSaPO objects including reference attributes	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23520%2F21%3A43967754
An integrated system for processing, storing and presenting scanned documents in Cyrillic	3.4	https://archivkgb.zcu.cz/ https://www.aiawards.cz/
Test stand for verification and qualification of SW tools of modular systems Sandra Z102	3.4	RIV/49777513:23520/23:43970617
Development of software modules to support subtitling of live Czech Television	3.4	RIV/49777513:23520/23:43970484
Modular information system for streamlining the donor registry	3.4	RIV/49777513:23520/19:43956435
Pilot plant of the system for detection and identification of machinery parts	3.4	RIV/49777513:23520/19:43957396
Advanced predictor of technical losses in transmission systems	3.4	RIV/49777513:23520/23:43971510
Tuning of the VVER1000 reactor model excited by real coolant pressure pulsations and analysis of the dynamic properties of the fuel assembly	3.4	RIV/49777513:23520/20:43960024

Rector's Decision 10R/2014	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=0a363df9-a568-4ecb-a7ee-ceca6bd37c58;1.0&download=0
Vice-Rector's Instruction 5P/2016	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=ebcf18fe-0449-49a5-9c5e-239296d349e0;1.0&download=0
Software for Czech Television	3.5	RIV/49777513:23520/19:43957329
BrainIn Software	3.5	https://www.kiv.zcu.cz/en/research/downloads/product-detail-en.html?produkt_id=155
Power losses prediction system for transmission grids	3.5	RIV/49777513:23520/22:43967367
SW module for automatic rubbing detection in the RMS platform environment	3.5	RIV/49777513:23520/22:43967624
SW module for robot navigation in the task of laser cladding of LP steam turbine blades	3.5	RIV/49777513:23520/21:43963650
Open Day at FAS	3.6	https://info.zcu.cz/Laboratories-and-lecture-halls-were-bursting-at-the-seams-or-the-Open-Day-in-Pilsen-is-over/clanek.jsp?id=7650
Campo Arduino	3.6	http://campoarduino.zcu.cz/english/
Campo Lampone	3.6	https://www.kky.zcu.cz/en/Education/Campo-Lampone.html
GeoCamp	3.6	https://www.kgm.zcu.cz/en/Education/Geocamp.html
NanoCamp	3.6	https://www.kfy.zcu.cz/en/Education/nanocamp.html
AimtecHackathon	3.6	https://www.aimtechackathon.cz/en/
Days of Science and Technology	3.6	https://info.zcu.cz/clanek.jsp?id=5557&lang=en
We Innovate Pilsen	3.6	https://www.inovujemeplzen.cz/en/

MODULE 3:
FACULTY OF ARTS (FOA)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Arts

FORD: 6 - Humanities and the Arts

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

[The Faculty of Arts of the University of West Bohemia](#) (FOA) is a university division that develops **humanities and social science disciplines**. In addition to the traditional humanities such as philosophy, archaeology and history, FOA also fosters social science fields such as sociology, anthropology, and political science. The philological department is likewise an integral part of FOA. Interdisciplinary overlaps have long been important for FOA, especially in the area of natural sciences (biological anthropology, paleoanthropology, and environmental archaeology). FOA's **vision** centres on providing higher education, developing research projects and activities, as well as engaging in various educational activities and public outreach. Its **educational activities** primarily aim to provide students with relevant undergraduate and graduate qualifications to enhance their employability in the labour market, equip them with a broad outlook, cultivate their ability to critically and creatively approach new challenges, and strengthen their commitment to lifelong learning. FOA also hosts a number of PhD students within its departments. FOA strives for **high-quality results in basic and applied research** that are relevant to society's needs on a regional, national and international scale, and fosters relationships with relevant public administration institutions and the non-profit sector. In terms of outreach, the FOA contributes to the **social and cultural development of the wider Pilsen region**, actively engages in civil society, and promotes democratic and humanistic values on which it was founded in 1999. As the youngest such Faculty in the Czech Republic, it builds on the spirit of transformation following the end of the Communist era. In fulfilling its vision, FOA upholds the basic **values as freedom and openness**, as well as the **responsibility and respect for tradition**. The FOA consists of [eight departments](#), which also include several [research centres](#). In the area

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

of basic research, FOA focuses on two FORD categories according to the Frascati Manual: FORD 6 (Humanities and the Arts), which includes mainly history, archaeology, philosophy, and languages, as mentioned in FOA's evaluation report. The other is FORD 5 (Social Sciences) which encompasses mainly sociology, anthropology, and political science. A distinctive feature that sets FOA apart from other institutions of a similar type is its inclusion of FORD 1 (Natural Sciences), particularly biological anthropology, which is closely linked to social science research. Archaeology also plays a significant role in applied and contractual research (FORD 6). FOA is connected to the surrounding environment through various activities, including the study of social exclusion, migration, family relations, aging and rescue archaeology. The FOA's social contribution is reflected in numerous activities and outcomes a number of activities and outcomes, such as public opinion polls, social analyses, assessments of public policy issues and cooperation in developing solutions. It is necessary to emphasize the **high social relevance of research projects** addressing political extremism, security risks associated with social exclusion and homelessness. Faculty of Arts staff participate in the implementation of [international projects](#) (especially HERA, INTERREG V-A (CZ-BY), INTERREG VB (CENTRAL EUROPE), COST, Horizon); FOA also closely cooperates with the statutory city of Pilsen, surrounding municipalities, and the Pilsen region, thereby fostering meaningful interaction between the academic environment and the public sphere. FOA has consistently achieved **significant research results** in both national and international competition, reflected in professional [studies](#) published in journals indexed in prestigious databases (Web of Science, Scopus) and in scholarly [monographs](#) released by renowned international publishing houses (Routledge, Springer, Palgrave, De Gruyter, and others).

FOA is chaired by the Dean, a board of Vice-Deans, and a secretary (for the **organizational structure** of FOA, see [HERE](#)). [The management of FOA](#) is also overseen by academic bodies – [the Academic Senate](#), [the Scientific Board](#), and [the Disciplinary Committee](#). The Dean's permanent advisory boards are the [Dean's Board](#), [the Accreditation Committee](#), and [the Council of Partners](#). Other bodies of FOA are field [boards of doctoral study programmes](#), which monitor and evaluate educational activities in doctoral study programmes. Another body involved in FOA's educational activities is the University [Education Boards](#) (UEBs), which shape the line of the development of study programmes and participate in the creation and quality of study programmes.

[Research at FOA](#) is characterized by **interdisciplinarity**, shaped by the structure of study programmes and the specialization of individual lecturers and members of the academic staff. This interdisciplinary orientation is complemented and balanced by the consistent establishment of contacts, cooperation, and exchanges with Czech and foreign universities and scientific institutions. The long-term goal of FOA is to build a high-quality centre of education and research, that contributes to general intellectual, spiritual, and economic growth of the West Bohemian region and which will rank among the leading university institutions in the Czech Republic.

FOA at the University of West Bohemia offers 10 [bachelor's degree programmes](#) (including two professional degree programmes), 11 [follow-up master's degree programmes](#) (of which one is a professional degree programme) and five [doctoral degree programmes](#) (of which three are offered in English; one [habilitation procedure](#) in the field of History and Philosophy of Science and Technology is also available (as of December 31, 2023). Currently, over 1,500 students are enrolled at FOA (by the end of the monitored period, there were 1,555 students). In December 2023, a total of 126 full-time academic staff (94 FTE), 21 specialists in the area of science, research and development (11 FTE), 23 technical and administrative employees, as well as project researchers and coordinators (20 FTE). In December 2023, a total of 167 people were employed at FOA (125 FTE). By the end of 2023, FOA employed 10 professors (6 FTE) and 22 associate professors (16 FTE) who met the requirements of the [National Accreditation Bureau for Higher Education](#) for the accreditation of its study programmes.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	5.300/0.310	5.746/0.396	6.834/0.563	6.832/0.500	6.799/0.375	36.411/2.944
Associate Professor	17.540/1.860	17.987/1.936	17.940/1.950	16.327/2.158	15.521/2.195	85.315/10.099
Assistant Professor	60.800/27.140	60.997/25.111	67.066/29.003	67.214/30.511	65.212/31.215	321.289/142.980
Assistant	11.050/7.560	8.994/4.453	6.699/2.374	7.584/2.322	9.477/1.955	43.804/18.664
R&D Personnel ³	4.800/1.200	0.000/0.000	0.106/0.106	0.260/0.260	0.260/0.260	5.426/1.826
Researchers in other categories ⁴	9.065/2.430	9.937/3.295	10.746/4.107	8.777/2.993	9.103/2.990	47.628/15.815
Technical and economic staff ⁵	29.150/20.400	29.892/18.715	27.448/17.056	22.910/15.906	20.229/14.198	129.629/86.275
Scientific, research and development staff involved in teaching activities	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Early career researchers ⁶	7.0625/2.3125	9.5625/3.875	10.6875/5.125	12.375/5.875	16.0000/8.375	55.6875/25.5625
Total ⁷	137.705/60.900	133.553/53.906	136.839/55.159	129.904/54.65	126.601/53.188	669.502/278.603

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g., operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g., independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	2	0	0	0	1	0	5	1
Associate Professor	0	0	1	0	7	1	5	1	5	1	3	0
Assistant Professor	2	1	35	15	32	14	3	1	2	2	0	0
Assistant	4	2	5	2	2	2	1	0	4	3	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	0	0	10	4	3	0	1	0	1	0	0	0
Technical and economic staff ¹¹	3	3	13	6	12	9	4	4	3	3	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	9	2	1	1	0	0	0	0	0	0
Total ¹³	9	6	64	27	58	26	14	6	16	9	8	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g., operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g., independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	2	0	4	1	1	0	3	1
Associate Professor	0	0	1	0	6	2	7	1	4	0	4	1
Assistant Professor	0	0	24	12	42	15	9	7	4	3	0	0
Assistant	3	0	4	1	2	0	2	2	1	0	0	0
R&D Personnel ¹⁵	0	0	1	1	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁶	1	0	10	5	9	2	0	0	0	0	0	0
Technical and economic staff ¹⁷	2	1	10	6	8	6	2	2	1	1	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	17	8	2	1	1	1	1	1	0	0
Total ¹⁹	6	1	50	25	69	25	24	13	11	4	7	2

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e., one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	1,004	659	1,179	739	1,062	660	1,218	744	1,261	783	5,724	3,585
Master's ²⁰	236	155	248	161	258	175	259	163	219	142	1,220	796
Doctoral	78	44	86	44	75	36	79	40	75	36	393	200
Lifelong Learning Courses	93	57	0	0	27	18	0	0	0	0	120	75
Total	1,411	915	1,513	944	1,422	889	1,556	947	1,555	961	7,457	4,656

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category “R&D Personnel” includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category “Researchers in other categories” includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	10/0	0/0	10/0	2/0	10/0	2/0	10/0	2/0	10/0	2/0	19/0	2/0
Master's	8/0	0/0	9/0	1/0	11/0	1/0	11/2	1/0	11/2	1/0	20/2	1/0
Doctoral	5/0	0/0	5/1	0/0	5/1	0/0	5/3	0/0	5/3	0/0	10/4	0/0
Lifelong Learning courses	13/0	0/0	0/0	0/0	2/0	0/0	0/0	0/0	1/0	1/0	16/0	3/0
Total	36/0	0/0	24/1	3/0	28/1	3/0	26/3	3/0	27/3	4/0	65/6	6/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics			2
	1.2 Computer and information sciences			
	1.3 Physical sciences			
	1.4 Chemical sciences			
	1.5 Earth and related environmental sciences			
	1.6 Biological sciences	2	Basic Research	
	1.7 Other natural sciences			
2. Engineering and Technology	2.1 Civil engineering			0
	2.2 Electrical engineering, Electronic engineering, Information engineering			
	2.3 Mechanical engineering			
	2.4 Chemical engineering			
	2.5 Materials engineering			
	2.6 Medical engineering			
	2.7 Environmental engineering			
	2.8 Environmental biotechnology			
	2.9 Industrial biotechnology			
	2.10 Nanotechnology			
	2.11 Other engineering and technologies			

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

3. Medical and Health Sciences	3.1 Basic medicine			0
	3.2 Clinical medicine			
	3.3 Health sciences			
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries			0
	4.2 Animal and Dairy science			
	4.3 Veterinary science			
	4.4 Other agricultural sciences			
5. Social Sciences	5.1 Psychology and cognitive sciences	2	Basic Research	53
	5.2 Economics and Business			
	5.3 Education	2	Basic Research	
	5.4 Sociology	15	Balance Basic and Applied Research	
	5.5 Law	1	Basic Research	
	5.6 Political science	17	Basic Research	
	5.7 Social and economic geography	4	Basic Research	
	5.8 Media and communications	2	Basic Research	
	5.9 Other social sciences	10	Basic Research	
6. Humanities and the Arts	6.1 History and Archaeology	20	Basic Research	45
	6.2 Languages and Literature	6	Basic Research	
	6.3 Philosophy, Ethics and Religion	15	Basic Research	
	6.4 Arts (arts, history of arts, performing arts, music)	1	Basic Research	
	6.5 Other Humanities and the Arts	3	Basic Research	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

The FOA develops activities in the area of R&D&I and cooperates intensively with other actors in the research community at both institutional and individual levels. The academic staff of the FOA are involved in a number of activities within relevant scientific fields. Thanks to these activities,

the FOA is known as a prestigious workplace that intensively develops all three pillars of academic activities - education, scientific research, and the so-called outreach and public engagement (also known as the third mission), both domestically and abroad. The basic platform for development and cooperation within the humanities in the Czech Republic is the [Association of Deans of Faculties of Arts](#), of which the FOA is an active member. For more information on academics who have achieved international success in their field and have already received **prestigious awards** for their activities, see **Table 3.2.1**. In 2019, two of our employees received prestigious international scholarships – Jana Černá received the Marie Curie Scholarship (MSCA Global Fellowship, duration 2019-2023) and Radim Kočandrle received the Fulbright Scholarship (Visiting Research Fellowship, duration 2019-2020).

FOA members also serve as **members of editorial boards of domestic and foreign scientific journals**, see **Table 3.2.2**. The FOA employees serve on scientific and field boards at domestic universities, e.g., Dana Hamplová works for the Scientific Board (SB) of the Faculty of Social Sciences at Charles University and is a member of the Academic Assembly of the Czech Academy of Sciences (CAS), Petr Lozoviuk was a member of the SB of the FOA and the Faculty of Humanities at Charles University, Jan Váně is a member of the SB of the Faculty of Social Studies at Masaryk University in Brno, the FA of Palacký at the University in Olomouc, the Faculty of Theology at the University of South Bohemia in České Budějovice and the SB of the ÚSTR (Institute for the Study of Totalitarian Regimes). Dušan Lužný is a member of the SB of the Faculty of Arts at Palacký University in Olomouc and the FA at the University of Ostrava. Aleš Skřivan and Petr Drulák are members of the SB of the Faculty of Economics at the University of Economics and Business in Prague. Pavel Vařeka, Radim Kočandrle, Drahomír Suchánek, and Josef Moural are members of the SB of the Faculty of Arts at Jan Evangelista Purkyně University. Ludmila Dostálová is a member of the SB at the Institute of Philosophy of the CAS. Tereza Šlehoferová is a member of the Supervisory Board of the Institute of Ethnology at the CAS.

The most significant invited lectures delivered by academic staff of the evaluated unit at foreign institutions in the evaluated period are listed in **Table 3.2.3**.

Foreign researchers have worked or are working at FOA:

- 2012 till now – Dirk COUPRIE, University of Amsterdam and University of Leiden, Netherlands
- 9/2019 till now - Takashi HOSODA, Nihon University, Tokyo, Japan
- 10/2018-5/2019 - Gamze TANIL, University of Liverpool, Great Britain
- 5/2019 - Dariusz KUBOK - Dyrektor Instytutu Filozofii, Uniwersytet Śląski w Katowicach, Poland
- 11/2021 - Joseph W. ROBBINS - Department Head of Valdosta State University, USA
- 11/2022-1/2023 - Hamid R. EKBIA - Director of The Autonomous Systems Policy Institute, Syracuse University, USA
- 11/2023/-12/2023 - Marie Antonios SASSINE - Director of The Center on New Questions in Ethics, Society and Technology (CETS), Dominican University College in Ottawa, Canada

Dr. Takashi Hosoda has been a lecturer and researcher at the Department of Historical Sciences for a long time. His main research focus is the history of the development of modern Japanese security policy; he has published a number of articles in prestigious academic journals, is involved in teaching within the ERASMUS+ programme and contributes to the development of the Centre for Japanese Studies. Since 2012, Dirk Couprie, an independent Dutch researcher, who previously worked for the University of Amsterdam and the University of Leiden, has been an external collaborator of the Research Centre for the Theory and History of Science and Technology. During the evaluation period, he was an external collaborator on the GAČR project, *Transformations of the Concept of Space in the Pre-Socratic Cosmologies*. Among the results of this collaboration is

the monograph authored by Couprie, DL. *The Reception of Presocratic Flat Earth Cosmology in Aristotle, the Doxography, and Beyond* (In *Brill's Companion to the Reception of Presocratic Natural Philosophy in Later Classical Thought*. Leiden: Brill, 2021). A significant contribution was also made by [Prof. Hamid Ekbis](#)'s two-month research stay at the end of 2022, which is expected to serve as the basis for closer cooperation with the USA in the area of Philosophy for Artificial Intelligence; he was appointed an honorary doctor by the Rector of UWB for his contribution to the interdisciplinary study of artificial intelligence and its influence on socio-economic, geopolitical, and cultural relations in today's globalized society. **The involvement of foreign scientists in teaching and research activities** plays a fundamental role in fostering academic innovation and internationalization (see **Table 3.2.4**).

The academic staff of FOA play an important role in **the evaluation of science and research** in the Czech Republic. Since 2022, Prof. Dana Hamplová has been a member of the Board for R&D&I. In addition to her teaching and research activities, she collaborates expertly with a wide range of Czech and foreign institutions, e.g., as a member of the Board of the ECSR - European Consortium for Sociological Research and the Scientific Advisory Board of the ESS - European Social Survey. Radim Kočandrlé is a member of the Expert Panel 6: Humanities and the Arts (Module 2) within the framework of the national evaluation of R&D&I results according to M2017+. For example, Monika Baumanová, Lukáš Friedl, Lukáš Novotný and Jan Záhořík are evaluators of Czech research, development, and innovation in the Czech Republic's national annual R&D&I evaluations (Module 1). Furthermore, the Faculty's staff are members of the evaluation committees of national grant agencies and international committees (Horizon Europe) (see **Table 3.2.5**).

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
Assoc. Prof. Pavel Vařeka, Ph.D.	Honorary Scholar of the Osh State University, Kyrgyzstan (2023)	Osh State University, Kyrgyzstan
Assoc. Prof. Pavel Vařeka, Ph.D.	Honorary Professor of the Batken State University, Kyrgyzstan (2023)	Batken State University, Kyrgyzstan
Veronika Sobotková, Ph.D.	Choice Outstanding Academic Title (OAT) (2023)	American Library Association
Roman Kodet, Ph.D.	Miroslav Ivanov Award (2021)	Nonfiction Authors Club
Petr Jurek, Ph.D.	Louis Brown Scholar Award (2020)	Valdosta State University
Petr Pavlas, Ph.D.	Otto Wichterle Prize (2020)	Institute of Philosophy of the Czech Academy of Sciences
Assoc. Prof. Pavel Vařeka, Ph.D.	Golden Mammoth – 1st place for popularization of archaeology for the project CARE_MSoC 8F18004 Community Archaeology in Rural Environments – Meeting Societal Challenges (2020-2021)	Archaeological Institute in Brno, v. v. i.
Vojtěch Kaše, Ph.D.	Jacques Derrida Prize for Social Sciences and Humanities (2nd place) (2019)	Embassy of the French Republic; CEFRES: Centre français de recherche en sciences sociales and French Institute in Prague
Stefanie Dach, Ph.D.	Leinfellner Award (2019)	Austrian Ludwig Wittgenstein Society

Petr Netolický, Ph.D.	Golden Mammoth – 1st place for the popularization of archaeology for the project Archeocentrum Bohemia-Bavaria, project no. 78 (2019)	Archaeological Institute in Brno, v. v. i.

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Assoc. Prof. Monika Baumanová, MA, Ph.D.	European Journal of Archaeology (Cambridge University Press), ISSN: 1461-957, E-ISSN: 1741-2722 Reviews Editor in the years 2023
Assoc. Prof. Vladimír Naxera, Ph.D.	Journal of Contemporary European Studies , ISSN: 1478-2804 Member of editorial board
Assoc. Prof. Pavel Vařeka, Ph.D.	Archaeologica Hereditas , publication series Uniwersytet Kardynała Stefana Wyszyńskiego w Warszawie, ISSN: 0231-5823, E-ISSN: 2336-4386 Member of editorial board
Assoc. Prof. Jan Záhořík, Ph.D.	Modern Africa , ISSN: 2336-3274, E-ISSN: 2570-7558, Scopus Council member in the years 2019-2023
Veronika Sobotková, Ph.D.	Islamic Inquiries , ISSN: 2981-037X Council member in the years 2023
Assoc. Prof. Petr Kučera, Ph.D.	Stredoeurópske pohľady/Central European Views (Časopis pre jazyk, literatúru, kultúru a médiá/Journal for language, literature, culture and media). ISSN:2644-6367, e-ISSN:2644-6472. EV/Registration number 5863/19 Member of editorial board
Assoc. Prof. Lukáš Novotný, Ph.D.	Techne. Seria Nowa , ISSN: 2084-851X Member of editorial board
Roman Kodet, Ph.D.	OANNES Uluslararası Eskiçağ Tarihi Araştırmaları Dergisi /International Journal of Ancient History (Turkey), E-ISSN: 2667-7059 Member of editorial board
Assoc. Prof. Petr Lozoviuk, Ph.D.	Acta Ethnologica Danubiana , ISSN:2786-1945 (print) Studia etnologiczne i antropologiczne, Uniwersytet Śląski Katowice (PL), ISSN: 1506-5790 (print), 2353-9860 (online) Member of editorial board
Assoc. Prof. Miloš Ševčík, Ph.D.	Analecta Husserliana , Book Series - The Yearbook of Phenomenological Research; Springer, ISSN: 2542-8330, e-ISSN: 0167-7276 Member of editorial board

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Lukáš Friedl, Ph.D.	Morphological methods in species identification: the U.W. 105 hominin from the Cradle of Humankind, South Africa	University of North Carolina Wilmington, NC, USA	2023
Helena Horová, Ph.D.	Concept de FLE, FOS,FOU	Université d'Artois, Arras, France	2019 - 2023
Roman Kodet, Ph.D.	Re-evaluation of Japanese Foreign Policy during the Sakoku Period	Nihon University, Japan	2022
Assoc. Prof. Pavel Vařeka, Ph.D.	Archaeology of Communism	Internationale Tagung der Österreichischen Gesellschaft für Mittelalterarchäologie. Linz, Österreich	2022
Martina Ponížilová, Ph.D.	Europeanization of Foreign and Development Policies	University of Catania, Italy	2022
Vojtěch Kaše, Ph.D.	Word Co-Occurrence Networks, Word-Embeddings and the Religious Dynamics of the Ancient Mediterranean	University of Bergen, Norway Religious Networks in Antiquity: A topical workshop in The Connected Past series of events	2022
Assoc. Prof. Monika Baumanová, MA, Ph.D.	Analyses of urban sensory heritage on the East African Coast	University of Amsterdam, Netherlands Sensing the Past, A workshop in applied sensory archaeology and heritage assessment	2021
Stefanie Dach, Ph.D.	Sellars and the intersubjectivity of "we-intentions"	Grand Valley State University, USA	2021
Assoc. Prof. PhDr. Jan Záhořík, Ph.D.	Visiting professor	University of Pavia, Italy	2019
František Kalvas, Ph.D. prof. Jan Váně, Ph.D.	Age or Environment? What is Determinative in how Homeless People Spend their Time after the Age of 55?	Manchester (ESA), UK	2019

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Prof. Gilly Carr	University of Cambridge, UK	Analysing a materiality of interment	2023
Prof. Claus von Carnap-Bornheim	Zentrum für Baltische und Skandinavische Archäologie, Kiel, Germany	Viking Age Haithabu – Research and managing of a UNESCO-World-Heritage Site	2023

Prof. Thomas Lockley	Nihon University, Japonsko	Yasuke. The Life Story of the African who Became a Samurai	2023
Dr. Marie A. Sassine	Dominican University College, Ottawa, Kanada	The world is a Stage: An Enquiry into Kant's Critique of Judgment as Political Model	2023
Dr. Jason Mosley	University Oxford, UK	Workshop on Contemporary Ethiopia	2022
Prof. Dariusz Jeziorny	University of Lodz, Polsko	Ukraine in the Soviet foreign policy in interwar period	2022
Prof. Hamid R. Ekbia	Syracuse University, USA	Artificial Intelligence: The Possible, the Impossible, and the Real	2022
Dr. James LaPlant, Dr. Cristina LaPlant	Valdosta State University, USA	Conspiracy theories: a lecture by American political scientists	2022
Prof. Pål Veiden	Oslomet, Norsko	Masaryk - Norwegian perspective	2021
Prof. Michelle Butler	Queen's University Belfast, UK	Understanding Life in Prison	2019

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting of the Authority/guarantor project/programme call	Year
Assoc. Prof. Monika Baumanová, MA, Ph.D.	Evaluator and Vice-Chair of the panel Social Sciences and Humanities - Marie Curie Postdoctoral fellowships	EU Commission, programme Horizon Europe	2019-2023
Assoc. Prof. Pavel Vařeka, Ph.D.	NAKI II – III Evaluator of institutes of the Czech Academy of Sciences in the area of Historical Sciences, Vice-Chairman of the Evaluation Committee	Ministry of Culture of the Czech Republic Czech Academy of Sciences	2019-2023 2021
Anna Pankowská, Ph.D.	Science Connect	The European Science Foundation (ESF) (intDisRP)	2023
Tereza Šlehoferová, Ph.D.	Programme to support applied social science and humanities research, experimental development and innovation ETA	Technology Agency of the Czech Republic	2019-2021
Prof. Dana Hamplová, Ph.D.	member of the Research, Development and Innovation Board Sociology, Demography, Social Geography and Media Studies panel	Research, Development and Innovation Board - Office of the Government of the Czech Republic Grant Agency of the Czech Republic	2022 - now 2017 - now

Lenka Strnadová, Ph.D.	Programme: CERV (Citizens, Equality, Rights and Values) - EU community programme	EU Commission	2023 - now
Michal Polák, Ph.D.	Marie Curie postdoctoral fellowship EU Commission	EU Commission	2018 - now
Assoc. Prof. Radim Kočandrle, Ph.D.	member of the Expert Panel 6. Humanities and the Arts (Modul 2)	Research, Development and Innovation Board - Office of the Government of the Czech Republic	2022 - now
Petr Jurek, Ph.D.	Europeanisation and Adaptation of Public Policies in Central Europe	Jean Monnet Centre of Excellence	2020-2023
Assoc. Prof. Šárka Cabadová Waisová, Ph.D.	Humanitarian aid and the empowerment of Ukrainians coming to the V4 countries - good practices	International Visegrad Fund	2023-2024

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

Scientific and research activities, especially project activities, were developed during the monitored period with an emphasis on international cooperation, excellent results, and applied outputs. In connection with the project activities of the staff of the UWB Faculty of Arts, addressing the following international projects is particularly important: HORIZON 2020, INTERREG V-A (CZ-BY), INTERREG VB (CENTRAL EUROPE), ERASMUS+, EEA FUNDS 2014-2021-Culture programme, COST Action, The Research Council of Norway, and others. FOA is engaged in projects supported by the Grant Agency of the Czech Republic, the Technology Agency of the Czech Republic, the Ministry of Culture of the Czech Republic or the Ministry of the Interior of the Czech Republic. An important position in the research activities of FOA is occupied by contractual research, with significant participation from the Department of Archaeology and the Department of Sociology and Social Work.. The clients of contractual research include institutions from the private and public sectors (e.g., the Statutory City of Pilsen, the Pilsen Region, the City of Rokycany).

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

[Archaeology of the Dark Heritage. Nazi and Communist Camps on the Border of Bavaria and Bohemia](#)

provider INTERREG V-A (CZ-BY), project no. 345, 6/2021-3/2023, dr. Preusz (Department of Archaeology)

The aim of the project was a presentation of the dark cultural heritage of the individual Nazi and Communist camps on the border of Bavaria and Bohemia. The project was built on the cooperation of the Technical University in Deggendorf, which has been working on non-invasive technologies for remote sensing of the earth's surface and subsurface structures for a long time, further with the Department of Archaeology of the FOA, which is the only Czech specialized workplace focused on archaeological research of the dark heritage of the 20th century. As part of the project, neglected monuments were documented and presented; they are selected branch camps of the central KZ Flossenbürg and communist camps in the Jáchymov region. The most valuable output of the project is the detailed documentation of these neglected monuments of the 20th century, which is the basis for modern forms of presentation and raising awareness of them. At the same time, they will also serve as a basis for strengthening their monument protection in the future and will be used in collecting memories of witnesses. All project results were presented to the general public on both sides of the border, as even the dark sides of history are an integral part of the region's common cultural heritage. The project contributed to understanding a common regional identity, supporting friendly Czech-Bavarian relations, strengthening humanity and democracy in the border area through information about the common history and the consequences of repression. With its focus and activities, the project fulfilled visions in the area of creative activity and the third role, whose outputs are used in the areas of basic and applied research.

[Comparing urban morphological transformation in precolonial to colonial urban traditions](#)

provider Czech Science Foundation (GA ČR), project no. 20-02725Y, 1/2020-6/2023,
Assoc. Prof. Baumanová (Department of Middle Eastern Studies)

The project was submitted and awarded as an interdisciplinary project at the intersection of archaeology, anthropology and social geography (as such, it was evaluated in two panels: P405 Archaeology and P404 Sociology). The project investigated the manner urban morphology was shaped in the context of colonialism in the Middle Ages and the Modern Age. Urbanism repeatedly flourished in various cultures in the past, even before globalization, and shaped long-term social traditions and economic relations. The basis of the project included comparative analyses of urban morphology in cities that "experienced" long periods of colonialism, both European colonialism in Africa and Central America and Islamic colonialism in Africa and the Iberian Peninsula. The research focused primarily on how the spatial arrangement in these cities (public buildings, streets, urban districts) changed over time and how these phenomena are linked to changes in social structure. Using empirical urban theory, including spatial syntax and sensory environment analysis, a series of visualizations, GIS-based maps, and interpretive analyses have been created. Data comparisons allowed for key similarities and differences in spatial changes to be identified. The project outputs were published in a book in the Springer publishing house and in several articles in Web of Science journals in the fields such as archaeology, anthropology, and urban studies. The project, when completed, was evaluated as "excellent". This is the first project in the area of historical archaeology dealing with sub-Saharan Africa that was implemented by a Czech university, thereby significantly enabling the UWB Faculty of Arts to contribute to the international discussion on global urban development and urbanism.

[Doctoral School of Archaeology: New Methods, Technologies and Historical Heritage Research](#)

provider Ministry of Education, Youth and Sports (OP VVV),
project no. CZ.02.2.69/0.0/0.0/16_018/0002686, 10/2017- 9/2022, Dr. Chroustovský
(Department of Archaeology)

The project aimed at creating a joint research-oriented archaeology study programme realized in cooperation of two university departments and the Institute of the Czech Academy of Sciences (CAS), which is one of the leading research centres in Europe. Synergistic effects allowed students to collaborate across disciplines in their studies and research, which is essential for thoroughly examining any subject in modern archaeology. The project greatly enhanced the emphasis on interdisciplinary cooperation and internationalization on the part of all participating institutions. The project fulfilled all its objectives. In the first two years, modernized doctoral study programmes in Archaeology, including versions for teaching in English, were prepared and accredited at both universities. During the preparation of the curricula, experts from home and abroad were involved. Foreign experience was brought from short internships of eleven members of the expert team. The two upgraded doctoral study programmes (DSPs) were launched in the 2019/20 academic year. Over the next three years, staff and student involvement in research, PhD students' placements with potential employers, and PhD students' overseas placements continued to be limited by the COVID-19 arrangements but were eventually implemented. The project was fully in line with the visions of the UWB Faculty of Arts; one of the successful outcomes of the project was the creation of an excellent DSP that prepares graduates to be employable in research careers and highly qualified positions in the Czech Republic and abroad.

[Evaluation of the success of the integration process of foreigners in the long-term perspective](#)

provider Technology Agency of the Czech Republic (ÉTA), project no.TL03000626, 9/2020-12/2023, Alena Pařízková Ph.D. (Department of Sociology and Social Work)

The main aim of the proposed project was to create tools for evaluating the integration process of foreigners and subsequently increase the effectiveness of integration work. We researched the State Integration Program (SIP), implemented by the Refugee Facilities Administration of the Ministry of the Interior (RFA MOI). Researchers from the Departments of Sociology, Anthropology, and Middle Eastern Studies mapped and defined indicators that were key to the success of the integration process, and the methodologies developed provided instructions on how to meet these indicators to be more effective in integration work. Integration workers of the RFA MOI were adequately trained in the use of new methodologies and were acquainted with other aspects of integration work. Employees of other cooperating organizations were also acquainted with the project outputs. As part of the project, an international scientific conference entitled Trends in Social Integration Policy and Research was organized on 9-10 November 2023 in Pilsen.

[Community Archaeology in Rural Environments - Meeting Societal Challenges](#)

provider Ministry of Education, Youth and Sports (JPICH), project no. 8F18004CARE-MSoC – 2/2019 - 3/2023, Assoc. Prof. Vařeka (Department of Archaeology)

The aim of the international project 'Community Archaeology' was to use material sources to reveal the emergence, formation and centuries-old development of contemporary villages, to learn about the lives of their inhabitants in the past, and thus contribute to the study of rural surroundings. The village environment is changing very rapidly today as a result of demographic, social, economic and technological changes. The research is interdisciplinary and uses, in addition to archaeological methods, a wide range of historical sources and methods from the area of digital humanities. Research done at the same time in England, the Czech Republic, the Netherlands and Poland offers a comparison of results in different parts of Europe with different historical developments. The project was conceived as a community project. Its unique approach is the involvement of local residents in the archaeological research of individual municipalities. The project also focused on examining the awareness of village communities about local history and monuments. After the completion of archaeological surveys, the impact of the project was

monitored, concerning general awareness of historical heritage and other possible social impacts in connection with the implemented research and popularization activities in villages. The primary researcher of the project was the University of Lincoln. The co-investigators were the University of Amsterdam (Netherlands) and the Adam Mickiewicz University in Poznań (Poland). The project outputs are relevant to the needs of society on regional and global scales. Among other things, the project also investigated the feasibility and impact of this programme being expanded to other European countries, including international dissemination of its methodologies and results, in the Czech Republic, the Netherlands, Poland and the United Kingdom, i.e., to countries with different social issues, cultural characters and a different historical context.

[Transforming Road Safety in Africa](#)

provider Horizon Europe, project no. 101069525, 2022-2026, member of project Assoc. Prof. Záhorský (Department of Middle Eastern Studies)

Road traffic injury death rates are high in Africa and there is an urgent need to implement safety solutions. The EU-funded TRANS-SAFE project aims to maximize the impact of these solutions by bringing together road safety agencies and experts from Europe and Africa to drive policy actions. Together, they will drive forward effective approaches for road safety development. The project will ensure the road conditions meet the recommendations of the Road Safety Cluster of the African-EU Transport Task Force (2020). The consortium members are highly experienced and knowledgeable in Africa-related research. Overall, the project will help deliver on the Joint EU-Africa Strategy and advance countries' progress towards the 2030 Agenda of Sustainable Development Goals. To maximize impact, the project brings together a consortium of highly committed cities, road safety agencies and experts from both Europe and Africa. A total of 29 partners are involved in the project (for more information, see the project website). The project coordinator is the Technische Universität Berlin; the technical coordinator is the UN Environment Programme. The main actor at the UWB is the NTC; the Department of Middle Eastern Studies of the FOA is the project partner. In line with the visions of the UWB FOA, the project has a significant international impact and the project findings generated are relevant in a global perspective. The project contributes to regional and global sustainable road safety goals by evaluating the project's demonstration actions and deriving implementable recommendations that can be integrated into policy, funding, operation, research and business practice. Jan Záhorský participates in TRANS-SAFE as a member of the UWB team and is responsible for collecting relevant data and contributing to writing reports and analyses of road safety in Africa, and bringing socio-cultural insights into the analysis of road safety and related phenomena.

[Accessing Campscapes: Inclusive Strategies for Using European Conflicted Heritage](#)

HERA funded project, project no. HERA.15.092, 6/2016 - 11/2019, Assoc. Prof. Vařeka (Department of Archaeology)

This project looked at traces of the twentieth-century mass violence and terror as tangible reminders of the 'age of extremes' and their present uses in (trans)national contexts. In most post-war European countries former Nazi internment camps have become icons of anti-fascist resistance and the Holocaust. They have played a consistent role in post-war European memory of totalitarianism and genocide. In the Eastern European centre of the Holocaust and Communist terror, many former 'terrscapes' are still contested spaces where consecutive interments of prisoners by occupying powers and authoritarian regimes transformed the victims of one event into the persecutors of another. The three year HERA funded project (2016-2019) was meant to open local, national and transnational reflections on the past to a more inclusive awareness of interdependencies, exchanges and circulation of historical interpretations and memorial practices in the 20th century, and to show how these operate in contemporary social and political readings

of the past. The ambition was to transpose these insights into new accessible, engaging and far-reaching tools to cultivate a balanced and reflexive uptake of the history of such vulnerable and contested heritage sites. Project Leader was University of Amsterdam and other partners were Norwegian Institute of Science and Technology, Staffordshire University, Freie Universität Berlin and Institute for Bioengineering of Catalonia. The implementation of the project has, among other things, fulfilled one of FOA' established strategies: supporting the acquisition of prestigious international grants in cooperation with foreign partners.

LUXCORE Luxury, Corruption and Global Ethics: Towards a Critical Cultural Theory of the Moral Economy of Fraud

provider The Research Council of Norway (Researcher Project for Young Talents), project no. 313004, 1/2022 - 12/2023, Dr. Kupka (Department of Anthropology)

The project focuses on the topic of corruption, as it is more dangerous than terrorism and represents a moral problem - an evil with global implications. However, why do the numerous measures aimed at improving ethical standards and increasing transparency and accountability have so little effect? To answer these pressing questions, LUXCORE utilizes theories and qualitative methods from anthropology, critical criminology and cultural theory to develop a novel, critical theory of corruption. The project is based on two basic recognitions: First, corruption is itself underpinned by a criminogenic moral culture, the 'moral economy of fraud'. Second, corruption and luxury are inextricably linked. Entities simultaneously make use of the defiance industry (suppliers of luxury goods and services to ensure confidentiality) and the compliance industry (helping them appear as ethical). Underpinned by the moral economy of fraud, the defiance industry shapes the compliance industry that is supposed to combat it. More ethical requirements, in the form of ever more parameters and quantifiables, do not appear to be the solution. LUXCORE's main objective was to understand why, by analyzing the moral economy of fraud through concrete case studies of the (1) luxury sector and the defiance industry, (2) compliance in the luxury sector, and (3) political corruption, populism, and anti-corruption, to generate (4) an original and novel theory of corruption and the moral economy of fraud. Project Leader was Work Research Institute (AFI) and other partner institutions were Norwegian Institute for Defence Studies, Northumbria University in Newcastle, Università di Bologna. The project was specific due to its interdisciplinary nature and its impact on social debate, not only on the topic of corruption.

CONTRACT RESEARCH

Applied Archaeology (1ST line of Table 3.3.2)

The main purpose of contract research at the Department of Archaeology is to carry out precautionary, advance and rescue types of research, architectural and historical research, consultancy activities, documentation and description of artefacts from prehistoric times up to the 20th century. We carry out archaeological research in the territory of cities, villages, fortified settlements and in the open countryside. The results of our activities are presented to the professional and wider public; at the same time, they contribute to the whole-of-society cooperation in the protection of cultural heritage. In the period 2019-2023, archaeological research was carried out mainly in the locations of (1) Libkovice, (2) Lety u Písku and (3) Běloves. (1) Since 2018, long-term archaeological research has been underway in the area of the extinct medieval village of Libkovice. The aim of the rescue archaeological research was to document relics of prehistoric settlement activities and to describe the continuous development of the settlement from the early Middle Ages to the 20th century. (2) The aim of the research in Lety (the Písek district) was to precisely locate the camp area and the nearby burial ground of the victims, using historical sources, historical aerial photographs and non-destructive methods. The contents of the waste pit provided exceptional findings, including artefacts made from organic materials

such as prisoners' shoes and clothing, clothing parts and other personal belongings of the prisoners.

(3) The rescue archaeological research 'Běloves' in the Hradec Králové region was triggered by a planned construction project. An extraordinary discovery was made in the valley of the Metuje river, where a very interesting situation of a settlement area that has not yet been specified in more detail has been revealed. The area consisted of a complex of a moat/trough and a very well-preserved cultural stratum.

Applied sociological research (2nd line of Table 3.3.2)

The Department of Sociology and Social Work has been developing long-term cooperation with the city of Pilsen concerning applied research aimed at improving life of the city residents. The research prepares strategic documents, for example, for the Department of Social Services and the Organizer of Integrated Transport of the Pilsen Region, and for non-profit organizations and state administration. In January 2022, the City Council of Pilsen unanimously adopted a concept for working with homeless people, prepared by Prof. Jan Váně from the Department of Sociology (also filmed as a report 'The City Has a Concept for Working with Homeless People', shown on TV ZAK, February 25, 2022). During this period, two applied research projects are to be mentioned. The first one focused on analyzing the needs and satisfaction of Pilsen citizens, especially in relation to the use of social services. This research contributed to the revision of the city's action plans. The research focused on homelessness attacked the stereotypical negative image of homeless people and focused on the emergence of the problem, the structural and individual barriers preventing integration back into 'ordinary' life, and suggested possible solutions. Based on the research, the exhibition 'What Do We See? And What Do We Want to See?' was organized. The exhibition conveyed this issue to the public. Finally, based on this research, the concept of the city of Pilsen for treating homeless people has been created and, as mentioned above, was unanimously adopted by the City Council (see, for example, newspaper articles).

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
INTERREG V-A (CZ-BY)	Archaeology of the Dark Heritage. Nazi and Communist Camps on the Border of Bavaria and Bohemia			258/ 10,178		
GA ČR	Partner relationships later in life	865/ 34,122				
GA ČR	The role of geopolitics in the Italian National Movement prior to 1848	571/ 22,525	602/ 23,748			

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

GA ČR	Instrumental politicization of history as a legitimization tool of political regimes	668/ 26,351	726/ 28,639			
GA ČR	Objectivity: An experimental approach to a traditional philosophical issue	1,310/ 51,677	1,028/ 40,552			
GA ČR	Cazamian's concept of humour	452/ 17,830				
GA ČR	Spinning wheels, intentional demolition, flammable victims? A new perspective on the rituals in the suburban life of the Bronze Age		212/ 8,363	218/ 8,600		
GA ČR	Comparing urban morphological transformation in precolonial to colonial urban traditions		1,634/ 64,458	1,256/ 49,546	1,376/ 54,280	
GA ČR	Islamic Bioethics in Contemporary Iran	303/ 11,593	303/ 11,593			
GA ČR	Expert Knowledge Diffusion in International Politics: the Concept of Epistemic Infrastructure and Why it Matters	296/ 11,677	336/ 13,254	309/ 12,189		
GA ČR	Changes in the Conception of Space in Presocratic Cosmologies	504/ 19,882	513/ 20,327	534/ 21,065		
GA ČR	Non-classical Interpretation of the Aristotelian Logic and Theory of Predication	194/ 7,653	207/ 8,166	195/ 7,692		
GA ČR	Construction of organized crime representations in the policies on organized crime in the Czech Republic between 1989 and 2016	1,096/ 43,235	1,108/ 43,708	1,103/ 43,511		
GA ČR	Fertility and population growth in Central Europe from Neolithic to Medieval times: an application of stochastic simulations	503/ 19,842	573/ 22,604	616/ 24,300		
GA ČR	Constructing Pragmatism - Wilfrid Sellars and the Pragmatist Tradition		370/ 14,596	466/ 18,383	575/ 22,682	
GA ČR	Health System of the First Czechoslovak Republic in the Context of National and Social Composition of the State – Center vs. Periphery		377/ 14,872	417/ 16,450	410/ 16,174	
GA ČR	The Cultural Evolution of Moralizing Religions in the		383/ 15,108	416/ 16,410	482/ 19,014	

	Ancient Mediterranean: A Distant Reading Approach					
GA ČR	Dual models of phenomenal consciousness		551/ 21,736	562/ 22,170	568/ 22,406	
GA ČR	Network diffusion and social cohesion: the role of the clustering coefficient		622/ 24,536	622/ 24,536	574/ 22,643	
GA ČR	Neolithic long barrows in Bohemia and reconstruction of the ritual landscape around the hill of Říp			621/ 24,497	597/ 23,550	427/ 16,844
GA ČR	Focal images: Violence and Inhumanism in contemporary art and media culture				302/ 11,913	326/ 12,860
GA ČR	Czech foreign policy during the European refugee crisis: roles and ideologies		1,082/ 41,682	1,195/ 47,140	1,023/ 40,355	
GA ČR	The Development of Presocratic Cosmologies and Its Implications for Conceptions of the Classical Era		361/ 14,241	492/ 19,408	492/ 19,408	
GA ČR	In their own words: How and why crime occurs in the autobiographical narratives of offenders		919/ 36,252	1,022/ 40,316	1,012/ 39,921	
GA ČR	Key cultural sources, ideas, and practices of Western alternative spirituality and medicine					458/ 18,067
GA ČR	Bioarchaeology and Landscape Archaeology of the Nationalist-Socialist Repressions: Central-Eastern European Perspective					2,030/ 80,079
GA ČR	Unity across the border. Indicators of economic and social relations of the Urnfield Period in the Bohemian-Bavarian area					252/ 9,941
GA ČR/ ERC	Urban transformation on the house scale: Islamic house on the East African coast in comparative perspectives (14th to 20th century)				445/ 17,554	
MŠMT/ OP VVV	Doctoral School of Archaeology: New Methods, Technologies and Historical Heritage Research	1,263/ 49,822	858/ 33,846	380/ 14,990	458/ 18,067	
MŠMT/ INTER ACTION	Socioeconomic spaces crossing borders. Archaeological studies on a	200/ 7,890	400/ 15,779	400/ 15,779		

	town at the Bavarian-Bohemian borderline					
TAČR/ ZÉTA	Landscape as a piece of knowledge		1,540/ 60,750	2,097/ 82,722	895/ 35,306	
TAČR/ ÉTA	Content analysis of potentially extremist texts – a methodological approach		215/ 8,481	316/ 12,465	314/ 12,387	
TAČR/ ÉTA	Increasing competitive advantages of external economic relations of the Czech Republic: using a combination of regional and sectoral approaches		556/ 21,933	692/ 27,298	787/ 31,045	608/ 23,984
TAČR/ ÉTA	Evaluation of the success of the integration process of foreigners in the long-term perspective		710/ 28,008	1,605/ 63,314	1,729/ 68,205	1,733/ 68,363
Total		8,225/ 324,458	16,186/ 638,501	15,792/ 622,959	12,039/ 474,911	5,582/ 220,207
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
MŠMT/ JPICH	Archaeology in Rural Environments - Meeting Societal Challenges	1,820/ 71,795	2,137/ 84,300	2,137/ 84,300	144/ 5,680	
HORIZON EUROPE	Transforming Road Safety in Africa			73/ 2,880		
HERA JRP	Accessing Campscapes: Inclusive Strategies for Using European Conflicted Heritage	5/ 186				
Researcher Project for Young Talents – The Research Council of Norway	LUXCORE - Luxury, Corruption and Global Ethics: Towards a Critical Cultural Theory of the Moral Economy of Fraud				309/ 12,189	309/ 12,189
MKČR/ NAKI II	High Medieval ceramics as part of material cultural heritage	1,135/ 44,773	1,040/ 41,026	1,291/ 50,927		
MKČR/ NAKI II	Memory of graveyards: reconnaissance and recording for sustainable care concerning burial sites in the former Sudetenland		3,139/ 123,826	3,443/ 135,819	3,218/ 126,943	
MKČR/ NAKI III	Map of Czech Castles: Castles as Cultural Phenomenon, Subject of Research and Remains of the Past					831 / 32,781

²⁷ Ibid.

TAČR/ ÉTA	Professional training of prison chaplains with respect to the specifics of the prison environment	470/ 18,540	388/ 15,306	347/ 13,688		
TAČR/ ÉTA	Postgraduate education of social workers in the field of spirituality in social work in the services for seniors		167/ 6,588	345/ 13,609	345/ 13,609	345 / 13,609
Total		3,430/ 135,294	6,871/ 271,045	7,636/ 301,223	4,016/ 158,422	1,485/ 58,580

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Institute of Archaeological Monument Preservation of Northwest Bohemia, VVI Museum of Roma Culture, SPO Town of Rokycany STRABAG	Archaeological research Libkovic – Rescue archaeological advance research at the Libkovic site Archaeological rescue research in the area of the former pig farm in Lety u Písku Archaeological supervision of the reconstruction of Palackého Street in Rokycany Archaeological research Běloves-V. Poříčí	2,611/ 102,998	1,905/ 75,148	1,559/ 61,499	1,920/ 75,740	2,096/ 82,682
Statutory city of Pilsen	Mapping needs, satisfaction and expectations, including development predictions, in the area of social services in Pilsen. Preparing a study 'Homelessness: Can it be solved in an acceptable way? Or how?' At the same time, preparing a concept of proposals for addressing homelessness in the City of Pilsen	124/ 4,892	467/ 18,422	1,040/ 41,026		
Total		2,735/ 107,890	2,372/ 93,570	2,599/ 102,525	1,920/ 75,740	2,096/ 82,682

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

FOA produces research results that have an impact on society, are usable in practice, and hold broader social significance. In terms of social relevance according to the 2017+ Methodology, a total of six results were nominated under Module 1 in 2019-2023 (the specific evaluation is given in Table 3.4.1).

Examples of results (also including Module 1 nominations):

1. [Pařízková, Alena; Hirt, Tomáš; Glajchová, Alena; Rumpík, Viktor; Řezáč, Karel; Pěchota Jan \(2023\). Methodology for evaluating integration work](#)

The methodology for evaluating integration work was created based on the need to introduce systematic data collection and analysis related to social work with holders of international protection (hereinafter referred to as DMO). The aim of the methodology is to present in detail and explain the procedure for evaluating integration work, i.e., social work in the context of migration and integration experience, with the help of assessing the development of integration needs indicators in individual dimensions for DMO (and possibly other categories of newcomers). To achieve this goal, the researchers use a previously published tool, APIC, an online application presented in the Methodology for the Analysis of the Integration Needs of Holders of International Protection (Pařízková et al., 2023). Furthermore, this definition is linked to the recommended practice of the anti-oppressive approach and a description of the life situations of individuals with migration experience, and therefore also DMOs who enter integration practice. By proposing a practical application of selected theories of social work, this text strives for a stronger connection between theory and practice, which is also reflected in the composition of the team consisting of experts connecting theoretical knowledge from the areas of social work and migration studies with the practical experience of social workers. The methodology is primarily intended for the Administration of Refugee Facilities of the Ministry of the Interior, which has been involved in the project activities from the beginning as an external application guarantor. The methodology was created in 2022-2023 in ongoing cooperation with the Refugee Facilities Administration of the Ministry of the Interior (RFA MOI), mainly based on pilot interviews with current clients of the State Integration Programme (SIP).

²⁹ See Terms definition.

2. [Castellano, Simona; Fatková, Gabriela; Frezza, Luigi; Górný, Andrzej; Kempna-Pieniążek, Magdalena; Kušnířová, Eva; Legomska, Julia; Makky, Lukáš; Margiel, Marta; Migařová, Jana; Navarra, Marco; Di Paola, Lorenzo; Tirino, Mario; Wořek, Magdalena; Woszczyk, Agnieszka; Zabarskaitė, Jolanta; Zygmunt-Ziemianek, Agata \(2023\). A report on the use of e-learning in the humanities in the Czech republic, Italy, Lithuania, Poland and Slovakia](#)

The report compares distance learning and e-learning activities at universities in five European countries (Czech Republic, Slovak Republic, Poland, Lithuania and Italy) before and during the COVID19 pandemic. The research was based on desk research, questionnaire surveys, focus groups and in-depth interviews with various groups of respondents with regard to the gender aspect. The results became the basis for the creation of a practical toolbox for teachers using distance learning in the humanities. This study, carried out in the context of the ELEPHANT Project, is aimed at becoming a manual or a reference "white paper", with an enormously relevant social return, at least for three reasons. Firstly, it constitutes pioneering research on e-learning and distance learning. There are few texts based on empirical research on this learning modality and none of this scope, with ten universities in five different countries. Secondly, in addition to the large volume of online surveys, focus group interviews, and in-depth interviews of teachers, students, and didactic supervisors provided, all the material is based on matching criteria. Specifically, it is a proper scientific inquiry that, in the comparative analysis of different universities, provides relevant data on good practices in e-learning, implementation difficulties, and openness towards tools explored during the pandemic. In addition, due to the methods used, this research supports an expansion to any other learning environment in any other country. Thirdly, the pandemic, a drama for many people, has also been an experimental laboratory for new forms of social bonding.

3. [Pařížková, Alena; Hirt, Tomáš; Glajchová, Alena; Rumpík, Viktor; Řezáč, Karel et al. \(2022\). Methodology for analyzing the integration needs of holders of international protection](#)

The methodology for evaluating integration works was created based on the need to introduce systematic data collection and analysis regarding social work with holders of international protection (DMO). An essential part of the evaluation is the availability of information about the life situations of people who, due to various circumstances, found themselves in the role of newcomers to Czech society. Only knowledge of these situations, understanding them and their possibilities and limitations that affect social functioning, becomes the key framework for evaluating social work implemented in the context of integration processes. The aim of this methodology is to present in detail and explain procedures of evaluating integration work, i.e., social work in the context of migration and integration experience. Given the fact that the experience of individuals in the process of migration and integration is gender-conditioned, specific attention is paid to the issue of gender. To achieve this goal, we use the tool we developed and previously published, which is APIC, an online application presented in the Methodology for the Analysis of Integration Needs of Holders of International Protection (Pařížková et al., 2023). In this methodology, in addition to the primary topic of the evaluation process, we focus on the very definition of integration work, its connection with the essence and goals of social work. The methodology is primarily intended for the Administration of Refugee Facilities of the Ministry of the Interior, which has been involved in the project activities from the beginning as an external application guarantor. The methodology was created in 2022-2023 in ongoing cooperation with the Ministry of Interior's Social Security Office, mainly based on pilot interviews with current clients of the State Integration Programme.

4. [Hečková, P. Wagnerová, L. Bílková, J. Stočes, J. Wagner, V. Starková, L. Panoch, P. Pecháček, D. \(2022\). Sudeten cemeteries](#)

The specialized map “Sudeten cemeteries” represents a set of maps of several selected cemetery locations in the border areas of the Czech Republic (the so-called Sudetenland area) with cultural-historical and monumental value. It provides original, unpublished data obtained from field research of the locations focusing on sepulchral objects, tombstones and grave sites demonstrably dating from before 1945. The results of the field documentation are presented at various levels of documentation following cultural-historical and material aspects, as well as the aspect of the preservation of individual sepulchral objects. The specialized map was created within the framework of the Memory of Cemeteries project, which focuses on the creation and implementation of optimal tools for the identification, comprehensive research, documentation and presentation of sepulchral monuments, unused or partially abandoned cemeteries, which are carriers of cultural and monumental value, but are currently or may be threatened with extinction or by changes that would fundamentally change their essence. The specialized map was created in ArcGIS, currently the most widely used programme for analyzing, evaluating, and presenting spatial data. It is launched in the ArcGIS online application environment, so it is freely accessible to all Internet users for viewing and basic data filtering.

5. [Toušek, L. \(2022\) Social \(In\)safety at Czech Universities](#)

As part of the centralized development project Social Safety at Czech Universities in the Context of Academic Ethics, which was supported in 2022 by the Ministry of Education, Youth and Sports, 26 Czech public universities came together. They jointly addressed the strengthening of institutional mechanisms that will support a safe environment for education, research and other activities of public universities. “Social safety” was chosen as the overarching concept for a positive environment built on values such as openness, respect, collegiality and equal opportunities. Within the project, the institutions primarily dealt with the issue of how to achieve such an environment and what examples of good practice there are. The direction of universities towards a state of social safety is influenced by various actors and their respective policies. Three basic building blocks play a role among these policies: legislation, institutions in the sense of bodies or functions, and strategy. The goal should be for everyone within universities to perceive their study and work environment as positive and to be able to use their energy in their study or work development, thus maximizing their potential. The analysis revealed, among other things, that universities that have conducted a gender audit and have adopted a Gender Equality Plan have significantly better anchored the area of social security within the framework of academic ethics in their policies. Universities in the Czech Republic are currently in very different phases, which is why they are a great asset to the opportunity to share their previous experience and good practice. Thanks to this, the presented set of recommendations was created in 2022, which is applicable to every Czech public university and from which actors can draw inspiration for their policies in the area of social security.

6. [Netolický, Petr; Vařeka, Pavel; Vařeková, Zdeňka; Hlavenka, Pavel \(2020\). Research on the Lety camp in 2019](#)

Archaeological research of the so-called Gypsy camp in Lety from the years 1942-1943 was carried out in late summer and autumn 2019. The main objective of the research was to determine the character of the archaeological remains of the camp inside the industrial pig pen (the area was inaccessible until recently) in order to verify the interpretation options and obtain material evidence that can shed light on the daily life of prisoners and the living conditions in the camp. A total of 412 m² was uncovered, which provided a representative

sample of the camp (approx. 5% of the total area). The research showed that approx. 20% of the camp area was destroyed during the construction of the pig pen in the 1970s, but the rest was covered with soil from the construction site. Therefore, the archaeological research revealed well-preserved remains of the majority of the area of the gypsy camp, such as the foundations of the prison barracks, the original surface of the yard, roads and paths and the remains of parts of the camp's administration and other facilities (the disinfection station, the washroom/laundry room and a stable). Given that the camp was burned "in situ" during its liquidation in 1943, the charred remains of the buildings, including equipment, were well preserved. The contents of the waste pit provided quite exceptional finds, including artefacts made of organic materials such as prisoners' shoes and clothing, clothing parts and other personal belongings of the prisoners. The material evidence of the conversion of human beings into prisoners is unique - hair and a completely cut off braid as a result of the entry procedure, which included cutting and shaving the entire body of the arriving Roma.

7. [Šiška, Jan; Yirgashewa, Abdi; Beadle-Brown, Julie; Záhořík, Jan \(2020\). Role of resource centres in facilitating inclusive education: experience from Ethiopia.](#)

The study brings new data and insight into the problem of inclusive and gender balanced education in Ethiopia. It deals primarily with the role of resource centres as facilitators and mediators of inclusive education. Ethiopia is one of the countries in which education of children with disabilities is still a significant issue requiring attention. Cooperation between resource centres, including the research team, schools, as well as local stakeholders and regional governments is regarded by authors of the study as an important component of the process leading towards greater accessibility of schools for children with special educational needs. The goal is also to make local communities more receptive to such needs while respecting human diversity. The results of the project/study are now being implemented by the Ministry of Education of Ethiopia which reflects them in its new educational strategy dedicated to children with disabilities. The results bring new and better understanding of the resource centres-schools-regional governments nexus which serve as an inspiration for formulating educational policies in Ethiopia. Moreover, the results can be generally applied to other countries (primarily but not only) of the developing world, which faces similar problems regarding inclusive education. The book is listed on Web of Science. The research team, and its leader, is in contact with Ethiopian authorities who are in charge of educational policies. The study comes up with very concrete recommendations for the Ministry of Education regarding the role of schools, teachers, and means of education needed to facilitate the educational process of children with disabilities. Therefore, the social relevance of the study is undeniable.

8. [Toušek, Laco; Walach, Václav; Kupka, Petr; Dvorakova, Tereza; Tvrdá, Katerina; Lupták, Ľubomír; Vankova, Klára; Brendzová, Alica \(2019\). Crime Prevention in Socially Excluded Localities: A Handbook](#)

The methodology for crime prevention in socially excluded localities provides knowledge and applicable measures for crime prevention that may result from the existence of socially excluded localities. Its aim is to offer both existing and new procedures, at various levels of social and situational prevention, that serve to identify, prevent and reduce security risks, including social tension. The methodology is intended for all entities and people, both at the local and the national level, who are introduced to and deal with this issue. The material is a set of two interconnected documents. The first document is the methodology for crime prevention in socially excluded localities, which proposes a model procedure for the application of crime prevention tools in socially excluded localities at the local level. The

second document is a conceptual annex to the methodology “Analysis of Possibilities and Broader Contexts of Crime Prevention in SVL”, an extensive catalogue of recommended crime prevention measures in socially excluded localities. The first document draws on meetings of an expert working group established to create the methodology. In addition to the authors’ team, this group also consisted of experts from the Crime Prevention Department of the Ministry of the Interior, the Social Inclusion Department of the Ministry for Regional Development, the Regional Police Directorate of the Moravian-Silesian Region or the Prevention Coordination Centre of the Brno City Hall. The second document is based primarily on criminological research consisting of a questionnaire survey in 189 socially excluded localities, long-term ethnographic research in socially excluded localities and several partial short-term field research. The methodology is regularly used in designing security measures in cooperating municipalities with the Department of Social Inclusion of the Ministry of Labour and Social Affairs.

9. [Toušek, Laco; Walach, Václav; Kupka, Petr; Dvorakova, Tereza; Tvrdá, Katerina; Lupták, Ľubomír; Vankova, Klára; Brendzova, Alica \(2019\). Labyrinth of Crime and Poverty](#)

The book *Through the Labyrinth of Crime and Poverty* brings together empirical findings on crime related to so-called socially excluded localities, which represent a significant social problem. It focuses on victimization, which is defined as a process during which someone suffers harm as a result of behaviour and actions (or non-actions) of other people. The findings are based on an extensive victimization survey conducted in almost 300 localities throughout the Czech Republic and long-term ethnographic research. The book provides a comprehensive view of an area for which empirical data has so far been lacking and which is subject to frequent misinterpretations. It serves as a comprehensive source of information not only for the professional public, but also for the state administration and local self-government entities that enter the area of crime prevention. As a result, it helps to formulate qualified methodological and practical prevention procedures that correspond to the nature of crime committed in the context of social exclusion. The gender aspect was considered both in the methodology of the work (equal representation of genders in the research survey) and in the analytical part of the work (focusing on the victimization of women, especially in the area of domestic violence).

10. [Fatková, Gabriela; Königsmarková, Andrea; Šlehoferová, Tereza \(2019\). The recipes, stories and memories cookbook from Tachov/ Tachauer Kochbuch der Rezepte, Erlebnisse und Erinnerungen.](#)

The societal benefit of the work is the concept of food as a specific socio-cultural construct, through which social processes and cultural specifics in the past and present can be analyzed, interpreted, presented and perceived. The Tachov cookery book is based on the stories of diverse groups of residents of the Tachov region. It takes into account, in particular, the gender dimension and gives space to silenced people (in this case, women) during key events and turning points of the 20th century as the background of the said stories. A significant impact of the publication is the introduction of socially significant topics and their presentation through food as an understandable tool, through which one can view the turning points of the 20th century, reflect socio-cultural transformation and use it as a bridge between societies, cultures and generations. An original contribution to society and culture, going beyond the framework of the (inter)region being treated, is also a way of presenting the research results, simultaneously in Czech and German. The book is based on a long-term field research using diverse techniques and methods (archival research, participant observation, interviews with informants), a clear and engaging presentation of previously inaccessible regional sources (cookery books, documents including notes, diaries, memories and memoirs), interdisciplinary cooperation between social anthropologists and

Germanists, as well as cooperation between the University and public spheres (regional museums on the Czech and Bavarian sides of the border). The cookery book is adapted to the perception and needs of the general public. The topics presented in the cookery book are also applicable to contemporary topical issues and challenges of the 21st century, such as migration, integration, nationalism and identity.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Certified Methodology	2023	Methodology for evaluating integration work
Research Report	2023	A report on the use of e-learning in the humanities in the Czech Republic, Italy, Lithuania, Poland and Slovakia RIV/49777513:23330/22:43968143 (Grade 3 - Module 1 Methodology 2017+)
Certified Methodology	2022	Methodology for analyzing the integration needs of holders of international protection RIV/49777513:23330/23:43968398
Map	2022	Sudeten cemeteries RIV/00216275:25110/22:39919954
Research Report	2022	Social (un)safety at Czech universities RIV/49777513:23330/22:43966909
Research Report	2022	How to identify extremist texts - a methodological procedure RIV/49777513:23330/22:43966184 (Grade 4 - Module 1 Methodology 2017+)
Research Report	2020	Research on the Lety camp in 2019 RIV/49777513:23330/19:43958333 (Grade 2 - Module 1 Methodology 2017+)
Article	2020	Role of resource centres in facilitating inclusive education: experience from Ethiopia RIV/49777513:23330/19:43955739 (Grade 2 - Module 1 Methodology 2017+)
Methodology	2019	Crime Prevention in Socially Excluded Localities: A Handbook RIV/49777513:23330/19:43952970 (Grade 2 - Module 1 Methodology 2017+)
Book	2019	Labyrinth of Crime and Poverty RIV/49777513:23330/18:43952971 (Grade 3 - Module 1 Methodology 2017+)
Book	2019	The recipes, stories and memories cookbook from Tachov/ Tachauer Kochbuch der Rezepte, Erlebnisse und Erinnerungen RIV/49777513:23330/18:43954750 (Grade 2 - Module 1 Methodology 2017+)

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

³⁰ Specify the specific type of result. Add rows as needed.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g., selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g., licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

FOA transfers its results into practice primarily within the framework of applied research, which is listed in Section 3.4, including the most typical users of the results, and contractual research (listed in Section 3.3.2.). Due to the nature of its activities and the needs of the clients of applied and contractual research (especially the public and non-profit sectors), FOA does not commercialize or evaluate its results in the form of, for example, the sale of licenses, revenues from start-ups and spin-off companies.

During the monitored period, FOA received funds from non-public non-grant sources in the amount of 300 thousand CZK (11 834 EUR) - a gift from JUDr. Karel Pexidr as a support for scientific work. The gift supported a scholarship funding for talented students of the doctoral study programme Philosophy and History of Science and Technology, who are engaged in topics close to the philosophical work of Dr. Pexidr. Doctoral students were admitted to the competition upon writing a philosophical thesis or an essay.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Gift – scholarship support for students in the doctoral study programme					300/ 11,834
Total					300/ 11,834

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g., licences sold, spin-off company revenues, donations, etc.) in the calendar year.

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g., popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

FOA is significantly involved in popularizing the results of its research and supports communicating scientific results to the public. FOA members regularly give lectures, participate in discussions and panels intended for the general public, and organize film screenings followed by expert discussions, workshops or events such as roundtable discussions and book launch events with experts. This systematic participation in public forums enables the transfer of knowledge from research to the wider society, thereby significantly contributing to raising awareness of key topics. An important aspect of this communication is cooperation with the media. FOA members often give interviews that popularize and convey the results of their expert research to a wide audience or act as experts commenting on and explaining current political events in national, regional, and international media (e.g., Jan Záhořík collaborates with the Ministry of Foreign Affairs and numerous Czech embassies in Africa, participating at university-public outreach activities of the Czech Republic). FOA also cooperates with journalists on writing articles and reports, thus expanding the reach of its knowledge (e.g., Martin Urban and Jaroslav Valkoun - expert consultancy for the Czech Television documentaries, Roman Kodet for Radio Blaník, Czech Radio programmes, etc.).

FOA and its Departments regularly participate in [events](#) for the public, such as: [Researchers' Night](#), [One World](#), [Open Day](#), [Arabfest](#), [Archaeological Summer](#), [Days of Prehistoric Technologies](#), [Days of Science and Technology](#), [Pilsen Courtyards](#), [International Archaeology Day](#), etc. These activities cover important research areas of: archaeology, marginality, social exclusion, anti-Semitism and Israel studies, Islamic studies, paleoanthropology, African studies in cooperation with local communities and universities, migration studies and artificial intelligence. This thematic breadth confirms the interdisciplinary character of FOA and its efforts to deeply connect scientific research with the needs and interests of society. In this way, FOA contributes to a broader understanding of current social problems, expands cultural and historical awareness and brings important knowledge in response to challenges of the contemporary world, thereby strengthening its role not only as a scientific institution, but also as a respected mediator between research and the public. As part of public outreach, FOA also focuses on promoting its activities in the form of digital resources, on social networks ([Instagram](#), [FB](#), [YouTube](#), etc.) and informing about FOA events on the [UWB INFO news portal](#). Faculty members provide lectures and seminars for pupils and secondary school students, and participate in the preparation of excursions and teaching programmes, organized tours of Faculty workplaces and laboratories.

1. Presentation of research on the camps in Lety and the Jáchymov region (the Archaeology of Dark Heritage project)

Archaeologists from the UWB FOA, together with colleagues from the Bavarian Technical University of Deggendorf (THD), have mapped Nazi and Communist camps on the border of Bavaria and Bohemia. The results of the research were presented to the public on both sides

of the border using specialized maps, articles and podcasts. As part of the project, previously neglected monuments were documented and presented. These include selected branch camps of the central KZ Flossenbürg and the communist camps in the Jáchymov region. All project results are presented in an educational way to the general public on both sides of the border, as even the dark sides of history are an integral part of the common cultural heritage of the region.

Examples:

<https://kar.zcu.cz/mediaonas.php>

2019-2022 – A successful presentation of research on the camps in Lety and the Jáchymov region (lectures for the public); domestic media - e.g., [ČT](#), ČRO and several articles and interviews in Czech and foreign newspapers (e.g., Nachrichten ORF Austria, Livescience USA); an exhibition presenting archaeological research in Lety at the Museum of Roma Culture.

2. Popularization and educational events within the JPICH project – Myslinka, Vanovice, Předhradí

A large number of various popularization activities were held within the JPICH project, such as educational walks, lectures and workshops for the public. One of the goals of the JPICH project was to involve the lay public directly in archaeological research in the places of residence of the participants, which was met with great response in the media. The project also focuses on examining the awareness of village communities about local history and monuments; upon the completion of the archaeological surveys, the impact of the project on the perception of historical heritage and other possible social impacts in connection with the research and popularization activities carried out in the village is monitored.

Examples:

<https://kar.zcu.cz/mediaonas.php>

2019-21 - educational events held in the participating municipalities; members of local communities participated in archaeological research in village settlements; several public popularization and educational events (e.g., on 7 March 2020 Archaeology in Myslinka or on 6 September 2020 Collecting the Past) as well as similar events in the municipalities of Předhradí and Vanovice (radio and press coverage).

3. Media outputs of Zdeněk Tarant and Věra Tydlitátová - research on contemporary antisemitism

The Department of Middle Eastern Studies is a leading Czech and internationally reputable institution for research on contemporary antisemitism. This institution has become a sought-after contact institution for current data on this issue in the Czech Republic for Czech and foreign institutions (Jewish organizations, foreign universities, international organizations). The Department's staff shed light on the issue of antisemitism as one of the significant forms of hate speech with the aim of preventing political extremism and helping to understand the cultural, social and other factors of the emergence of antisemitic attitudes and their spread. The results of this research, also presented in state institutions, are reflected in the formation of policies and strategies aimed at combating hate speech. As part of the popularization, the Department provided a series of popularization lectures (more than 50 lectures in the period 2019-2023) for the non-profit sector, community organizations and religious institutions in Pilsen (Rafael Institute, Jewish Community, etc.)

Examples:

- [IDNES \(15 October 2023\)](#)
- [CCN Prima News \(25 October 2023\)](#)
- [Český Rozhlas \(26 June 2022\)](#)

- [CCN Prima News \(6 May 2020\)](#)

4. A series of popularization outputs within the programme Laboratory on Czech Radio Plus
These are the so-called biological anthropology laboratories, in which FOA employees Lukáš Friedl and Anna Pankowská participate and where scientific news from the area of anthropology are commented on.

Examples:

- [The first European farmers were no sheep. Many of them died after being hit in the head](#) - radio programme Laboratory, Český rozhlas, Praha (2023)
- [Neanderthal genes increase our sensitivity to pain. Scientists have read it from ancient DNA](#) - radio programme Laboratory, Český rozhlas, Praha (2023)
- [Scientists have read the DNA of a specific prehistoric woman from a deer tooth without destroying it. They consider it a breakthrough](#) - radio programme Laboratory, Český rozhlas, Praha (2023)
- [An unknown prehistoric culture has been found in northern China. People there used ochre paint extensively](#) - radio programme Laboratory, Český rozhlas, Praha (2022)
- [Is it possible that Homo erectus died out later? Scientists consider its relationship with the less studied Denisovans](#) - radio programme Laboratory, Český rozhlas, Praha (2021)

5. Popularization of applied research conducted by the Department of Sociology and Social Work

[The Department of Sociology and Social Work](#) actively makes the results of [applied research](#) available to the public through lectures, exhibitions or websites. Freely accessible lectures were held for the general public (e.g., a series of lectures in the city library), film viewings with expert discussions (e.g., organizing film screenings in cooperation with the Institute of Restorative Justice, a series of screenings [#zOčídoOči](#), organizing workshops or events such as a round discussion table). Websites where applied research issues are presented to the general public are: <https://www.bezdomovectvi.cz>, <https://www.vyzkum-kss-zcu.cz>.

Examples:

- TV ZAK [The City Has a Concept for Working with Homeless People](#); Pilsen in a Nutshell, part 574 (25 February 2022)
- Právo [Surprising Homelessness Survey](#); Column: Southwest Bohemia (1 October 2021)
- ČTK News [Pilsen Has a Homelessness Study, It Will Be the Basis for Creating a Concept](#) (1 October 2021)
- idnes.cz [Politicians in Collaboration with Scientists Seek Ways to Address Homelessness](#) (30 July 2021)
- Plzeňský deník [Municipal Flats will Serve as Shared Housing for Students and Seniors](#) (29 June 2021)

6. Dr. Romportl's media appearance on the issue of Artificial Intelligence

At the Department of Philosophy, Jan Romportl has been focusing on theoretical reflection on new technologies for more than ten years, especially on the issues of human-machine interaction and philosophical questions regarding artificial intelligence. Dr. Romportl regularly speaks on this issue not only at universities, professional conferences and workshops, but also in the national media. His professional activities include not only talking at leading Czech universities and technical conferences (e.g., AI Panel: Beyond Hype, Realizing Value. Oxford, 2019), but also at medical conferences (National Conference of Palliative Care, Ostrava, 24 September 2022; VI. Conference on Children's Palliative Care, 23 November 2023; 47th Brno Oncology Days, 1 November 2023; plenary lecture for the 65th Czecho-Slovak

Psychopharmacological Conference) and economic conferences (10th IT Conference for Finance, 10 December 2023, and two panel discussions for the Czech Banking Association, 6 December 2022 and 23 November 2022).

For more detail see web <https://www.romportl.com/meetme>

Examples:

- Česká televize - [Fokus Václava Moravce: Artificial Intelligence](#) (2019)
 - [Radiožurnál](#) (Host Lucie Výborné 3 November 2023)
 - Hospodářské noviny (interview 5 December 2023)
7. A series of panel discussions and debates concerning the role of humanities and social science education in contemporary society (since 2018)
Three panel discussions took place as part of the series:
- (1) [Interdisciplinarity: Science and Education at the Border of Fields](#) (26 November 2019) - the possibilities of interconnecting individual fields through multidisciplinary research teams were discussed, which are, in the future, to go beyond not only individual segments within a given field, but also the area of knowledge as such.
 - (2) [Women, Science and Other Dangerous Things](#) (15 November 2023) - the conference focused, among other things, on the authenticity of female perspective in addressing scientific, political and social issues and challenges of the present time.
- The participants in the panel at the conferences were prominent figures of the Czech social and political life (e.g., Jan Sokol, Zdeněk Pinc, Lenka Bradáčová, Marek Hilšer, Václav Moravec, and Monsignor Tomáš Holub). In addition, a cycle of individual University Talks took place as an opportunity to once again speak with prominent personalities from public and cultural life (e.g., Erik Tabery, Jindřich Šídlo, Martin Fusek and Michael Romancov).
8. Media outputs commenting on and analyzing political events by members of the Department of Political Science and International Relations
FOA employees (especially academics specialized in domestic politics and political science) are regularly invited to regional and national media (Česká televize [Czech television], Český rozhlas, MF Dnes, etc.). The employees usually act as expert commentators and interpret current political events. In addition to commentaries, FOA employees popularize their research activities in popular science programmes and thematic public meetings and festivals (e.g., One World).

Examples:

- [Česká televize - Studio ČT 24](#) (7 July 2022)
- [Česká televize - Studio ČT 24](#) (21 January 2021)
- [Česká televize - Studio ČT 24](#) (21 September 2021)
- Deník Referendum - [“Everybody steals!” The triumph of populism as a fight against corrupt elites](#)
- [Český Rozhlas](#) (21 December 2019) - A sea of conspiracies and islands of deviation
- [debate “1989-2019: 30 years of media freedom”](#) (12 November 2019)

The changes that the media has undergone since 1989 were discussed by the presenter and editor-in-chief of reportage journalism Marek Wollner, sports commentator and presenter Petr Vichnar, head of the Department of Political Science and International Relations at the UWB Faculty of Arts Petr Jurek, and political scientist Přemysl Rosůlek from the same Department.

9. [Panel discussion \(9 November 2022\) for the public. National Museum Prague,; Emil Holub: between myth and reality. M. Baumanová](#)

A panel discussion dedicated to Emil Holub took place on 9 November 2022 at the National Museum in Prague. In the panel discussion, the guests addressed the following questions: What is the real significance of Emil Holub at home and abroad? How has he been reflected in Czech society throughout history? Why, unlike other travellers, did Emil Holub become so well-known in the Czech consciousness? Did Holub's activities have an impact on the Czech professional public? Guests: Jiří Martínek (Institute of History of the Czech Academy of Sciences), Monika Baumanová (Department of Middle Eastern Studies, Faculty of Arts of the University of West Bohemia) and Jaromír Tlustý (SOA Litoměřice); chair: Ondřej Crhák (Náprstek Museum of Asian, African and American Cultures).

10. [Exhibition Thirty Years' War on the Czech-Bavarian Border. Museum of the Bohemian Forest in Tachov. \(1-2/2019\)](#)

The exhibition showed how archaeology contributes to the knowledge of the events of the Thirty Years' War and the everyday life of the population of that time. Archaeological research did not only concern the battlefields (Třebel and Rozvadov), but also villages that disappeared in the war. It was created in cooperation with the Department of Archaeology of the University of West Bohemia in Pilsen, the West Bohemian Museum in Pilsen and the museum in Tachov as part of the project [Archaeo Centrum Bohemia-Bavaria](#).

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

Specific MEP recommendations from the previous evaluation, including a description of the implementation of measures along with examples and evidence, are provided in detail [HERE](#). Below is a summary of the main measures implemented in the reporting period. Note that the limit of 1000 words does not include specific recommendations (by bold italic).

The visibility of research outputs (concrete themes of rescue archaeology surveys)

No. criteria: 3.2, 3.3, 3.4 (A)

Implemented in the FOA strategic plan 2021+ (FOA SP 2021+) - Priority 3. Strategic Goal 1. FA has increased publicity to promote key outputs. A new Faculty (Czech/English) website was launched, featuring new sections such as: [Cooperation](#), [Contract Research](#), [Research Topics](#), [For the Public](#), [For Schools](#), and [For the Media](#). This expanded the presentation of outputs and highlighted publications. More recognition and detail were given to rescue archaeological investigations as recommended, through the [Centre of Applied Archaeology \(CAA\) website](#).

A new Faculty PR campaign was launched in 2021, highlighting R&D results on social platforms such as [Facebook](#) and [Instagram](#). Each department now has a PR representative who coordinates public activities towards and manages content for INFO.ZCU.CZ. FOA also co-organizes and participates in popularization events, including the opening of laboratories, exhibitions, etc. Popularization of R&D is supported at the FOA by various sources, including the City of Pilsen.

To popularize R&D&I, the FOA uses a [YouTube channel](#) featuring interviews with A) researchers conducting interesting/key research, B) students engaged in research and other Faculty activities. Faculty staff also regularly comment on current topics in the media (e.g., Baumanová, Drulák, Friedl, Jurek, Kodet, Rosůlek, Tarant, Tydlitátová, Schuster, etc.).

Engaging with local and regional stakeholders (encouraging discussions)

No. criteria: 3.2, 3.3, 3.4 (B)

The FOA strategic plan for 2021-2025 focuses on activities aimed at strengthening cooperation with the non-governmental sector to increase funding and enhance the FOA's international reputation. This focus is specifically outlined in the FOA SP 2021+ - Priority 3, Strategic Goal 3. Contract research increased from about CZK 1.5 million (EUR 59,172) in the previous evaluation period (2014-2018) to about CZK 2.6 million (EUR 102,564) per year (from 2019-2023), representing an increase of more than 30%.

In autumn 2019, the FOA [Council of Partners](#) (an advisory body to the Dean), consisting of institutions from the public, non-profit and private sectors, met for the first time. Its role is primarily to align study programmes with market needs, and to discuss the FOA's strategy. It convenes at least once a year.

During the period under review, roundtables, conferences for the public and corporate sectors, etc., were organised, including discussions held by the Department of Sociology and Social Work, the Department of Archaeology and the Department of Politics and International Relations regarding applied and contract research. The Departments publicized their results through lectures, exhibitions, websites, film screenings with expert discussion, workshops, and round tables.

Collaboration among the departments (a specific appealing portfolio of the faculty)

No. criteria: 3.2, 3.3, 3.4 (C)

Implemented in the FOA SP 2021+ (Priority 3). [The Faculty's Department for Science and Projects](#) fosters and stimulates interdisciplinary collaboration, regularly offering project opportunities and challenges to staff. FOA holds project meetings for academics and researchers to present calls for proposals and facilitate interdisciplinary discussions. Emphasis is placed on interdisciplinary, applied, and contract research, as well as interdepartmental collaboration.

[The Living Lab platform](#) consolidates the applied social research services offered by FOA in order to present them comprehensively and expand the portfolio of services.

Cross-border cooperative projects

No. criteria: 3.2, 3.3, 3.4 (D)

[The Faculty's Department for Science and Projects](#) enhanced communication on project submissions, especially outside internal UWB grants, through the UWB Project Centre and regular academic meetings. Macro-regional instruments are mapped and recommended, and Norway Grants are actively promoted. [A seminar for PhD students](#) focused on projects was also organised (11-12/2023), aiming to teach PhD students about submitting projects and finding project opportunities. The period under review included 8 projects from INTERREG VA (BY-CZ), 1 project from INTERREG VB Central Europe. An overview of EU structural funds utilization is available on the [Faculty's website](#).

Compile a well-designed portfolio

No. criteria: 3.5, 3.6

Included in the FOA SP 2021+ (Priority 3): a Faculty Service Portfolio was developed, featuring the [Living Lab](#). This platform enhances collaboration with public, private, and non-profit sectors, optimizes the sharing of staff resources, focuses on applied social research to real-world issues, and integrates tailored methods and approaches. UWB's participation in the [EUPeace Alliance](#) is significant, with the FOA leading efforts to establish EUPeace Living Labs—platforms for civic engagement and innovation. These labs foster dialogue, collaboration, and innovative solutions among academia, civil society, policymakers, and the private sector. The FOA's Living Lab activities are emerging, currently connecting several departments through applied social research, with potential for further expansion across UWB.

Initiate a series of round-table discussions/ conferences with the various stakeholders

No. criteria: 3.7, 3.8, 3.9 (A)

The FOA organizes roundtables and meetings with the Council of Partners, enhancing collaboration with the private sector (e.g., student internships). Regular roundtable discussions and workshops engage relevant department stakeholders.

Propose to the university leadership for the sake of the setting up and support of spin-off firms

No. criteria: 3.7, 3.8, 3.9 (B)

The FOA applies its results in practice (applied research), without commercializing them through sales of licences, start-ups, and spin-off companies. This topic is discussed by the Board of the Vice-Rector for Science and Research, but the focus is usually on issues relevant to technical units. This issue, including knowledge transfer related to R&D&I (among others topics, in relation to the upcoming draft of a [new law](#) (12/2024 discussed by the Government of the Czech Republic), has been addressed within [the Association of Deans of Faculties of Arts](#) (with FOA UWB as a member). Currently this topic is not prioritized enough for the Association to seek government incentives and subsidies. The topic is also discussed with other institutions, such as the Czech Academy of Sciences. As the issue of knowledge transfer becomes increasingly active in the Czech Republic, particularly in the social sciences and humanities, we can expect progress in this area.

Encourage members of the faculty to organize international meetings (to engage more in international terms)

No. criteria: 3.10, 3.11

The FOA continuously supports international meetings and established a Strategic Fund (2021) to support exceptional R&D and teaching activities, funding academics who organize international conferences. FOA also encourages staff to participate in semester-long internships abroad, which lead to valuable contacts, excellent research opportunities, double degree programmes, or international meetings.

Initiate inter-faculty activities to further boost outreach success

No. criteria: 3.12

Existing platforms support the popularization of science in the Czech Republic, such as the Night of Scientists or ScienceCafé (informal discussions). For PhD students and young researchers, the FOA organizes the [Doctoral School](#), including a workshop on Science Communication. Faculty members appear at workshops and conferences popularising science as trainers or speakers. Currently, regarding popularization of R&D, the first [MOOC courses](#) are being implemented, with the potential to make research topics attractive internationally.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Introductory information about the unit under evaluation		
Web site FOA	3.1	https://www.ff.zcu.cz/en/
Statute	3.1	https://1url.cz/mJKiz
Dean's Decree No. 1D/2019 Organizational Regulations of the Faculty of Arts of the University of West Bohemia	3.1	https://1url.cz/JJKwT
Strategic plan of the Ministry of Higher Education for the period from 2021	3.1	https://1url.cz/V1P65
Strategic Plan and Implementation 2021+	3.1	https://1url.cz/6JKwO
Departments of FOA (FOA website)	3.1	https://www.ff.zcu.cz/en/Faculty/Departments/index.html
Research Centres (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/vyzkumna-centra.html
Organisation Structure (FOA website)	3.1	https://www.ff.zcu.cz/en/Faculty/About-us/Lide-na-fakulte/org-structure.html
Faculty Bodies (FOA website)	3.1	https://www.ff.zcu.cz/en/Faculty/About-us/faculty-management/
Study (FOA website)	3.1	https://www.ff.zcu.cz/en/Admission/
Editorial Activities (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/edicni-cinnost.html
Publishing Activity -Selected results of publication activities according to the 2017+ Methodology (for the years 2019- 2023) (FOA website)	3.1	https://doc-public.zcu.cz/rest/cm/document/workspace://SpacesStore/00ebc5cd-599e-40f5-962b-8ec4f48d1894/content
HR Award (FOA website)	3.1	https://www.ff.zcu.cz/en/Faculty/Hr-award/index.html
International Projects and Grants (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/Granty-a-projekty/index.html
Study (FOA website)	3.1	https://www.ff.zcu.cz/en/Admission/
Important Articles (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/Publikacni-cinnost/vyznamne-clanky
Monographs (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/Publikacni-cinnost/monografie.html
Research (FOA website)	3.1	https://www.ff.zcu.cz/en/Research/research-topics.html

Annual Reports and Plans for the Implementation of the Strategic Plan of the Faculty of Arts		
Annual Reports 2019	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/cJKiL
Annual Reports 2020	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/6JKwV
Annual Reports 2021	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/oJKw4
Annual Reports 2022	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/yJKwD
Annual Reports 2023	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/2JKwU
Plan for the Implementation of the Strategic Plan of the Faculty of Arts of the University of West Bohemia 2021	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/3JKwg
Plan for the Implementation of the Strategic Plan of the Faculty of Arts of the University of West Bohemia 2022	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/8JKwv
Plan for the Implementation of the Strategic Plan of the Faculty of Arts of the University of West Bohemia 2023	3.1, 3.2, 3.3., 3.4, 3.6, 3.7	https://1url.cz/iJKwX
Recognition by the research community		
Association of Deans of Faculties of Arts	3.2	https://dekaniff.cz/
The Twilight of the Samurai: a historian of the Faculty of Arts launched his new book (Article)	3.2	https://info.zcu.cz/The-Twilight-of-the-Samurai--a-historian-of-the-Faculty-of-Arts-launched-his-new-book/clanek.jsp?id=6612
UWB awarded honorary doctorates to the AI expert Hamid Ekbia and the sculptor Kurt Gebauer (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=4976
Petr Pavlas received the Josef Hlávka Prize and the Otto Wichterle (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=6972
LUNCH TIME seminar - Department of Archaeology (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=5318&lang=en
The Department of Middle East Studies hosted eminent scholars in the field of African Studies (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=7236
LUNCH TIME seminar - Department of Archaeology (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=5274
Africanist Jan Záhořík invited to the University of Pavia as a visiting professor (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=7234

The Very First Rector's Award for Strengthening the UWB's Reputation Abroad was Given to Jan Záhořík (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=5220
Newsletter 2022. The Center of Japanese Studies (Article)	3.2	https://info.zcu.cz/clanek.jsp?id=5111
Research projects		
Applied Research Centre - The Centre of Applied Anthropology and Field Research (FOA website)	3.3	https://ksa.zcu.cz/en/department-units/centre-for-applied-anthropology-and-field-research/
Applied Research Centre - The Centre of Applied Archaeology	3.3	https://www.kar.zcu.cz/en/divize.php?shortcutdiv=CAA
Applied Research Centre - Applied Sociological Research (FOA website)	3.3	https://kss.zcu.cz/en/projects/
Research - International Grants and Projects (FOA website)	3.3	https://www.ff.zcu.cz/en/Research/Granty-a-projekty/index.html
Research - Overview of Grants and Projects (FOA website)	3.3	https://www.ff.zcu.cz/en/Research/Granty-a-projekty/Prehled-grantu-a-projektu.html
Cooperation - Contract Research (FOA website)	3.3	https://www.ff.zcu.cz/en/Partnership/index.html
Project - Archaeology of the Dark Heritage. Nazi and Communist Camps on the Border of Bavaria and Bohemia	3.3	https://www.kar.zcu.cz/en/projekt.php?id=86
Project - Comparing urban morphological transformation in precolonial to colonial urban traditions	3.3	https://starfos.tacr.cz/en/projekty/GJ20-02725Y
Project - Doctoral School of Archaeology: New Methods, Technologies and Historical Heritage Research	3.3	https://starfos.tacr.cz/en/projekty/EF16_018%2F0002686
Project - Evaluation of the success of the integration process of foreigners in the long-term perspective	3.3	https://starfos.tacr.cz/en/projekty/TL03000626?query=wsciaadt6oq https://www.epic-integrace.cz/en/
Project - Community Archaeology in Rural Environments - Meeting Societal Challenges	3.3	https://starfos.tacr.cz/en/projekty/8F18004?query=4uriaadthzoa https://careuwb.zcu.cz/
Project - Transforming Road Safety in Africa	3.3	http://www.trans-safe.org
Project - Accessing Campscapes: Inclusive Strategies for Using European Conflicted Heritage	3.3	https://www.campscapes.org/
Project - LUXCORE_Luxury, Corruption and Global Ethics: Towards a Critical Cultural Theory of the Moral Economy of Fraud	3.3	https://www.oslomet.no/en/research/research-projects/luxcore

Research results with existing or prospective impact on society		
Cooperation - Living Lab (FOA website)	3.4	https://www.ff.zcu.cz/en/Partnership/living-lab/
Cooperation - Contract Research (FOA website)	3.4	https://www.ff.zcu.cz/en/Partnership/index.html
Result - Methodology for evaluating integration work (2023)	3.4	https://www.epic-integrace.cz/wp-content/uploads/2024/01/metodika_2_evaluace-integracni-prace-v7.pdf
Result - A report on the use of e-learning in the humanities in the Czech republic, Italy, Lithuania, Poland and Slovakia (2023)	3.4	https://opus.us.edu.pl/info/book/USLa7a629bf4fb34c3e9bb8ea6bcdfdcc93/RIV/49777513:23330/22:43968143
Result - Methodology for analyzing the integration needs of holders of international protection (2022)	3.4	https://www.epic-integrace.cz/wp-content/uploads/2023/05/metodika-analyzy-integracnich-potreb-v4.pdf RIV/49777513:23330/23:43968398
Result - Sudeten cemeteries (2022)	3.4	https://storymaps.arcgis.com/stories/1f69ef3a4315480997ee064112700065 RIV/00216275:25110/22:39919954
Result - Social (In)safety at Czech Universities (2022)	3.4	https://www.akademickaetika.cz/static/userupload/s/files/brozura_socialni_bezpeci.pdf RIV/49777513:23330/22:43966909
Result - Research on the Lety camp in 2019 (2020)	3.4	https://novypamatniklety.cz/wp-content/uploads/2019/12/archeo-vyzkum-kratka-verze-cj_PV.pdf RIV/49777513:23330/19:43958333
Result - Role of resource centres in facilitating inclusive education: experience from Ethiopia (2020)	3.4	https://www.tandfonline.com/doi/full/10.1080/09687599.2019.1649120 RIV/49777513:23330/19:43955739
Result - Crime Prevention in Socially Excluded Localities: A Handbook (2019)	3.4	https://www.academia.edu/41296774/Metodika_prevention_kriminality_v_soci%C3%A1ln%C4%9B_vylo_u%C4%8Den%C3%BDch_lokalit%C3%A1ch RIV/49777513:23330/19:43952970
Result - Labyrinth of Crime and Poverty (2019)	3.4	https://1url.cz/XJKNg RIV/49777513:23330/18:43952971
Result - The recipes, stories and memories cookbook from Tachov (2019)	3.4	https://plzen.rozhlas.cz/kuchyni-pohranicniho-tachovska-i-pribehy-lidi-predstavuje-nova-kniha-8108496 RIV/49777513:23330/18:43954750
The most important activities in the field of popularization of R&D&I and communication with the public		
Cooperation - For the Public (FOA website)	3.6	https://www.ff.zcu.cz/en/Partnership/Public/
For the Public - From our research (FOA website)	3.6	https://www.ff.zcu.cz/en/Partnership/Public/Nas-vyzkum/seznam-vyzkumu.html
Faculty Events (FOA website)	3.6	https://www.ff.zcu.cz/en/Faculty/Life-at-the-faculty/faculty-events.html
For media (FOA website)	3.6	https://www.ff.zcu.cz/en/Partnership/Media/index.html

Popularization channel INFO ZCU	3.6	https://info.zcu.cz/
Popularization channel YOU TUBE of FOA	3.6	https://www.youtube.com/channel/UCLf4k60UjaedAPvQDDCZR3g
Popularization channel FACEBOOK	3.6	https://www.facebook.com/@ff.zcu.cz/?locale=cs_CZ
Popularization channel INSTAGRAM	3.6	https://www.instagram.com/ff_zcu/?hl=cs
Examples of event - Archaeological Summer	3.6	https://www.archeologickeleto.cz/
Examples of event - Arabfest	3.6	http://www.arabfest.cz/
Examples of event - One World	3.6	https://www.oneworld.cz/
Examples of event - Researchers' Night	3.6	https://www.nocvedcu.cz/en
Examples of event - Days of Science and Technology	3.6	https://dnyvedy.zcu.cz/
Examples of event - Open Day	3.6	https://www.ff.zcu.cz/cs/Admission/open_day.html
Examples of event - Pilsen Courtyards	3.6	https://www.plzenskedvorky.cz
Examples of event - Days of prehistoric technologies	3.6	https://zooplzen.cz/aktuality/2024/dny-pravekych-technologii-v-roce-2024/
Media - Department of Archaeology	3.6	https://kar.zcu.cz/mediaonas.php
Media - Department of Sociology and Social Work	3.6	https://kss.zcu.cz/katedra-sociologie/media/
Media - Department of Philosophy	3.6	https://kfi.zcu.cz/katedra/napsali-o-nas/
Media - Department of Anthropology	3.6	https://ksa.zcu.cz/o-katedre/media/
Media - Department of Middle Eastern Studies	3.6	https://www.kbs.zcu.cz/cs/Department/Media/
Department of Sociology and Social Work - Websites where applied research issues are presented to the general public	3.6	https://kss.zcu.cz/en/projects/ https://www.vyzkum-kss-zcu.cz/ https://www.bezdomovectvi.cz/
Dr. Romportl's media appearance on the issue of Artificial Intelligence	3.6	https://www.romportl.com/meetme
Popularization outputs (biological anthropology laboratories) within the programme Laboratory on Czech Radio Plus	3.6	https://plus.rozhlas.cz/laborator-6482940
Implementation of the recommendations in Module 3		
Specific MEP recommendations of the implementation are provided in detail HERE .		
Cooperation - For the Public (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/Public/
Cooperation - Living Lab (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/living-lab/

Cooperation - Contract Research (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/index.html
Cooperation - For the Public - From our research (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/Public/Nas-vyzkum/seznam-vyzkumu.html
Cooperation - For Schools (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/schools.html
Cooperation - The Council of Partners (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/Nasi-partneri/index.html
Faculty Events (FOA website)	3.7	https://www.ff.zcu.cz/en/Faculty/Life-at-the-faculty/faculty-events.html
For media (FOA website)	3.7	https://www.ff.zcu.cz/en/Partnership/Media/index.html
Editorial Activities (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/edicni-cinnost.html
Publishing Activities (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Publikacni-cinnost/index.html
Publishing Activities - Monographs (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Publikacni-cinnost/monografie.html
Publishing Activities - Important Articles (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Publikacni-cinnost/vyznamne-clanky
The Faculty's Department for Science and Projects (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Oddeleni-vedy-a-projektu
Popularization channel INFO ZCU	3.7	https://info.zcu.cz/
Popularization channel YOU TUBE of FOA	3.7	https://www.youtube.com/channel/UCLf4k60Ujae_dAPvQDDCZR3g
Popularization channel FACEBOOK of FOA	3.7	https://www.facebook.com/@ff.zcu.cz/?locale=cs_CZ
Popularization channel INSTAGRAM of FOA	3.7	https://www.instagram.com/ff_zcu/?hl=cs
Examples of event - Archaeological Summer	3.7	https://www.archeologickeleto.cz/
Examples of event - Arabfest	3.7	http://www.arabfest.cz/
Examples of event - One World	3.7	https://www.oneworld.cz/
Examples of event - Researchers' Night	3.7	https://www.nocvedcu.cz/en
Examples of event - Days of Science and Technology	3.7	https://dnyvedy.zcu.cz/
Examples of event - Open Day	3.7	https://www.ff.zcu.cz/cs/Admission/open_day.html
Examples of event - Pilsen Courtyards	3.7	https://www.plzenskedvorky.cz
Examples of event - Days of prehistoric technologies	3.7	https://zooplzen.cz/aktuality/2024/dny-pravekych-technologii-v-roce-2024/

Applied Research Centre - The Centre of Applied Anthropology and Field Research (FOA website)	3.7	https://ksa.zcu.cz/en/department-units/centre-for-applied-anthropology-and-field-research/
Applied Research Centre - The Centre of Applied Archaeology	3.7	https://www.kar.zcu.cz/en/divize.php?shortcutdiv=CAA
Applied Research Centre - Applied Sociological Research (FOA website)	3.7	https://kss.zcu.cz/en/projects/
Research - International Grants and Projects (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Granty-a-projekty/index.html
Research - Overview of Grants and Projects (FOA website)	3.7	https://www.ff.zcu.cz/en/Research/Granty-a-projekty/Prehled-grantu-a-projektu.html
Doctoral school at the Faculty of Arts (Article)	3.7	https://info.zcu.cz/Doctoral-school-at-the-Faculty-of-Arts/clanek.jsp?id=5938
Association of Deans of Faculties of Arts	3.7	https://dekaniff.cz/

MODULE 3:
FACULTY OF ECONOMICS (FEC)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Economics

FORD: 5 - Social sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The Faculty of Economics

The Faculty of Economics (FEC) implements its research activities in the areas of the Social Sciences (50 000 FORD), specifically in Economics and Business (50 200) and Social and Economic Geography (50 700). Roughly 2/3 of its research activities focus on the area of Economics and Business, and 1/3 on the area of Social and Economic Geography. FEC intends to maintain this ratio while developing its research activities in the future. Its basic and applied research is centred on Economics and Business, and FEC regularly applies for national and international research grants in this area. Activities in the field of Social and Economic Geography are primarily oriented towards applied research, which is supported by research projects of this nature.

In the time period under review, FEC realized study programmes in all three levels (5 bachelor study programme, 4 master and 2 doctoral study programmes). Some of the former branches of study that were included in one single study programme were newly accredited as their own individual study programmes in 2019 (i.e. this explains the change in the number of study programmes between 2019 and 2020 – see Table 3.1.5). In comparison to the previous assessment period, accreditation was obtained for the post-bachelor's (master's) study programme Economic and Regional Geography in 2019. Numbers of students have been mostly stable over the period under review, with a slight increase in the number of post-bachelor's master's students between 2019 and 2020.

In terms of its staff, FEC is characterised by long-term stability. Staff numbers increased slightly in the period under review, especially in the categories of academic staff members. Particularly positive

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

is the significant increase in the number of associate professors. Another positive trend is the increase in the number of young senior lecturer staff, who are at the beginning of their professional career and can be expected to grow in terms of their profession and qualification.

THE MISSION OF FEC

The mission of the Faculty of Economics of the University of West Bohemia in Pilsen is to propagate education primarily by implementing accredited bachelor's, master's and doctoral study programmes and other educational activities in the field of professional, interest and lifelong learning in connection with research activities. By fostering education, its aim is to contribute in particular to the economic and social development of the region, the Czech Republic and the European Union. FEC promotes equal access to education and research activities, it values human diversity and is open to foreign students, teachers and researchers. It provides high-quality facilities for the development of science with a particular focus on economics, management, entrepreneurship and sustainable development with interdisciplinary connections at the University of West Bohemia. It seeks and appreciates cooperation with educational and scientific entities not only from the Czech Republic, but especially from other European Union countries that are also engaged in research, experimental development or innovation, especially in economic disciplines. It is ready to cooperate between disciplines within the University as well as with external partners, especially from the business environment, and it is open to the public in the field of educational, scientific and other social and complementary activities. It pays significant attention to cooperation with the future employers of Faculty graduates, who are systematically prepared for active life in the 21st century.

MEDIUM-TERM VISION OF FEC

FEC is part of a global environment that is dynamically evolving and changing and is ready to respond to these changes. It continually strives to expand international networking and connections at all levels. Strengthening international cooperation in science and research is a permanent goal aimed at enhancing FEC reputation and gaining respect on an international scale. At the same time, the internationalization of educational activity is focused on a high level of professionalism among our students and their full integration into the international environment.

FEC is aware of its strengths as a regional educational institution. It cooperates with a number of partner institutions and companies in the Pilsen and Karlovy Vary Regions and strives to develop contacts and links with other economic faculties of a similar focus and also with business sphere and public sector at a national and international level. FEC develops a programme of cooperation with secondary schools and maintains relations with its own alumni. It presents itself through various professional and popularization events for the public, thereby significantly impacting cultural and social life in the region and contributing to the dissemination of both knowledge and also cultural and civilizational values oriented towards sustainable development and social responsibility in a global and local context. Faculty staff members comment on current economic and social issues in the public media.

LONG-TERM GOALS OF FEC

The following long-term goals have been set for the 2019-2023 evaluation period in the area of research activity:

1. To develop and support high-quality research teams with motivated and effective staff members, thereby allowing FEC to continuously improve the quality of research outputs and maintain its above-average ranking in the resulting quality of its research activity in economic disciplines.

2. To internationalize research activities, deepen existing and establish new permanent partnerships with domestic and foreign research organizations and to be an open institution for the activities of significant and recognized scientific experts in our fields of expertise.
3. To develop excellence on an interdisciplinary basis, participate in prestigious national and international projects, and strive towards obtaining our own habilitation qualifications (i.e. associate professorships).
4. To enhance the quality of doctoral study programmes and involve young researchers in the work of research teams to contribute to valuable research outputs.
5. To focus on outputs of research activity that have social relevance and are applicable in relevant spheres of application and the public sector.
6. To publicise the results of FEC's activities in real and virtual environments to the general public.
7. Cooperate, establish partnerships and cultivate networking with entities in the relevant spheres of application, regional and foreign institutions, and other stakeholders, including entities in the public sector.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total (Average)
Professor	2.480/1.000	3.563/1.000	3.584/1.000	3.946/1.000	3.814/1.000	3.477/1.000
Associate Professor	12.250/5.100	10.918/5.355	9.966/4.821	10.164/4.850	13.388/5.200	11.337/5.065
Assistant Professor	24.790/9.370	23.598/9.998	24.168/10.603	23.901/10.611	22.040/11.051	23.699/10.327
Assistant	3.150/1.160	5.690/2.179	7.302/3.230	9.786/4.604	10.186/5.095	7.223/3.254
R&D Personnel ³	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Researchers in other categories ⁴	1.880/0.780	3.461/1.628	1.806/0.906	1.043/0.159	2.455/1.955	2.129/1.086
Technical and economic staff ⁵	15.880/11.040	15.740/11.542	16.738/12.040	17.367/13.610	14.670/11.497	16.079/11.946
Scientific, research and development staff involved in teaching activities	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Early career researchers ⁶	0.000/0.000	0.000/0.000	0.516/0.516	0.354/0.354	0.000/0.000	0.174/0.174

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

Total ⁷	60.430/28.450	62.970/31.702	64.080/33.116	66.561/35.188	66.553/35.798	64.119/32.851

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	1	0	0	0	2	1	0	0
Associate Professor	0	0	3	3	1	1	4	1	3	1	4	1
Assistant Professor	1	0	15	6	8	4	5	2	2	0	0	0
Assistant	1	0	5	2	0	0	0	0	0	0	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	1	1	2	1	2	1	0	0	0	0	0	0
Technical and economic staff ¹¹	2	2	4	3	3	2	6	5	1	1	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹³	5	3	29	15	15	8	15	8	8	3	4	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	1	0	2	0	1	0	1	1
Associate Professor	0	0	2	0	5	4	5	2	4	1	4	2
Assistant Professor	0	0	10	4	11	6	5	3	2	1	0	0
Assistant	6	2	5	1	3	3	0	0	1	0	0	0
R&D Personnel ¹⁵	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁶	1	1	2	2	2	1	0	0	0	0	0	0
Technical and economic staff ¹⁷	0	0	2	2	6	4	4	4	2	1	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹⁹	7	3	21	9	28	18	16	9	10	3	5	3

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total (Unique students)	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	1,210	772	1,190	744	1,226	756	1,191	709	1,203	658	3,320	1,970
Master's ²⁰	332	224	377	256	425	293	430	288	398	266	1,161	786
Doctoral	32	20	39	18	41	17	44	19	35	16	74	30
Lifelong Learning Courses	99	64	120	76	88	61	56	35	16	11	379	220
Total	1,673	1,080	1,726	1,094	1,780	1,127	1,721	1,051	1,652	951	4,934	3,006

Table 3.1.5 – Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	3/0	0/0	5/0	0/0	5/0	0/0	5/0	0/0	5/0	0/0	8/0	0/0
Master's	2/0	0/0	4/0	0/0	4/0	0/0	4/0	0/0	4/0	0/0	6/0	0/0
Doctoral	1/0	0/0	1/0	0/0	2/1	0/0	2/1	0/0	2/1	0/0	3/1	0/0
Lifelong Learning courses	18/0	1/0	33/0	1/0	10/0	1/0	9/0	2/0	2/0	2/0	71/0	7/0
Total	24/0	1/0	43/0	1/0	21/1	1/0	20/1	2/0	13/1	2/0	87/1	7/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	
	1.2 Computer and information sciences		Zvolte položku.	
	1.3 Physical sciences		Zvolte položku.	
	1.4 Chemical sciences		Zvolte položku.	
	1.5 Earth and related environmental sciences		Zvolte položku.	
	1.6 Biological sciences		Zvolte položku.	
	1.7 Other natural sciences		Zvolte položku.	

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	
	2.2 Electrical engineering, Electronic engineering, Information engineering		Zvolte položku.	
	2.3 Mechanical engineering		Zvolte položku.	
	2.4 Chemical engineering		Zvolte položku.	
	2.5 Materials engineering		Zvolte položku.	
	2.6 Medical engineering		Zvolte položku.	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences		Zvolte položku.	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	3.5
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences	3.5	Applied research	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	96.5
	5.2 Economics and Business	67	Balanced basic and applied research	
	5.3 Education		Zvolte položku.	
	5.4 Sociology		Zvolte položku.	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography	29.5	Applied research	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology		Zvolte položku.	
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

With its research outputs, FEC holds an above-average position among similarly-oriented higher education institutions in the Czech Republic. This is confirmed by continual quality assessments of research activities as well as internally conducted benchmarking within the disciplines that the FEK cultivates in the Czech Republic.

In the period under review, staff members of FEC obtained significant awards for their research work. Worthy of mention are the repeated achievements of doc. Ing. Petr Janeček, Ph.D. in international competitions organized by Aiest (International Association of Scientific Experts in Tourism), in which he won 2nd place in the competition for best conference paper in 2021 and repeated this achievement in 2023. He also won 1st place in the “Peter Keller Award” 2023 competition for best paper linking theory and practice. Doc. Ing. Petr Štumpf, Ph.D. was similarly successful in this competition.

In the area of publication outputs, the scientific article entitled “[The effect of COVID-19 on consumer shopping behaviour: generation cohort perspective](#)” published in the high-impact Journal of Retailing and Consumer Services was recognised as a highly cited paper in the Web of Science. The paper was written by the collective of authors doc. PaedDr. Ludvík Eger, CSc., doc. PaedDr. Dana Egerová, Ph.D and Ing. Michal Mičík, Ph.D. and reached 215 citations in the WoS this year.

In addition, the [Rector's Award](#) of the University of Economics in Prague for the best publication of 2021 (doc. Ing. Petr Štumpf, Ph.D.) or the award of [the Czech National Bank](#) for the best research article, which was given in 2019 and 2023 to doc. Ing. Lukáš Pfeifer, Ph.D., are examples of the research community's recognition of FEC' staff members in the period under review.

In the period 2019-2023, FEC's academic staff members held positions as editorial board members in 16 international scientific journals. They also held the position of editor-in-chief in 3 journals. Five of them are seated outside the borders of the Czech Republic. All of the journals in which FEC staff members are involved in the work of editorial boards are focused on the FORD 50 000 field.

The academic staff of FEC operated at foreign institutions during the period under review and presented 21 lectures, in which they presented the results of their research activities. Lecture opportunities during the evaluation period were negatively affected by the Covid pandemic in 2020-2022. Ten selected lectures are listed in Table 3.2.3.

In the same period, 18 lectures from foreign experts were held at FEC. The ten most significant ones are listed in Table 3.2.4

Staff members of FEC are also working as evaluators of the results of research project/programme calls (Table 3.2.5). In addition, they are members of a number of scientific societies, including the Czech Economic Society, the Czech Association for Financial Management, the Chamber of Certified Accountants, the Czech Treasury Association, the Czech Management Association, the Czech Marketing Association, the International Association of Scientific Experts in Tourism, the European Marketing Academy, the Czech Society for Operations Research, People Management Forum, the Association of Social Responsibility, the International Project Management Association, the Czech Geographical Society, and the European Regional Science Association.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
Petr Štumpf, doc. Ing. Ph.D. (2023)	"Peter Keller Award" - 1st place in the competition for best paper combining theory and practice; "Best Paper Award" - 2nd place in the competition for best paper at the conference	AIEST – International Association of Scientific Experts in Tourism (72nd AIEST Conference of Ideas 2023)
Petr Janeček, doc. Ing. Ph.D. (2023)	"Peter Keller Award" - 1st place in the competition for best paper combining theory and practice "Best Paper Award" - 2nd place in the competition for the best paper at the conference	AIEST - International Association of Scientific Experts in Tourism (72nd AIEST Conference of Ideas 2023)
Ludvík Eger, doc. PaedDr. Csc. (2023) Dana Egerová, doc. PaedDr. Ph.D. Michal Mičík, doc. Ing. Ph.D.	"Highly cited paper" - Research paper "The effect of COVID19 on consumer shopping behaviour: generational cohort perspective (215 citations in WoS)	Web of Science
Lukáš Pfeifer, doc. Ing. Ph.D. (2023)	Award for best CNB research paper "Cooling the Mortgage Loan Market: The Effect of Recommended Borrower-Based Limits on New Mortgage Lending" (CNB WP 3/2022)	Czech National Bank
Petr Štumpf, doc. Ing. Ph.D. (2021)	"Best Paper Award" - 2nd place in the competition for best conference paper	AIEST - International Association of Scientific Experts in Tourism
Petr Janeček, doc. Ing. Ph.D. (2021)	"Best Paper Award" - 2nd place in the competition for best conference paper	AIEST - International Association of Scientific Experts in Tourism
Petr Štumpf, doc. Ing. Ph.D. (2021)	Rector's Award for Best Publication 2021, 1st place	University of Economics in Prague
Petr Štumpf, doc. Ing. Ph.D. (2021)	Professor Sojka Award for Outstanding Scientific Achievement 2021	Mendel University in Brno, Faculty of Business Administration
Dana Egerová, doc. PaedDr. Ph.D. (2021)	"Highly cited paper" – Research paper: The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries	Clarivate - Web of Science

Lukáš Pfeifer, doc. Ing. Ph.D. (2019)	Award for best CNB research paper “A Profit-to-Provisioning Approach to Setting the Countercyclical Capital Buffer: The Czech Example” (CNB WP 5/2018)	Czech National Bank

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Petr Janeček, doc. Ing. Ph.D.	Studia Turistica , ISSN is 1804-252X, Editorial board Business Trends , ISSN 1805-0603, eISSN 2788-0079, Editor-In-Chief
Jan Čadil, prof. Ing. Ph.D.	International of Economic Sciences , eISSN 1804-9796, Editor-In-Chief Prague Economic Papers , ISSN 1210-0455, eISSN 2336-730X, Editorial Board
Miroslav Plevný, prof. Dr. Ing.	Technological and Economic Development of Economy , ISSN 2029-4913 and eISSN is 2029-4921, Editorial Board E+M Economics and Management , ISSN 1212-3609, eISSN 2336-5064, Editorial Board ACC Journal , ISSN 1803-9782, Editorial Board
Dana Egerová, doc. PaedDr. Ph.D.	Problems of Management in the 21st Century , ISSN 2029-6932, eISSN 2538-712X, Editorial Board GiLE Journal of Skills Development , ISSN 2732-3781, Editorial Board Facta Universitatis , Series: Economics and Organization, ISSN 0354-4699, eISSN 2406-050X, Editorial Board
Jiří Ježek, doc. RNDr. Ph.D.	Information of the Czech Geographical Society , ISSN 1213-1075, Editorial Board
Jiří Vacek, doc. Ing. Ph.D.	ERGO – Analyses and trends in research, technologies and innovations (Technology Centre of the Czech Academy of Sciences), ISSN 2788-3124, Editorial Board
Dagmar Jakubíková, doc. Ing. Ph.D.	Czech Hospitality and Tourism Paper , ISSN 2571-0389, eISSN 1801-1535 (2019-2020)
Pavčina Hejduková, Ing. Ph.D.	Economic Spectrum , ISSN 1336-9105, editor-in-chief
Jiří Beck, doc. Ing. Ph.D.	B&IT , ISSN 1805-3777, eISSN 2570-7434, Editorial Board
Jana Hinke, doc. Ing. Ph.D.	Journal of Knowledge Society , ISSN 2336-2561, Editorial Board

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Jan Pokorný, Ing. Mgr.	Socio-Economic Consequences of the Czech Pension Indexation and its Reforms (Link1 , Link2)	Facultad de Ciencias Económicas, Empresariales y Turismo, University of Alcalá, Spain	2023
Jiří Kutlák, Ing. Ph.D.	The challenge of multi-generational workplace	Häme University of Applied Science, Finland	2023
Petr Čížek, Ing. M.A., Ph.D.	Agile methods in project management	Ostbayerische Technische Hochschule Amberg-Weiden, Germany	2023

David Martinčík, JUDr. Ing. Ph.D.	Dynamic macroeconomics: a simulation and estimates in Matlab/Octave	SUA in Nitra, Faculty of Economics and Management, Slovakia	2023
Martin Januška, doc. Ing. Ph.D.	Project Management in Health Sector	University of Pavia - SAHA raiSe libyAn Higher education heAlth sector for the benefit of local society, Italy	2022
Jiří Preis, RNDr. Ph.D.	Geography of health: from Hippocrates observations to present challenges in the Global South countries	University of Maribor, Slovenia	2022
Alena Palacká, Ing. Ph.D.	Sustainability and Sustainability Reporting	Leeds Business School - University of Colorado in Boulder, Boulder, Colorado, USA	2021
Petra Taušl Procházková, doc. Ing. Ph.D.	Social entrepreneurship	Università Politecnica delle Marche – UNIVPM, Italy	2019
Dita Hommerová, doc. Ing. Ph.D. MBA	Potenziale und Herausforderungen im grenzüberschreitenden Bildungs- und Wissenschaftsraum (Potentials and Challenges in Cross-border Educational and Scientific Area) Potentials and Challenges in Cross-border Educational and Scientific Area (pp. 23)	Metropolregion Nürnberg, Germany	2019
Pavína Hejduková, Ing. Ph.D.	Financial management in the public sector	University of Rzeszow, Rzeszow, Poland	2019

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Mariola Grzebyk, Assoc. Prof. Ph.D.	University of Warsaw, Warsaw, Poland	The importance of human capital in the enterprise's activity	2023
Eva Maté, Ph.D.	University of Pécs, Hungary	Differentiation of rural settlements in Hungary after the political transition	2023
Tobias Chilla, Prof. Dr.	Friedrich-Alexander University Erlangen-Nürnberg, Germany	The Strategic Dimension in Cross-border Development: Insights from the Czech-German border region	2023
Laura Denise Fischer, Prof. Dr.	OTH Amberg-Weiden, Germany	The Role of Social Capital in the Internationalization of Start-ups	2022
Pekka Makkonen, Dr.	Centria University of Applied Sciences, Finland	Innovations, product development and aligning product and service development	2022
Anna Saniuk, Assoc. Prof. Ph.D.	University of Zielona Gora, Zielona Gora, Poland	Financial accounting and use of modern technology	2022
Xavier Mateos-Planas, Prof.	Queen Mary University of London, United Kingdom	Qualitative and quantitative research methods in economics	2021

Jan Švejnar, Prof.	Columbia University, USA	New trends in economic research	2020
Michal Kohout, Prof.	California State University San Bernardino, USA	USA & the Pacific Ocean, space for integration or competitiveness?	2019
Jukka Raitanen	Häme University of Applied Sciences, Finland	Value pyramid	2019

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contract authority/guarantor of the project/programme call	Year
Hejduková Pavlína, Ing. Ph.D.	Project evaluator for the Technology Agency of the Czech Republic (TAČR) for the SIGMA DC 3 programme	Technology Agency of the Czech Republic (TAČR)	2023
Dana Egerová, doc. PaedDr. Ph.D.	Expert body of evaluators – Evaluator of selected results of research, development and innovation (RDI)	Office of the Government of the Czech Republic, Research, Development and Innovation Council (RDI)	2021-2023
Pavlína Hejduková, Ing. Ph.D.	VEGA Commission No. 13 for economic and legal sciences of the Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA) of macroeconomic and sectoral factors.	Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA)	2020
Miroslav Plevný, prof. Dr. Ing.	Member of the Expert Body of Evaluators of Selected Results of Research, Development and Innovation (RDI)	Research, Development and Innovation Council (RDI)	2019-2023
Líliá Dvořáková, prof. Ing. CSc.	VEGA Commission No. 13 for Economic and Legal Sciences Science Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences, research project evaluator	Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA)	2019-2023
Líliá Dvořáková, prof. Ing. CSc.	Expert body of evaluators - Evaluator of selected results of research, development and innovation (RDI)	Office of the Government of the Czech Republic, Council for Research, Development and Innovation (RDI)	2019-2023
Jiří Ježek, doc. RNDr. Ph.D.	VEGA Commission No. 13 for Economic and Legal Sciences Science Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences, research project evaluator (VEGA) KEGA General Call (GC)	Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA) Slovak Research and Development Agency (APVV)	2019-2023
Miroslav Plevný, prof. Dr. Ing.	Assessment Panel P403 Business Sciences, Management, Administration, Finance and Financial Econometrics	Czech Science Foundation (GAČR)	2019-2021
Dana Egerová, doc. PaedDr. Ph.D.	ÉTA programme	Technology Agency of the Czech Republic (TAČR)	2019-2020

Dagmar Jakubíková, doc. Ing. Ph.D.	VEGA Commission No. 13 for economic and legal sciences of the Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA) of macroeconomic and sectoral factors.	Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA)	2019

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

The research projects implemented by FEC in the period 2019 – 2023 conformed with both FEC's strategy and FEC's focus on FORD 50 200 and FORD 50 700 areas. At the beginning of the period, the largest volume of projects and funds was obtained from national grant schemes. At FEC, most applied research projects were implemented with the support of the Technology Agency of the Czech Republic (TAČR). FEC implemented 10 TAČR projects during the given period as leading researcher and 3 projects in the position of additional participant. In addition, one basic research project supported by the Czech Science Foundation (GAČR) was implemented. Some of the projects were completed in 2021 and 2022; subsequently, there was a slight decrease in the volume of total project resources due to the workload of academic staff in dealing with existing projects and preparing applications for new projects. In 2022 and 2023, FEC worked intensively to acquire additional national and international projects. The implementation of these projects was launched in 2023 (2 TAČR projects) or after the end of the reporting period in 2024 (projects within the Horizon Europe programme, Visegrad Fund, GAČR or Just Transition Fund).

FEC' vision includes the realisation of high-quality, especially applied research in the fields of business economics and management, information and project management, and regional geography, in which it utilises the interdisciplinary know-how of Faculty staff and partners cooperating in the implementation of projects. The projects mentioned below fulfil this vision and develop both FEC's knowledge potential and cooperation with external entities as well as the strengthening of its reputation and professional respect in the eyes of the public.

Below is a description of selected projects in the period under evaluation:

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

1. The basic research project [“Food supply chains: impact of concentration, unfair trade practices, regulations and changing consumer preferences”](#) analysed and modelled the dynamics of food supply chains in Europe. It focused on their structure, the use of unfair trade practices, the impacts of regulations and policies, and also changing consumer preferences, especially in the area of health food. The project used a wide range of methodological approaches to comprehensively address the issues related to the evolution of food supply chains in Europe. An interdisciplinary approach combining economic modelling, behavioural analysis and political-regulatory evaluation provided a comprehensive understanding of the evolution of this field. These findings have broad applications not only in the food industry, but also in other sectors dependent on distribution networks, regulations and consumer behaviour. Research has been carried out in close collaboration with international partners, including experts from the Joint Research Centre in Seville (JRC-Seville), which ensured the transferability of results to the European level and strengthened their impact in the area of public policy and market regulations. The project distinctly contributed to the primary pillars of FEC's mission, particularly in the areas of education, research and international cooperation. The project has provided an analytical basis for designing policies that promote a fair market environment in the food industry with directly impacts the regional and national economy. Collaboration with the Joint Research Centre in Seville (JRC-Seville) and other international institutions has strengthened the scientific relevance of FEC and contributed to its involvement in European discussions on market regulation and consumer protection. Research has also provided practical recommendations for the public sector, regulators and private companies, which supports FEC's long-term strategy as an innovation centre linking academia with the business and application sector. The research methods that were applied in the project have strengthened FEC's capacity for applied research and an interdisciplinary approach. The project has contributed to expanding FEC's international partnerships, which is crucial for it to keep its long-held position among respected academic institutions. Research also focused on the impact of market concentration and unfair business practices on SMEs and consumers, thereby promoting economic sustainability and the protection of public interest.

Key applied research projects with significant application potential in the period mentioned above also include the following TAČR projects:

2. [“Effective marketing as a tool to ensure the competitiveness and sustainable development of non-profit organizations providing social services”](#) – this project focused on the development and implementation of a marketing tool for increasing the competitiveness and sustainability of non-governmental non-profit organizations (NGOs) operating in the field of social services. In regard to increasing demands on the effective management of these organizations, the project aimed to create a practically applicable methodology that reflects current development trends in the non-profit sector and contributes to its long-term stability. The project had a distinct interdisciplinary character and was implemented in cooperation with the Faculty of Arts of the University of West Bohemia, Masaryk University, and experts from the non-profit sector. Linking economic, sociological and managerial perspectives made it possible to create a comprehensive methodology that interconnects the principles of strategic marketing with the needs of organisations focused on public services. The project yielded an important output – the Marketing Management Methodology, which serves as a practical tool for managing NGOs, increasing their ability to respond to the dynamics of their surroundings and thus strengthening their financial sustainability and competitiveness. It has already been applied in practice by the non-profit organization SANEK Ponte z. s., which was the application guarantor of the project. The methodology is used to improve internal processes and strategic planning; in addition, it serves as a basis for professional consultations in the field of NGO marketing management. Thus, the project not only contributed to scientific knowledge in the

field of non-profit sector management, but above all provided a practically applicable tool that improves the efficiency of organizations providing social services. Its results are transferable to other areas of the non-profit sector, thereby supporting the long-term stability of organizations with crucial social impact. In terms of its content and focus, the project fulfilled the social relevance of the research in keeping with FEC's vision and strategy.

3. **"Knowledge-intensive services sector adaptation to the conditions of Society 4.0"** - this project focused on developing a methodology for the adaptation of small and medium-sized enterprises (SMEs) in the services sector to the challenges of Society 4.0, which is characterised by increasing digitalisation, automation and dynamic changes in the labour market. The aim was to create a practical tool that would help enterprises respond effectively to technological and organisational change and thereby strengthen their competitiveness and long-term sustainability. The project was implemented in cooperation with the Institute of Technology and Business in České Budějovice. It combined insights from economics, management, information technology and human resource management, which allowed for the creation of a comprehensive approach to the transformation of enterprises in the digital economy. The key output of the project is the Methodology of SME Adaptation to the Conditions of Society 4.0, which is being used by the application guarantors of the project, including the Labour Office of the Czech Republic (regional branches in Pilsen and České Budějovice), the South Bohemian Chamber of Commerce and the South Bohemian Association for Human Resources Development. Czech labour offices use the methodology in seminars with employers, at job fairs and other professional events, where it helps companies gain a better understanding of the challenges of digitalisation, automation and changes in the labour market. The Chamber of Commerce and human resource development organisations are integrating the outputs into entrepreneurial support and strategic development programmes for regional companies, thereby helping SMEs to adapt effectively to new economic conditions. The project has provided the practical know-how for enterprises to transition to modern business models in the Industry 4.0 era and has created a strategic tool that is applicable not only in the services sector, but also in the broader context of labour market development and business support. The project significantly contributed to strengthening the social relevance of FEC's research activities.
4. **"Digitalization of project management teaching using the concept of serious games, virtual and augmented reality with regard to current business needs"** – the project, which was launched in 2023, focuses on innovations in project management learning via digital technologies, serious games and elements of virtual and augmented reality. Its aim is to create a modern digital platform that will provide a modular library of interactive learning materials reflecting the current trends and needs of business practice. The project is implemented in cooperation with Masaryk University, Hradec Králové University and the University of South Bohemia in České Budějovice while combining aspects of economics, teaching and technology. Cooperation with Calliditas and the professional supervision of IPMA CZ – an organisation that certifies project managers and acts as an independent platform for sharing knowledge and experience in project management – also plays a crucial role. The application potential and practical use of the outputs is ensured in the following manner: The digital platform enables flexible project management education, eliminating barriers in access to education and adapting content to the real needs of companies and institutions. A modular library of digitised materials will ensure up-to-dateness and the possibility to individually adapt educational content to fit specific user requirements. Serious games and both virtual and augmented reality will add an interactive and practical dimension to learning, thereby increasing the effectiveness of adopting project methodologies and strategies. IPMA CZ will ensure that results are transferred to the general scientific community, including certified project

managers, thereby allowing the project to surpass academic framework and contributing to the development of business application. The project links digital innovation with project management and thus reflects current challenges in the fields of education and business. Its results will directly support both the academic sphere and the entrepreneurial environment, where high-quality project management plays a crucial role in the growth of organisations and their ability to adapt to transforming market conditions. The project is particularly beneficial in terms of the focus of the FEC' research strategy and the development of practical applications. The overlap into teaching and education is also significant.

5. **"System of Support for Marketing Decision Making"** – the project focused on developing a sophisticated software tool that enables effective strategic planning and marketing-oriented decision making in the tourism sector. The University of South Bohemia in České Budějovice acted as the leading researcher, while FEC of the University of West Bohemia in Pilsen participated in the analytical and methodological aspects of the project, thereby strengthening its expertise in data analysis, marketing management and regional development. The project resulted in the DestinACE digital platform, which provides relevant institutions, including regional tourism organisations, with tools for effectively managing marketing activities and optimising strategic decisions. The software is available online (<http://www.destin-ace.cz/>) and, after registration, allows users to work with comprehensive data analyses that take into account the specifics of individual tourist destinations at the level of the Czech Republic, regions and individual areas. The project was strongly interdisciplinary in character, linking marketing, data analytics, economics and regional development management. As a result, DestinACE not only provides a practical tool for public administration and destination management, but also serves as a platform for applied and contract research, the outputs of which are being applied in other research projects. The application potential of the project is considerable, as it allows for the better use of decision-making data in the tourism sector and thereby contributing to more effective marketing activity planning and strengthening the competitiveness of tourist destinations. Thanks to the involvement of the academic sphere in the development of the software solution, the project has a broad reach not only in the academic environment but also in practice, where it supports the strategic development of regions and the optimisation of their tourism potential, which also highlights the social relevance of this project's output.
6. **"Prediction of future challenges of towns and cities with a population of up to 15,000 and foresight of related trends"** - this project, which was implemented within the framework of TA ČR according to the requirements of the Ministry for Regional Development, focused on analysing non-technical trends and their impacts on the development of smaller-sized settlements. The main objective was to identify the key factors that will be affecting the economic, social and infrastructural stability of small towns and municipalities in the future and to propose tools that will enable these settlements to proactively respond to changing conditions. The project was strongly interdisciplinary in character, interconnecting economic geography, regional development, public administration and foresight methods in order to predict future trends. A key output is the certified Methodology for Identifying Opportunities and Their Subsequent Implementation in the Life of Regions and Municipalities, which was piloted in selected cities (Broumov, Čelákovice, Mariánské Lázně, Moravské Budějovice and Slavičín). This methodology provides small settlements with a systematic approach to analysing and implementing innovative strategies in the fields of economic development, social services, public infrastructure and sustainability. The application potential of the project is considerable, as the outputs serve not only as a practical tool for municipal planning, but also as a recommended framework for other cities and municipalities in the Czech Republic. The Ministry of Regional Development actively recommends the methodology as a basis for

the strategic planning of smaller settlements, which strengthens its practical impact on regional development. The project has contributed to increasing the adaptability of small settlements to future challenges, which is crucial for their long-term sustainability and competitiveness. At the same time, it has strengthened cooperation between the academic sphere and public administration, confirming the strategic role of scientific research in supporting effective regional policy, which is fully in keeping with FEC's strategy.

7. **"Use of economic and social potential of cultural heritage through educational and touristic products using the example of historical trusses"** - the project, which was implemented in cooperation with the city of Cheb, the Karlovy Vary Region, the Institute of Theoretical and Applied Mechanics of the Czech Academy of Sciences and ZIP o.p.s. focused on linking cultural heritage with economic and regional development. Representatives of FEC contributed to the project with their expertise in the field of management and regional economics. Their key contribution was the development of the Methodology for Assessing the Impacts of Activities Associated with Tangible Cultural Heritage. This methodology, which was verified using historical roof trusses in the city of Cheb, makes it possible to systematically evaluate the benefits of heritage sites in terms of economics, tourism and society. Its versatile character allows it to be applied to other cultural monuments, thus increasing its practical value for public administration, destination management and the private sector. The project combined technical and historical analysis with economic and management tools, thereby contributing to a more effective use of cultural heritage for regional development. The methodology is freely available, and its individual tools are being used and developed in other applied and contract research projects, ensuring its long-term impact and broad use in the practical sphere. The project thus links scientific research with the specific needs of regions, thereby contributing not only to the protection of cultural heritage, but also to its active involvement in the educational, tourism and economic strategies of cities and regions.
8. **"Interdisciplinary approaches to efficient rainwater management on development sites of urban areas in the economic, social and environmental context"** - the project, which was implemented within the framework of TA ČR, links together the economic, environmental and technical aspects of water management. FEC has long been involved in researching this issue in cooperation with the Czech University of Agriculture in Prague, the Research Institute of Soil and Water Conservation and Water Management Development and Construction Company, thus strengthening its role in interdisciplinary research focused on sustainability and regional development. The main output of the project is specialised software for multi-criteria area analysis, which makes it possible to identify the most effective strategies for rainwater management in urbanised areas. This tool takes into account the economic costs, environmental impacts and social benefits of individual solutions, thus providing municipalities and cities with a comprehensive basis for strategic decision making. The software is available online (<https://www.fzp.czu.cz/rwm>), and its outputs are usable for urban planning and water management measures. Another key project output is specialised scientific maps, which have been piloted for selected cities such as Beroun, Tachov or Milevsko. These maps provide detailed suggestions for effective rainwater management and can be adapted to other specific locations at the request of a given municipality. Building upon this project, a certified methodology was created for the adaptation of small municipalities in terms of the availability of drinking water for their inhabitants as an indicator of the socio-economic development of society within the follow-up project titled "Availability of drinking water for the inhabitants of small municipalities as an indicator of socio-economic development". The application potential of the projects is considerable, as the outputs not only serve the needs of the professional public and water management institutions, but also especially municipalities, which can use the data obtained to optimize water management strategies in accordance with the principles

of sustainable development. Thanks to its interdisciplinary approach, the project interlinks environmental engineering, economics and public administration, thus enabling the practical implementation of the research results in urban and regional planning.

The regional scope of FEC is evident in terms of its contract research projects, and there is distinct cooperation with public stakeholders and the sphere of practical applications. The projects are socially relevant and provide support in the development of modern entrepreneurial approaches. Examples of projects with practical application outputs include:

9. **“Analysis of needs and proposal of services for supporting the digital transformation of small and medium-sized enterprises”** – this project focused on identifying the key challenges and opportunities of digitalization for small and medium-sized enterprises in the Pilsen Region. FEC collaborated on the project with the University of West Bohemia’s Faculty of Mechanical Engineering, combining economic and technological perspectives to create a comprehensive view into the digital transformation process. The main output of the research was a detailed study that analysed the current needs of SMEs in the field of digitalization and at the same time mapped the available services and tools that can help enterprises effectively implement digital technologies. The study took into account the specificities of the various sectors of the regional economy, which allowed for the creation of targeted recommendations for the entrepreneurial sphere. The project had a strong application impact, as its results were adopted and used by the Regional Development Agency of the Pilsen Region, which used them to direct its activities to support the digitalization of companies in the region. The research outputs have thus become an important basis for strategic planning and the development of digital infrastructure. The project’s interdisciplinary character not only made it possible to identify the needs of companies, but above all offered practical proposals for solutions that could help businesses adapt to new technological trends and increase their competitiveness in the environment of the digitalized economy.
10. **“Marketing situation analysis for the company’s product portfolio and development of a strategic marketing plan”** – this project was implemented as contract research for the Violin Schönbach s.r.o. company and focused on carrying out a comprehensive analysis of the market environment and creating strategic marketing recommendations. Within the framework of this research, FEC provided professional expertise in the field of marketing management, strategic planning and analysis of the competitive environment, thereby contributing to the practical application of scientific knowledge in the business sector. The project resulted in a detailed marketing situation analysis, which included an assessment of the macro, mezzo and micro environment of the enterprise. Based on these findings, key parts of a strategic and operational marketing plan were designed to strengthen the company’s competitiveness and support its long-term development. The project had a distinct practical application dimension, as it was implemented in the form of an “innovation voucher”, which involved directly linking academic research and company practice. The results of the analysis are being used actively by Violin Schönbach s.r.o. in order to formulate and implement marketing strategies, which fulfils the main objective of the contract research – to transfer expertise into the business sphere and support innovation in a real company environment. The interdisciplinary nature of the project lies in combining economic and marketing approaches with business management, which has enabled not only the identification of market opportunities and threats, but also specific proposals for strategic measures that can help the company better adapt to market dynamics and increase its competitiveness.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
TACR Technology Agency of the Czech Republic	TL01000498 Revitalization of urban centres of public spaces in the Czech Republic: problems, inspiration from abroad and possible solutions	2,589/ 102,130	2,503/ 98,738			
TACR Technology Agency of the Czech Republic	TL01000110 The future of a rural area in the Czech Republic: Challenges, visions, development scenarios and adaptation strategies	2,452/ 96,726	2,409/ 95,030			
TACR Technology Agency of the Czech Republic	TITSMMR702 Prediction of future challenges of towns and cities with a population of up to 15,000 and foresight of related trends	2,447/ 96,529	1,082/ 42,682			
GACR Czech Science Foundation	GA19-18080S Food supply chains: impact of concentration, unfair trade practices, regulations and changing consumer preferences	1,286/ 50,730	1,298/ 51,203	1,348/ 53,176		
TACR Technology Agency of the Czech Republic	TL02000055 Effective marketing as a tool to ensure the competitiveness and sustainable development of non-profit organizations providing social services	2,402/ 94,753	2,505/ 98,817			
TACR Technology Agency of the Czech Republic	TL02000136 Knowledge-intensive services sector adaptation to the conditions of Society 4.0	1,243/ 49,034	1,253/ 49,428	1,213/ 47,850		
TACR Technology Agency of the Czech Republic	TL02000060 Availability of drinking water for the inhabitants of small municipalities as an indicator of the - economic development	1,752/ 69,112	1,828/ 72,110	1,771/ 69,862		
TACR Technology Agency of the Czech Republic	TL02000373 Optimizing the use of real estate in the municipalities property	1,335/ 52,663	1,574/ 62,091	1,010/ 39,842	240/ 9,467	
TACR Technology Agency of the Czech Republic	SS03010080 Interdisciplinary approaches to efficient rainwater management on development sites of urban areas in the economic, social and environmental context			2,831/ 111,677	2,829/ 111,598	2,797/ 110,335
TACR Technology Agency of the Czech Republic	TQ01000074 Digitization of project management teaching using the concept of serious games, virtual and					1,201/ 47,377

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

	augmented reality with regard to current business needs					
TACR Technology Agency of the Czech Republic	TQ01000007 Young people as actors in the future development of towns and cities					597/ 23,550
Ministry of Education	Projects SGS and SVK	1,735/ 68,442	1,755/ 69,231	2,227/ 87,850	2,321/ 91,558	2,360/ 96,097
Total		15,506/ 611,677	14,452/ 570,099	8,173/ 322,406	3,069/ 121,065	4,595/ 181,262
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
TACR Technology Agency of the Czech Republic	TL02000423 System of Support for Marketing Decision Making	96/ 3,787	112/ 4,418	112/ 4,418	112/ 4,418	
TACR Technology Agency of the Czech Republic	TL03000377 Use of economic and social potential of cultural heritage through educational and touristic products on the example of historic trusses		525/ 20,710	693/ 27,337	717/ 28,284	717/ 28,284
TACR Technology Agency of the Czech Republic	TL03000527 Internal and external peripheries in the regional development of the Czech Republic - from genetic determination to territorial cohesion		118/ 4,655	189/ 7,456	189/ 7,456	79/ 3,116
OPTAK Operational Programme Technologies and Applications for Competitiveness	CZ.01.01.01/06/23_014/0001333 Knowledge transfer for product innovation focused on process analysis and optimization					222/ 8,757
Total		96/ 3,787	755/ 29,783	994/ 39,211	1,018/ 40,158	1,018/ 40,158

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
CzechTourism	Cartographic output in the ArcGIS program of the analysis of the DMO system in the Czech Republic at the local and regional level					48/ 1,893
CzechTourism	Creation of a database of attractions, and tourism services (service enterprises in the Czech Republic) in					49/ 1,933

²⁷ Ibid.

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

	the catchment area of the components of the potential UNESCO World Heritage Site - Žatec and the Landscape of Žatec Hops					
CHODOS CHODOV s.r.o.	Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product	170/ 6,706				
City of Cheb	The Survey of Railway Line Attractiveness in the Bohemian-Bavarian and Bohemian-Saxon Regions	820/ 32,347				
The Regional Development Agency of the Plzeň Region	Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises				100/ 3,945	
Violin Schonbach s.r.o.	Marketing situation analysis for the company's product portfolio and development of a strategic marketing plan				170/ 6,706	
Destination agency for the Karlovy Vary region	Visitor profiles and satisfaction in the Karlovy Vary Region					180/ 7,101
Total		990/ 39,053			270/ 10,651	277/ 10,927

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

Contract research projects implemented for corporate entities have economic impact primarily for contracting authorities. Applied research projects or contract research projects for public administration organisations, which were also implemented at FEC, have broader applications.

The use of the results by users, the range of institutions for which the result is relevant, and other positive impacts of the applied research results are elaborated in more detail in the text of **Section 3.3**. They have not been repeated in this section.

²⁹ See Terms definition.

Certified methodologies are among the primary research outputs that have been applied at FEC. They include the following:

- **“Availability of drinking water for the inhabitants of small municipalities as an indicator of the socio - economic development”** is the output of the project “Availability of drinking water for the inhabitants of small municipalities as an indicator of socio-economic development” (<https://www.fek.zcu.cz/en/projekt.php?id=558>). Two licensing agreements have already been concluded with small municipalities, and interest from the Association for Rural Renewal of the Czech Republic or the Via Foundation in using the methodology has also been confirmed.
- **“Methodology of identification of opportunities and their subsequent introduction into the life of regions and municipalities”** – this methodology was created based on the requirements of the Ministry for Regional Development, which adopted its use, and it is the output of the project “Prediction of future challenges of towns and cities with a population of up to 15,000 and foresight of related trends” (<https://www.fek.zcu.cz/en/projekt.php?id=564>)

Another valuable output is the **“SW system for the support of DestinACE marketing decision-making”** software, which was created within the project “System of Support for Marketing Decision Making” (<https://www.fek.zcu.cz/en/projekt.php?id=566>) in cooperation with the University of South Bohemia in České Budějovice.

The main output of contract research is usually research reports, which are used for the needs of the client:

- **“Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises”** – this report was created within the project “Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises” (<https://www.fek.zcu.cz/en/projekt.php?id=631>) according to the contract of the Regional Development Agency of the Pilsen Region. It was further used as the basis for supporting the development of digitalization in this region. The report was produced in cooperation with the Faculty of Mechanical Engineering of UWB.
- **“What attitude do Czechs have towards the spa industry and has it changed in any way over the course of the coronavirus pandemic?”** - this report was produced in cooperation with the Czech Institute of Spa and Balneology, which used it to implement additional activities for the promotion of the spa industry in the Karlovy Vary Region and to prepare follow-up research projects.
- **“Results of the survey of visitor profiles and satisfaction in the Karlovy Vary Region in the 2023 summer season”** - this analysis was carried out for the Destination Agency for the Karlovy Vary Region, which is using it to develop its activities in the field of destination management and marketing. It was created within the project “Visitor profiles and satisfaction in the Karlovy Vary Region” (<https://www.fek.zcu.cz/en/projekt.php?id=644>).

Other applied results, mainly in the field of economic and regional geography, include specialised maps with scientific content. An example is the map in the ArcGIS programme based on an analysis of the destination management system (DMO) in the Czech Republic at the local, regional and provincial level, which is being used by CzechTourism for its activities related to this issue.

In terms of their content, all reported projects have a sustainability component, and their implementation is carried out with this in mind. At FEC, the Centre for Entrepreneurship and Sustainability deals with sustainability issues as one of the main components of its profile. For this reason, this issue is being systematically developed and it is the subject of research. It is also reflected in the topics of FEC's doctoral theses.

The principles of gender equality are respected at FEC. When working on projects, project teams are composed in a gender-balanced manner, and team members are equipped with relevant

competencies in terms of the positions they hold within the project. There is no need to take any additional measures to regulate gender equality.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Research report (Vsouhrn)	2019	Tluchoř, J. Kresa, Z. Janeček, P. Novotná, M. Ovesleová, H. Ježek, J. Valentová, M. Moucha, J. Research of attractiveness of railroads in the Czech-Bavarian and Czech-Saxon region (Contract research project - Cheb - The Survey of Railway Line Attractiveness in the Bohemian-Bavarian and Bohemian-Saxon Regions).
Research report (Vsouhrn)	2019	Tluchoř, J. Mičík, M. Prantl, D. Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product (contract research project - Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product).
Specialized map with scientific content (Nmap)	2020	Marval, Š. Hejduková, P. Roub, R. Čolba, M. Kopp, J. Hejduk, T. Bureš, L. Dušková, K. Fučík, P. Zajíček, A. Pavlíčková, L. Sychová, P. Mičudová, K. Kureková, L. Tomek, M. Vlčková, M. The effect of potable water supply on demographic (socio-economical) development of small municipalities (project TA ČR TL02000060).
Specialized map with scientific content (Nmap)	2020	Čolba, M. Marval, Š. Hejduková, P. Roub, R. Kopp, J. Hejduk, T. Bureš, L. Dušková, K. Fučík, P. Zajíček, A. Pavlíčková, L. Sychová, P. Mičudová, K. Kureková, L. Tomek, M. Kaplická, M. Optimisation and economic exigencies of potable water supply (project TA ČR TL02000060).
Research report (Vsouhrn)	2020	Janeček, P. Jánská, V. Kalaš, J. Evaluation of the festival Industry Open 2020
Certified methodology (NmetC)	2021	Ježek, J. Slach, O. Ircingová, J. Kopp, J. Tluchoř, J. Methodology of identification of inventions and their subsequent introduction into the life of regions and municipalities (project TA ČR TL01000110).
Certified methodology (NmetC)	2021	Hejduková, P. Marval, Š. Roub, R. Zrostlík, Š. Kopp, J. Hejduk, T. Sychová, P. Kureková, L. Pavlíčková, L. Bureš, L. Mičudová, K. Availability of drinking water for the inhabitants of small municipalities as an indicator of the socio - economic development (project TA ČR TL02000060).
Research report (Vsouhrn)	2021	Ježek, J. Slach, O. Dokoupil, J. Ircingová, J. Ivan, I. Kopp, J. Krtička, L. Matušková, A. Tluchoř, J. Identification of challenges and trends in the development of settlements up to 15,000 inhabitants (Summary research report TA ČR TITSMMR702).
Research report (Vsouhrn)	2021	Dvořáková, L. Černá, M. Hejduková, P. Hinke, J. Vallišová, L. Vacek, J. Taušl Procházková, P. Machová, V. Horák, J. Caha, Z. Summary research report on the project TL02000136 Adaptation of the knowledge-intensive services sector to the conditions of the Society 4.0 (project TA ČR TL02000136)

³⁰ Specify the specific type of result. Add rows as needed.

Research report (Vsouhrn)	2021	Janeček, P., Matějů, K., Hruška, O., Vávra, J., Huseynli, A., Simeth, V. What attitude do Czechs have towards the spa industry and has it changed in any way over the course of the coronavirus pandemic?
Software (R)	2022	Vojtko, V., Štumpf, P., Jere Jakulin, T., Janeček, P. System of Support for Marketing Decision Making (project TA ČR TL02000423).
Research report (Vsouhrn)	2022	Krechovská, M., Basl, J., Mičudová, K., Pinte, M. Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises
Research report (Vsouhrn)	2022	Tluchoř, J., Ircingová, J., Mičík, M., Satýnek, M. Developing a marketing plan for a start-up musical instrument company
Software (R)	2023	Bureš, L., Roub, R., Hejduk, T., Kopp, J., Urban, F. RainWaterManager. (project TA ČR SS03010080)
Specialized map with scientific content (Nmap)	2023	Kopp, J., Vogt, D., Roub, R., Urban, F., Poláková, L., Hejduková, P., Bureš, L., Hejduk, T., Kureková, L., Ježek, J., Burket, J., Marval, Š., Novák, P., Krupička, J., Zrostlík, Š., Kesely, M. Design of effective rainwater management for the pilot development area of housing in apartment buildings – Tachov (project TA ČR SS03010080).
Specialized map with scientific content (Nmap)	2023	Kopp, J., Vogt, D., Roub, R., Urban, F., Poláková, L., Hejduková, P., Bureš, L., Hejduk, T., Kureková, L., Ježek, J., Burket, J., Marval, Š., Novák, P., Krupička, J., Zrostlík, Š., Kesely, M. Design of effective rainwater management for a pilot development area of housing in family houses – Beroun (project TA ČR SS03010080).
Specialized map with scientific content (Nmap)	2023	Kopp, J., Vogt, D., Roub, R., Urban, F., Poláková, L., Hejduková, P., Bureš, L., Hejduk, T., Kureková, L., Ježek, J., Burket, J., Marval, Š., Novák, P., Krupička, J., Zrostlík, Š., Kesely, M. Design of effective rainwater management for the pilot development area of civic amenities – commercial – Milevsko (project TA ČR SS03010080).
Specialized map with scientific content (Nmap)	2023	Kopp, J., Vogt, D., Roub, R., Urban, F., Poláková, L., Hejduková, P., Bureš, L., Hejduk, T., Kureková, L., Ježek, J., Burket, J., Marval, Š., Novák, P., Krupička, J., Zrostlík, Š., Kesely, M. Design of effective rainwater management for the pilot development area of recreation – park – Čelákovice (project TA ČR SS03010080).
Specialized map with scientific content (Nmap)	2023	Kopp, J., Vogt, D., Roub, R., Urban, F., Poláková, L., Hejduková, P., Bureš, L., Hejduk, T., Kureková, L., Ježek, J., Burket, J., Marval, Š., Novák, P., Krupička, J., Zrostlík, Š., Kesely, M. Design of effective rainwater management for the pilot development area of production and storage – Drásov (project TA ČR SS03010080).
Specialized map with scientific content (Nmap)	2023	Kebza, M. Cartographic output in the ArcGIS program of the analysis of the DMO system in the Czech Republic at the local and regional level (contract research).
Research report (Vsouhrn)	2023	Štumpf, P., Tluchoř, J., Janeček, P., Wágnerová T. Results of the survey of the visitor profiles and satisfaction in Karlovy Vary Region in the summer season 2023
Research report (Vsouhrn)	2023	Pašek, J., Ircingová, J., Gangur, M., Janeček, P., Ježek, J., Martinčík, D., Martinčíková Sojková, O., Tluchoř, J., Bošová, D., Sojková, V. Optimizing the use of real estate in the municipalities property (project TA ČR TL02000373).

Research report (Vsouhrn)	2023	Tluchoř, J., Kochová, E., Pichlík, L., Kudrnová, K., Benešová, Š., Knotová, E. Comprehensive research report with a methodology for continuous monitoring of the impacts of the inscription on the tourism sector in the area of the UNESCO World Heritage Site -> Žatec and the Landscape of Žatec Hops (Contract research 5115/0008/23(519002)).
Research report (Vsouhrn)	2023	Kopp, J., Hejduková, P., Ježek, J., Kureková, L., Vogt, D., Roub, R., Bureš, L., Burket, J., Poláková, L., Hejduk, T., Marval, Š., Zajíček, A., Novák, P., Urban, F., Klimánková, P., Krupička, J., Štěpán, Z., Kesely, M. Summary research report of the SS03010080 project

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

Typical users of the outputs created by FEC from the non-university sphere are mainly organisations of the state administration and municipal governments of the Czech Republic and Germany's bordering regions; agencies and organisations focused on tourism development; non-profit organisations; and business entities in the small and medium-sized enterprise segment. Cooperation is usually initiated by partners. FEC usually responds to the demand of future users of the outputs and addresses them based on its references.

Typical users of the outputs of FEC in the period 2019 – 2023 were:

1. [Czech Tourism](#) – Creation of a database of tourism attractions and services (service enterprises in the Czech Republic) in the catchment area of a potential UNESCO World Heritage Site – Žatec and the Žatec Hop Landscape (2023).

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

2. **The Pilsen Region**, specifically the [Regional Development Agency – Analysis of needs and proposal of services to support the digital transformation of small and medium-sized enterprises](#) (2022).

3. **Cities and municipalities of the Czech Republic** – City of **Tachov** – *Proposal of efficient rainwater management for a pilot development area for apartment building housing*; City of **Beroun** – *Proposal of efficient rainwater management for a pilot development area for one-family houses*; City of **Milevsko** – *Proposal of efficient rainwater management for a pilot development area for civic amenities*; City of **Čelákovice** – *Proposal of efficient rainwater management for a pilot development area of recreation*; Municipality of **Drásov** – *Proposal of efficient rainwater management for a pilot development area of manufacturing and storage*).

4. **The Karlovy Vary Region**, specifically the City of **Cheb** – [Survey of the attractiveness of routes within the Bohemian-Bavarian and Bohemian-Saxon region](#) (2019); also [Destination Agency for the Karlovy Vary Region](#) – results of the survey on profiling and satisfaction of visitors to the Karlovy Vary Region in the summer season of 2023 (2023); results of the survey of visitor profiles and satisfaction in the Karlovy Vary Region in the summer season 2023 (2023).

5. **Chodos Chodov, s.r.o.** – [Completion of a marketing situation analysis, strategic marketing plan and operational marketing \(communication\) plan for 2019 for the product VA 521](#) (2019).

Results of R&D and innovation were not commercialized in the monitored period because the type of result itself was purpose-oriented according to the needs of the client and it was not possible to further evaluate such a result. The issue of spin-offs and consultancy in founding companies is systematically dealt with at FEC by the Center for Entrepreneurship and Sustainability. Examples of successful start-ups in the period under review include the following:

1. [Destinisco](#) – an adaptive escape game controlled by artificial intelligence, authored by Faculty of Economics student Filip Kouba (link – <https://www.destinisco.com>). The output from this start-up has generated publicity and media coverage: [Youtube Destinisco](#)

2. [Gluten-free vending machine](#) – an example of an output from this start-up is placed directly on the campus of the University of West Bohemia, where a gluten-free vending machine has been installed and is in regular operation. Authors of the project are FEC students Jakub Koutník, Lukáš Marek and Matyáš Kopp (link – https://www.instagram.com/automatybez?utm_source=ig_web_button_share_sheet&igsh=ZDNIZDc0MzlxNw==)

As part of interdisciplinary cooperation, FEC is in possession of a long-term donation from the **InterCora Stiftung foundation** to support the study programme focused on real estate management and development. This study programme is being implemented at the Faculty of Applied Sciences of the University of West Bohemia, and FEC has been cooperating on it in the long-term. The donation is intended to support the implementation of this programme and support research and scientific outputs in this field.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
InterCora Stiftung - donation		600/ 23,669	600/ 23,669	1,300/ 51,282	1,400/ 55,227
Total		600/ 23,669	600/ 23,669	1,300/ 51,282	1,400/ 55,227

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

FEC not only focuses its activities on research and educational activities – it also plays an important role in communicating with the general public. The purpose of this communication is to interpret contemporary knowledge in fields that FEC develops in a form that can be understood by the general public; to popularize science; and to influence and attract especially the young generation to take an interest in science and education. The activities that FEC organises and holds are structured according to target groups and the form in which they are presented. The HOMO ECONOMICUS summer schools are regularly organised for young people interested in economic sciences – there they can gain interesting information about the economic nature of issues that affect the quality of everyday life and increase their economic literacy. An added value for FEC is the opportunity to awaken the young generation's interest in economic disciplines. In addition, workshops are organised for interested members of the young generation to explain the risks and pitfalls of entrepreneurship, encouraging innovation and creativity. Attention is also devoted to the issue of start-ups.

FEC cultivates a "Faculty School" format with selected secondary schools in the Czech Republic. This type of collaboration allows high school students to meet with renowned experts who make guest appearances at FEC, as Faculty Schools are given priority in joining the lectures given by guest speakers. In addition, academic staff of FEC give lectures on selected topics directly at the Faculty Schools. In this way, research topics that are being addressed by FEC are communicated and popularized among secondary-school youths. FEC also has active relationships with its alumni. Through various scientific and popularization events, FEC reaches out to the public and thereby significantly influences cultural and social life in the region and contributes to the dissemination of knowledge, as well as cultural and civilizational values oriented towards sustainable development and social responsibility. An example of this are the regularly held SCIENCE AND TECHNOLOGY DAYS IN PILSEN, which is co-organised with the University of Science and Technology and the City of Pilsen. A highly attractive event is the photography exhibition and

opening of the HEALTHY LANDSCAPE OF THE PILSEN REGION, which promotes the results of Science, Research and Development in the ecologisation of the landscape and its adaptation to climate change. Educational articles for primary and secondary schools on media education and social media, which were produced on the basis of a Visegrad Fund (V4) research project, have received positive feedback. Faculty staff members regularly comment on current economic and social issues in the public media.

FEC popularizes R&D and innovation and successfully communicates its knowledge based on implemented research to the general public. 10 events with the greatest significance are listed below. During the period under review, FEC's staff members provided expert commentaries on current economic, social and ecological issues on Czech Television and Czech Radio.

1. During the period under review, our experts had several opportunities to make appearances with national impact in the media and comment on important and current events. By doing so, they often helped to disseminate relevant information on given topics as well as participated in building the brand of the faculty and the university and spreading its positive reputation. Integral parts of such outputs also included popularising the field of science, strengthening public trust in the scientific community and combating misinformation. Examples of expert commentaries on current economic, social and ecological issues on Czech Television and Czech Radio are included in [Attachment 1](#).

2. [The Science and Technology Days in Pilsen](#) interactive exhibition – a project in cooperation with the University of West Bohemia in Pilsen and the City of Pilsen (<https://fb.me/e/2UQXoX50j>) Science and Technology Days are a regular project organized every year to popularize science and the activities of the University of Technology among the public both in Pilsen and (recently) in other regions. Our Faculty regularly participates in the event via its own exposition, which focuses on e.g. financial literacy, understanding the circulation of money in society, or caring for the landscape. In recent years, we have cooperated with the Pilsen Region on our exhibition stand and activities.

3. Organization of summer schools – since 2013, FEC has regularly organized the [HOMO ECONOMICUS](#) Summer School (in Pilsen and Cheb). In recent years, it has also been involved in organising the **International Summer School on Sustainability 2022 and 2023**. Both editions were held in Weiden, Germany. The event was supported by the European Union – European Structural and Investment Funds (Operational Programme Research, Development and Education). During the summer schools, FEC presents the results of its scientific and research work in an engaging way to those interested in economic disciplines.

4. [Researchers' Night in Pilsen](#) – a project in cooperation with the University of West Bohemia (regularly held since 2007).

Researchers' Night is a popularization event that takes place annually in more than 25 European countries, including the Czech Republic. For several years now, the University of West Bohemia and our Faculty have participated. At the event, the general public can familiarise themselves with the results of research in economics and related disciplines. We present our findings in an innovative and interactive form that appeals to the widest possible spectrum of the public. Visitors can solve various challenges and quizzes and hold discussions with our experts about topics that are being dealt with in economic disciplines.

5. **Brain and Breakfast** – a live-streamed breakfast with topics for business support. Our Faculty has participated several times in the Brain and Breakfast concept, which strives to promote and expand competencies via online meetings with various professionals and experts. The event is held under the auspices of FEC' Centre for Entrepreneurship and Sustainability and provides the opportunity to discuss current issues with interesting personalities.
6. **Invest Day** – a competition of project plans organized in cooperation with the University of South Bohemia in České Budějovice (years 2019, 2020, 2021, 2022, 2023). This is a competition that evaluates the quality of submitted business plans created by students and graduates of selected universities. Teams of FEC students regularly take part in the competition under the supervision of our experts and often rank in the top places. Some of the business plans are subsequently implemented in practice, such as the 2 recent winning projects of FEC teams – the project for vending machines with healthy products (<https://info.zcu.cz/clanek.jsp?id=8015>) or the Destinisco escape game (<https://info.zcu.cz/Faculty-of-Economics-wins-gold-for-the-third-time-in-the-Invest-Day-competition/clanek.jsp?id=6690>)
7. **Amazing Business School** – an interactive and experimental series of continuous workshops in collaboration with partners (JIC Brno, Brno University of Technology, Impact Hub Brno, VSB-TU, VŠE) aimed at developing business plans (2020, 2021, 2022, 2023). The Amazing Business School, organized by the Department of Business Economics and Management of FEC, is innovative in many ways – its participants work on projects that try to turn an entrepreneurial idea into a real business plan using modern research methods. Their plans are critiqued by experts in the given field.
8. **Business Date** – a series of thematic workshops and meetings with interesting guests. In this format, participants will learn about and try out a range of activities that will help them implement their own business ideas and make it easier to get new projects up and running. This series of events is also sponsored by the Center for Entrepreneurship and Sustainability. A series of workshops related to start-ups:
 2019 – The Dotykačka Business Idea – From Idea to Implementation; Venture Capital Funding – What to Prepare For, How to Get Your Vision off the Ground.
 2020 – 10 Reasons Why Presentations Suck; Prototyping – Product Development in Practice; Grow with Google – Lean Canvas And How To Use it
 2021 – Giving Your Presentations Drive; Crowdfunding – How to Use It for a Business Idea; Value Proposition Canvas, Prototype and User Testing; Design Thinking – How to Be Innovative and Creative
 2022 – Give Your Presentations Drive; Design Thinking with Grow with @google; Marketing Communications
 2023 - The Power of Presentation; Marketing Communication – It's Not Just Social Networks or Tiktok Videos; Figma – Open The Door to Graphic Design; Prototyping... Because the First Idea Usually Isn't the Best One
9. **Significant one-time events** - these one-off events targeted both the academic and the general public. The topics of the events covered business development, sustainability, social responsibility, involvement of the non-profit sector and current topics in the areas of finance and taxes. Most significant events, that took place in the period from 2019 to 2023 are listed in [Attachment 2](#).

10. Articles for primary and secondary school teachers on the topic of media education and social media. These articles are listed below:

https://clanky.rvp.cz/clanek/c/G/22134/medialni-vychova-a-socialni-media-1.-cast-.html?_gl=1*1f1os7*_ga*MTU4MDMyMDc0LjE3MzQwMDc0NDg.*_ga_DB0ZYB52FX*MTczNDUyMDIxMy4yLjEuMTczNDUyMDIyNC4wLjAuMA, - over 8,800 reads.

https://clanky.rvp.cz/clanek/c/G/22234/medialni-vychova-a-socialni-media-2.-cast-.html?_gl=1*1cy0ict*_ga*MTU4MDMyMDc0LjE3MzQwMDc0NDg.*_ga_DB0ZYB52FX*MTczNDUyMDIxMy4yLjEuMTczNDUyMDMzMS4wLjAuMA.) - more than 10,400 reads.

Our academic staff also publish their research on important topics on professional portals in order to reach their target audiences. A scientific article on the topic of media education and social media was published on the methodological portal for the Framework Education Programme, which serves as primary methodological support for teachers and supports the implementation of the Framework Education Programmes in schools. The active participation of our experts contributes to the fact that the key topics researched at our Faculty during this period also find application as professional support and material for primary and secondary school teachers. The articles listed above have been read several thousand times as of early January 2025 (approx. 8.9k and 10.4k reads, respectively).

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

In the International Evaluation Panel's Evaluation Report 2014-2018, FEC was rated as a stable, consolidated unit that systematically develops the field of Social Sciences (FORD 50 000). It noted that FEC's academic staff members are recognised and respected by the scientific community both nationally and internationally. In addition to its regional dimension, FEC has used its activities to take advantage of its location in the border region with Germany.

The International Evaluation Panel noted the following in terms of potential for possible improvement:

1. Higher degree of internationalization of research issues.
2. Greater medialization of outputs and achievements, and emphasizing the interest of other segments of the general public, primarily among those of a productive age.
3. Contract research is lacking a connection to a strong partner, which would allow for higher-quality outputs and better volume of resources that are derived from contract research.
4. It is also necessary to establish additional partnerships that would lead to a more targeted focus in research activities and the growth of excellence.

During evaluating period FEC has focused on intensification of international research activities. Numerous contacts with foreign organizations were opened. Results of these cooperation were

common publications of scientific articles or submissions of research projects. FEC realized a number of public actions focused on broad public popularised research achievements and know-how with the aim to strengthen the image of the faculty and to attract public either into cooperation, or to enrol new applicants into study programmes the faculty offers. Unfortunately, FEC did not succeed in establishing cooperation with a strong partner in contract research. Faculty's effort to strengthen the volume of contract research was inhibited by lockdowns during Covid pandemic during 2020 – 2022. So that the volumes of contract research remained on previous levels. The Dean's research stay at the University of Barcelona (Spain) in 2022 enabled to create partnership with two Spanish Universities, which led to submission of five research projects. One of them, the Horizon Europe project "[BEAGLE - Blue Oceans Strategy for Value Creation](#)" was successfully awarded in 2023 in cooperation with Rovira i Virgili University (Spain).

For point 1:

Since 2020, FEC has initiated longer-term cooperation with researcher Jaromír Kovářík from the University of Bilbao (Spain). This cooperation resulted in the submission of a [GAČR project](#), which was successfully awarded in 2023 and is now being researched at FEC in the period 2024 - 2026.

Since 2022, the collaboration with Mariola Grzebyk from the University of Rzeszow (Poland) has been in progress. Three joint papers were published, one of them in a Q1 impact journal ([WoS](#)). Cooperation with the University of Rzeszow is ongoing and FEC also participates in organized [scientific conferences](#).

In 2022, cooperation was established with the research teams of the University of Barcelona and Rovira i Virgili University (Spain) within the framework of the long-term research internship held by FEC's Dean Michaela Krechovská. Several international projects have already been submitted with these institutions and shared research activities are being developed.

In the period under review, an intensive scientific and research collaboration took place with the University of Primorska (Slovenia), specifically with Prof. Tadeja Jere Jakulin, which resulted in the submission of the joint project [TAČR TL02000423](#).

Within the framework of joint research activities with Grand Valley State University (USA), doc. Dita Hommerová from FEC conducted joint research and publication with Prof. Dr. Salvatore Alaimo.

In 2023, cooperation was initiated between FEC represented by Jan Pokorný and Business Administration of the University of Alcalá (Spain), specifically with Prof. Olga Cantó, who heads the WEIPO (Well-being, Inequality, Poverty and Public Policy Group) research team.

For point 2:

In addition to the regularly recurring events popularizing FEC' R&D&I to the general public that took place in the previous evaluation period (Science and Technology Days, Invest Day, Homo Economicus, Brain and Breakfast), FEC has significantly strengthened its activities in the area of the media coverage of its professional outputs. Cooperation with the media proved to be positive in the period under review, as FEC staff members used their positions as experts to speak to current economic issues.

All the above-mentioned campaigns and events have significantly strengthened the reputation of FEC in the eyes of the general public and have increased its prestige and heightened awareness of its activities and scientific outputs.

For point 3:

Problems in establishing stable cooperation with a strong partner in the field of contract research were posed by the coronavirus pandemic, during which contract research was not requested by external entities due to the lock-down, as well as by the subsequent outbreak of war in Ukraine, as external partners were dealing operatively with other high-priority tasks. This shortfall was reflected in the volume and number of implemented projects. Nonetheless, contract research projects were still handled within the constraints of the external environment at the level of the previous period. We are developing long-term cooperation with financial benefits with [Our partners](#). This strategic cooperation also includes scientific research activities.

For point 4:

In 2022, the Dean of FEC doc. Ing. Michaela Krechovská, Ph.D. completed a four-month research stay at the University of Barcelona (Spain). This internship led to the creation of significant cooperation with two Spanish universities – the University of Barcelona and Rovira i Virgili University, as well as with research teams working at the faculties of economics there. During the internship, the “*HERO – Higher Education Transition*” project was already submitted with the University of Barcelona within the Horizon Europe programme (2022) and other projects in cooperation with the University of Barcelona team are ongoing.

The Horizon Europe project “[BEAGLE - Blue Oceans Strategy for Value Creation](#)” was successfully awarded in 2023 in cooperation with Rovira i Virgili University. Within the framework of this project, FEC is cooperating in the field of R&D&I with the following additional foreign entities: CTAG, F6S Innovation, Next Move, Cleantech Bulgaria, UNIMOS and University West (Sweden).

Detailed description of actions proving improvement since last evaluation report are given in separate [Attachment 3](#).

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (Link in HTML)
Annual reports	3.1 – 3.1.6, 3.2, 3.2.5, 3.4, 3.5, 3.6, 3.7	https://www.fek.zcu.cz/en/report.php
Projects	3.3, 3.3.1, 3.3.2, 3.4, 3.5, 3.7	https://www.fek.zcu.cz/en/projekty.php?year=2020
Recognition by the research community The effect of COVID-19 on consumer shopping behaviour: generation cohort perspective Rector's Award Czech National Bank	3.2	The effect of COVID-19 on consumer shopping behaviour: generation cohort perspective Rector's Award https://www.cnb.cz/en/economic-research/awards/
R&D&I Peter Keller Award (2023) Highly cited paper (2023)	3.2.1	Peter Keller Award Highly cited paper

Award for the best CNB research paper (2023, 2019) Best Paper Award (2021) Rector's Award (2021) Professor Sojka Award (2021) Highly cited paper (2021)		https://www.cnb.cz/en/economic-research/awards/ Best Paper Award Rector's Award Professor Sojka Award Highly cited paper
Academic staff members' participation on editorial boards of international scientific journals Studia Turistica Business Trends International of Economic Sciences Prague Economic Papers Technological and Economic Development of Economy E+M Economics and Management ACC Journal Problems of Management in the 21st Century Gile Journal of Skills Development Facta Universitatis, Series: Economics and Organization Information of the Czech Geographical Society ERGO - Analyses and trends in research, technologies and innovations Czech Hospitality and Tourism Paper Economic Spectrum B&IT4 Journal of Knowledge Society	3.2.2	https://www.studiaturistica.cz/editorial/ https://www.trendypodnikani.cz/en/ https://ijes-journal.org/journal/index https://pep.vse.cz/ https://journals.vilniustech.lt/index.php/TEDE/editorialboard http://www.ekonomie-management.cz/ https://acc-ern.tul.cz/en/acc-journal https://www.scientiasocialis.lt/pmc/ https://gjsd.gile-edu.org/index.php/home/impressum https://casopisi.junis.ni.ac.rs/index.php/FUEconOrg/about/editorialTeam https://geography.cz/en/publikace/informace-cgs/ https://archiv.tc.cz/en/publications/periodicals/periodicals-list/ergo https://www.tc.cz/files_public/elfinder/220/ERGO_informace%20o%20periodiku.pdf https://chtp-journal.com/ https://sekarl.euba.sk/ar-leu/en/detail/?&idx=eu_un_cat*0243884&iset=1&disprec=7 https://bit.fsv.cvut.cz/boards.html Journal of Knowledge Society

Most significant lectures given by academic staff members at institutions abroad Socio-Economic Consequences of the Czech Pension Indexation and its Reforms Potenziale und Herausforderungen im grenzüberschreitenden Bildungs- und Wissenschaftsraum (Potentials and Challenges in Cross-border Educational and Scientific Area)	3.2.3	https://www.facebook.com/photo/?fbid=848719093420904&set=pcb.848719170087563 https://www.facebook.com/watch/?v=701272805243040 https://wissenschaftstag.metropolregionnuernberg.de/fileadmin/media/mediathek-wissenschaftstag/downloads/archiv_WT19/Dokumentation.pdf Other documentation kept at individual departments
Most significant lectures given by international scientists and other guests New trends in economic research USA & Pacific Ocean, area for integration or competition	3.2.4	https://www.youtube.com/watch?v=1VC8QBAT_Z4 https://www.facebook.com/KGEvPlzni/photos/a.534766679894521/2144434895594350/?type=3&locale=cs_CZ Other documentation kept at individual departments
Involvement in R&D&I results evaluation - National/European research project calls Technology Agency of the Czech Republic (TA ČR) Research Development and Innovation Council (RDI) Slovak, Research and Development Agency (APVV) Czech Science Foundation (GA ČR) Research, Development and Innovation Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences (VEGA, KEGA)	3.2.5	Technology Agency of the Czech Republic Office of the Government of the Czech Republic, Research, Development and Innovation Council Slovak Research and Development Agency Czech Science Foundation Research, Development and Innovation Science Grant Agency of the Ministry of Education, Research, Development and Youth of the Slovak Republic and the Slovak Academy of Sciences Documentation kept at individual departments
Research projects (including contract research) Food supply chains: impact of concentration, unfair trade practices, regulations and changing consumer preferences Effective marketing as a tool to ensure the competitiveness and sustainable development of non-profit organizations providing social services	3.3	https://www.fek.zcu.cz/en/projekty.php?year=2020 https://www.fek.zcu.cz/en/projekt.php?id=546 https://www.fek.zcu.cz/en/projekt.php?id=555

Knowledge-intensive services sector adaptation to the conditions of Society 4.0 Digitalization of project management teaching using the concept of serious games, virtual and augmented reality with regard to current business needs System of Support for Marketing Decision Making Prediction of future challenges of towns and cities with a population of up to 15,000 and foresight of related trends Use of economic and social potential of cultural heritage through educational and touristic products on the example of historic trusses Interdisciplinary approaches to efficient rainwater management on development sites of urban areas in the economic, social and environmental context Analysis of needs and proposal of services for supporting the digital transformation support of small and medium sized enterprises Marketing situation analysis for the company's product portfolio and development of a strategic marketing plan		https://www.fek.zcu.cz/en/projekt.php?id=549 https://www.fek.zcu.cz/en/projekt.php?id=647 https://www.fek.zcu.cz/en/projekt.php?id=566 https://www.fek.zcu.cz/en/projekt.php?id=564 https://www.fek.zcu.cz/en/projekt.php?id=577 https://www.fek.zcu.cz/en/projekt.php?id=598 https://www.fek.zcu.cz/en/projekt.php?id=631 https://www.fek.zcu.cz/en/projekt.php?id=619
Projects supported with public funds Revitalization of urban centres of public spaces in the Czech Republic: problems, inspiration from abroad and possible solutions The future of a rural area in the Czech Republic: Challenges, visions, development scenarios and adaptation strategies Prediction of future challenges of towns and cities with a population of up to 15,000 and foresight of related trends Food supply chains: impact of concentration, unfair trade practices, regulations and changing consumer preferences	3.3.1	Data registered at the Centre for project activities (SPA) https://www.fek.zcu.cz/en/projekty.php?year=2023 https://www.fek.zcu.cz/en/projekt.php?id=530 https://www.fek.zcu.cz/en/projekt.php?id=529 https://www.fek.zcu.cz/en/projekt.php?id=564 https://www.fek.zcu.cz/en/projekt.php?id=546

Effective marketing as a tool to ensure the competitiveness and sustainable development of non-profit organizations providing social services Knowledge-intensive services sector adaptation to the conditions of Society 4.0 Availability of drinking water for the inhabitants of small municipalities as an indicator of the socio - economic development Optimizing the use of real estate in the municipalities property Interdisciplinary approaches to efficient rainwater management on development sites of urban areas in the economic, social and environmental context Digitization of project management teaching using the concept of serious games, virtual and augmented reality with regard to current business needs Young people as actors in the future development of towns and cities System of Support for Marketing Decision Making Use of economic and social potential of cultural heritage through educational and touristic products on the example of historic trusses Internal and external peripheries in the regional development of the Czech Republic - from genetic determination to territorial cohesion Knowledge transfer for product innovation focused on process analysis and optimization		https://www.fek.zcu.cz/en/projekt.php?id=555 https://www.fek.zcu.cz/en/projekt.php?id=549 https://www.fek.zcu.cz/en/projekt.php?id=558 https://www.fek.zcu.cz/en/projekt.php?id=563 https://www.fek.zcu.cz/en/projekt.php?id=598 https://www.fek.zcu.cz/en/projekt.php?id=647 https://www.fek.zcu.cz/en/projekt.php?id=648 https://www.fek.zcu.cz/en/projekt.php?id=566 https://www.fek.zcu.cz/en/projekt.php?id=577 https://www.fek.zcu.cz/en/projekt.php?id=620 https://www.fek.zcu.cz/en/projekt.php?id=649
Contract research activities Cartographic output in the ArcGIS program of the analysis of the DMO system in the Czech Republic at the local and regional level Creation of a database of attractions, and tourism services (service enterprises in the Czech Republic) in the catchment area of the components of the potential UNESCO World Heritage Site - Žatec and the Landscape of Žatec Hops	3.3.2	https://www.fek.zcu.cz/en/projekty.php?year=2020 https://www.fek.zcu.cz/en/projekt.php?id=651 https://www.fek.zcu.cz/en/projekt.php?id=653

Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product The Survey of Railway Line Attractiveness in the Bohemian-Bavarian and Bohemian-Saxon Regions Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises Marketing situation analysis for the company's product portfolio and development of a strategic marketing plan Visitor profiles and satisfaction in the Karlovy Vary Region		https://www.fek.zcu.cz/en/projekt.php?id=560 https://www.fek.zcu.cz/en/projekt.php?id=533 https://www.fek.zcu.cz/en/projekt.php?id=631 https://www.fek.zcu.cz/en/projekt.php?id=619 https://www.fek.zcu.cz/en/projekt.php?id=644
Research results with existing or prospective impact on society Certified methodology (NmetC) Certified methodology (NmetC) Software Research report Research report Research report	3.4	https://www.fek.zcu.cz/en/projekty.php?year=2020 Availability of drinking water for the inhabitants of small municipalities as an indicator of the socio - economic development Methodology of identification of opportunities and their subsequent introduction into the life of regions and municipalities SW system for the support of DestinACE marketing decision-making Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises What attitude do Czechs have towards the spa industry and has it changed in any way over the course of the coronavirus pandemic? Results of the survey of visitor profiles and satisfaction in the Karlovy Vary Region in the 2023 summer season
Overview of research results for the studied period Research report (Vsouhrn) Research report (Vsouhrn) Specialized map with scientific content (Nmap)	3.4.1	Research of attractiveness of railroads in the Czech-Bavarian and Czech-Saxon region Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product1 The effect of potable water supply on demographic (socio-economical) development of small municipalities Optimisation and economic exigencies of potable water supply

Specialized map with scientific content (Nmap)		Evaluation of the festival Industry Open 2020
Research report (Vsouhrn)		Methodology of identification of inventions and their subsequent introduction into the life of regions and municipalities
Certified methodology (NmetC)		Availability of drinking water for the inhabitants of small municipalities as an indicator of the socio - economic development
Certified methodology (NmetC)		Identification of challenges and trends in the development of settlements up to 15,000 inhabitants
Research report (Vsouhrn)		Summary research report on the project TL02000136 Adaptation of the knowledge-intensive services sector to the conditions of the Society 4.0
Research report (Vsouhrn)		What attitude do Czechs have towards the spa industry and has it changed in any way over the course of the coronavirus pandemic?
Research report (Vsouhrn)		System of Support for Marketing Decision Making
Software ®		Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises
Research report (Vsouhrn)		Developing a marketing plan for a start-up musical instrument company
Research report (Vsouhrn)		RainWaterManager
Software ®		Design of effective rainwater management for the pilot development area of housing in apartment buildings – Tachov
Specialized map with scientific content (Nmap)		Design of effective rainwater management for a pilot development area of housing in family houses – Beroun
Specialized map with scientific content (Nmap)		Design of effective rainwater management for the pilot development area of civic amenities – commercial – Milevsko
Specialized map with scientific content (Nmap)		Design of effective rainwater management for the pilot development area of recreation – park – Čelákovice
Specialized map with scientific content (Nmap)		Design of effective rainwater management for the pilot development area of production and storage – Drásov
Specialized map with scientific content (Nmap)		Cartographic output in the ArcGIS program of the analysis of the DMO system in the Czech Republic at the local and regional level
Specialized map with scientific content (Nmap)		Results of the survey of the visitor profiles and satisfaction in Karlovy Vary Region in the summer season 2023

Research report (Vsouhrn)		Optimizing the use of real estate in the municipalities property
Research report (Vsouhrn)		Comprehensive research report with a methodology for continuous monitoring of the impacts of the inscription on the tourism sector in the area of the UNESCO World Heritage Site -> Žatec and the Landscape of Žatec Hops
Research report (Vsouhrn)		Summary research report of the SS03010080 project
Research report (Vsouhrn)		
Transfer of results into practice	3.5	https://www.fek.zcu.cz/en/projekty.php?year=2023 https://www.fek.zcu.cz/en/report.php Comprehensive research report with a methodology for continuous monitoring of the impacts of the inscription on the tourism sector in the area of the UNESCO World Heritage Site -> Žatec and the Landscape of Žatec Hops https://www.fek.zcu.cz/en/projekt.php?id=653 https://www.fek.zcu.cz/en/projekt.php?id=631 Analysis of needs and proposal of services to support the digital transformation of small and medium-sized enterprises https://www.fek.zcu.cz/en/projekt.php?id=598 https://www.fek.zcu.cz/en/projekt.php?id=644 https://www.fek.zcu.cz/en/projekt.php?id=560 Destinisco https://www.destinisco.com Youtube https://plzen.rozhlas.cz/student-zcu-vymyslel-unikovku-rizenou-umelou-inteligenci-9285470 https://www.instagram.com/automatybez?utm_source=ig_web_button_share_sheet&igsh=ZDNlZDc0MzIxNw== Gluten-free vending machine
Czech Tourism - Creation of a database of attractions, and tourism services (service enterprises in the Czech Republic) in the catchment area of the components of the potential UNESCO World Heritage Site - Žatec and the Landscape of Žatec Hops		
Analysis of needs and proposal of services for supporting the digital transformation of small and medium sized enterprises		
Czech cities and municipalities – design of effective rainwater management for the pilot development area of housing in apartment buildings – (<i>Tachov, Beroun, Milevsko, Čelákovice, Drásov</i>)		
Živý kraj – Destination Agency for the Karlovy Vary Region		
Completion of a marketing situational analysis, strategic marketing plan and operative marketing (communication) plan for 2019 for the VA 521 product		
Destinisco		
Gluten-free vending machine		
Most significant activities in the area of science popularization, R&D and innovation, and communication with the public	3.6	https://www.fek.zcu.cz/en/report.php

On-line interviews	https://www.ceskatelevize.cz/porady/10118379000-udalosti-v-regionech-praha/223411000140228/ https://www.ceskatelevize.cz/porady/10101491767-studio-ct24/223411058270822/?fbclid=IwAR24zx86IXTEY3DhFNm2mD61OFEEQFeh5gSA8CBi2gLOOVclSA-dhztpr0 https://www.ceskatelevize.cz/porady/10997918455-mimoradne-porady-ct24/222411033300004/ https://www.facebook.com/FEK.ZCU/posts/5872871446056914 https://podcastyplzenskehokraje.podbean.com/e/geograf-ian-kopp-voda-je-rozdelena-mezí-nekolik-ministerstev/ https://www.ceskatelevize.cz/porady/1097181328-udalosti/222411000101021/cast/941587/ https://www.zakty.cz/archiv/chytry-region/6019.html https://plzen.rozhlas.cz/pouzivejte-socialni-site-s-rozumem-8122746
Science and Technology Days	https://dnyvedy.zcu.cz/minule-rocniky/ https://fb.me/e/2UQXoX50j
Homo Economicus	https://www.lsfek.zcu.cz
Researchers' Night	https://www.nocvedcu.cz/en/organization/university-of-west-bohemia-in-pilsen https://fb.me/e/NGw6lsav
Invest Day	https://cepeucko.cz/en/invest-day.html https://info.zcu.cz/clanek.jsp?id=8015 https://info.zcu.cz/Faculty-of-Economics-wins-gold-for-the-third-time-in-the-Invest-Day-competition/clanek.jsp?id=6690
Amazing Business School	
Business Date	https://cepeucko.cz/en/amazing-business-school%20.html
Significant conferences Workshop Lean Canvas for UNICEF	https://cepeucko.cz/en/business-date%20.html
Research seminar at University of Alcalá	https://www.facebook.com/FEK.ZCU/posts/pfbid02xLef3RBniX8mtMGfHrLgqNHCoUn8FwwTNU7ixk2PGeMs4tA3KHDURk547JGxmYZjl
Celebratory opening of Healthy Landscape	https://www.facebook.com/kfufekzcu/posts/pfbid02r3WfmeoUEmBBQRf2vBdcAi7GrnJnNtU4a1awgkbi4g6aKjQyTMDTjoXR9M5efjsKl
Validation Camp@csob	https://www.facebook.com/photo?fbid=847692317144550&set=pcb.847692367144545&locale=cs_CZ
Series of workshops in the Czech Republic with a focus on school marketing	https://startituni.csob.cz/validation-camp-ii-10-11-23-praha/ https://dspace.zcu.cz/items/ca12f54c-8e9a-4018-9b7d-14c26285c4c8

Annual conference of the Czech Geographical Society Articles for teachers of basic and secondary schools focused on media education and social media		https://konference.geography.cz/konference/geografie-pro-udrzitelny-rozvoj-mest-a-regionu/ https://clanky.rvp.cz/clanek/c/G/22134/medialni-vychova-a-socialni-media-1.-cast-.html?_gl=1*1f1os7*_ga*MTU4MDMyMDc0LjE3MzQwMDc0NDg.*_ga_DB0ZYB52FX*MTczNDUyMDIxMy4yLjE5MTczNDUyMDIyNC4wLjAuMA https://clanky.rvp.cz/clanek/c/G/22234/medialni-vychova-a-socialni-media-2.-cast-.html?_gl=1*1cy0ict*_ga*MTU4MDMyMDc0LjE3MzQwMDc0NDg.*_ga_DB0ZYB52FX*MTczNDUyMDIxMy4yLjE5MTczNDUyMDMzMzMS4wLjAuMA
Implementation of recommendations in the M3 module Understanding the behavior in collective action problems: behavioral and experimental approach Implementation of sustainable development goal 8 in European Union countries—A measurement concept and a multivariate comparative analysis Scientific conferences with University of Rzeszow System for the support of DestinACE marketing decision making Socio-Economic Consequences of the Czech Pension Indexation and its Reforms Our partners BEAGLE - Blue Ocean Strategy for Value Creation	3.7	3 https://www.fek.zcu.cz/en/projekty.php?year=2020 https://www.fek.zcu.cz/en/projekt.php?id=650 https://www.google.com/url?q=https://drive.google.com/drive/folders/1RozhgeyMhgghiAwO0Rtyal49L83sBGbG&sa=D&source=docs&ust=1741786002613103&usg=AOvVaw3KBdvqlerQ7-Dmzg3Okuh Scientific conferences https://www.fek.zcu.cz/en/projekt.php?id=566 Socio-Economic Consequences of Czech Pension Indexation and its Reforms https://fek.zcu.cz/blob.php?table=internet_list&type=File&file=Data&name=FileName&idname=IDInternet&id=5625 BEAGLE - Blue Oceans Strategy for Value Creation https://projectbeagle.eu/

MODULE 3:
FACULTY OF EDUCATION (FOE)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Education

FORD: 5 - Social sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The Faculty of Education (FOE) has more than 2400 students, around 60 study programmes and fields of study and 14 departments and centres.

The main mission of FOE is to provide teachers and other pedagogical staff with higher education for various levels and types of schools, educational and extracurricular educational institutions and to conduct corresponding teaching, scientific research and artistic activities. We fulfil our mission through activities in the field of education, creative activity and social action. These activities are mutually complementary and interrelated. We strive to make FOE a modern faculty that responsibly fulfils its professional and societal role. We are aware of the contexts of our activities in a wider framework, whether we mean the city of Pilsen, the Pilsen or Karlovy Vary region or the Czech Republic. Accordingly, we develop internationalisation in the context of the European Union. The mission of the FOE is to provide future teachers with high-quality education, to cooperate with teachers and school principals, especially in the West Bohemian region, and to conduct research in the area of pedagogy and field methodology. In this way, we contribute to the development of an educated and innovative society.

Our vision is to be the leading institution in the field of future teacher education and pedagogical research in the West Bohemian region, with a strong anchorage in the Czech Republic and a significant international reach. In particular, we want to fulfil our mission and vision by creating a stable and favourable internal environment at FOE, by developing university pedagogy and innovative teaching methods throughout the university and, last but not least, by targeted strengthening of FOE's research capacity, namely by developing international cooperation (especially within the EU Peace) and by exploiting current (INSPIRE 2 project) or intensifying grant

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

activities. We believe that this will allow us to implement ambitious research projects with a high added value.

We also focus on the development of new study programmes that reflect the current needs of society and the labour market, and provide students with competencies necessary for success in a rapidly changing world. An important part of our mission is to support the professional development of teachers and the continuing education of teaching staff, thereby contributing to improving the quality of teaching at all levels of the education system.

Our research efforts focus on improving the quality and impact of outputs, with an emphasis on exploring the theoretical foundations of pedagogy and education. In addition, we develop and test new educational methods and tools, which we then implement and evaluate in practice through innovative educational projects. These activities enable us to contribute to the creation of a modern, effective and inclusive educational environment that responds to the current challenges and needs of society.

The contribution of scientific research at FOE is significant in the following areas:

- 1) **Field professional research (at various levels)** ensures the rapid transfer of modern knowledge into the education of future teachers and thus into the education system soon. Perhaps the most important output in the field of natural sciences is the traditional palaeontological research, which, with the use of unique technical equipment at CERN, has definitively brought the answer to the question of the diet of trilobites and the physiology of the digestive system of this important animal group, unanswered for more than 200 years.

The results were published in the prestigious journal **Nature**:

Kraft, P., Vaškaninová, V., Mergl, M., Budil, P., Fatka, O., Ahlberg, P. (2023). Uniquely preserved gut contents illuminate trilobite palaeophysiology. *Nature*, vol. 622, pp. 545–551.

- 2) **Educational research** aimed mainly at the area of *content transformation* ensures, among other things, the identification and overcoming of so-called critical spots in the curriculum in primary and secondary schools, especially in direct cooperation with teachers in selected schools. The results of the research related to the above-mentioned the Czech Science Foundation (GACR) project Productive Culture of Teaching and Learning have been presented in major international journals and monographs:

Kohout, J., Slavík, J., Janík, T., Kuberská, M., Stacke, V., Češková, T., & Najvar, P. (2024). Instrumentation of students' experience through the active content of science: from epistemic contact to idealizations and back again in school classrooms. *International Journal of Science Education*, 1-27.

Janík, T., Slavík, J., Najvar, P., & Češková, T. (2024). *On the Theory of Content Transformation in Education: The 3A Methodology for Analysing and Improving Teaching and Learning*. Taylor & Francis.

- 3) **Pedagogical-psychological research** primarily focused on developmental disabilities and inclusive education. Examples of publications focusing on educational interventions in the field of epilepsy, among others, are listed below:

Buršíková, Brabcová, D., Kohout, J., Kosikova, V., & Lohrova, K. (2021). Educational interventions improving knowledge about epilepsy in preschool children. *Epilepsy & Behavior*, 115, 107640.

Káňová, S., Beadle-Brown, J., Janyskova, K., & Rezac, K. (2021, July). Implementation of UN CRPD Article 19 in the Czech Republic: Mapping the availability and nature of community-

based services for people with intellectual disabilities. In *JOURNAL OF APPLIED RESEARCH IN INTELLECTUAL DISABILITIES* (Vol. 34, No. 5, pp. 1270-1271).

- 4) **Research on the use of modern technologies in education**, such as virtual reality and artificial intelligence. Teams formed at FOE that have been working on the use of virtual reality in higher education for a long time won the Social Impact Award for their work at the Research and Innovation Forum conference in Athens in 2022. The research presented was on the use of virtual reality in training future teachers (**Duffek, V., Fiala, J., Hořejší, P., Mentlík, P., Průcha, T., Rohlíková, L., Zíka, M.** (2022). Pre-service teacher training in an immersive environment. 15 p. In VISVIZI, A., TROISI, O. (Eds) Rii Forum 2022: Rupture, Resilience and Recovery in the Post-Covid World.

In the field of modern technologies in education, we have also achieved significant publishing success in journals with a very high impact factor, as illustrated by the following study: Pospíšilová, L., & Rohlíková, L. (2023). Reforming higher education with ePortfolio implementation, enhanced by learning analytics. *Computers in Human Behavior*, 138, 107449.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	10.750/4.000	9.000/2.500	8.750/2.500	8.842/2.042	7.876/1.667	45.218/12.709
Associate Professor	23.170/8.170	23.582/8.239	23.185/7.825	24.037/8.516	28.298/10.417	122.272/43.167
Assistant Professor	100.570/53.600	93.636/50.602	84.296/48.216	89.397/50.618	91.117/52.452	459.016/255.488
Assistant	4.000/3.000	3.825/2.825	16.032/8.442	12.976/5.820	14.117/7.363	50.950/27.450
R&D Personnel ³	0.500/0.500	0.175/0.175	0.500/0.500	0.536/0.536	0.500/0.500	2.211/2.211
Researchers in other categories ⁴	3.497/1.750	3.555/1.729	3.059/2.096	3.748/2.960	2.195/1.837	16.054/10.372
Technical and economic staff ⁵	31.680/23.850	28.397/22.052	24.594/19.733	24.112/19.192	23.302/18.786	132.085/103.613
Scientific, research and development staff involved in teaching activities	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Early career researchers ⁶	0.063/0.000	0.739/0.739	1.008/0.733	0.953/0.679	0.276/0.276	3.039/2.427
Total ⁷	174.230/94.870	162.909/88.861	161.424/90.045	164.601/90.363	167.681/93.298	830.845/457.437

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	1	1	1	0	1	1	9	3
Associate Professor	0	0	1	1	3	0	9	3	10	5	4	1
Assistant Professor	4	2	29	14	41	26	26	16	14	5	4	2
Assistant	1	1	0	0	3	3	1	0	1	1	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	0	0	2	2	2	0	1	0	0	0	0	0
Technical and economic staff ¹¹	5	4	12	8	19	11	6	5	4	4	1	1
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	1	0	0	0	0	0	0	0	0	0	0	0
Total ¹³	11	7	44	25	69	41	44	24	30	16	18	7

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	1	0	3	0	5	2
Associate Professor	0	0	2	1	6	1	8	3	9	5	9	3
Assistant Professor	0	0	25	12	45	28	24	15	18	11	4	2
Assistant	2	1	7	5	8	7	2	1	2	1	0	0
R&D Personnel ¹⁵	0	0	0	0	0	0	1	1	0	0	0	0
Researchers in other categories ¹⁶	0	0	0	0	2	2	1	0	0	0	0	0
Technical and economic staff ¹⁷	1	1	5	3	11	8	7	7	2	2	1	1
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	1	0	0	0	0	0	0	0	0	0	0	0
Total ¹⁹	4	2	39	21	72	46	44	27	34	19	19	8

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	1,227	934	1,226	846	1,294	862	1,305	853	1,341	876	6,393	4,371
Master's ²⁰	622	531	720	615	776	635	802	661	810	667	3,730	3,109
Doctoral	41	16	38	15	33	12	25	10	15	7	152	60
Lifelong Learning Courses	597	504	502	389	821	682	832	698	979	853	3,731	3,126
Total	2,487	1,985	2,486	1,865	2,924	2,191	2,964	2,222	3,145	2,403	14,006	10,666

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	4/0	4/0	4/0	4/0	4/0	4/0	4/0	4/0	4/0	4/0	4/0	4/0
Master's	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Doctoral	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0
Lifelong Learning courses	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0
Total	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0	20/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	10
	1.2 Computer and information sciences		Zvolte položku.	
	1.3 Physical sciences		Zvolte položku.	
	1.4 Chemical sciences		Zvolte položku.	
	1.5 Earth and related environmental sciences	5	Basic Research	
	1.6 Biological sciences	5	Basic Research	
	1.7 Other natural sciences		Zvolte položku.	

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	
	2.2 Electrical engineering, Electronic engineering, Information engineering		Zvolte položku.	
	2.3 Mechanical engineering		Zvolte položku.	
	2.4 Chemical engineering		Zvolte položku.	
	2.5 Materials engineering		Zvolte položku.	
	2.6 Medical engineering		Zvolte položku.	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	5
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences	5	Basic Research	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences	5	Basic Research	60
	5.2 Economics and Business		Zvolte položku.	
	5.3 Education	55	Balanced basic and applied research	
	5.4 Sociology		Zvolte položku.	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology	7	Basic Research	25
	6.2 Languages and Literature	13	Basic Research	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)	5	Basic Research	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

The position of FOE in the research community is necessarily divided into two levels, namely the disciplinary-related and the pedagogical-psychological or didactic levels. At the disciplinary-related level, each of the FOE departments has experts who routinely publish the outputs of their disciplinary-related research outputs in prestigious peer-reviewed journals, often ranked Q1 or Q2, and many of them serve in the editorial boards of these journals. At the pedagogical-psychological or didactic level, we can observe an improvement in the situation annually, where all FOE departments now have at least one member of staff who is at least partly involved in pedagogical or didactic research in addition to their disciplinary-related research.

The FOE has multidisciplinary research teams focused mainly on specific research projects, and FOE tries to ensure their basic support even in periods when no significant external project can be obtained as a result of high competition. Due to the specifics of research in the pedagogical field (a greater degree of individualisation and a greater dynamism of the research topics preferred by the state), the teams are not as robust and stable as, for example, in the case of technical faculties.

FOE members have received a number of important awards that confirm their professional excellence. Among the most important are the **Milada Paulová Award (2019)** for Prof. PhDr. Marie Čechová, DrSc., for her contribution to philology, the **Vilém Baur Award (2020)** awarded to Doc. Malgorzata Nodzyńska-Moroń and Mgr. Jitka Štrofová, Ph.D., for their contribution to chemistry education, or the Honorary Doctorate of the University of West Bohemia for Prof. Kurt Gebauer, M. F. A., dr. h. c. Other awards, such as **the Graphic Art of the Year 2022** (Prof. Dalibor Smutný, M. F. A.) and the induction of Prof. Jan Vičar, CSc., into the **Olomouc Region Hall of Fame**, demonstrate the breadth of FOE's expertise in the area of creative activities (both scientific and artistic).

Faculty academics hold key roles in the editorial boards of prestigious scientific journals. **Prof. RNDr. Michal Mergl, CSc.** serves in journals *the Bulletin of Geosciences* and *Fossil Imprint*, **RNDr. Iva Traxmandlová, Ph.D.** in the *European Journal of Environmental Sciences* and **Doc. RNDr. Pavel Mentlík, Ph.D.** in *Folia Musei rerum naturalium Bohemiae occidentalis* and *Silva Gabreta*. Other members contribute to journals such as the *Journal of Kinesiology and Exercise Sciences* and *Explorations: A Journal of Language and Literature*. This participation reflects the professional reputation of FOE at the international level.

Faculty members have been invited to give prestigious lectures around the world. **Mgr. Gabriela Klečková, Ph.D.** spoke at the TESOL Conference in Pittsburgh, USA, and the IATEFL Pre Conference in Belfast, UK, where she presented trends in language education. **Mgr. Tomáš**

Průcha, Ph.D. was a guest speaker at Michigan State University as part of the Fulbright Programme, where he presented the preparation of computer science teachers. **Mgr. et Mgr. Marie Fritzová, Ph.D.** gave lectures at Ariel University in Israel on distance education in the Czech Republic and on students' experiences during the COVID-19 pandemic. **PaedDr. Dana Pfeiferová, Ph.D.** gave a lecture on *Quando in Boemia si parlava tedesco* at the University of Catania in Italy. These activities reflect the recognition of FOE at the global level.

FOE also hosted important foreign experts, whose lectures enriched the scientific life of FOE. **Prof. Michael Pratt from the University of California, Berkeley** spoke about the global pandemic of physical inactivity, while **Prof. Henry Schulz from TU Chemnitz** lectured on epigenetics and its impact on health. **Prof. Nicola Shaughnessy from the University of Kent** presented on the use of art as a tool for people with autism, and **Dr. Clelia Cascella from the University of Manchester** shared her experience of interdisciplinary research.

FOE is also involved in the evaluation of research projects. **Doc. PaedDr. Dana Pfeiferová, Ph.D.** is a member of the coordination board of Aktion Czech Republic - Austria and participates in the evaluation of educational results for the Ministry of Education within the framework of the Methodology 17+. These activities together with awards, membership in editorial boards and international lectures confirm the importance of FOE in the scientific community and its contribution to international cooperation and scientific development.

FOE staff are members of the scientific boards of other Czech faculties preparing teachers.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
prof. ak. soch. Kurt Gebauer, dr. h. c.	Czech Academy of Visual Arts Award 2020	Czech Academy of Visual Arts
prof. ak. soch. Kurt Gebauer, dr. h. c.	Honorary Doctorate	Czech Academy of Visual Arts
Prof. ak. mal. Dalibor Smutný	Graphic of the Year 2022	Hollar Foundation
prof. PhDr. Marie Čechová, DrSc.	Milada Paulová Award 2019	Ministry of Education, Youth and Sports
doc. Malgorzata Nodzyńska-Moroń	Vilém Baur Award 2020	Czech Chemical Society
Mgr. Jitka Štrofová, Ph.D.	Vilém Baur Award 2020	Czech Chemical Society
Prof. PhDr. Jan Vičar, CSc.	Olomouc Region Awards – Hall of Fame	Olomouc Region
Mgr. Gabriela Klečková, Ph.D.	Award of Czech Association for Pedagogical and Psychological Research for Excellent Publication	Czech Association for Pedagogical and Psychological Research

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Prof. RNDr. Michal Mergl, CSc.	Bulletin of Geosciences, ISSN 1214-1119 Fossil Imprint, ISSN 2533-4050
RNDr. Iva Traxmandlová, Ph.D.	European Journal of Environmental Sciences, ISSN 1805-0174
doc. RNDr. Pavel Mentlík, Ph.D.	Folia Musei rerum naturalium Bohemiae occidentalis Silva Gabreta, ISSN 1211-7420

doc. Justin Quinn, Ph.D.	Explorations: A Journal of Language and Literature, ISSN 2451-6836
doc. Ladislav Čepička, Ph.D.	Journal of Kinesiology and Exercise Sciences ISSN 2956-4581.
Dr. hab. prof nadzw. Tomasz Gabryś, Ph.D.	International Journal of Environmental Research and Public Health, ISSN: 1660-4601
Dr. hab. prof nadzw. Tomasz Gabryś, Ph.D.	Sports, ISSN: 2075-4663
Alicja Kowalska, Ph.D.	Global Conversations: An International Journal in Contemporary Philosophy and Culture, ISSN: 2434-5687
Prof. Dr. Johannes Kirschenmann	Kunst und Unterricht, ISSN: 0023-5466
PhDr. Věra Uhl Skřivanová, Ph.D.	Kunst & Pädagogik,

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Mgr. et. Mgr. Romana Feiferlíková, Ph.D.	Study programs at the Department of Music.	UERGS Guaíba, Porto Alegre, Brazil, 2023.	2023
PhDr. Tereza Havráňková, Ph.D.	VR in language learning.	Invited lecture at the 17th International Conference DisCo 2022.	2022
Mgr. Gabriela Klečková, Ph.D.	Embracing the Balancing Act ELT Professionals Empowering Themselves	Invited lecture at the TESOL International Conference, Pittsburgh, Pennsylvania, USA.	2022
Mgr. Gabriela Klečková, Ph.D.	Trends in teacher training and education.	Invited lecture at the TTEdSIG PCE 2022, IATEFL Pre-Conference, Belfast, United Kingdom.	2022
Mgr. Václav Salcman, Ph.D.	Ophthalmological examinations in children	Invited lecture at TU Chemnitz.	2022
doc. PaedDr. Dana Pfeiferová, Ph.D.	Quando in Boemia si parlava tedesco.	University of Catania	2019
prof. Johannes Kirschenmann	Gender in Fine Arts.	Academy of Fine Arts in Munich.	2021
Mgr. Tomáš Průcha, Ph.D.	Options for preparing computer science teachers	Michigan State University (as part of a Fulbright fellowship)	2019
Mgr. et Mgr. Marie Fritzová, Ph.D.	Distance learning in Czech Republic	Ariel University Department of Sociology and Anthropology	2022
Mgr. et Mgr. Marie Fritzová, Ph.D. , Nehemia Stern	Students lives in the covid time – Israeli-Czech narratives	Ariel University Department of Sociology and Anthropology	2022

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Prof. Andreas Ohme,	Institute of Slavistics, University of Greifswald,	Anti-codes of Václav Havel.	2023
Prof. Gladis Falavigna	State University of Rio Grande do Sul State University of Rio Grande do Sul	Education in Brazil.	2023
dr. Thomas Stahl,	University of Regensburg	Didactics of German as a foreign language.	2019
prof. Julie Beadle Brown, Ph.D. a Jill Bradshaw, Ph.D.	Tizard Centre na University of Kent v Canterbury	The SPELL method and its use not only for students with autism, Different thinking, Autism in the university environment - strategies for supporting students with autism spectrum disorder (ASD).	2019
Prof. Nicola Shaughnessy, Ph.D.	University of Kent	The use of art as a testimony from individuals with autism.	2022
Dr. Clelia Cascella	University of Manchester	Carrying out Research in an international and interdisciplinary environment	2022
Prof. Michael Pratt	University of California, Berkeley	The Global Pandemic of Physical Inactivity	2022
Prof. Susana Aznar	University of Castilla-La Mancha, Toledo	Prevention of Civilisation Diseases	2023
Mychelle Kathryn Pride, Ph.D.	The Open University	Modern technologies in education.	2023
Prof. Henry Schulz	Technical University Chemnitz	Effect of plyometric training on dynamic leg strength and jumping performance in rhythmic gymnastics. A preliminary study.	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the project/programme call research	Name of the authority/ guarantor project/programme call contracting of the	Year
Doc. PaedDr. Dana Pfeiferová, Ph.D.	Steering Committee Aktion Czech Republic – Austria.	Czech National Agency for International Education and Research	Since 2011
Doc. PaedDr. Dana Pfeiferová, Ph.D.	Evaluator within the Methodology 17+ for the Ministry of Education, Youth and Sports, field of education: 9. Philology.	Ministry of Education, Youth and Sports of the Czech Republic	Since 2017
Doc. PhDr. Jan Šiška, Ph.D.	Member of Panel P407 - Pedagogy, Psychology	GACR	2021-2023

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

FOE received a total of four prestigious projects in the role of principal implementor; two projects were supported by the Czech Science Foundation (GACR), one project was supported by the Technology Agency of the Czech Republic (TA CR) and one by Ministry of Education, Youth and Sports of the Czech Republic.

Project TL04000147 - Development of a screening tool identifying students prone to lower distance learning effectivity, implemented in the period from 1 October 2020 to 30 September 2022 under the leadership of Doc. Mgr. Jiří Kohout, Ph.D., aimed to create an online screening tool for teachers and school leaders to identify students and classes at risk of reduced effectiveness during distance learning compared to face-to-face teaching. This intuitive tool, based on the input and analysis of data on student performance and other relevant factors, provides users with results that help to identify problems early and suggest measures to address them. The project responded to the needs that arose because of the pandemic and the transition to distance education, and its output was not only a publicly available tool, but also a basis for further research and recommendations for improving the educational process in crisis situations. The tool has thus made a significant contribution to improving the conditions for distance learning and has effectively supported schools in coping with this challenge.

Project GJ 20-08327Y - Researching the availability, nature and quality of community-based services for people with intellectual disabilities in the Czech Republic. Principal implementor: Mgr. Šárka Káňová, Ph.D., period: 01. 01. 2020 - 31. 01. 2025. The project combines qualitative and quantitative research methods to investigate the availability, nature and quality of community residential services for people with intellectual disabilities in the Czech Republic. The project involves an analysis of the legislative and institutional framework of community housing, which includes an assessment of its compliance with international standards such as the UN Convention on the Rights of Persons with Disabilities. The research contains questionnaire surveys among service providers, in-depth interviews with the users and their family members, as well as case studies of selected facilities. Special emphasis is placed on regional differences in the availability of services and how different forms of community housing meet the needs of their users. The aim of the project is not only to describe the current situation, but also to identify best

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

practices and key barriers to the effective provision of these services. The results of the research will be used to formulate recommendations for policy makers and service providers to improve the quality and accessibility of community housing for people with intellectual disabilities. Special attention is paid to the involvement of people with intellectual disabilities themselves in the service evaluation process, which promotes the principles of participation and inclusion. The project outputs include scientific publications, practical manuals for service providers and educational materials for the professional and general public. The project will contribute to a better understanding of the dynamics and challenges in the field of community housing and will be an important source of data for the further development of this domain in the Czech Republic.

Project **GA 22-26896S - Researching transitions of young people with intellectual disabilities**, led by doc. PhDr. Jan Šiška, Ph.D., was implemented from 1 January 2022 to 31 December 2024 and brought together experts from the Czech Republic and the UK. The project focuses on the analysis of support during the transition of young people with intellectual disabilities to adulthood, identification of predictors of successful transition and proposals for measures to increase the capacity of schools and social services to ensure a full life for these people in the community. Through a combination of qualitative and quantitative methods, the research comprises case studies, interviews with young people, their families and professionals, and comparisons between the Czech Republic and the UK to overcome barriers and to identify good practice. Key outputs include recommendations for school and social care reform, tools for teachers and social workers, and suggestions for increasing inclusion. The project seeks to improve the quality of life of this group through systemic changes and the results have the potential to contribute to policymaking in the field of education and social support at a national as well as international level.

The project **"Digital Traces of Regional History"** aimed at preserving, processing and presenting historical data with an emphasis on regional specifics, linking modern digital technologies with historical research and education. The project focused on digitisation of historical materials, data analysis using Digital Humanities methods, creation of educational materials and their integration into school curricula. The outputs were presented to the public through a web platform, interactive maps and timelines. The project has preserved the cultural heritage of the region, strengthened local identity and created opportunities for education, the popularisation of history and the promotion of tourism and community development.

In the framework of cooperation with other research institutions, FOE was in the role of co-implementor of the following projects:

GA20-13038S - On productive culture of teaching and learning. Co-implementor: Doc. PaedDr. Jan Slavík, CSc., period 01.01.2020 - 31.12.2022. The aim of the project was to overcome the proverbial gap between theory and practice through the deepest possible understanding of real teaching processes with regard to the quality of the learning environment, i.e. to the specific consequences of teaching for student cognition and learning. This research approach has provided valuable cognitive aids for fruitful and useful communication and collaboration between subject didacticians and both the qualified teachers and student teachers in analyses based on reflective teaching.

TL04000153 - Application of virtual reality tools into the communication skills training of hotel workers for a purpose of reduction of concerns and risks associated with the spread of COVID-19. Co-implementor: Doc. PhDr. Lucie Rohlíková, Ph.D., 01.10.2020 - 30.09.2022. The aim of the project was to develop a suitable methodology and tools for training communication skills of hotel staff in order to mitigate the fears and risks associated with the spread of COVID-19. A key means to achieve this goal is the appropriate application of virtual reality technology to simulate critical communication situations based on pre-prepared scenarios.

The project "**Experimental development of an adaptive practice module**" was an initiative of Fraus Publishing House, implemented in cooperation with FOE of the University of West Bohemia in Pilsen and other partners (Fraus). The aim of the project was to create an AI-based reporting tool, which provided outputs for pupils, parents, teachers and school management. The anonymised outputs were also usable by school founders, academics and editors. This module was integrated into the practice website and offered children exercises tailored to their individual progress, supporting more effective learning and enabling teachers and parents to better respond to children's specific learning needs. The project was implemented between 2021 and 2023 and was co-funded by the European Union through the Operational Programme Enterprise and Innovation for Competitiveness. Ladislav Sutnar Faculty of Design and Art of the University of West Bohemia also participated in the project, especially in the production of audiovisual outputs (see below in section 3.4.1.).

The project "**Supporting Arts Education for Equal Opportunities**" addresses inclusion in arts education and provides measures to remove barriers in access to education. This project increases equal opportunities among various social groups while promoting cultural sustainability through the development of creativity.

In terms of contract research, two projects were carried out:

The project "**Didactic methodology for creating SW tools in virtual reality**", whose principal implementor was PhDr. Pavel Masopust, Ph.D. was implemented in cooperation with the company Calliditas s.r.o. The aim of the project was to create a didactic methodology for the creation of software tools in virtual reality (VR), which would enable an effective use of VR in the educational process. The methodology was aimed at promoting interactivity and active learning and was intended to serve both educators and developers of VR applications. The output consisted of support for collaboration between educators and developers and a comprehensive methodology defining principles and procedures for the design and implementation of VR tools, including documentation for their use in teaching.

The project "**Evaluation of workbooks**", whose main implementor was Mgr. Jan Krotký, Ph.D., was implemented in cooperation with the company TAKTIK International s.r.o. The aim of the project was to evaluate workbooks in terms of their content, methodological suitability and effectiveness in the educational process. The project focused on aspects such as clear structure, comprehensibility and impact on student learning. The output was an evaluation report containing a detailed assessment of the workbooks, suggestions for improving their content, methodology and design, and recommendations for the further development of these educational materials.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
Czech Science Foundation (GACR)	Investigating the availability, nature, and quality of community-based residential services for people with intellectual disabilities in the Czech Republic		1,256/ 50,000	1,060/ 42,000	1,067/ 43,000	
Technology Agency of the Czech Republic (TA CR)	Development of a screening tool to identify students at risk of reduced effectiveness in distance learning (2020-2022)		447/ 18,000	1,694/ 68,000	1,281/ 49,000	
GACR	Young people with intellectual disabilities during the transition period				1,786/ 71,000	1,585/ 63,000
Ministry of Education, Youth and Sports of the Czech Republic (MEYS)	Digital Traces of Regional History	1,520/ 61,000	1,530/ 61,000	1,530/ 61,000		
Total		1,520/ 61,000	3,233/ 129,000	4,284/ 171,000	4,134/ 165,000	1,585/ 63,000
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
GACR	On productive culture of teaching and learning		571/ 23,000	618/ 25,000	512/ 20,000	
TA CR	Application of virtual reality tools into the communication skills training of hotel workers for a purpose of reduction of concerns and risks associated with the spread of COVID-19.		64/ 3,000	260/ 25,000	270/ 11,000	
Ministry of Industry and Trade of the Czech Republic	Experimental development of an adaptive practice module - School with Insight			691/ 28,000	609/ 24,000	456/ 18,000
MEYS	Supporting Arts Education for Equal Opportunities	2,939/ 118,000	1,371/ 55,000			
Total		2,939/ 118,000	2,006/ 80,000	1,569/ 63,000	1,391/ 56,000	456/ 18,000

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

²⁷ Ibid.

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Calliditas s.r.o.	Calliditas - Didactic methodology for creating SW tools in virtual reality					300/ 12,000
TAKTIK International s.r.o.	TAKTIK International-Evaluation of workbooks				50/ 2,000	
Total					50/ 2,000	300/ 12,000

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

During the period assessed, several key research results were produced that have a positive societal impact, in particular promoting equality and sustainability. One of these is **a screening tool to identify pupils at risk of reduced effectiveness in distance learning (2022)**. The output is software that helps teachers to identify pupils facing challenges in distance learning in time, allowing them to adjust their teaching strategies. This tool significantly increases equity in education and its digital nature contributes to long-term sustainability. The software is freely available to teachers and other interested parties at <https://dist-screening.fpe.zcu.cz/index-en.html> and is used by teachers, as evidenced by the number of visits to the website and the number of downloads of the application.

A comparative analysis of the motor skills of younger school-age children in the Pilsen Region (2020) provided valuable information on children's motor skills and helped to improve the planning of physical activities. The research reflects the differences between boys and girls, allowing for the individualization of teaching strategies and supports healthy development of all children. The outcome was supported by the Pilsen Region and due to its smaller scale is not included in the list of projects above.

In the field of higher education, the **final report on the use of online learning in humanities programmes (2022)** summarises a significant output. This outcome improved the efficiency and quality of e-learning in the humanities and increased the accessibility of education for students regardless of their location, thereby reducing the environmental impacts associated with physical

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

²⁹ See Terms definition.

mobility. The outputs were achieved within the framework of the European Commission-supported project Elephant: E-LEARNING PROSPECTS FOR HUMANITIES, which was implemented at a university level.

The research report from the project on developing technical and digital literacy through research activities (2022) supported the technical education of pupils and contributed to strengthening their skills needed for the modern technological world. The project supported equal access to technical education for girls and boys and contributed to the sustainable development of digital technologies.

The didactic methodology for the creation of SW tools in virtual reality (2023) enabled the modernisation of the educational process using virtual reality. This approach not only increases the efficiency of teaching, but also minimizes the need for physical resources, which promotes environmental sustainability.

A set of educational videos created within the Digital Traces of Regional History project (2022) focused on the founding of Pilsen, life in Pilsen over the centuries and the Industrial Revolution in Pilsen. The videos are used by teachers at lower primary schools and are available at <https://www.stopyhistorie.cz/en/>. Within the project Experimental Development of an Adaptive Practice Module - School with Insight (2023), **12 animated teaching videos in physics and biology were created in cooperation with the Faculty of Design and Art of the University of West Bohemia in Pilsen to overcome critical points in the curriculum.** The videos are widely used by pupils and teachers. FOE implemented the exhibition Drawings and Paintings of Self Advocacy, which was part of the project **Researching Transitions of Young People with Intellectual Disabilities (GAČR)**. The exhibition included a number of drawings from the covid lock-down period and a large-scale linocut. A guided tour, during which the artist answered questions from students of social studies of Church Secondary School, took place on 15 November 2022. The meeting with the artist, curator, and project collaborators included a discussion about entering adulthood, plans, wishes, and dreams, that is themes contained in the paintings.

The above research results have a wide range of positive impacts on society. They consider gender equality, promote sustainability and contribute to improving education, support the health and social development of the population.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Software:	2022	KOHOUT, J.; MASOPUST, P.; BURŠÍKOVÁ, D.; FRANK, J.; LUKAVSKÝ, J.; MOTLÍKOVÁ, I.; ROHLÍKOVÁ, L.; SLAVÍK, J.; STACKE, V.; VEJVODOVÁ, J.; VOLTROVÁ, M. A screening tool to identify pupils at risk of reduced effectiveness in distance learning, 2022.
Research report	2020	BENEŠOVÁ, D.; UJKANOVÍČOVÁ, A.; RYBA, L.; SALCMAN, V. Comparative analysis of motor skills of younger school-age children in the Pilsen Region. Pilsen Region Office, 2020.
Research report	2020	KOMZÁKOVÁ, M.; SOCHOR, P.; SLAVÍKOVÁ, M.; FEIFERLÍKOVÁ, R. Support for artistic education for equal opportunities. 1st ed. Pilsen: University of West Bohemia, Gymnasium and Music School of Prague, ZUŠ, Portedo o.p.s., 2020. 106 p.

³⁰ Specify the specific type of result. Add rows as needed.

Research report	2022	FATKOVÁ, G.; BENEDIKTOVÁ, L.; BAŤKO, J. A REPORT ON THE USE OF E-LEARNING IN THE HUMANITIES IN THE CZECH REPUBLIC. European Commission, 2022.
Research report	2022	FATKOVÁ, G.; BAŤKO, J.; BENEDIKTOVÁ, L. FINAL REPORT ON THE USE OF ONLINE EDUCATION IN HUMANITIES STUDY PROGRAMS IN THE CZECH REPUBLIC. European Commission, 2022.
Research report	2022	KROTKÝ, J.; MOC, P.; HONŽÍKOVÁ, J.; FADRHOŇ, J.; AICHINGER, D. Development of technical and digital literacy through inquiry-based activities. TAKTIK International s.r.o., organizational unit, 2022.
Research report	2023	MASOUST, P. et al. Didactic methodology for creating software tools in virtual reality. Calliditas s.r.o., 2023.
Audiovisual creation	2022	FRITZOVÁ, M., BREITFELDER, M., HOKROVÁ, Z. Digital traces of regional history - Methodological audiovisual creation. 2022.
Audiovisual creation	2023	BENEDIKTOVÁ, L., MASOUST, P., KOHOUT, J. et al. Animated videos for critical points of the curriculum.
Other	2022	ČERNÍKOVÁ, M., KÁŇOVÁ, Š., ŠIŠKA, J., HAVRÁNKOVÁ, T., HORSKÁ, K., PAVLŮ, I., BEDNÁŘ, M. Exhibition of drawings and paintings by Michael Bednář with a guided tour for secondary school students. 2022.

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples). It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

The UWB system of commercialization of results has been in operation since 2013. It is currently implemented through the Transfer and Contract Research Division (hereinafter referred to as TSV), which has assembled a qualified team of experts in the field of intellectual property protection, knowledge transfer and marketing. The entire commercialisation process is thoroughly described in the internal guidelines of UWB; particularly in Directive 33R/2018

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

"Protection of Intellectual Property and Knowledge Transfer". The transfer of results into practice at UWB can be briefly described as follows:

- Results with commercial potential are reported by researchers via an electronic form. Results with commercial potential are also continuously sought and identified by TSV.
- TSV formally checks the reports and prepares an opinion on the result regarding its applicability, including a proposal for the form of industrial legal protection.
- Subsequently, the industrial legal protection itself is secured.
- Negotiation of the contractual terms is carried out by TSV in cooperation with the author and the Legislative and Legal Division.
- The implementation of the commercialization process is managed by TSV in collaboration with the research team.

Since the main share of results with commercial potential falls on technically oriented faculties, their users are mainly companies from the field of engineering, automotive, power and software engineering. Collaboration with application partners takes place in the field of contract research, various types of projects, teaching and assigning projects and theses.

The results of research, development and innovation are offered to potential users in several ways. First of all, they are presented in a special "Expert Database", which is used by companies to search for technologies with application potential and research teams at UWB. The results are then presented in other databases, such as the Enterprise Europe Network or the database of the Transfera.cz association. The next step is organizing or actively participating in conferences, trade fairs (MSV Brno, AMPER), interdisciplinary and intersectoral meetings and seminars. The use of social networks is commonplace because have by far the largest reach and their use is not time-consuming, is a matter of course.

In organizing seminars, workshops and similar events, UWB cooperates with major organizations in the Pilsen region and Bavaria that focus on connecting research organizations, application entities and the public sector. Building these networks brings UWB direct links to companies in the immediate vicinity and significantly helps in finding a suitable commercial partner for selected technologies.

The commercialisation of results also includes support for the development of spin-off companies at UWB. Through TSV, UWB employees are provided with advice on the establishment of these companies. Specifically, the counselling focuses on the specifics and types of spin-off companies, the procedure for establishing a company, setting up licensing conditions and the relationship with UWB. These activities have resulted in the establishment of several successful spin-off companies, which further motivate other researchers to take an interest in this way of commercializing their technologies, which is in many ways easier than the previously preferred licensing to third parties.

Technology transfer activities at UWB are not only focused on researchers. Significant attention is also paid to students, who have the opportunity to develop their startup companies in the student business club BoostUp.

From the above, it is evident that the UWB knowledge transfer system is set up efficiently, as demonstrated in Table 3.5.1. Between 2019 and 2023, there is a clear increase in licence fee revenue and in spin-off company revenue. This trend will be supported in the coming years, for example, by the creation of a spin-off academy, which will further help in the development of spin-off companies at UWB.

FOE has not undertaken any activities in the area of knowledge transfer, and no relevant data is available to be included in the table.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
-	-	-	-	-	-
Total	-	-	-	-	-

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

At the Faculty of Education of the University of West Bohemia in Pilsen, the popularization and communication of science and research is a key part of its mission. This commitment is manifested in a wide range of activities aimed at bringing science, education and research to different target groups - from talented students and teachers to the general public. The following points describe the specific activities and projects that FOE is implementing:

1. Involvement in the Days of Science and Technology organized by UWB

FOE regularly participates in this event, where it presents its research outputs, demonstration experiments and educational methods. The faculty offers interactive booths and demonstrations that give visitors a glimpse into the world of science, technology and pedagogy.

2. Organisation of the Children's University

The annual Children's University is a major event through which the faculty reaches out to elementary school children in the surrounding region. It brings elementary school students the opportunity to engage in the university environment. Through lectures, hands-on exercises and experiments, children are introduced to various scientific disciplines. Thus, the Faculty develops their interest in education and science.

3. Lectures and demonstration experiments (Science Café, European Scientists' Night)

FOE organizes popularization lectures and experimental shows where the Faculty experts present their research results and interesting facts from their fields. These events are aimed at the general public and their goal is to present scientific topics in a clear and attractive way.

4. Expert camps for gifted pupils and subject olympics

FOE organises specialised camps in areas such as biology, chemistry and physics. These camps are intended for talented students who have a deeper interest in these fields and are looking for an opportunity to develop it further. FOE organizes competitions and Olympics focused on technical education, biology, physics, chemistry and other fields. These events motivate pupils to further their development and broaden their horizons.

5. Science popularizing exhibitions

An important example is the annual mushroom exhibition, which combines scientific knowledge with popularization. These exhibitions aim to attract the general public and awaken interest in natural sciences.

6. Author readings and moderation

FOE organizes literary and artistic events, where it presents the work of its authors and students. Moderations and professional discussions are part of the Faculty's efforts to deepen the relationship between culture and education.

7. Project days and workshops for teachers

Within the framework of further education of science teachers, the Faculty organizes project days, workshops and lectures focused on modern teaching methods and integration of scientific knowledge into school practice.

8. Implementation of the Historical Workshop

The Historical Workshop is an innovative educational format that brings together students, teachers and the public. This activity enables a deeper understanding of historical context through practical and interactive methods.

9. Organization of Pilsen Psychological Days

It is a professional conference that brings up-to-date knowledge in the field of psychology. The event brings together practitioners, academics and students to promote interdisciplinary dialogue.

10. Music concerts and art exhibitions

Popularization of the arts is an important part of the FOE's activities. Concerts and exhibitions link the musical and visual arts with a scientific perspective, thus reaching both professionals and the general public.

Through these activities, FOE seeks to combine science, education and community engagement, thereby making a significant contribution to the development of public awareness of science and to the promotion of talent at various levels of the education system.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

Based on the recommendations from the last evaluation period, FOE implemented the proposed measures. In the area of research, it focused on obtaining external grants leading to publications. FOE has been successful in this area, as shown in Table 3.3.1, which provides an overview of external grants. One GAČR project has established international cooperation, with foreign researchers such as Prof. Brown participating in grant activities. In 2020, FOE started to apply an internal system of evaluation of creative activities. This system has been set up in an incentive-based manner with regard to the level of creative activities in individual fields and gradually has been directly linked to staff remuneration. Overall, the internal evaluation system has proved its worth, especially in the initial phase of its introduction, when the level of creative activity increased significantly. Although the increase in both the quality and quantity of evaluated

outputs slowed down later on, it is clear that the level of creative activity at the FOE is generally increasing. The faculty tries to encourage its staff to internationalise, particularly in taking advantage of opportunities to host visiting lectures at foreign universities and to participate in invited lectures (see Table 3.2.3). Based on the recommendation, a monthly faculty newsletter titled *Fakultník* has been introduced and is regularly sent to all staff via email. This newsletter provides news about project calls and also presents the research activities of the FOE, which should be further strengthened by the newly established Centre for Educational Research at FOE. Through this newsletter, various courses in teaching methodology and psychology are offered to schools in the surrounding area, which represents another form of educational activity for teachers. Compared to the previous period, there has also been an increase in lifelong learning activities at FOE. Mentoring for new staff is provided through the University's Centre for Lifelong and Distance Learning. This Centre offers, for example, courses to support new and existing academic staff, as well as mandatory training. Following the recommendations from the last evaluation period, FOE seeks to develop not only educational activities but also non-educational cooperation. These efforts have resulted, among other things, in a paper published in *Nature* thanks to a collaboration with CERN.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Basic information about the Faculty of Education	3.1.	https://www.fpe.zcu.cz/en/
Project TL04000147 - Development of a screening tool identifying students prone to lower distance learning effectivity	3.3.	https://starfos.tacr.cz/en/projekty/TL04000147
Project GJ 20-08327Y - Researching the availability, nature and quality of community-based services for people with intellectual disabilities in the Czech Republic	3.3.	https://starfos.tacr.cz/en/projekty/GJ20-08327Y?query=4kkiaadbrjtq
Project GA 22-26896S - Researching transitions of young people with intellectual disabilities,	3.3.	https://starfos.tacr.cz/en/projekty/GA22-26896S
GA20-13038S - On productive culture of teaching and learning.	3.3.	https://starfos.tacr.cz/en/projekty/GA20-13038S
TL04000153 - Application of virtual reality tools into the communication skills training of hotel workers for a purpose of reduction of concerns and risks associated with the spread of COVID-19.	3.3.	https://starfos.tacr.cz/en/projekty/TL04000153
Screening tool to identify pupils at risk of reduced effectiveness in distance learning.	3.3.	https://dist-screening.fpe.zcu.cz/index-en.html
A set of educational videos created within the Digital Traces of Regional History project.	3.3.	https://www.stopyhistorie.cz/en/

MODULE 3:
FACULTY OF ELECTRICAL ENGINEERING (FEE)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Electrical Engineering

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

Mision and vision

The long-term mission of the Faculty of Electrical Engineering (FEE) at the University of West Bohemia (UWB) is to provide high-quality individualized education at all levels of study, to embody research, development and innovation with a strong emphasis on applicability, and to build a bridge between academia and industry at national and international levels. FEE aims to become a leading research and educational institution focusing on innovative technologies for industry, transportation, and power engineering that support the sustainability and resilience of our society. The social impact of the FEE can be seen in R&D&I activities and a significant role in training highly educated professionals for a wide range of industrial companies, the public sector, and the government.

FEE fosters a dynamic institution that empowers researchers and students to tackle real-world challenges through cutting-edge research and, by addressing global challenges connected with climate change and digital transformation, falling into the frame of the European Green Deal, Chips Act or AI Act, aims to inspire innovation and foster collaboration with academic, industrial, and social stakeholders. The main area of the FEE R&D&I activities is applied research; however, the faculty encouraged a complex research chain, from oriented basic research to experimental development, testing and certification of products before entering the markets.

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

Organization structure

The organization structure defined in the FEE statutes and [Directive No. 3D/2018](#) reflects education and R&D&I activity. FEE is divided into five departments, which are responsible for all education processes and study programs, and one research center (RICE), which is responsible for R&D&I processes, in the coupled fields of electrical, material, and computer engineering. The FEE employs more than 200 FTE, and the average age of the FEE's academic staff is 45 years. The age distribution of middle-aged academics (under 50) has changed as follows between 2019 and 2023: +20% of professors (33% in 2023) and +3% of associate professors (43% in 2023). The portion of women in FEE's research, education and administrative staff was almost 20 % in the year 2023 and EDI politics was significantly moved ahead in the evaluated period.

FEE obtained an [HR Excellence in Research Award](#) in 2018, which was confirmed in 2021 by the European Commission based on an interim faculty self-assessment. The FEE formulated a career development plan procedure within [Directive No. 7D/2020](#) and conducts an annual evaluation. Academic development is defined by qualification criteria in the habilitation and professorial appointment procedures described in [Decree No. 5D/2024](#).

FEE guarantees one joint bachelor's degree programme (both in full and partial-time form), three study programmes in the follow-up master's degree (all full-time form and one partial-time form), and finally, one joint PhD degree programme. FEE staff are responsible for over 500 Bc, 150 MSc and 100 PhD students. The part of female students in the last 5 years was approximately 5 %. The proportion of international students in the PhD programme is approximately 25%. Unemployment among its students is almost zero at all levels of study.

The main R&D&I activities of FEE are executed by the [Research and Innovation Centre of Electrical Engineering](#) (RICE). The Scientific Board of FEE controls the R&D&I strategic plans and the coordination across FEE is handled by the R&D&I Committee, which includes representatives from all departments. The Office for Science and Quality and Risk Management provides an internal quality assessment mechanism. The R&D&I processes reflecting open science principles, intellectual property, technology and know-how transfer are defined by [Directive No. 6D/2023](#).

The distribution between education and research activity – timewise is 25:75 %, respectively, and the distribution between education and research – funding-wise is 15:85 %, respectively. The FEE income from public and private research projects in the period under review (2019 – 2023) was EUR 46.9 million (1,189,797,460 CZK).

R&D&I infrastructure and projects

In the last decade, the FEE invested close to EUR 50 million and built modern R&D&I infrastructures. The RICE's laboratories for power electronics and drives, material characterization and testing (supported by ERDF project in 2010 - 2016) allow research and development of full-power and full-voltage technologies, up to 35kV and the max power in the range of tens MWs. The FEE/RICE allows its research infrastructure to be used by the world's professional community and supports exceptionally talented researchers within the framework of the "open infrastructure" programme. The RICE includes an [Electrical Engineering Laboratory](#) (ETL) offering a range of certification and pre-certification tests in electrical engineering technology. The Czech Institute for Accreditation accredited the ETL according to ČSN EN ISO 17025 as Accredited Testing Laboratory No. 1090.

In the period under review, FEE investigated more than 50 projects each year with a cumulative volume of EUR 43.3 million (1,098,012,000 CZK). The projects originated from various providers, such as the Technology Agency of the Czech Republic (TACR), the Ministry of Industry and Trade of the Czechia (MPO), the Czech Science Foundation (GACR), Horizon Europe (HE) or EUREKA. Applied research projects account for 90% of all projects. FEE focuses on long-term strategic consortium projects, bringing together partners from both academia and industry. In the period under the

review, the FEE has focused its attention on international projects funded and has been awarded five HE projects in the last two years: 1 x Chips JU, 1 x EURATOM and 3 x MSCA (Marie Skłodowska-Curie Actions). An important R&D&I faculty activity is a long-term cooperation in research on understanding the structure of matter, which is continued through involvement in CERN projects (TOTEM and ATLAS experiments).

The FEE transfers know-how from academia to industry through contract research projects with national and international industrial partners. The cumulative volume of contract research and additional (complementary) activities for the period under review amounts to EUR 3.6 million (91,785,460 CZK). The cumulative volume in the previous reporting period was EUR 2.4 million. (60,437,036 CZK) which represents an increase of almost 50%.

R&D&I results

The FEE publishes nearly 50 papers in scientific journals yearly (241 journal papers from 2019 to 2023; approx. 20% in Q1 journals). The share of FEE in the national number of authors has a positive trend and FEE has been generating around 25% of UWB's publication output.

In the period under review, FEE has been granted 32 patents, 56 utility models, 23 technologies in semi-operation (verified technologies), 189 prototypes and 41 software. In the M17+ methodology, 71 results (H19 – H23) were applied in the M1 module according to FORD 2.2. Overall, 40 results were rated internationally significant, and 16 were rated as excellent in originality, relevance and difficulty to obtain in an international context. A total of 18 scientific publications were evaluated with an average score of 2.6 and 18 patents with an average score of 3.2 (on a scale of 1 to 5, ranging from an excellent international overlap to a regional result).

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	12.690/0.880	11.438/0.625	10.147/0.625	10.892/0.625	9.689/0.562	54.856/3.317
Associate Professor	30.680/5.290	28.321/4.500	27.522/3.708	24.697/3.377	29.135/4.036	140.355/20.911
Assistant Professor	58.690/5.410	58.470/5.224	56.733/5.084	61.004/6.506	63.694/6.642	298.591/28.866
Assistant	3.050/0.910	3.043/1.396	1.577/0.744	3.698/1.001	4.669/0.267	16.037/4.318
R&D Personnel ³	5.492/0.000	0.853/0.000	1.250/0.000	2.001/0.000	2.000/0.000	11.596/0.000
Researchers in other categories ⁴	40.362/1.910	51.915/1.188	56.201/0.708	54.861/1.669	53.198/2.195	256.537/7.670
Technical and economic staff ⁵	31.288/25.210	32.779/23.516	31.234/23.190	31.350/22.953	27.686/23.771	154.337/118.640
Scientific, research and development staff involved in teaching activities	0.210/0.000	0.000/0.000	0.00/0.000	0.000/0.000	0.834/0.000	1.044/0.000
Early career researchers ⁶	14.688/0.000	5.719/0.000	6.535/0.000	5.058/0.048	4.600/0.417	36.600/0.465
Total ⁷	197.150/39.610	192.538/36.449	191.199/34.059	193.561/36.179	195.505/37.890	969.953/184.187

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	2	0	0	0	1	0	12	1
Associate Professor	0	0	4	0	12	1	7	3	6	0	8	2
Assistant Professor	0	0	24	3	32	2	1	0	7	1	0	0
Assistant	1	0	2	1	3	2	0	0	0	0	1	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	31	2	27	0	10	1	1	0	1	0	0	0
Technical and economic staff ¹¹	2	2	5	5	13	9	10	8	1	1	1	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹³	34	4	62	9	72	15	19	11	16	2	22	3

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	5	0	0	0	2	0	7	1
Associate Professor	0	0	1	0	0	0	10	4	3	0	3	1
Assistant Professor	0	0	17	1	33	4	9	1	6	0	1	1
Assistant	2		5	0	0	0	0	0	0	0	0	0
R&D Personnel ¹⁵	0	0	0	0	1	0	1	0	0	0	0	0
Researchers in other categories ¹⁶	24	3	35	2	9	0	2	0	0	0	0	0
Technical and economic staff ¹⁷	2	2	0	0	15	13	6	6	4	3	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	1	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹⁹	28	5	58	3	79	17	28	11	17	3	12	3

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	519	30	533	20	485	23	568	26	580	31	2,685	130
Master's ²⁰	228	19	187	16	161	10	148	7	147	10	871	62
Doctoral	92	7	113	9	116	14	105	10	103	10	529	50
Lifelong Learning Courses	0	0	0	0	0	0	0	0	0	0	0	0
Total	839	56	833	45	762	47	821	43	830	51	4,085	242

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	3/1	0/0	2/1	0/0	2/1	0/0	1/0	0/0	1/0	0/0	5/2	0/0
Master's	3/1	0/0	7/3	0/0	7/3	0/0	4/0	0/0	4/0	0/0	10/4	0/0
Doctoral	2/1	0/0	2/1	0/0	2/1	0/0	2/1	0/0	2/1	0/0	4/2	0/0
Lifelong Learning courses	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Total	8/3	0/0	11/5	0/0	11/5	0/0	7/1	0/0	7/1	0/0	19/8	0/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	10
	1.2 Computer and information sciences	5	Applied Research	
	1.3 Physical sciences	3	Applied Research	
	1.4 Chemical sciences	2	Applied Research	
	1.5 Earth and related environmental sciences		Zvolte položku.	
	1.6 Biological sciences		Zvolte položku.	
	1.7 Other natural sciences		Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	90
	2.2 Electrical engineering, Electronic engineering, Information engineering	70	Balanced basic and applied research	
	2.3 Mechanical engineering	3	Applied Research	
	2.4 Chemical engineering	2	Applied Research	

	2.5 Materials engineering	5	Balanced basic and applied research	
	2.6 Medical engineering		Applied Research	
	2.7 Environmental engineering	3	Applied Research	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology	2	Balanced basic and applied research	
	2.11 Other engineering and technologies	5	Applied Research	
3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences		Zvolte položku.	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	
	5.2 Economics and Business		Zvolte položku.	
	5.3 Education		Zvolte položku.	
	5.4 Sociology		Zvolte položku.	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology		Zvolte položku.	
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

The Faculty of Electrical Engineering (FEE) at the University of West Bohemia (UWB) has a history spanning over 70 years and ranks among the founding technical faculties of the university. FEE is active within the research community, mainly in electrical engineering, material engineering and information technology, and strives to be recognized for life-long education, impactful research and development, and contributions to the sustainability and resilience of society. The recognition of the research community can be shown by the broad cooperation with academic and industrial partners, evidenced by the long-term strategic consortium projects led by FEE bringing together more than 40 partners (projects CAMAT and CIDAM or CANUT, see Section 3.3). FEE actively cooperates with almost [150 industrial partners](#). FEE represents a leading R&D&I center for research in the industry, transportation and power engineering, as defined by the [National Semiconductor Strategy of the Czech Republic](#) issued by the Ministry of Industry and Trade in 2024.

At the international level, FEE actively contributes to research organizations such as CERN (electronic systems for pixel detectors), developing technologies for large research infrastructures ITER/DEMO (ceramic-metal sensors for thermonuclear reactors) and research tools developed at FEE (for example, software [agros](#) or embedded interface [Katherine](#)) are used at universities and research institutions around the world. During the period under review, the strategic cooperation in the knowledge and technology transfer agreement has been concluded with Virginia Tech. FEE was one of the founding members of the [Alliance for Electrical Engineering and Informatics](#) (FEE dean prof. Ing. Zdeněk Peroutka, Ph.D. is first president of the Alliance), which brings together 11 leading technical universities across the Czech Republic and Slovakia. The alliance aims to enhance interest in electrical engineering, computer science and informatics, establish collaboration on strategic research projects, attract new students and foster industrial partnerships.

R&D&I Awards

Recognition of FEE by the professional community can be shown excellence in the R&D&I activities through several awards at both individual and collective levels (see Table 3.2.1). In the period under review, notable examples include:

Creative Heroes Award from The Netherlands-Czech Chamber of Commerce (category 1:1,000,000 - impact on an international scale) for doc. Ing. František Mach, Ph.D. (nomination is possible only once, and the award is given in the one and a half years period).

Becquerel Price 2020 for nuclear research from the French Embassy in the Czech Republic to PhD student Ing. Jiří Závorka for its research on nuclear fuel storage technology.

Josef Hlávka Prize awarded to PhD student Ing. Martin Vítek student for his research, teaching, and activities linking science and business.

Golden AMPÉR Award or Transfera Technology Day Award for groundbreaking innovations and technologies with commercial potential.

Best Paper Awards at international scientific conferences, such as [IEEE CEIDP](#) (Conference on Electrical Insulation and Dielectric Phenomena), IEEE PEMC (Power Electronics and Motion Control) or ELEKTRO.

Keynote and invited lectures

Recognition of FEE by the science community can be demonstrated by keynote lectures at international scientific conferences and research institutions (see Table 3.2.3). In the period under review, notable examples include:

Dr. Radek Soukup – Keynote lecture at E-Textiles Conference, Belgium (2023)

Prof. Radek Polanský – Invited lecture at Nanotechnology Malaysia Symposium (2021)

Prof. Zdeněk Peroutka – Keynote lecture at IEEE PEMC, Poland (2020)

International conferences and seminars

Among the significant FEE activities are periodically organized international conferences and seminars supporting the research community in electrical engineering and information technology. The FEE is the main organizer of three international professional conferences, including the [European Seminar on Computing](#) (ESCO), the [International Conference on Diagnostics in Electrical Engineering](#) (CDEE) and the [International Conference on Applied Electronics](#) (APPEL). The FEE organized a total of 15 conferences and seminars in the period. However, it should be noted that this period was heavily burdened by the impact of the COVID-19 pandemic.

Hosting distinguished lectures

FEE attracts leading international experts who deliver lectures at UWB (see Table 3.2.4), fostering collaboration and knowledge exchange. Examples include:

prof. Dusan Boroyevich, Ph.D (Virginia Tech), lecture *Global Intergrid for Sustainable Energy*

Prof. Dr. Feipeng Wang (Chongqing University), lecture *Advances in Ester-Based Insulation Oils*

Dr. Tobias Geyer (ETH Zurich, ABB Corporate Research), lecture *Model predictive control*

Editorial Contributions

An important part of service to the community is the involvement of academics and researchers in peer-review activities in scientific journals, as demonstrated, for example, by the [Star Reviewer](#) award in the IEEE Transactions on Energy Conversion, awarded to Dr. Roman Pechánek. This activity is also supported at FEE level through quantitative criteria assessed during the habilitation and professorship procedures defined by Directive No. 5D/2024. Faculty members are also involved in editorial work in scientific journals as permanent editorial board members and guest editors (see Table 3.2.2). However, this activity is less than desired and will be the subject of further development of FEE's R&D&I strategy.

Membership in professional societies

Faculty members are part of both local and international communities within professional societies. Concerning the field of research, this is primarily an [Institute of Electrical and Electronics Engineers](#) (the international non-profit professional organization with the largest membership of the technical profession in the world). An example is the election of Dr. František Mach as the chairman of the executive board of [IEEE Czechoslovakia Section](#) in 2019 - 2023. Another example that can be mentioned is the status of IEEE Senior Member, which was awarded to Prof. Zdeněk Peroutka, Prof. Radek Polanský or Dr. Pavel Drábek.

Engagement in research evaluation

FEE researchers have actively participated as evaluators in national and European research program calls (see Table 3.2.5), leveraging their expertise to shape funding decisions and research priorities. Their involvement highlights FEE's role in guiding the broader research ecosystem.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
doc. Ing. František Mach, Ph.D.	Creative Heroes Award 2024 (category 1:1,000,000, 2023 nomination)	The Netherlands-Czech Chamber of Commerce
Ing. Jiří Závorka	Becquerel Price 2020 for nuclear research	French Embassy in Czech Republic
Ing. Martin Vítek	Josef Hlávka Award 2021 (award for the best students of electrical engineering in Czech Republic)	Nadání Josefa, Marie a Zdenky Hlávkových (Hlávka Foundation)
doc. Ing. Tomáš Komrská, Ph.D., et al. (Ground fault compensation equipment)	Golden AMPÉR 2022 (award recognizing innovative products and solutions)	International trade faire AMPÉR 2022
Ing. Vojtěch Skřivan, Ing. Ondřej Sodomka, et al. (Magnetically controlled microfluidic pump)	Winning technology at Transfera Technology Day 2022 (competition for transfer projects intended for commercial use)	Transfera.cz (national platform included academic institutions focused on technology transfer)
Ing. Daniel Háže	Best Student Paper Award (IEEE Conference on Electrical Insulation and Dielectric Phenomena 2023, New Jersey)	IEEE Dielectrics and Electrical Insulation Society
doc. Ing. Vladimír Kindl, Ph.D., Ing. Martin Zavřel, Ph.D., doc. Ing. Václav Kotlan, Ph.D., prof. Ing. Ivo Doležel, CSc., et al.	Best Paper Award (ELEKTRO 2020, Taormina, Italy)	University of Žilina
Ing. Jiří Očenášek	Best Paper Award (IEEE International Power Electronics and Motion Control Conference 2022, Brasov, Romania)	IEEE Industrial Electronics Society, IEEE Industry Applications Society
Ing. Radek Holota, Ph.D.	Best Academia and Industry Award	JECRC University, Jaipur, India
doc. Ing. Roman Pechánek, Ph.D.	Star Reviewer for 2023 (IEEE Transactions on Energy Conversion)	IEEE Power & Energy Society and the Editorial Board of the IEEE Transactions on Energy Conversion

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
doc. Ing. Roman Pechánek, Ph.D.	Proceedings of The Estonia Academy of Science , ISSN 1736-6046 (Editorial Board Member)
doc. Ing. David Pánek, Ph.D.	Journal of Computational and Applied Mathematics , ISSN 1879-1778 (Special Issue Guest Editor)
prof. Ing. Jiří Pinker, CSc.	International Conference on Applied Electronics (editor-in-chief)

doc. Ing. Tomáš Blecha, Ph.D.	Power Electronic Devices and Components , ISSN 2772-3704 (Guest Editor)
Ing. Milan Bělík, Ph.D	Renewable Energy and Power Quality Journal , E-ISSN:2172-038X (Editorial Board Member)
prof. Ing. Radek Polanský, Ph.D.	Catalysts , ISSN 2073-4344; Polymers , ISSN 2073-4360 (Special Issue Guest Editor)
doc. Ing. Josef Pihera, Ph.D.	Electrical Engineering , ISSN 0948-7921; Electronic , ISSN 0948-7921 (Guest Editor)
prof. Ing. Pavel Trnka, Ph.D., MBA	Polymers , ISSN 2073-4360 (Special Issue Guest Editor)
doc. Ing. Jiří Tupa, Ph.D.	International Journal of Industrial Engineering and Operations Management , ISSN 2690-6090 (Editorial Board Member)
Olena Rubanenko	Vidnovluvana Energetika , ISSN 1819-8058 (Editorial Board Member)

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
doc. Ing. Radek Soukup, Ph.D.	New Perspective Technologies for Integrating Electronic Components into Textiles	Keynote lecture at E-textiles conference, Ghent, Belgium	2023
doc. Ing. Tomáš Blecha, Ph.D.	Technological aspects of the e-textiles realization	Invited lectures at Politecnico di Milano	2023
Ing. Petr Burian, Ph.D.	Design of readout systems for pixel detectors	Invited lecture at Summer School on Neutron Detectors and Related Applications, University of Trento	2023
Ing. Jan Laksar, Ph.D.	Electric motors in e-mobility	Invited lecture at International Interdisciplinary Summer School (Smart Public Space in Prosument Energy Transition), Silesian University of Technology	2023
doc. Ing. Radek Soukup, Ph.D.	Textile-Based Temperature and Humidity Sensors for Technical Textiles Applications	Keynote lecture at International Symposium: Technical Textiles - Present and Future (online)	2023
doc. Ing. Roman Pechánek, Ph.D.	Fundamentals in Thermal Management of Electrical Machines	Invited lecture at Tallinn University of Technology, Estonia	2022
prof. Ing. Radek Polanský, Ph.D.	Overview of Recent Progress in Developing of Electrical Insulating and Functional Materials for Electrical Engineering	Invited lectures at Nanotechnology Malaysia Biennial Symposium	2021
doc. Ing. Josef Pihera, Ph.D.	Dielectric materials diagnostics in electrical engineering	Invited lecture at Technical University Dresden, Germany (online)	2021
prof. Ing. Zdeněk Peroutka Ph.D.	Power Electronics Technology for Distribution Grids: New Earth Faults Solutions	Keynote lecture at IEEE PEMC conference, Gliwice, Poland	2020
prof. Ing. Pavel Trnka, Ph.D., MBA	Dielectric Liquids	Invited lecture at Chongqing University, China	2019

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
prof. Dusan Boroyevich, Ph.D	Virginia Tech, USA	Global intergrid for sustainable energy abundance	2023
prof. Dr.-Ing. Christian Staubach	University of Applied Sciences and Arts, Germany	Diagnostics to Assess Thermo-mechanical Aging of The Generator Insulation Exposed to Volatile Operation	2022
prof. Dr. Eberhard Lemke	Lemke Diagnostics GmbH	Modeling of Partial Discharges - Opportunities and limitations of existing Approaches	2022
prof. Dr.-Ing. Susanne Hipp	OTH Regensburg, Germany	Simulation of the Electromagnetic Properties of Knitting Pattern	2022
prof. Dr. Feipeng Wang	Chongqing University, China	Overcoming challenges to high performance ester-based insulation oils for enhancing safety level of power grid	2022
Javier Morales-Castillo	Universidad Autonoma de Nuevo Leon, Mexico	Analysis and Modeling Evaluation for the Transition Maneuver of a Convertible UAV	2022
prof. Dr.-Ing. habil. Christian Weindl	Coburg University of Applied Sciences and Arts, Germany	Regenerative grid usage and E-mobility	2020
Dr. Danick Briand	Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland	Circular production of disposable smart electronics	2020
John W. Roberts	International Atomic Energy Agency, Vienna	Nuclear waste decommissioning	2020
Dr. Tobias Geyer	ETH Zurich and ABB Corporate Research, Switzerland	Model predictive control	2019

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the authority/guarantor project/programme call	Year
doc. Ing. Radek Soukup, Ph.D.	SmartWave: A smart textile sensor system for unobtrusive monitoring of sweat metabolites (NO. 20471)	Dutch Research Council, Netherlands	2023
prof. Ing. Pavel Trnka, Ph.D., MBA	Technology Agency of the Czech Republic Theta, Trend	Technology agency of the Czech Republic	2023
doc. Ing. Roman Pechánek, Ph.D.	Optimization Methodologies of Novel Wind Turbines for Dense Population Environments (MOBJD1100)	Estonian Research Council, Estonia	2021
doc. Ing. Radek Soukup, Ph.D.	I-CART II Individual Capturing of Thermal Risks (HBC.2020.2346)	Agentschap Innoveren and Ondernemen, Belgium	2020
Ing. Pavel Prosr, Ph.D.	APVV (public call for research and development projects)	Slovak Research and Development Agency, Slovakia	2020–2024
doc. Ing. Karel Noháč, Ph.D.	Technology Agency of the Czech Republic Théta	Technology agency of the Czech Republic	2019–2023
prof. Ing. Pavel Trnka, Ph.D., MBA	APVV (public call for research and development projects)	Slovak Research and Development Agency, Slovakia	2019–2023
Ing. Petr Votápek, Ph.D	Operational Programme Research, Development and Education, OPJAK	Ministry of Education, Youth and Sports	2019-2023

doc. Ing. Vladimír Kindl, Ph.D.	APVV (public call for research and development projects)	Slovak Research and Development Agency, Slovakia	2019-2023
doc. Ing. Radek Soukup, Ph.D.	Smart3D (HBC.2019.2673), Cornet	Flanders Innovation and Entrepreneurship, Belgium	2019

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²) that it has implemented or participated in during the period of 2019–2023³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

The projects listed below are selected to capture the scope of R&D&I activities at FEE and follow the potential impact from an economic or social viewpoint. Projects are not ranked according to importance. In the period under review, FEE participated in 95 projects supported by public funds and 261 contract research projects. In 13 projects supported by public funds, FEE was in the beneficiary role, and 82 projects were in the participant role. The high proportion of projects in the participant role is due to the rules of the Technology Agency of the Czech Republic (central agency funding apply research), which require that the project's beneficiary must be a company.

1) CAMAT: Center for Advanced Machines and Manufacturing Technology

(project No. [TN02000028](#); period: 2023 – 2028; application field: industry and transportation)
 CAMAT is an interdisciplinary research centre concentrating teams from leading research organizations, renowned companies and start-ups in mechatronic systems for industry and transportation application fields. CAMAT follows the previous CIDAM project (project No. [TE02000103](#), 2014 – 2019) focused on new R&D challenges in power electronics, drives/actuators, machine control and complex mechatronic systems. The CAMAT project takes selected SMEs (mostly start-up companies) coming from different application segments (aerospace, agriculture, etc.) into the centre. It provides unique knowledge and resources of leading universities and R&D centres, as well as the background and experiences of large companies connected to previous CIDAM projects. The CAMAT projects aim to execute long-term research in electric machines, drive, mechatronics, robotics and automation (in line with RIS3 strategy).

Examples of small start-up companies involved in the project include [Zuri.com SE](#), developing a hybrid autonomous VTOL aircraft (Vertical Take-Off and Landing), and [ULLMANNA s.r.o.](#), utilizing AI for in-row weeding machines in agriculture and [AgentFly Technologies s.r.o.](#), focusing on modern technologies for aviation, especially for drone applications. The first spin-off company of FEE,

² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

⁴ The evaluated unit shall only fill tables that are relevant to it.

nextcycle s.r.o., was founded within the project in 2023. The company successfully licensed the technology for electrostatic separation in 2024. The research within CIDAM and CAMAT centres has pushed FEE to be part of the Chip JU HiPower 5.0 project founded by Horizon Europa in 2024.

The projects are funded by the Technology Agency of the Czech Republic, and FEE is the leader of both centres, connecting four universities and more than 20 industrial partners. The projects establish a system of long-term collaboration in research, development, and innovation among its members and accelerate the transfer of knowledge and technology between participating research institutions and companies. The project was selected to demonstrate FEE's approach to know-how and technology transfer.

2) NCE: National Centre for Energy

(project No. [TN01000007](#); period: 2019 – 2022; application field: power engineering)

The [National Centre for Energy](#) (NCE and NCE II), together with the Center for Advanced Nuclear Technology (CANUT and CANUT II, [TN02000012](#)) led by FEE, are the key national centers in Czechia in power engineering. NCE is a group of leading research organizations, universities, and innovation leaders in the non-nuclear energy field. The objective of the NCE is to stimulate long-term cooperation among the leading research organizations and significant application entities in the power industry. This way, the unique infrastructures and know-how of expert teams of the existing research centres will be shared. The research agenda of NCE is in line with the National RIS3 Strategy and aims to efficiently deploy and operate decentralized energy sources and alternative fuels to ensure the independence of raw materials and energy self-sufficiency in the Czech Republic.

The centre, with 34 participants, was led by the Technical University of Ostrava. FEE led one of the three main research fields – power grids (PI was Prof. Peroutka). FEE in this project focused on new power grid components and technologies (power electronic technologies for grids, microgrids control, sensors for power grids and infrastructures) and collaborates with long-term industrial partners such as [ČEZ Distribuce, a.s.](#), [ENERGON Grid, s.r.o.](#) and [ZAT a.s.](#). One of the main project results, verified technology based on a patented earth fault compensation transformer (verified technology Apparatus for earth fault compensation in distribution power grids with insulated or high impedance grounded neutral), is included among the selected FEE results in Section 3.4. This result received the highest rating according to the social relevance criterion (grade 1 - world-leading result in terms of originality) in the peer-review process of the selected results under Module 1 of the M17+ evaluation.

Due to the significant results achieved by the NCE project, the project has been extended until 2028 (NCE II, project No. [TN02000025](#)). The project has a powerful synergy with FEE-led project CANUT (Centre for Advanced Nuclear Technologies I + II, project No. [TE01020455](#) and No. [TN02000012](#)).

3) New Generation of Traction Drive Unit for Railway Vehicles

(project No. [FV10310](#); period 2016 – 2019; application field: transportation)

The project was focused on creating a highly interdisciplinary research and development team from FEE and [Wikov MGI a.s.](#) capable of addressing the complex design of a next-generation compact traction drive unit. The team integrated expertise in mathematical modeling, mechanical engineering, electromagnetics, thermal calculations, material engineering, machining, and design of key components such as gearboxes, bearings, electric machines, power electronics, and drive systems. The main focus of the FEE was the complex conceptual design, development and experimental verification of the electric drive, which forms the heart of the entire technology.

The goal was to develop a compact, lightweight, passively cooled, high-speed and energy-efficient traction drive unit for rail vehicles, significantly improving performance while reducing size and weight. The project included complete research chain, from concept design, mathematical modeling and optimization, prototype creation, experimental verification, and final design for industrialization. A key aspect was the preparation of manufacturing processes for serial production and the protection of intellectual property.

The primary outcomes were a new generation of traction drive units ready for the market, providing high-added value and addressing a competitive gap in the industry. The project's main result was the international patent compact drive unit for traction vehicles, which is included among the selected FEE results in Section 3.4. This result received an excellent rating according to the social relevance criterion (grade 2 - an internationally outstanding result in originality) in the peer-review process of the selected results under Module 1 of the M17+ evaluation.

4) Electromagnetic Valves with High Degree of Embedded Intelligence

(project No. [TH04010270](#); period: 2019 - 2022; application field: industry and transportation)

The project's objective was the research and development of advanced electromagnetic valve constructions, control algorithms, and algorithms for their interaction with other technical systems. The primary goal was to increase valve dynamic response, robustness, embedded intelligence and decrease energy consumption. The project will explore two innovative concepts: (i) low-energy electromagnetic valve and (ii) high-speed electromagnetic valve in pressure control operation, which allows power regulation of gaseous fuel, technical gases, air and other gaseous media. Within the project, a unique concept of an electromagnetic valve was developed and tested on the prototypes, whose originality lies mainly in the technical design of the control solenoid. The concept of the control solenoid can be used in potential application areas with high added value: (i) hydrogen management systems (generally high-pressure gas and liquid systems) and (ii) rocket propulsion systems. The project was based on published results of researchers from FEE (publication Bistable fully electromagnetic valve for high-speed and fail-safe operations, DOI: [10.1109/TIE.2017.2767522](#)). FEE was entirely responsible for the conceptual design, mathematical modeling, simulation and optimization as well as the design and testing of prototypes.

Beyond the planned results, the patent Electromagnetic coaxial valve (CZ310100B6) was granted in 2024, which was subsequently extended to an international patent application (PCT/CZ2024/050041, WO2024255937). The prototypes are currently being used by several academic partners ([CTU Space Research](#) and the [USC Liquid Propulsion Laboratory](#)) to research and develop rocket propulsion systems and students at all levels of study are fully involved in research and development at FEE. Industrial partner [PEVEKO spol. s r.o.](#) contracted FEE to re-design the complete valve product line concept and prepare for production roll-out. The patent is included among the selected FEE results in Section 3.4.

5) Advanced Ceramic Materials and Technologies for Power Electronics

(project No. [FW01010067](#); period: 2020 – 2023; application field: industry and transportation)

The project focused on material research of high-power microelectronic modules and technology for producing high-thermal conductivity ceramic substrates. The project issues include AlN substrates production (pressing, debinding and firing at high temperatures in a nitrogen atmosphere, sintering promoters, machining, etc.), thick film printing and firing in nitrogen (copper conductors - TPC, dielectrics), assembly and packaging procedures. The main focus of the FEE was material engineering, which included laboratory verification, sample analysis, and experimental studies of degradation processes.

The project's main goal was to study degradation mechanisms and the development of physical testing procedures (internal stress, film adhesion, electromigration, etc. measurements, materialography, thermal analyses, etc.). The technology will find applications in electromobility, electrical traction, advanced precision machinery, renewable electricity sources, etc. The verified technology of aluminium nitride substrates and scientific paper Study of copper thick film metallization on aluminium nitride was included among the selected FEE results in Section 3.4. The published results of oriented fundamental research, which are subsequently used in a fully validated technology, represent one example of providing a comprehensive research chain within FEE.

6) NoMaTex: New Materials, Technologies and Textile Electronic Components for Smart Textiles (project No. [FV30051](#); period: 2018 – 2021; application field: healthcare and industry)

The project's main goal was the R&D of new materials, technologies and textile electronic components for smart textiles. The project focuses on textile materials and elements currently lacking in the market. In the field of materials, the project focuses on conductive linear textiles with high electrical conductivity in non-flammable or insulated finishing and also on tensometric thread, which can be used to construct pressure and tension sensors or textile controls. In addition to advanced materials, sophisticated textile manufacturing technologies will be used.

The main focus of the FEE was technology development and laboratory testing. Choosing the right fabric composition and structure allowed us to realize sensors with high sensitivity and fast response. In textile electronic components, the project aims primarily at universally applicable elements that can be used in various applications, from clothing across healthcare to the automotive industry. New textile electronic components made it possible to increase the comfort of innovative textile products and achieve new features. These key elements will be the building blocks for a wide range of SME companies that do not have the technology or knowledge for independent design and production of these elements. With the expansion of communication technologies and IoT, there is a strong demand, especially for planar and low-cost antennas, sensors and controls that can be easily integrated into textile products. Another key textile element with significant commercial potential was elastic conductive textile interconnection ribbons. New technologies were the strategic outputs of the project, enabling the efficient, low-cost implementation of interconnection structures.

Patented technology Conductive elastic woven fabric, in particular, conductive elastic woven ribbon, was one of the main project results, which is included among the selected FEE results in Section 3.4. This result received an excellent rating according to the social relevance criterion (grade 2 - a result that is internationally outstanding in terms of originality) in the peer-review process of the selected results under Module 1 of the M17+ evaluation. The project represents a newly formed topic of R&D&I at FEE and also the application field of healthcare.

7) Organic Gas Sensors – Novel Structures, Electrical Parameters, Properties and Operation (project No. [GA20-039135](#); period: 2020 – 2022; oriented fundamental research)

The project was focused on the fundamental material research of complex characterization of gas sensors based on carbon nanostructures (as active sensor layer) modified by low-molecular materials and covered with a gases-selective metal-organic framework layer. The structures were used to prepare chemoresistive gas sensors on an interdigital and transistor electrode platform. Their comprehensive characterization led to an explanation of the charge transport mechanism and interactions of gas molecules based on adsorption and dipole-dipole interactions. The obtained sensor and transistor parameters were used as input quantities to train artificial neural networks and create smart-sensor systems. The intended arrangement of the sensor and the use of a neural

network allowed for the multistep selection of gases, thereby increasing the accuracy and reliability of target analyte detection under unfavourable conditions. These activities may affect the future direction of developments in advanced gas sensors operating at room temperature.

The study performed within the project introduced the novel approach of describing the interaction of a conducting polymer and dipolar particles and the inherent approach of interpreting and correlating the experimental results at the macroscopic level with the challenging quantum chemical calculations at the molecular level. The scientific paper Raman spectroscopy and DFT calculations of PEDOT: PSS in a dipolar field is included among the selected FEE results in Section 3.4. The project represents oriented fundamental basic research at FEE, which has a high application potential.

8) Research Infrastructure for Experiments at CERN

(project No. [LM2018104](#); period: 2020 – 2022; application field: particle physics)

The project, in which FEE participates as one of the partners, organizes the participation of the Czech research community in the international particle physics research laboratory [CERN](#) (Conseil Européen pour la Recherche Nucléaire) in Geneva. This includes the local infrastructure and laboratories necessary for these detectors' research, development, and production, as well as computing tools for large-scale data processing. The LRI is developing new technologies for particle detectors, including their applications, especially in calorimetry and semiconductor tracking detectors. FEE has been cooperating with the organization for a long time, and researchers from the Pilsen faculty have joined the research group on the [TOTEM project](#), which is one of 7 experiments at the LHC. The project is in synergy with several contracted research projects and a project Measurement of Anomalies in the Angular Correlation of Electron and Positron Internally Produced in Excited 8Be and 4He (project No. GA21-21801S). The project was selected to demonstrate FEE's involvement in [contributing to non-oriented basic research](#).

FEE's primary focus within the project is physical instrumentation, specifically electronic units for pixel detectors and precise time synchronization. This has enabled the creation of an up-and-coming young research group that is fully dedicated to this topic. This R&D is also the basis for a long-standing collaboration with CERN and other partners supplying technology for this research infrastructure in the form of contract research. One of the key results of FEE research is the readout devices, which are used at research institutions such as CERN (Timepix3 measurement at ATLAS), [INFN](#) (Istituto Nazionale di Fisica Nucleare) in Italy, [DESY](#) (German Electron Synchrotron) in Germany, [CEA](#) (French Alternative Energies and Atomic Energy Commission) in France or at University of Glasgow. The prototype USB & Ethernet Embedded Readout Interface for Timepix3 is therefore included among the selected FEE results in Section 3.4.

9) Characterization and complex testing of medium-voltage (MV) full-SiC power modules for Mitsubishi Electric Japan

(privately financed project; period: 2020 - 2022; application field: transportation)

As part of a long-term research contract with [Mitsubishi Electric](#), FEE was responsible for the characterization and complex testing of a new generation of 3.3kV full-SiC MOSFET power modules developed by Mitsubishi Electric. The project's objective was to investigate the operating margins of the MV full-SiC devices in traction applications under various traction converter configurations, including demanding parallel operation of power modules. The project covers converter designs, the development of a full-power prototype, and its complex experimental testing. The traction converter test rig was built in the RICE's medium-voltage hall laboratory for power electronics systems to test these power modules. The test rig enables comprehensive testing of the traction converter and SiC power modules under full-power conditions (>1 MW) and full-voltage conditions (DC-link voltage up to 2.4 kV).

The collaboration with Mitsubishi Electric Corporation occurred from 2019 to 2022 in several follow-up contract research projects. The cumulative amount of funds reached EUR 334,624 (8,482,720 CZK). The project demonstrates using FEE's unique research infrastructure to develop modern technologies and the collaboration of academic and world-leading industrial companies.

10) ENEN2plus: Integrative education and training for European nuclear specialists

(project No. [ECGA 101061677](#); period: 2022 – 2026; application field: power engineering)

ENEN2plus is the largest education and training project in the nuclear field and brings together partners from 51 institutions from 20 countries on three continents. The project's coordinator is the European Nuclear Education Network (ENEN), and FEE is one of the partners. The project performs dedicated career-related events and competitions for secondary school pupils, teachers, undergraduates, postdocs, and lifelong learners. ENEN2plus will develop detailed insight into the EU supply and demand of human resources for nuclear power and non-power applications, including industries, academia, technical safety organizations and regulators.

Within this project, FEE is active in several work packages. An example of an activity is the organized week-long [PILSMR workshop](#) in 2023. The workshop focused on small modular nuclear reactors from the technology, safety, policy, licensing, economics perspectives, energy mix, and electricity grid integration. The project was chosen to demonstrate FEE's engagement with the international professional community in contrast to previous R&D&I projects.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ¹	Project name	Support (in thousands CZK/EUR) ²				
		2019	2020	2021	2022	2023
MEYS	RICE – New technologies and concepts for intelligent industrial systems	22,606/ 891,755	21,742/ 857,673			
TA CR	Centre for Advanced Nuclear Technologies (CANUT)	31,220/ 1,231,558				
TA CR	Centre for Intelligent Drives and Advanced Machine Control (CIDAM)	41,173/ 1,624,181				
TA CR	TechProTex - Advanced technologies for protective clothing based on smart textiles to enhance the safety of workers exposed to the risk of explosive environments	5,986/ 236,134	5,986/ 236,134			
TA CR	Compensated broadband induction-type current shunt	1,979/ 78,067	1,926/ 75,976			
MEYS	Electrotechnical technologies with high embedded intelligence	33,826/ 1,334,359	22,155/ 873,964	23,088/ 910,769	11,124/ 438,817	
TA CR	Optimization of used nuclear fuel storage	3,032/ 119,606	6,064/ 239,211	6,124/ 241,578	6,064/ 239,211	
TA CR	Energy Storage for electricity production	2,896/ 114,241	5,809/ 229,152	6,201/ 244,615	5,855/ 230,966	5,438/ 214,517
GACR	Organic gas sensors - new structures, properties and functions		2,302/ 90,809	3,133/ 123,590	3,085/ 121,696	
TA CR	Introduction of advanced asset management in the renewable energy sector in the Czech context				7,875/ 310,651	4,612/ 181,933

TA CR	Centre for Advanced Machines and Manufacturing Technologies (CAMAT)					44,147/ 1,741,499
TA CR	Centre for Advanced Nuclear Technologies II (CANUT)					119,321/ 4,706,943
EC	Renewable energy sources and digital twin					1,559/ 61,499
Total		142,718/ 5,629,901	65,984/ 2,602,919	38,546/ 1,520,552	34,003/ 1,341,341	175,077/ 6,906,391
In the role of another participant						
Provider ³	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
TA CR	Flexible Printed Microelectronics using Organic and Hybrid Materials (FLEXPRINT)	1,980/ 78,107				
TA CR	Advanced Technologies for Heat and Power Generation	2,600/ 102,564				
MPO	Separation of plastics from industrial waste for subsequent recycling	1,012/ 39,921				
MPO	New generation powertrain for rolling stock	1,783/ 70,335				
MPO	Acoustic diagnostics for building structures and materials	550/ 21,696				
GACR	New potting materials for the energy industry		2,000/ 78,895	2,400/ 94,675	2,400/ 94,675	2,412/ 95,148
MPO	Smart modular garments and special textile products with integrated electronic microsystems to improve health care for the ageing population and disabled people (SeniorTex)	1,744/ 68,797	1,096/ 43,235			
TA CR	Comprehensive database system for expert prognostics of rotating machinery reliability	814/ 32,110	832/ 32,821			
TA CR	Distribution and transmission network inspection and diagnostics robot – NET-Robotics	1,881/ 74,201	1,871/ 73,807			
TA CR	Software platform for accelerating the implementation of process control and automation systems	1,452/ 57,278	1,452/ 57,278			
MPO	Unique test system and advanced semi-automated manufacturing technologies to increase comfort and glove protection against thermal hazards	1,529/ 60,316				
TA CR	Support for NPP unit operator training on a simulator using automated data collection from abnormal and emergency scenario training	600/ 23,669	200/ 7,890			
MPO	Increasing the reliability of the screw compressor	85/ 3,353				
MPO	Advanced material system for smart power electronics manufacturing (ADMAT)	1,650/ 65,089	1,650/ 65,089			

MPO	Development of new processes for manufacturing shape-complex, high-strength parts for automotive bodies using	3,910/ 154,241				
MPO	Web application for thermal engineering calculations and assessment of construction details	97/ 3,826				
TA CR	Composite Structures in Electrical Engineering (EKOM)	2,070/ 81,657	2,070/ 81,657			
TA CR	Additive manufacturing technology for metal parts	1,000/ 39,448	1,000/ 39,448	1,000/ 39,448		
TA CR	SAN - System of Applications for Fan Design	461/ 18,185	461/ 18,185	787/ 31,045		
TA CR	Modern electrical equipment for substations	2,450/ 96,647	3,273/ 129,112	2,487/ 98,107		
MEYS	Engineering applications of microworld physics	37,043/ 1,461,262	29,481/ 1,162,959	30,431/ 1,200,434	32,331/ 1,275,385	
MPO	New generations of die forgings from ultra-high-strength steels	4,904/ 193,452	732/ 28,876			
GACR	Effect of polymer electrolyte crystallinity and carbon electrode morphology on electric charge transport and fluctuations in electrochemical gas sensors	725/ 28,600	700/ 27,613			
MZE	SMARTFIELD – An automatic system for collecting and processing temperature and humidity parameters of microclimate and soil	1,320/ 52,071	1,320/ 52,071	1,260/ 49,704	1,080/ 42,604	
MPO	NoMaTex - New materials, technologies and textile electronic components for smart textiles	1,800/ 71,006	1,800/ 71,006	1,800/ 71,006		
MPO	Braided intermittent composite structures in electrical engineering (NAPREKON)	2,340/ 92,308	2,340/ 92,308	1,170/ 46,154		
MPO	New generation ultrasonic flow meters	992/ 39,132	996/ 39,290			
TA CR	Ex-core neutron flux measurements for Generation IV reactors	2,025/ 79,882	2,349/ 92,663	1,836/ 72,426	1,836/ 72,426	
TA CR	Local electricity and heat sources in municipal environments with islanding capability	746/ 29,428	758/ 29,901	771/ 30,414	784/ 30,927	796/ 31,400
TA CR	H2PLAZMON - Advanced plasmon technology for the production, storage and use of "green" hydrogen	2,204/ 86,943	2,204/ 86,943	2,204/ 86,943	2,204/ 86,943	2,213/ 87,298
MEYS	Carbon allotropes with rationalized nano-interfaces and nano-joints for environmental and biomedical applications	29,139/ 1,149,467	17,753/ 700,316	13,625/ 537,475	11,456/ 451,913	
TA CR	SEPIOT - Gas sensors based on hybrid nanostructures for IoT applications	800/ 31,558	1,000/ 39,448	1,080/ 42,604	1,120/ 44,181	
TA CR	Solenoid valves with high embedded intelligence	785/ 30,966	795/ 31,361	810/ 31,953	780/ 30,769	
TA CR	Island system with intelligent power management	977/ 38,540	977/ 38,540	937/ 36,963	39/ 1,538	
TA CR	New generation of LV circuit breakers with power semiconductors	2,585/ 101,972	3,074/ 121,262	3,305/ 130,375	3,228/ 127,337	

TA CR	National Center for Energy	9,956/ 392,742	24,522/ 967,337	17,682/ 697,515	8,655/ 341,420	
TA CR	Development of a distribution transformer with environmentally friendly electrical insulating fluid	683/ 26,943	1,460/ 57,594	1,475/ 58,185	1,535/ 60,552	775/ 30,572
GACR	Antenna arrays with quantized control		1,076/ 42,446	1,082/ 42,682	1,082/ 42,682	
TA CR	A system for wireless charging of cordless hand tools for hazardous environments and emergency services		1,339/ 52,821	1,403/ 55,345	1,489/ 58,738	
TA CR	Design and technology of new generation permanent magnet synchronous generators		2,181/ 86,036	2,310/ 91,124	2,146/ 84,655	
TA CR	Paraglider flight simulator		1,354/ 53,412	1,316/ 51,913	1,276/ 50,335	
TA CR	Advanced ceramic materials and technologies for power electronics (POKER)		1,822/ 71,874	2,430/ 95,858	2,430/ 95,858	2,430/ 95,858
MPO	Development of a new generation of process modelling equipment for Industry 4.0		4,274/ 168,600	4,274/ 168,600	4,274/ 168,600	
TA CR	Virtual reality tools for interactive moving platform simulators		923/ 36,410	923/ 36,410	923/ 36,410	
TA CR	MAGnetic Sensing for Thermonuclear Power Reactors (MASTER)		758/ 29,901	1,545/ 60,947	1,594/ 62,880	1,644/ 64,852
TA CR	Development of a technology unit for innovative energy storage using phase change materials		321/ 12,663	1,366/ 53,886	1,148/ 45,286	1,047/ 41,302
MPO	Smart photovoltaic boiler		983/ 38,777	1,967/ 77,594	983/ 38,777	
GACR	Improving the properties of current high-tech alloys		3,213/ 126,746	3,213/ 126,746	3,213/ 126,746	3,213/ 126,746
GACR	Measurement of anomalies in the angular correlation of the electron and positron from internal pair production in excited ⁸ Be and ⁴ He nuclei			1,902/ 75,030	1,782/ 70,296	1,704/ 67,219
TA CR	InTechTex - Innovative electronic element integration and encapsulation technology for smart fabrics to withstand harsh environments			2,479/ 97,791	2,975/ 117,357	2,975/ 117,357
TA CR	ILOC – A system for locating and rescuing people integrated in a shoe and protective glove			2,335/ 92,110	2,552/ 100,671	2,552/ 100,671
TA CR	OILSENSE - Detection systems for industrial equipment based on large area sensors			1,478/ 58,304	1,478/ 58,304	1,478/ 58,304
TA CR	MultiTex - Advanced smart textiles with multifunctional effects to improve professional and functional clothing in hazardous environments			1,759/ 69,389	1,759/ 69,389	1,759/ 69,389
TA CR	InPredict - Smart Condition Management for Industry 4.0			1,012/ 39,921	1,053/ 41,538	1,026/ 40,473

MPO	Design of energy efficient chokes - NEUTlum			854/ 33,688	1,242/ 48,994	1,117/ 44,063
MPO	Reactivity management system design			1,906/ 75,187	2,543/ 100,316	2,118/ 83,550
MPO	Research and development of heat treatment in energy efficient furnaces for dimensional stability of bearing components			3,900/ 153,846	4,289/ 169,191	2,000/ 78,895
MPO	System solutions for sustainable treatment of waste from healthcare facilities		439/ 17,318	878/ 34,635	456/ 17,988	
MPO	Research and development of a technological process for curing grinding wheels in energy efficient furnaces			1,500/ 59,172	3,000/ 118,343	1,500/ 59,172
MPO	Research and development of an automated mobile rail welding system for small and medium scale repairs			700/ 27,613	1,441/ 56,844	741/ 29,231
MPO	Research and development of tools for precision die forging of non-ferrous alloys			1,492/ 58,856	3,000/ 118,343	1,900/ 74,951
MV ČR	Modular multisensory occupational clothing for risk management, health and safety of members of the IZS using artificial intelligence methods				2,750/ 108,481	2,750/ 108,481
TA CR	SMARTMon - Mobile autonomous unit for multi-day onsite diagnostics				1,098/ 43,314	1,115/ 43,984
TA CR	Development of a high-performance electric boat with extended range				3,475/ 137,081	4,065/ 160,355
MPO	Inductive flow meter for carbonated beverages				1,564/ 61,696	651/ 25,680
EC	ENEN2plus_Building European Nuclear Competence through continuous Advanced and Structured Education and Training Actions				373/ 14,714	373/ 14,714
MV ČR	A smart system for wearable protective equipment enabling surveillance and planning of police and military interventions					2,770/ 109,270
EC	INNMEDSCAN - Innovative Photodetector Module for advanced Hybrid "Magnetic Resonance Imaging/Positron Emission Tomography" Scanners for Nuclear Medicine					1,528/ 60,276
TA CR	Wire innovations for higher temperature resistance and for reliable bonding in automotive wiring harnesses					1490/ 58777
TA CR	Research and development of a solution for authentication and data transfer from measurement systems in the energy sector using a blockchain platform					666/ 26,272
TA CR	Welding technology with laser heating					2,450/ 96,647

TA CR	Development of methodologies and tools for the verification and evaluation of PSA studies and their application in the supervisory activities of the SUJB					425/ 16,765
TA CR	New directions in electronics for Industry 4.0 and Medicine 4.0					10,873/ 428,915
TA CR	National Hydrogen Mobility Centre					1,826/ 72,032
TA CR	National Centre for Energy II					26,371/ 1,040,276
TA CR	Josef Bozek National Centre of Competence for Ground Vehicle Engineering					19,461/ 767,692
MPO	Unattended vacuum equipment for transformer servicing					462/ 18,225
EC	DETMED_Novel detector concept for medical gamma probe					7,098/ 280,000
MPO	HeatProTex - Advanced technology for the production of smart heating textiles using innovative materials to reduce energy consumption					1,548/ 61,065
MPO	Research and development of the active part of a distribution transformer					959/ 37,830
MPO	DataWise Print Knowledge Transfer Partnership					455/ 17,949
MPO	Intelligent non-invasive system for measuring the volume of liquid in the tank					895/ 35,306
Total		126,692/ 4,997,712	126,849/ 5,003,905	129,084/ 5,092,071	124,836/ 4,924,497	73,489/ 2,898,974

Table 3.3.2 - Contract research activities

Client ⁴	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
ABRASIV, a.s.	Contract research on the electromagnetic accelerator of rivet tear-off mandrels (stage II of the original assignment)				1,290/ 50,888	
ABRASIV, a.s.	Automatic transfer of a torn-off mandrel to the magazine of a cordless rivet gun			475/ 18,738		
Acamar Technology, a.s.	Extension of the SMART FACTORY demonstrator					150/ 5,917
AGRA GROUP a.s.	Quantitative verification of the separation, design of the separator and its testing				494/ 9,491	1,152/ 45,444
Alfmeier CZ s.r.o.	Material analysis		6/ 252			
Alfmeier CZ s.r.o.	Material analysis by FT-IR	3/ 123				

Alfmeier CZ s.r.o.	Analysis of mechanical modulus changes as a function of temperature		7/ 291			
Alfmeier CZ s.r.o.	Microscopic analysis		3/ 118			
ALPHA21 s.r.o.	Design of a permanent magnet synchronous machine			183/ 7,199		
Altran CZ a.s.	Analysis by metamorphology	50/ 1,972				
Alumina Systems s.r.o.	X-ray analysis of the SP570 grommet	3/ 123				
ANDRITZ HYDRO GmbH	Electrical analysis on a 6bar hydrogenerator	93/ 3,670				
APPLYCON s.r.o.	Pilsen business vouchers-conceptual analysis, design and implementation of SC and FIU test sequences	387/ 15,261				
ASP Group s.r.o.	Laboratory expertise of quadricycle electrical installation		22/ 873			
ATEGA s.r.o.	Electromagnetic compatibility measurements on the power equipment distribution network	250/ 9,862				
ATEGA s.r.o.	Electromagnetic compatibility measurements on power distribution network			96/ 3,787		
ATEGA s.r.o.	Measurement of power consumption characteristics on machine tools for conventional and unconventional machining		268/ 10,572			
ATEGA s.r.o.	Design and optimization of the effective modification of the SR1600 lathe into a positioning device		149/ 5,878			
ATEGA s.r.o.	Design and optimization of the SK12 carousel kinematics upgrade		233/ 9,191			
ATEGA s.r.o.	Design and optimization of the support structures, kinematics and computational design of the stiffness of the pendulum saw	238/ 9,389				
ATEGA s.r.o.	Design of an efficient modification of the KAPP grinder - design, computational verification and optimization of electrical converters	68/ 2,682				
ATEGA s.r.o.	Design of kinematics and optimization of repair of punching equipment	150/ 5,917				
ATEGA s.r.o.	Design of modifications and optimization of the security of the rams of the 250 t press				108/ 4,260	
ATEGA s.r.o.	Optimisation and design of modifications to the existing moving mechanism for the movement of the NDT probe					182/ 7,179
ATEGA s.r.o.	Optimisation and design of modifications to the existing three-bolt moving mechanism for the movement of the grinding spindle					160/ 6,312

ATEGA s.r.o.	Development of NC program system and optimization of chip and EDM machining	296/ 11,677				
AZ IT MANAGEMENT	Methods and Programmes for Simulation based Optimisation of Manufacturing Processes in the Digital Factory			131/ 5,155		
Best - Business, a.s.	Detailed analysis of mechanical properties of supplied materials				100/ 3,945	
Best - Business, a.s.	Detailed electromagnetic compatibility measurements on the power distribution network of power equipment				550/ 21,696	
BONNEL TECHNOLOGIE	Development of electronics for wireless power supply demostand		217/ 8,547			
Borgers CS spol. s r.o.	Analysis of plastic parts, DSC analysis and computed tomography analysis	21/ 817				
Cegelec a.s.	Assessment of the customer's proposed solution and design of algorithms for controlling the output voltage inverters of 3x400V auxiliary drives in parallel operation					698/ 27,535
Centrum organické chemie s.r.o.	Stage IV - Optimization of the design and functional characteristics of the electronic marking detection system	250/ 9,862				
Centrum organické chemie s.r.o.	Optimization of the design of the moisture detector reader for HIF and preparation of documents for its implementation	150/ 5,917				
Centrum organické chemie s.r.o.	Lighting and electronic system for photoreactors	50/ 1,972	50/ 1,972			
Centrum výzkumu Řež s.r.o.	Design and custom manufacturing of an additional cooling device for the FRQ60 water reservoir					79/ 3,116
Centrum výzkumu Řež s.r.o.	Design and custom fabrication of a water-cooled condenser battery for tungsten melting application				517/ 20,394	
Centrum výzkumu Řež s.r.o.	Design of a cold crucible for the growth of single crystals from a eutectic mixture of Al2O3+MgO	130/ 5,128				
Centrum výzkumu Řež s.r.o.	An approach to the application of PC models of the resonant circuits of the HFG160 and FRQ60 generators		40/ 1,578			
Centrum výzkumu Řež s.r.o.	Implementation and analysis of 3 eutectic melts according to defined Al2O3 to ZrO2 ratio	120/ 4,734				
Centrum výzkumu Řež s.r.o.	Implementation and analysis of melt with heat flux measurement from melt to calorimeter	48/ 1,893				
Centrum výzkumu Řež s.r.o.	Reinstallation of the induction system					150/ 5,917
Centrum výzkumu Řež s.r.o.	Extension of the manipulator to melt sampling equipment			100/ 3,945		

Centrum výzkumu Řež s.r.o.	Variable numerical model of the induction heating process in a cold crucible		75/ 2,959			
Centrum výzkumu Řež s.r.o.	Calculations of high temperature melt discharge parameters		80/ 3,156			
Centrum výzkumu Řež s.r.o.	Fabrication of a copper inductor for induction melting by ISM					200/ 7,890
Centrum výzkumu Řež s.r.o.	Fabrication of copper cold crucible with actively cooled bottom for oxide melting by ISM					300/ 11,834
Centrum výzkumu Řež s.r.o.	Development of a control program for the positioning device of the cold crucible	151/ 5,970				
CERN	FPGA based local Trigger Board					697/ 27,476
Clutex - klastr technické textilie, z.s.	Demonstrator of reliable interconnect technology for smart textiles	1,070/ 42,209				
Clutex - klastr technické textilie, z.s.	Development of reliable interconnect technology for smart textiles based on ultrasonic welding		1,050/ 41,420	2,100/ 82,840	1,050/ 41,420	
Compteq.io s.r.o.	Development consultation				210/ 8,287	165/ 6,503
COMTES FHT a.s.	CT porosity analysis	1,135/ 44,773				
COMTES FHT a.s.	Cyclic temperature analysis of a joint heated by the passage of electricity		40/ 1,578			
Continental Automotive Czech Republic s.r.o.	Solderability analysis	10/ 394				
Continental Automotive Czech Republic s.r.o.	Computed tomography analysis	11/ 419				
Continental Automotive Czech Republic s.r.o.	CT and DSC analysis of cracking handles	25/ 966				
Continental Automotive Czech Republic s.r.o.	Ext. RSA 15-40 flexi tape analysis		15/ 592			
Continental Automotive Czech Republic s.r.o.	External solderability analysis of connectors	10/ 394				
Continental Automotive Czech Republic s.r.o.	External optical analysis FIAT 330, Flat panel		8/ 296			

Continental Automotive Czech Republic s.r.o.	Material analysis	12/ 473				
CZ LOKO a.s.	Services for the purpose of implementing type tests of the traction motor, traction converter and traction drive of the new DS2000 locomotive				4,453/ 175,650	
ČEPS, a.s.	Study - determining the influence of distributed generation from renewable sources on angular stability	200/ 7,890				
ČEPS, a.s.	Study "Model of three-winding transformer for EMS calculations"				80/ 3,156	
České vysoké učení technické, Ústav technické a experimentální fyziky	Thermal analysis		18/ 694			
České vysoké učení technické, Ústav technické a experimentální fyziky	Vibration analysis		40/ 1,578			
ČEZ a.s.	Analysis of historical data for assessing the condition of HCČ VAZ 215/109-6AM05 electric motors			165/ 6,509		
ČEZ a.s.	Analysis of samples using selected structural analysis methods					70/ 2,751
ČEZ a.s.	Measurement and analysis of partial discharges on cables					74/ 2,910
ČEZ a.s.	Measurement of partial discharges on cables					53/ 2,105
ČEZ a.s.	Analysis of a dust sample from a HV motor					23/ 917
ČMŽO Slovakia s.r.o.	FEM model for calculating eddy currents					28/ 1,123
DEKPROJEKT s.r.o.	Modification of the application for calculating heat and moisture propagation in masonry	224/ 8,846				
DVL KOVO s.r.o.	Measurement of consumption characteristics on machines and tools for processing metals and their alloys			320/ 12,623		
Eaton Elektrotechnika s.r.o.	Measurement and analysis of direct current discharges with a power of up to 80 kW				770/ 30,375	
Eaton European Innovation Center	Experimental measurements using selected converters			892/ 35,187		

Eaton European Innovation Center	Design of 4 types of AC traction motors, development of inverter models	588/ 23,188				
Eaton European Innovation Center	Development of a traction motor, design of an inverter, simulation of motor and inverter thermal losses		588/ 23,188			
Eaton European Innovation Center	Research on traction drive - comparison of two motors, research of control algorithms to increase reliability			588/ 23,188		
EBZ Hoffmann s.r.o.	Measurement of electromagnetic compatibility of loads at the workplace of the production department within the reach of human operators of the equipment			282/ 11,124		
Elektroline a.s.	Production of a prototype of the power part of a 50kW converter, including control electronics and sensors	2,000/ 78,895	1,525/ 60,158			
ELEKTROTECHNIKA a.s.	Calculation of the torque curve of a synchronous machine		40/ 1,578			
Encontrol s.r.o.	Creation of the electrical part of the analysis of possible investments in the field of energy in the Koterovská 162 building			15/ 600		
Encontrol s.r.o.	Creation of the electrical part of the detailed analysis of possible investments in the field of energy in the Koterovská 162 building				80/ 3,156	
Energy Cloud a.s.	Innovation vouchers - Analysis and data collection for the implementation of a battery storage	398/ 15,700				
ENERGY STEEL plus s.r.o.	Measurement of consumption characteristics on machining and welding machines			370/ 14,596		
EnergyCloud a.s.	Prototype development – development of SW and HW for a wall-mounted charging station for electric cars					500/ 19,724
ENGIE Services a.s.	Analysis of sensor temperature resistance	17/ 655				
Faiveley Transport Czech a.s.	Analysis of samples in a climatic chamber	29/ 1,127				
Faiveley Transport Czech a.s.	Climatic analysis	18/ 706				
FlyingLeaf s.r.o.	Study of functionality for non brazed dimples detection		399/ 15,740			
Gatema PCB a.s.	Analysis of ionic contamination, solderability analysis		10/ 375			
GESEURO, s.r.o.	Development of electronics of an information digital panel				499/ 19,684	
GESEURO, s.r.o.	Development of a digital information panel	399/ 15,740				

Gesellschaft für metallurgische Technologie - und Softwareentwicklung GmbH	Metallographic analysis	125/ 4,912				
GoodPRO s.r.o.	Implementation of communication protocols into smart PRO SAFETY system and smartPRO RFID register applications with server storage and web interface		162/ 6,391			
GRAMMER CZ, s.r.o.	Analysis of samples by Differential Scanning Calorimetry DSC	8/ 298				
GRAMMER CZ, s.r.o.	Analysis of samples by structural analysis methods		25/ 992			
GRAMMER CZ, s.r.o.	Analysis of samples by FT-IR and DSC	13/ 515				
GZ Media, a.s.	Analysis of impurities on matrices	19/ 738				
GZ Media, a.s.	Observation of defective surfaces of paint film and matrix with a confocal laser microscope			7/ 285		
HOFMEISTER s.r.o.	Analysis of the part with a confocal microscope	3/ 118				
HOFMEISTER s.r.o.	Sample analysis SEM/EDX and confocal microscopy	19/ 740				
IAC Group s.r.o.	CT analysis			70/ 2,761		
IAC Group s.r.o.	Analysis of the plastic fracture area components			13/ 507		
IAC Group s.r.o.	Analysis of the surface resistance of samples		20/ 787			
IAC Group s.r.o.	Analysis of the current state and recommendations in the field of protection against electrostatic discharges		8/ 308			
IAC Group s.r.o.	Analysis of samples using structural analysis methods	17/ 656	13/ 497			
IAC Group s.r.o.	Analysis of samples using the DSC method	22/ 872				
ILLUM s.r.o.	Plzeňské podnikatelské vouchers - SW development for the Android platform			120/ 4,734		
INDUSCORP, s.r.o.	Testing samples from waste cables on an electrostatic separator				68/ 2,663	
Instituto Nazionale di Fisica Nucleare	Katherine 2018	65/ 2,564				
Integrated Micro-Electronics Czech Republic s.r.o.	Analysis and testing in a climatic chamber				48/ 1,874	

Integrated Micro-Electronics Czech Republic s.r.o.	Analysis of the connector surface treatment		21/ 809			
Integrated Micro-Electronics Czech Republic s.r.o.	CT test	4/ 158				
Integrated Micro-Electronics Czech Republic s.r.o.	X-ray analysis	33/ 1,316				
Integrated Micro-Electronics Czech Republic s.r.o.	Thermal shock tests			55/ 2,156		
Integrated Micro-Electronics Czech Republic s.r.o.	Solderability test, measurement of resistance of conductive paths, optical observation of samples, climate tests			62/ 2,456		
Jablotron Alarms a.s.	Analysis of acoustic parameters of smoke detectors		39/ 1,538			
Jablotron Alarms a.s.	Modification of the firmware parameterization of sensorless pump control	49/ 1,923				
Jablotron Alarms a.s.	Additional work for the order Modification of the CP201P SW parameterization for a new type of motor	46/ 1,809				
Jihočeský vědeckotechnický park, a.s.	South Bohemian Podnikatelské vouchers 2020 - Innovation and optimization of the 3D printing Direct_Drive extruder ThunderHead			150/ 5,917		
Jihočeský vědeckotechnický park, a.s.	Temperature analysis of the Protoprint Raptor printhead model		60/ 2,367			
JV GROUP s.r.o.	Control design for chocolate packaging line upgrade			100/ 3,945		
Kabelovna KABEX, a.s.	Electric field analysis in hermetic cable gland					31/ 1,223
Kablo Vrchlábí s.r.o.	Analysis of bulges on FLR6Y cables		28/ 1,114			
Kablo Vrchlábí s.r.o.	CT analysis of granulates	11/ 449				
Kablo Vrchlábí s.r.o.	DMA and DSC analysis on AEXSF cables			38/ 1,479		
Kablo Vrchlábí s.r.o.	DSC/TG analysis of samples	20/ 789				
KDI s.r.o.	Software for detecting unsoldered dimples		200/ 7,890			

Kolumbus s.r.o.	Analysis of printed circuit board samples	50/ 1,963				
Kolumbus s.r.o.	Analysis of assembled printed circuit board samples		15/ 592			
Kontron ECT design s.r.o.	Development consulting	250/ 9,846	246/ 9,723	225/ 8,882		
KUVAG CR, spol. s r.o.	CT analysis		9/ 339			
KUVAG GmbH&CoKG	Analysis of dielectric properties R44				36/ 1,439	
KUVAG GmbH&CoKG	Epoxy resin sample testing			109/ 4,294	76/ 2,988	
Laird s.r.o.	Analysis - dewetting test	25/ 966				
Laird s.r.o.	Solderability analysis	14/ 552				
Laird s.r.o.	Analysis of printed circuit board samples	47/ 1,860				
Leuze Engineering Czech s.r.o.	Implementation of functions for testing optical barrier		188/ 7,396			
MAHLE Behr Holýšov s.r.o.,	CT scan, 3D image analysis					25/ 986
MD ELEKTRONIK spol. s r.o.	Analysis of conductor insulation using STA method		8/ 306			
MEGATECH Industries Engineering CZ s.r.o.	Analysis of samples using thermal analysis methods	14/ 562				
Mechania s.r.o.	Design and optimization of repairs and production parts including NC programs for steam turbine			364/ 14,359		
Mikroelektronika spol. s r.o.	DSC analysis of Bluetechnix PCB		12/ 473			
Mitsubishi Electric Automotive Czech s.r.o.	Analysis - wave soldering	4/ 158				
Mitsubishi Electric Corporation	Preparation of experimental setup of SiC converter				1,081/ 42,631	
Mitsubishi Electric Corporation	Evaluation of current imbalance phenomena and observation of heat leakage				2,677/ 105,617	
Mitsubishi Electric Corporation	Measurement of limit characteristics for SiC modules			1,799/ 70,951		
Mitsubishi Electric Corporation	Services related to the design and development of SiC converters		2,922/ 115,267			
ModemTec s.r.o.	Laboratory verification of ModemTec devices	43/ 1,705				

ModemTec s.r.o.	Verification of ModemTec devices, design of expert system architecture	195/ 7,692				
Mubea, spol. s r.o.	Consultations, analyses, tests in the field of hardening					15/ 592
MWWTec GmbH	SW programming	153/ 6,040				
Nvision Czech Republic a.s.	Analysis of connector pin contamination		6/ 237			
Nvision Czech Republic a.s.	Chemical analysis of fiber	4/ 168				
Panasonic AVC Networks Czech, s.r.o.	Analysis of laser memory description depth	5/ 178				
Panasonic Industrial Devices Slovakia s.r.o.	Solderability analysis	11/ 414				
PEVEKO, Spol. s r.o.	Development of solenoid valve control unit	54/ 2,130				
PlantControl s.r.o.	Pilsen subcontractor vouchers - Consultation and measurement of EMC compatibility of electrical equipment. equipment developed by the customer				70/ 2,761	
POLL, s.r.o.	Sample analysis				61/ 2,422	
Possehl Electronics Czech Republic s.r.o.	Filter analysis from technical purity	5/ 197				
Possehl Electronics Czech Republic s.r.o.	Contamination analysis using the FT-IR method	3/ 133	3/ 133			
Possehl Electronics Czech Republic s.r.o.	NOK sample analysis		13/ 523			
Possehl Electronics Czech Republic s.r.o.	Sample analysis using the DSC differential scanning calorimetry method	12/ 473				
Possehl Electronics Czech Republic s.r.o.	Sample analysis using the infrared spectrometry method	7/ 266				
Possehl Electronics Czech Republic s.r.o.	CT analysis, elemental analysis and spectroscopy	17/ 651				
Possehl Electronics Czech Republic s.r.o.	FTIR and DSC analysis, contamination analysis and comparative viscosity analysis	13/ 503				

Possehl Electronics Czech Republic s.r.o.	Professional DCS and FTIR analysis		59/ 2,321			
Possehl Electronics Czech Republic s.r.o.	Elemental analysis	10/ 394				
Possehl Electronics Czech Republic s.r.o.	FTIR and DSC analysis, thermogravimetry	19/ 731				
PROFI EMG s.r.o.	Assessment of the effects of the TR Nejdek transformer station on the communication cable	13/ 493				
Project Controls, s.r.o.	Analysis of the hook for the R008_2019 complaint	9/ 350				
První SaZ Plzeň a.s.	Development and innovation of EKS products				50/ 1,972	
První SaZ Plzeň a.s.	Development and innovation of EKS and EKS-LED products using a modern component base			30/ 1,183		
RACOM s.r.o.	Analysis of the cut on MBR board samples					37/ 1,460
RACOM s.r.o.	Analysis by temperature change					54/ 2,118
Real Time technologies SK, s.r.o.	Analysis of the intermetallic layer	6/ 237				
Real Time technologies SK, s.r.o.	Analysis of the ion contamination	31/ 1,240				
Real Time technologies SK, s.r.o.	Corrosion analysis		7/ 264			
Real Time technologies SK, s.r.o.	Elementary analysis of PCB surface	3/ 133				
REALTIME TECHNOLOGIES SK	S analysis Cross section					21/ 820
REALTIME TECHNOLOGIES SK	PCB diagnostics and microsections					71/ 2,813
Ricardo Praque s.r.o.	Analysis by temperature change					162/ 6,387
RIZZO Associates Czech, a.s.	Performance of analyses and tests to verify the cohesive-adhesive properties of the cable test sample assembly					176/ 6,943
RVTech s.r.o.	Plzeňské podnikatelské vouchery - design and production of HW for functionality verification, recovery and performance of EMC test measurements		120/ 4,734			

SayIT s.r.o.	Plzeňské podnikatelské vouchers - Development of a program for license plate recognition			300/ 11,834		
SBS - NEPRON, s.r.o.	Analysis of 3 x 2 pcs of PCB 11284 EMC		86/ 3,373			
SBS - NEPRON, s.r.o.	Analysis of delivered motor contacts, 5 sets	46/ 1,815				
SBS - NEPRON, s.r.o.	Analysis of soldered joints	52/ 2,051				
SBS - NEPRON, s.r.o.	Analysis of the elemental composition of delivered metallic contacts	5/ 197				
SBS - NEPRON, s.r.o.	HV analysis of EMC filter				92/ 3,617	
SBS - NEPRON, s.r.o.	Microsection of pressed holes				80/ 3,156	
SBS - NEPRON, s.r.o.	Elemental analysis	4/ 158				
SBS - NEPRON, s.r.o.	Elemental analysis of 2 pcs of PCB	29/ 1,124				
Schneider Electric Industries SAS	Scientific cooperation in the field of research		467/ 18,404	200/ 7,888		
Schneider Electric Sahcsenwerk GmbH	Material analysis		82/ 3,236			
Schneider Electric Sahcsenwerk GmbH	Scientific cooperation in the field of research-behavior during failures with regard to the influence of defects in synthetic air-insulated systems	769/ 30,342				
Siemens Healthcare GmbH	Noise and vibration measurement methods			357/ 14,090		
Siemens Healthcare GmbH	operational vibration and noise measurement	244/ 9,617				
Siemens Healthcare GmbH	Development of standalone test stand				658/ 25,944	1,341/ 52,914
Siemens, s.r.o.	Implementation of a measuring device for collecting and wirelessly transmitting data from rotating parts of electrical equipment. machines			368/ 14,505	91/ 3,590	
SILON s.r.o.	sample analysis using simultaneous TGA/DSC analysis		11/ 430			
Silver Planet s.r.o.	BMS commissioning and prototype verification, load testing and simulation of operating conditions, electromagnetic properties test			400/ 15,779		
SolarEco, družstvo	EMC controller		248/ 9,783			
SolarEco, družstvo	MPPT algorithm		248/ 9,783			

Společnost pro výzkum a vzdělávání, s.r.o.	Creation of the electrical part of the study for the energy concept of the municipality of Srní					42/ 1,657
Správa informačních technologií města Plzně	Extension of the function for collecting sensor units after an intervention, design and implementation of the optimal antenna location		495/ 19,527			
Stavební interiérové systémy s.r.o.	Acoustic intensity mapping		80/ 3,156			
SVÚM a.s.	Design of contacting electrically conductive textiles intended for detecting textile damage	200/ 7,890	200/ 7,890			
SymarTech s.r.o.	Analysis and development of a system for melting cable ends				180/ 7,101	
SymarTech s.r.o.	Development of an inductor for induction soldering of cable end parts		38/ 1,479			
Škoda Auto a.s.	Experimental verification of means for identifying non-standard driver behavior	645/ 25,444				
Škoda Auto a.s.	Conceptual car sound system	386/ 15,227				
Škoda Auto a.s.	Measurement of speaker nomination sets					995/ 39,250
Škoda Auto a.s.	Possibility of automating measurement of car acoustic parameters				123/ 4,832	
Škoda Auto a.s.	Design, testing and defining technical specifications for car sound systems			638/ 25,170		
Škoda Auto a.s.	Design, testing and defining specifications for sound systems car					200/ 7,890
Škoda Auto a.s.	Designs, tests and definition of technical specifications for car sound systems		944/ 37,239		707/ 27,880	
Škoda Auto a.s.	Designs, tests and definition of technical specifications for car sound systems	880/ 34,714				
Škoda Auto a.s.	Parameterization for Sound System			95/ 3,748		
Škoda Auto a.s.	Development of means for condition monitoring				371/ 14,615	
ŠKODA ELECTRIC a.s.	Voltage inverter control algorithms for CZE			200/ 7,890		
ŠKODA ELECTRIC a.s.	Voltage inverter control algorithms for CZE	706/ 27,860				
T Machinery a.s.	Detailed measurement of electromagnetic compatibility on the power grid of energy equipment				780/ 30,769	
TECHOIL s.r.o.	Detailed analysis of the effect of lubricant application on the heat balance of a mold for aluminum injection	162/ 6,391				

TECHOIL s.r.o.	Detailed measurement of operating temperatures of lubricated rods for aluminum die casting	117/ 4,615				
TES VSETÍN s.r.o.	Verification of electromagnetic design of a generator with PM for a hydroelectric power plant in the Czech Republic			69/ 2,706		
Tesla Blatná, a.s.	X-ray PCB analysis	13/ 513	2/ 74			
Tesla Blatná, a.s.	X-ray analysis	20/ 789				
Valeo výměníky tepla s.r.o.	Study of functionality for non brazed dimples detection		250/ 9,862			
Valeo výměníky tepla s.r.o.	Production of prototype equipment and verification of acoustic test method		650/ 25,641			
Valeo výměníky tepla s.r.o.	Development of inductors for induction soldering for CO2 evaporator	258/ 10,158				
VEM Sachsenwerk GmbH	Insulation systems for traction applications			1,335/ 52,673	284/ 11,208	1,767/ 69,721
VEM Sachsenwerk GmbH	Insulation systems for traction applications - WP1 system analysis				518/ 20,420	
VEM Sachsenwerk GmbH	Insulation systems for traction applications - WP7 investigation of the effectiveness of shaft grounding				208/ 8,212	
VendPro s.r.o.	Electronics of carousels				399/ 15,740	
VendPro s.r.o.	Development of SW of industrial vending machines	399/ 15,740	399/ 15,740			
VÚB a.s.	Collaboration in research and development within the DETEX project - advanced detection textiles		200/ 7,890	450/ 17,751	350/ 13,807	
VÚKV a.s.	Analysis of the dynamic modulus of elasticity of rail pads	7/ 284				
WITTE Nejdek, spol. s r.o.	DSC analysis		12/ 486			
WITTE Nejdek, spol. s r.o.	Analysis of samples by Differential Scanning Calorimetry (DSC) and Thermogravimetry (TGA)	22/ 872				
WITTE Nejdek, spol. s r.o.	Analysis of samples by Thermogravimetry - TGA	39/ 1,534				
WITTE Nejdek, spol. s r.o.	CT analysis		15/ 592			
WITTE Nejdek, spol. s r.o.	DSC analysis			8/ 300		
WITTE Nejdek, spol. s r.o.	Physical tests	26/ 1,036				
ZAT a.s.	Delamination analysis, bulge analysis in filled holes	14/ 542				
ZAT a.s.	Delamination analysis of PCBs (6x DSC analysis, 2x analyzed locations)	15/ 592				

ZAT a.s.	Support in the revival of the Z100 EMO testing system		129/ 5,083			
ZAT a.s.	Support in the development of the Z100 VVER1200 test system superstructure			180/ 7,101		
ZAT a.s.	Development and delivery of components for the testing system		819/ 32,307			
ZEZ Silko, s.r.o.	Vibration tests in a climatic chamber on a sample with strain gauges			72/ 2,826		
ZEZ Silko, s.r.o.	Vibration tests in a climatic chamber of 2 power units, simulated long-term durability tests		50/ 1,972			
ZF Engineering Plzeň, s.r.o.	Drive concept for the ZF project "Future ESM"			2,200/ 86,785		1,000/ 39,448
ZF Engineering Plzeň, s.r.o.	Comparative test of two materials "NKN"	94/ 3,708				
ZF Engineering Plzeň, s.r.o.	WP1 – drive concept for the ZF project Future e-drive based on an exciter electric machine		966/ 38,116	564/ 22,239		
ZKL Brno, a.s.	Identification of temperature instabilities due to plastic deformation during ring rolling			345/ 13,609		
ZKL Brno, a.s.	Measurement of electromagnetic compatibility in the power grid equipment				670/ 26,430	
ZKL Brno, a.s.	Detailed analysis of supplied samples of rolled tools with and without coating for rolling inner rings of rolling bearings				320/ 12,623	
ZKL Brno, a.s.	Detailed analysis of modified shape of rolled tools for outer rings of bearings					330/ 13,018
ZKL Brno, a.s.	Measurement of extraction characteristics on equipment for machining, pressing and heat treatment			235/ 9,270		
Total		15,221/ 600,451	15,454/ 609,645	16,872/ 665,562	20,196/ 796,714	10,948/ 431,892

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts⁵, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

The results listed below are selected to capture the scope of R&D&I activities at FEE and follow the potential impact from an economic, social or scientific viewpoint. Results are not ranked according to importance and reflect the research activities at the FEE. The gender dimension is not mentioned in the results because, in all cases, they are results of a technological nature.

Table 3.4.1 does not include all applied research results but only already applied results or those with high potential for application. In the period under review, FEE introduced almost 350 results of applied research (patents, verified technologies, prototypes, software, etc.).

1) Earth fault compensation transformer

(verified technology, [RIV/49777513:23220/20:43961292](https://riv.mps.cz/49777513:23220/20:43961292))

The technology verified under the National Centre for Energy (project No. TN01000007, see Section 3.3) represents a full-scale prototype for ground faults compensating device using an active current source. The solution is protected by European patents EP2599179 and EP2599180. The technological demonstrator of the equipment for compensation of ground faults was installed during the NCE project in the [ČEZ Distribuce, a.s.](https://www.cez.cz/), (the largest electricity distributor in the Czech Republic) substation and connected to the 22 kV power grid in 2019. The technology was verified during more than a year of pilot operation, where the device independently compensated the distribution grid during all seasons, including extreme weather conditions during Hurricane Sabina (02/2020). By 12/2020, more than 380 natural or artificially induced ground faults had been recorded and successfully compensated for. The equipment enables the digitization of grid services.

The solution outperforms traditional passive arc suppression reactors mainly because, in addition to the reactive component of the fault current, it can compensate the fault completely, up to 20 ms, including the residual current (active current and harmonic components); it does not operate as a arc suppression reactor at the resonance problem point, which leads to dangerous phenomena, especially overvoltage. The device symmetrizes the grid (asymmetry used to be 1 kV, now 50 V). Frequent arc ground connections actively prevent the re-ignition of the arc. In 2022, this apparatus was awarded by the [Golden Ampere](https://www.goldenampere.com/) at the international trade fair.

The technology significantly improves the safety of the operation of the insulated or high-impedance grounded power grids and the reliability of the electricity supply, reducing the risk of electric shock, property damage and the risk of fires. The result provides good commercial potential through licensing sales to energy equipment manufacturers and power grid operators

⁵ See Terms definition.

internationally. The result was selected to demonstrate that long-term research conducted at FEE has led to the key application area of power engineering and the involvement of industrial partners.

2) **Prototype of modified distribution transformer**

(verified technology, [RIV/449777513:23220/23:43968705](#))

The technology represents long-term research on the development of novel electrical insulating fluid (ENVITRAFOL) produced from domestic renewable resources (oilseed rape) (utility model CZ29982U1 protects the fluid). Based on previous research, a transformer winding for this new fluid (utility model CZ35502U1) was designed, a semi-operational prototype for winding production was developed, a diagnostic system was created, and the technology was verified in practice. The result was selected to demonstrate the connection of materials research at FEE to the direct application in power engineering.

The conceptual design of the transformer, calculation (electromagnetic and cooling), tests, structural design, design, winding concept, research of biodegradable insulating liquid and the whole electrical insulation system, design of the electrical insulation system concept, compatibility and biodegradability tests, colour differentiation protected by industrial design is the original authorship of UWB. The prototype itself was registered after about one year of test operation of the transformer in the distribution network [EG.D Holding, a.s.](#) in the village of Olešna (Ždár nad Sazavou district); the transformer has been working continuously for the third year).

A contract on using the result with the manufacturer has been signed. The social impact means the possibility of producing transformers in the Czech Republic of our design with an electrical insulation system of biological liquid paper, an environmentally friendly solution, unlike the primarily foreign-designed transformers containing mineral oil. Besides being imported into the country, mineral oil is toxic to the environment at all stages, from extraction through refining, transport, use and as hazardous waste. In addition, it is flammable. The proposed solution uses natural oil from renewable sources as the biodegradable primary source, with a higher burning point and, thus, safer. Another advantage, compared to foreign solutions, is the low price compared to mineral liquids.

3) **Compact drive unit for traction vehicles**

(patent EP3263418, US11233440B2, [RIV/49777513:23220/22:43967894](#))

The patented technology represents a unique compact, high-speed propulsion solution with a passively cooled electric motor for low-floor vehicles, especially trams. The technology was developed by FEE in cooperation with the [Wikov MGI a.s.](#) under the project “New Generation of Traction Drive Unit for Railway Vehicles” (project No. FV10310, see Section 3.3). A prototype with a maximum power of 180kW and maximum speed above 10,000 rpm was successfully built and tested. A contract between FEE and Wikov to exploit the result was signed. A final prototype unit is currently being tested before going to market. The result was selected to demonstrate the commercial potential of the technologies developed at FEE - the expected market was estimated by Wikov at of tens of millions of EUR (several billion CZK).

The powertrain is protected by European patents and patents in other target commercial territories, such as the USA, Canada, China, and Russia. The European patent EP3263418 was validated in the UK, France, Germany, Switzerland, Liechtenstein, Luxembourg, Monaco, Ireland, Belgium, Czech Republic, Finland, Croatia, Italy, Spain, Poland, Austria and Romania.

The compact design of the developed power unit uses a high-speed electric motor with high efficiency and high-power density controlled by a frequency converter. The motor is integrated with a gearbox in a compact housing to directly connect the drive to the vehicle's wheel or axle and

allow its utilization in low-floor mass transit vehicle concepts. The innovative solution reduces the weight and volume of the drive compared to power units of similar performance.

4) Electromagnetic coaxial valve

(patent CZ310100B6, application WO2024255937)

The patent represents the original concept of the fully electromagnetic valve for high-speed and fail-safe operations developed under the project Electromagnetic Valves with High Degree of Embedded Intelligence (project No. TH04010270, see Section 3.3) led by [PEVEKO spol. s r.o.](#). The valve concept is original both in the topology of the control actuator and in the design and materials used. It stands out mainly for its low power consumption and high response speed. The valve also makes it possible to achieve a low-pressure drop, minimal pressure surges and elimination of malfunctions thanks to precise control. One of the possible applications is a fuel control valve for rocket engines. The prototype was validated in a series of "cold-flow" and "hot-fire" (static ignition) tests of a hybrid rocket engine developed at [CTU Space Research](#) at Czech Technical University in Prague. Research is being conducted in collaboration with [Liquid Propulsion Laboratory](#) at the University of Southern California, and discussions on commercialization were initiated with relevant industrial partners ([Frentech Aerospace s.r.o.](#), [ATC Space s.r.o.](#), and [QHB Czechspace s.r.o.](#)). The project was awarded on [Transfery Technology Day](#) in 2023.

The valve concept is being transferred by industrial partner PEVEKO, spol. s r.o., which implements the concept into a complete product series (under project No. CZ.01.01.01/02/22_003/0000194) for the traditional industrial sectors. The result was selected as an example of applying the technology developed at FEE in a high-value-added field - space engineering - which also has direct applications in traditional industrial and energy fields.

5) Study of copper thick film metallization on aluminum nitride

(scientific paper; DOI: [10.1016/j.scriptamat.2019.09.029](https://doi.org/10.1016/j.scriptamat.2019.09.029))

The paper presents new findings in creating ceramic substrates with copper metallization realized by additive printing technologies for power electronic modules. The main contribution is the explanation of the formation and action of adhesion mechanisms of copper layers on Al₂O₃ and AlN ceramic substrates. The output also describes a new technological process enabling the selective additive deposition of thick film copper (TPC technology) on ceramic substrates with high thermal conductivity (AlN). This result has not been published in the literature so far. The publication provides fundamental insights for the design of new types of power modules for electric traction and e-mobility. The paper is beneficial for further research in the field of advanced electronic components, components, sensors and modules based on ceramic substrates that are capable of operating in elevated temperature environments (up to 500°C), high radiation environments (nuclear and fusion reactors) and high reliability (aerospace, military, space).

The paper was published in Scripta Materialia (category D1 according to AIS). Citation feedback (foreign) of the article as of 1/9/2023, according to WoS/SCOPUS, is 33/36. The published technological process for producing AlN substrates with copper metallization has already been successfully implemented. The paper is synergic with verified technology for production of aluminium nitride substrates (next selected result). The result was selected to demonstrate the research chain within FEE - oriented fundamental research, which is subsequently applied in a fully validated technology in collaboration with an industrial partner.

6) Production technology of aluminium nitride substrates

(verified technology, [RIV/49777513:23220/21:43966575](#))

Proven aluminium nitride (AlN) substrate technology uniquely produces 3D structured ceramic substrates and heat sinks for high thermal conductivity microelectronic modules, modules for

power applications, hybrid integrated circuits, and precision and high-temperature sensors. The technology was verified within the project Advanced Ceramic Materials and Technologies for Power Electronics (project No. FW01010067, see Section 3.3). The technology is based on the pressing of AlN granulate (containing yttria-based sintering promoters) into the desired shape, its micromachining and subsequent firing, which is divided into two key phases - the debinding phase, i.e. The sintering phase, which takes place in a unique high-temperature graphite furnace at temperatures of approx. 1800 °C in an N₂ atmosphere, and the mechanical operations performed on the AlN substrates after firing, such as grinding or polishing, are also part of the proven technology.

The technology for the production of ceramic AlN substrates by pressing is currently available only to a few companies worldwide, such as CeramTec (DE), Coorstek (USA), Kyocera (JP), Toshiba (JP), Maruwa (JP). The technology developed within the project has been successfully implemented in ELCERAM a.s., which forms the basis for producing AlN-based ceramic substrates. This technology has enabled the company to enter a new market in special BLDC brushless DC motor controllers. Based on this technology, a group of unique high-end products was launched - power regulators for BLDC motors for peak currents up to 1500 A and voltages up to tens of volts. These products have already been introduced to the global market, as evidenced by the manufacturer's website, social media channels and media coverage.

The agreement on results utilization between FEE and [ELCERAM a.s.](#) was signed, and the company introduced a BLDC motor controller for professional RC models on the market in 2023. The commercial potential can also be extended based on applications based on these technologies. One example would be the EU patent EP4490780A1 for a Power module for a solid-state circuit breaker granted in 2024.

7) Conductive elastic woven fabric, in particular, conductive elastic woven ribbon
(patent CZ308614B6; [RIV/49777513:23220/20:43960873](#))

The patent represents highly elastic electrically conductive textile interconnecting ribbons suitable for integrating electronic components into e-textiles and bright clothing. The ribbons were developed under the project New Materials, Technologies and Textile Electronic Components for Smart Textiles (project No. FV30051, see Section 3.3), led by [VÚB a.s.](#). FEE is the holder and creator of the patent idea. The ribbons are already being prototyped and introduced to the market by VÚB a.s. and [ELASTA - VESTIL, a.s.](#) in 2023 under the trademark [CleverTex](#) based on the agreement on using the results. The target markets are European Union countries, Turkey, Israel and Canada.

The ribbon enables a simple, versatile, reliable, and low-cost way to connect individual electronic function blocks in innovative textile products, functional underwear, and textile accessories, as well as in car seats, upholstered furniture, or home textiles. Thanks to their minimal thickness, textile behaviour and elasticity (repeated stretching of the conductive ribbon by up to 70% without changing the electrical conductivity), they bring a high level of comfort to end users, especially in single-layer garments and functional lingerie. These ribbons exhibit superior resistance to automatic washing (> 50 wash cycles), high resistance to repeated stretching (> 60,000 cycles of 20% stretching), resistance to cyclic bending (30,000 bending cycles) and abrasion (20,000 MARTINDALE rotations). The ribbons are solderable, crimpable and weldable by ultrasonic or resistance welding. In addition, they allow direct mounting and electrical contacting of SMD components such as LEDs, sensors or connectors. Thanks to these properties, it is a globally unique product with a high potential for use, which is currently unavailable to any world manufacturer.

8) Raman spectroscopy and DFT calculations of PEDOT: PSS in a dipolar field

(scientific paper; DOI: [10.1039/d1cp03899k](https://doi.org/10.1039/d1cp03899k))

The paper presents the study of the organic polymer/ionic liquid interface, whose physicochemical properties are the subject of intensive research, as they are crucial for many electrochemical devices (electrochemical transistors, sensors, diodes, solar cells, etc.). The significance of this work lies in the correlation of experimental results at the macroscopic level (Raman spectroscopy) with the results of quantum chemical calculations at the molecular level, which consistently show that the presence of dipoles in the ionic liquid (formed by the imidazolium cation and the triphthalate anion) affects the electrical properties of the organic polymer PEDOT:PSS (i.e., the "HOMO-LUMO gap").

The contribution of the published study lies not only in the novel approach of describing the interaction of a conducting polymer and dipolar particles by Raman spectroscopy and presenting the effect at a specific type of material interface but also in the inherent approach of interpreting and correlating the experimental results at the macroscopic level with the challenging quantum chemical calculations at the molecular level. The authors foresee an international impact of the result in the scientific community, as they are convinced that results of this type will help to elucidate the complex mechanisms of interactions at the organic polymer/electrolyte interface and thus will have a positive impact on the research and development of powerful (efficient) "ion-electronic transducers" which are the basis of (bio)chemical sensors or devices used to sense/monitor various physiological signals.

The study was conducted within the Organic Gas Sensors – Novel Structures, Electrical Parameters, Properties and Operation (project No. GA20-03913S, see Section 3.3). The paper was published in the journal Physical Chemistry Chemical Physics in 2022, and its citation feedback as of January 2025, according to WoS/SCOPUS, is 42/42. The present study is mainly cited in materials sciences and chemistry journals. However, as the citation analysis shows, the paper was selected to demonstrate its applicability in interdisciplinary fields, such as human-machine interfaces or prosthetics.

9) USB & Ethernet Embedded Readout Interface for Timepix3 – Katherine Readout for Timepix3

(prototype; [RIV/49777513.23220/20.43959481](https://riv.jinr.ru/handle/123456789/49777513.23220/20.43959481))

Katherine is a compact Ethernet-based readout device for the Timepix3 detector chip, developed by FEE and Czech Technical University in Prague in collaboration with [CERN's Medipix team](#). It allows Timepix3 – a pixel detector that records each particle hit's time-of-arrival (ToA) and energy via time-over-threshold (ToT) – to be deployed in demanding high-energy physics experiments. For example, at [CERN's ATLAS experiment](#), a Timepix3 sensor was installed inside the detector cavern while the Katherine readout stayed in a safe zone ~80 m away, connected by long cables.

Timepix3's unique capability to timestamp particle hits with 1.56 ns precision while measuring their energy enables advanced techniques like particle identification by energy deposition and time-of-flight measurements with synchronized detectors. Katherine makes these capabilities accessible for various applications ("one device – all tasks"). Its design supports operation up to 100 meters from the sensor – crucial for radiation environments – and handles data rates up to ~16 million hits per second over standard Gigabit Ethernet. It also includes an onboard ARM processor and built-in high-voltage bias supply, allowing standalone, remote deployments without specialized infrastructure.

Katherine has significantly extended the reach of Timepix3 detectors in research. In ATLAS, a network of Timepix devices instrumented with Katherine readouts has provided detailed radiation

maps and improved particle-type discrimination thanks to Timepix3's enhanced timing and energy resolution. The system ran reliably in the ATLAS cavern for months, demonstrating its robustness in harsh conditions. Beyond CERN, Katherine-based Timepix3 systems are being used in projects like the EU [MICADO project](#) for nuclear waste monitoring, where multiple detectors operate in concert via standard network protocols. It is used at the University of Geneva, the University of Glasgow or in [INFN](#) (Istituto Nazionale di Fisica Nucleare) in Italy, [DESY](#) (German Electron Synchrotron) in Germany, [CEA](#) (French Alternative Energies and Atomic Energy Commission) in France. Such applications underscore Katherine's importance in enabling precise, distributed particle detection across fundamental and applied physics.

10) agros: open-source software for multi-physics simulation

(open-source software; www.agros2d.org)

[Agros](#) (formerly Agros2D) is an open-source software package that simulates and analyses physical fields, including electromagnetic, thermal, and mechanical phenomena. The software offers a versatile and intuitive graphical user interface (GUI) and supports multi-physics simulations, making it a valuable tool for academic research and industrial applications. The development of the agros started at FEE in 2010, and the expert community has received the project well, as evidenced by more than 60,000 unique accesses in 119 countries. The software development is mostly paid for from FEE's own resources. The agros software was selected to demonstrate the long-term and global impact of the R&D&I activity at FEE in science and engineering.

Analysis of published scientific papers reveals a wide range of applications, with the majority focusing on electrostatic and magnetic field simulations. Notable uses include designing electrode shapes (DOI: [10.1088/2058-6272/ad0d4a](#)) or optimizing gas monitoring chamber configurations (DOI: [10.1088/1748-0221/16/08/P08030](#)) or studying the behaviour within magneto-electrostatic traps (DOI: [10.1063/5.0062607](#)). Beyond electrostatics and magnetics, agros has supported specialized applications in structural mechanics. As cited publications show, essential research institutions also use the agros. There are probably two reasons for this: sufficient functionality in open-source software and simplicity of specification and problem-solving.

In the last five years (2019 - 2023), there has been a significant refactoring of the code, which has allowed the addition of new features, such as a direct algebraic equation solver and iterative algebraic multigrid, fully parametric model building, an optimization tool that implements deterministic and stochastic methods, and methods based on Bayesian approaches. The framework has been extended with a standalone Python wrapper for machine-learning techniques and server applications.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ⁶	Year of application	Name
Prototype	2019	Electrostatic plastic separator from industrial waste
Patent	2019	Method for inactivating microorganisms in machining emulsions and equipment for carrying out this method
Prototype	2019	Information panel with dual e-ink display and backup power supply
Prototype	2019	Hardware for the PilsCube satellite particle detector module
Prototype	2019	Optimized prototype of controlled actuator for selected hydraulic and pneumatic systems
Patent	2019	Security card and authentication method
Prototype	2019	Functional sample of a modern full-power rail vehicle drive unit

Prototype	2019	Functional sample of a power supply with inductive coupling
Verified technology	2019	Ground fault compensation equipment 22/0.4 kV 1.35 MVA
Utility model	2020	Surface switching sensor for pressure change detection and a sensor system using this sensor
Utility model	2020	Protective glove assembly for explosive gas concentration monitoring and its field calibration system
Verified technology	2020	System for detecting the prescribed maintenance regime for textiles
Prototype	2020	Control algorithms for selected railway equipment to ensure their optimal integration into the power supply network
Prototype	2020	Functional sample of a modern charging station for electric vehicles
Prototype	2020	Vehicle powertrain diagnostic system and vehicle control in critical fault conditions
Report	2020	NET Robotics Data Analyzer
Utility model	2020	Burnout absorber for nuclear reactor
Verified technology	2020	Network identification using current injection
Patent	2020	Peristaltic pump with magnetoelastic drive
Utility model	2020	Power electronic module with integrated temperature sensor
Patent	2020	Protective glove, especially for firefighters
Utility model	2020	Equipment for testing protective clothing
Software	2020	THERMAL TECHNOLOGY 2D
Prototype	2021	High-speed control system for energy applications
Prototype	2021	RUMM: Universal microcontroller module for inverter control based on TMS320F2837x
Patent	2021	Compact drive unit for self-propelled vehicles
Verified technology	2021	Assembly operations for circuits on the TPC conductive system: die bonding of large area chips by sintering paste with silver nanoparticles at low temperatures
Verified technology	2021	Spliced intermittent composite construction technology
Patent	2021	Conductive flexible woven ribbon
Verified technology	2021	Deep drawing of shape-complex high-strength thermal insulation parts with local modification of technological properties
Verified technology	2021	Induction heating technology for special AHSS steels in the form of round bars
Patent	2021	Device for non-contact transfer of electrical energy to a rotating component
Prototype	2021	Protective firefighter's emergency suit with integrated early warning system against the risk of burns designed for explosive environments
Verified technology	2021	Advanced technology to integrate electronic components into smart textiles compliant with explosive environment standards
Utility model	2021	Neutron absorber
Verified technology	2021	Device for compensating for ground faults in isolated or ineffectively grounded distribution networks
Prototype	2021	Digital trigger module for particle detectors
Patent	2021	Method of manufacturing components from steels by quenching with temperature equalization to Ms temperature

Software	2022	desPMSM
Patent	2022	A method for detecting compliance with a prescribed chemical cleaning regime for functionalized protective textiles with finishes stable in chemical cleaning and unstable in washing, an identification element and a system for implementing the method
Prototype	2022	Code for the management of the data acquisition system in particle physics experiments
Patent	2022	A method of manufacturing hybrid components consisting of metallic material and glass heat sinks
Prototype	2022	Textile interlocking ribbon
Verified technology	2022	Validated technology for the production of metal fibre-based sensor yarns for tensile stress sensors
Prototype	2022	Multi-channel short light pulse generator for particle detector diagnostics
Patent	2022	Compact drive unit for traction vehicles
Patent	2022	Method of manufacturing a resistor for power applications
Prototype	2023	USB & Ethernet Embedded Readout Interface for Timepix3 - Katherine Readout for Timepix3 (Ultimate Edition)
Utility model	2023	Electric current sensor with integrated electronics
Patent	2023	Protective glove assembly for explosive gas concentration monitoring and its field calibration system
Prototype	2023	A prototype of an optimized ground fault compensation device ready for industrialization

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)⁶, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).⁷

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

The Faculty of Electrical Engineering (FEE) and the University of West Bohemia (UWB) have established a structured system for technology and knowledge transfer into practical applications. The process is described in [Directive No. 6D/2023](#) (Creative and additional activity) and [Directive No. 3D/2018](#) (Organizational regulations). The Research and Innovation Centre Electrical Engineering (RICE) plays a key role in this process at FEE, which bridges academia and industry. The Department of Sale and Transfer at RICE (established during the period under the review) facilitates communication between individual researchers and industrial partners and coordinates all transfer-related processes (intellectual property protection, agreements on the use of results, licensing, etc.) with the central Department of Knowledge Transfer and Contract Research (TSV) at UWB and identifies new opportunities. The department also analyzes the requirements of the application sphere through the network of active industrial partners.

Since 2013, UWB has been implementing commercialization through TSV, which consists of experts in intellectual property protection, knowledge transfer, and marketing. The entire commercialization process follows Directive 33R/2018 (Protection of Intellectual Property and Knowledge Transfer), which ensures a systematic approach to innovation exploitation. The FEE implements commercialization processes by [Directive No. 6D/2023](#). It defines research data by considering open science principles, intellectual property (IP) protection processes, technology transfer, and know-how, including establishing spin-off companies and project management.

The FEE collaborates with large industrial partners and SMEs (often technological start-ups). The primary form of technology transfer is a contract for using the results, and the primary form of know-how transfer is contract research or additional activities (activities that do not require direct research and development, such as knowledge transfer, consultancy and advisory services, preparation of expert reports, etc.). In the period under review, FEE cooperates with more than 150 partners (of which more than 30 are foreign) and handled the projects in a total volume of

⁶ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

⁷ If the commercialisation of R&D&I results is carried out in this way.

EUR 3.6 million (91,785,460 CZK) of which from contract research EUR 3.1 mil. (78,693,060 CZK) and from revenue from additional activities EUR 516,465 (13,092,400 CZK).

Based on recommendations from the previous MEP evaluation, FEE actively manages its intellectual property and introduces strategic changes (establishment of the Department of Sale and Transfer at RICE and introduction of [Directive No. 6D/2023](#)). A key strategic goal for 2021–2025 was to “apply the results of creative activity, especially in cooperation with strategic application partners, including the public sector, and promote the extensive bi-directional transfer of knowledge and whole technologies”. Between 2020 and 2023, FEE revenues from licensing fees increased, as shown in Table 3.5.1., reaching 50,750 EURO (1,286,500 CZK), and the trend has also been positive in 2024. Income from additional activities, training, and donations for R&D&I have doubled over the period under review, and non-public funding is close to 10% compared to public project funding.

To promote technology transfer, FEE presents research outcomes through:

- Industrial trade fairs (e.g., international trade fair [AMPER](#) for electrical engineering, [International Industrial Fair Brno](#), [PCIM](#) or [InnoTrans](#)).
- Expert databases, such as the [Transfera.cz](#), allow companies to find applicable technologies.
- Networking events in collaboration with international partners and social media.
- Participation in competitions and awards such as Transfera Technology Day focused on transferring results into practice.

The most typical FEE partners used for R&D&I results are listed below with short descriptions and example of commercialization:

1) Agreement on results utilization

(partner: a company cooperating in a long-term joint research project)

The agreement is the traditional form of putting the result of joint research into real-world application at FEE. It is the primary form of transfer of results achieved through joint research in publicly funded projects, especially projects from the Technology Agency of the Czech Republic. An example of the transfer based on the agreement can be the Sensor filament based on metallic fibres (prototype, utility model and verified technology RIV/49777513:23220/21:43963082) launched on the international market by company [VÚB a.s.](#) (beneficiary of project No. FV30051). The technology was launched under the trademark [CleverTex](#) in 2022. One of the main result customers is the Canadian company [MYANT](#), the world's leading textile-knitted sensors and actuators manufacturer. Another example is the production technology of aluminium nitride substrates (the result included among the selected FEE results is Section 3.4.), introduced in 2023 by [ELCERAM a.s.](#) in the form of a BLDC motor controller for professional RC models from [NITRIDE](#).

2) Collaborative industrial research

(partner: a company seeking unique FEE know-how or infrastructure in research)

FEE has built long-term strategic partnerships with industrial players such as [ŠKODA Group](#), [Siemens](#), [Mitsubishi Electric](#), [Schneider Electric](#), [Škoda Auto](#), [ČEZ](#), [ČEPS](#) or [Jabltron](#), but also small and medium-sized companies, as shows Table 3.3.2. These partnerships facilitate directly applying the R&D&I results through contract research and transfer know-how.

An example of the transfer based on contracted research can be the [PEVEKO Smart Valve](#) introduced in 2020 into the international market. FEE developed the complete electronic system for the product (HW/SW + control and communication algorithms) for long-term industrial partner [PEVEKO spol. s r.o.](#) in 2019. PEVEKO Smart Valve was introduced to serial production, and the first series consisted of 2000 pieces. Another example can be contracted research on power electronics converter control for central power supply systems developed for [ŠKODA ELECTRIC a.s.](#), which is currently used in the products of companies [Stadler Rail AG](#) and [Siemens AG](#).

3) IP licensing

(partners: a company using a technology developed at FEE)

FEE takes an active approach to IP exploitation through licenses. However, the changes introduced in the period under review will be noticeable in the long term. An example of a successful transfer based on IP licensing can be a license granted to the company [Kromek Group](#) for algorithms used in the Kathrine readout device, a license to sensorless pump control licensed by company [Jablotron alarms a.s.](#) or a license electronic unit for compressors to [Atmos Chrást s.r.o.](#). Transfer by license is currently underused at FEE, but FEE tries to actively support this form. In these cases, the license was granted to a third party who was not involved in the research and development.

4) Start-up and spin-off companies

(partners: a technology start-up or company founded by researchers or students at FEE)

While collaborative industrial research has predominantly been conducted through agreement on the results used, FEE is exploring the expansion of its spin-off ecosystem (establishing start-up companies or comprehensive transfer in the form of spin-off companies). Recent efforts have focused on developing an institutional framework to support start-up creation. The first start-up company founded at FEE was [nextdrop s.r.o.](#). The company was founded by PhD students in 2021 and focuses on digitalizing water systems. The company finished the HW development and certification in 2023 and entered the market in 2024. In 2025, it launched a joint research project focused on advanced water leak detection algorithms with the University of Chemical Technology. The company won the student award in the [Generali SME EnterPrize 2024](#) competition and second place in the [Transfera Technology Day 2024](#). Another example of technology and know-how transfer to small start-up companies is the center CAMAT (project No. [TN02000028](#), see Section 3.3), which actively seeks to connect small start-ups and industry leaders. Within the CAMAT center, the first spin-off company nextcycle s.r.o. was founded in 2023.

5) Industry-oriented training and consultancy

(partners: a company seeking unique FEE know-how)

FEE provides specialized training programs, workshops, and consultancy services to industrial partners, ensuring that new technologies are effectively implemented and optimized in real-world applications. An example of the transfer based on training can be Comprehensive training on power electronics technologies used in the field of electromobility for [ZF Engineering Plzeň s.r.o.](#).

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Additional (complementary) activities	1,773/ 69,937	1,571/ 61,953	3,045/ 120,099	2,773/ 109,396	3,931/ 155,081
Knowledge transfer (training)	97/ 3,842	100/ 3,945	26/ 1,006	173/ 6,821	278/ 10,974
IP licenses (third party license only)		255/ 10,059	165/ 6,509	175/ 6,903	692/ 27,278
Donations (for R&D&I only)	225/ 8,876	205/ 8,087	425/ 16,765	248/ 9,763	70/ 2,761
Total	2,095/ 82,655	2,131/ 84,043	3,660/ 144,379	3,369/ 132,884	4,971/ 196,095

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

The Faculty of Electrical Engineering (FEE) at the University of West Bohemia (UWB) prioritizes science communication and outreach as part of its strategy. A key strategic goal for 2021–2025 is to “build an effective system for promoting and popularizing the results of creative activities towards the public”. This commitment is reflected in numerous initiatives that open FEE’s research and technology to non-specialist audiences. FEE try to engage people of all ages – from school children to the general public – through interactive demonstrations, educational programs, and media showcasing its innovations. FEE emphasizes openness, encouraging knowledge transfer to industry, academia, and the broader community. By doing so, FEE strengthens public understanding of electrical engineering and inspires future engineers and scientists.

FEE plays an active role in science popularization at regional, national, and international levels. Regionally, it collaborates with the Pilsen region and local schools to make technology accessible. FEE has formal partnerships with more than 20 secondary schools. It has expanded outreach programs like the JuniorFEL and ScienceFEL into towns across the region and runs teacher workshops to spread expertise in physics and engineering. These efforts nurture local talent and interest in STEM fields. On the national stage, FEE contributes to high-profile science festivals and competitions. It is a core participant in nationwide events such as [Veletrh vědy](#) or [VědaFest](#) (science fairs) in Prague or [Dny vědy a techniky](#) and [We innovate Pilsen](#) (science, technology and innovation fairs) in Pilsen, which draw thousands of visitors. At these events, FEE researchers and students present hands-on exhibits. FEE’s outreach has an international dimension as well. It embraces Europe-wide initiatives – for example, coordinating the Pilsen program of the [European Researchers’ Night](#) or active participation in international science fairs, for example, [We Make Future](#) in Italy or [ScienceSlam!](#) in Germany. FEE extends its public engagement impact beyond the region by engaging in these multinational events and sharing content online.

The second place in the Český VŠEVĚD (Czech SCIENCE GUY) competition for Dr. František Mach can also demonstrate FEE’s activities in the field of communication. This competition is traditionally organized as part of the [European Researchers’ Night](#) and is attended by academics, students and popularizers across the Czech Republic.

Within its activities in the popularization of R&D&I and communication with the public, FEE offers several results that are not only related to public events. It also provides an educational kit and opens laboratories for collaboration beyond FEE. These selected activities are listed below:

1) JuniorFEL (summer tech university for children)

FEE runs [JuniorFEL](#) (in Czech only) to inspire the next generation of engineers, a week-long summer university tailored for children. Every August since 2007, FEE has hosted pupils (typically 5th–9th graders) for five days of immersive activities on campus. JuniorFEL introduces kids to the secrets of electrical engineering and electronics through playful, age-appropriate projects. Participants spend whole days in FEE’s labs building simple devices, playing with robotics kits, and conducting experiments under the guidance of faculty and students. For example, they might learn how to

solder electronic components, design a fundamental smart textile, or program LEGO robots to navigate a maze. The program even includes a mock graduation ceremony to celebrate the graduates of this summer university. JuniorFEL's popularity has grown steadily – by 2019, it was attracting its 13th cohort, and it continued (with adaptations for any public health restrictions) through 2023 and beyond. By engaging children at an early age, FEE nurtures their interest in science and builds a positive public image of technology as accessible and fun. Many JuniorFEL alums remain connected, often returning as high schoolers for FEE's other programs or eventually enrolling as engineering students – a testament to the lasting impact of this outreach initiative.

2) **ScienceFEL** (academy for high school students)

FEE extended JuniorFEL for older students through an initiative called ScienceFEL (or Science FEL Academy). First organized in 2019, ScienceFEL is a week-long research camp hosted by FEE for top science students from regional high schools. FEE invites a select group of motivated 17–19-year-olds interested in electrical engineering to spend a week on campus immersed in actual research activities. During the academy, these students work closely with FEE researchers – they tour advanced laboratories, operate professional equipment, and even assist in ongoing experiments or development projects. The goal is to offer active involvement in the scientific work of FEE to talented youth. For example, participants might help build a simple Internet-of-Things device, analyze sensor data, or prototype an electronic gadget under mentorship. This intensive experience gives high schoolers a taste of university-level research and innovation. ScienceFEL has been very well received and has continued with annual iterations. By investing in these young electro-tech enthusiasts, FEE strengthens the pipeline of future researchers and fosters a community of ambassadors who share their excitement for science with peers. ScienceFEL exemplifies the faculty-led approach to nurture talent locally while popularizing science as a creative, collaborative endeavour.

3) **EduPix** (educational kit for nuclear physics)

[EDUPix](#) is a laboratory demonstration kit developed at the FEE that uses the Timepix pixel detector. The EDUPix kit contains the FITPix Lite ionizing radiation detector, safe radiation sources (americium, uranium glass, tungsten electrode with thorium), an adjustable experimental bench, various shielding plates, a USB flash drive with FELix software and instructions with exercises for students. The kit was created by the staff of the RICE (Regional Innovation Centre of Electrical Engineering) of the Faculty of Electrical Engineering, ZČU, and the FITPix Lite detector was created thanks to their cooperation with the Institute of Technical and Experimental Physics (ÚTEF) of the Czech Technical University in Prague. The device uses technology developed by the European Organization for Nuclear Research (CERN) laboratories. The software allows offline mode, fundamental cluster analysis, energy measurement and particle identification. In cooperation with the Faculty of Education of the UWB, researchers at the RICE and FEE developed the kits, and the kit includes worksheets with tasks for students that support practical education in particle detection and nuclear physics. They will make physics more attractive for pupils, teachers and future teachers.

4) **Makerspace** (workshop and laboratory open to all)

[Makerspace](#) at FEE is an open laboratory and workshop for a community of enthusiasts associating with students and academics who want to create and implement their ideas. It gives them space and tools to work on projects, whether a do-nothing machine or new technology that will change the world. Students can work on their semester, diploma, or bachelor's theses in Makerspace but on their projects. At the same time, they can learn from their older colleagues, developers, and researchers FEL and RICE. A workshop provides a high-quality background for implementing the mechanical part of projects (large-area laser plotter, a three-axis CNC milling machine, and 3D printers). What makes Makerspace exceptional is the electrical workshop, where students will find

professional laboratory instruments (oscilloscopes, generators, power supplies, and more), tools, and computer technology with the necessary software (Altium MATLAB, Ansys, SolidWorks, AutoCAD, and others). The *Makerspace* is not only for FEE students, but students from across UWB can work here, and it is also open and actively offered to students from other schools, primarily secondary schools in Pilsen and its surroundings.

5) **European Researchers' Night** (Noc vědců)

One traditional popularization event is FEE's annual involvement in [European Researchers' Night](#) (Noc vědců in Czech), a Europe-wide night of science held each autumn. As part of UWB's campus-wide program, FEE transforms its foyer into an interactive laboratory. For example, in 2019, FEE invited visitors into its anechoic chamber to experience unique sound experiments. Outside the building, crowds gathered around "KapFELa," a robotic student-built band from FEE that played rock songs via programmed instruments. Faculty staff and students also prepared exhibits on the history of energy systems – from steam engines to modern solar and hydrogen technologies – allowing the public to see and touch engineering advancements up close. During the COVID-19 pandemic in 2020, UWB adapted Noc vědců to a digital format, live-streaming experiments and talks to thousands of online viewers. Through Noc vědců, FEE consistently delivers fun, hands-on science to families, youth, and adults, breaking down the barriers between researchers and the community.

6) **Dny vědy a techniky** (science and technology faire in Pilsen)

FEE is a key contributor to Pilsen's annual Science and Technology Day in Pilsen, a public science festival held in the city centre. This day-long fair, co-organized by UWB and the city, features dozens of interactive booths that turn downtown Pilsen into a "playground" of experiments. FEE's exhibits are designed to spark curiosity, especially among school children. In 2022, for instance, FEE let visitors pilot a virtual reality paraglider simulator, giving kids a thrilling hands-on lesson in flight physics. Another FEE attraction that year was a demo of magnetic elastomers showcasing "soft robotics" – a robot gripper made from a flexible magnetic composite that mimics the gentle touch of a human hand. These engaging demonstrations playfully highlight real engineering challenges (like delicate robotic manipulation). Faire consistently draws entire elementary and high school students' classes, and FEE's stations are among the most popular. By bringing science to the public square, FEE helps make technical knowledge visible and exciting in the community.

7) **We innovate Pilsen** (technology and innovation faire in Pilsen)

Demonstrating its outreach in innovation, FEE has actively participated in the [We innovate Pilsen](#) – the region's annual gathering of innovative companies, startups, and educational institutions. This event typically features an exhibition fair and talks for professionals and the general public. FEE uses this platform to present some of its most exciting research prototypes and student projects to the community. For example, PhD students founded the startup [nextdrop s.r.o.](#) was presented, allowing visitors to see university innovation up close. Such engagement popularises science and highlights FEE's contributions to regional development and industry. Notably, outstanding FEE students have been recognized for their role in these events. Through innovation fairs like I We innovate Pilsen, FEE connects with the public and business community, demonstrating how academic research translates into real-world solutions and an exciting technological future.

8) **Regional tech camps** (Klatovy and Tachov)

Expanding its reach beyond Pilsen, the FEE and UWB launched regional tech camps for kids in smaller West Bohemian towns. A prime example is the Children's Autumn School in Klatovy, first held in October 2023. This two-day camp, organized by FEE in cooperation with the Klatovy Industrial High School and supported by the Pilsen Region, brought the fun of JuniorFEL directly to

local youth. Dozens of 5th to 9th-grade pupils spent their fall break in hands-on workshops covering basic electronics and interesting phenomena. They built projects like an “electronic paper plane,” discovered “what smart clothing is,” experimented with making a battery from fruit and even measured sound waves. All sessions were led in an accessible, playful form by FEE instructors. The camp aims to show kids that tech fields can be fun and approachable – and to do so right in their hometown. These collaborations with local schools and the regional government help reach rural youth who might not otherwise access university-led science programs.

9) Interactive Open Days at FEE

Throughout 2019–2023, FEE has kept its doors open to the public via interactive open-house days and exhibitions. The open days are primarily aimed at prospective students as science outreach events where visitors of any background can explore labs and talk to researchers. FEE ensures these days are lively and interactive – attendees can witness demonstrations of a high-voltage laboratory, view student projects in progress or try new electric vehicle prototypes. Visitors often include prospective students' parents, teachers, and younger siblings, effectively broadening the audience. FEE also partakes in multi-faculty exhibitions such as the [Shaping Pilsen](#) (see [FEE microsite](#)) showcase, where all UWB faculties present their work to the city community. In such settings, FEE's booth might display research projects to catch the public's eye. These face-to-face interactions allow faculty members and students to communicate their research in relatable terms, answer questions, and inspire onlookers to learn more about electrical engineering. The consistent presence of FEE at these public-facing events underscores its philosophy that modern technical faculty should be transparent and engaging to society. By demystifying its work in friendly, informal environments, FEE strengthens public trust in science and stimulates enthusiasm for technological education.

10) Social media

In recent years, FEE has enhanced its digital outreach through various platforms, ensuring broader engagement with diverse audiences. Facebook and Instagram pages provide real-time updates on research projects, events, and student activities. FEE does not only use its official channels but also separate channels such as "Robotika FEL ZČU" and "Makerspace FEL ZČU". The official YouTube channel of the FEE features research presentations, virtual lab tours, and interviews with leading scientists. For example, the videos of external experts such as Slavomir Entler (traditional spring lecture "[Nuclear fusion, the future of energy](#)") or chair of the State Office for Nuclear Safety Dana Drábová (annual winter lecture "[Nuclear energy in the service of people](#)") have attracted attention thousands of views. Also, video series about the basics of electrical engineering or electric machines are very popular with students across the Czech Republic.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

The Faculty of Electrical Engineering (FEE) has actively addressed the recommendations from the MEP 2020 evaluation. Below is an assessment of the key recommendations and their implementation.

Strengthening industrial collaborations and addressing societal challenges

FEE has developed a structured approach to fostering long-term partnerships with industry. The key initiatives include:

- Active involvement in international initiatives: FEE actively contributes to initiatives of the European Green Deal through the research within academia-industry R&D&I centres (CANUT, CAMAT, NCE, BOVENAC, NAHYC and FEIM) and the European Chip Act through newly started project HiPower 5.0 (HORIZON-JU-Chips-2024-2-RIA-T1) and active participation in [Czech National Semiconductor Cluster](#).
- In the last five years, FEE has strengthened projects obtained from Horizon Europe: 1 x Chips JU (2024), 1 x EURATOM and 3 x MSCA (Marie Skłodowska-Curie Actions).
- Formalizing industry partnerships: FEE has signed new long-term cooperation agreements with [key industrial partners](#) ensuring stability and continuity in joint research projects. Following this activity, the FEE signed a memorandum with academic partners (such as [CPES at Virginia Tech](#)) and several bilateral contracts with universities (such as double degrees in PhD with [ESIEE Paris](#)).
- Enhancing the role of RICE: The Department of Sale and Transfer has established as a technology transfer hub, ensuring the effective implementation of applied research into industrial solutions. The requirements of the application sphere are periodically analyzed.
- Active support for academic discussion on current R&D&I topics: FEE is one of the founding members and has hosted periodical seminars on machine learning and artificial intelligence ([AI Tea Talks](#)) since 2023. In 2024, FEE also introduced the lecture series [Science & Engineering Lectures](#).

These measures have significantly increased contract research projects and co-funded initiatives, demonstrating FEE's growing impact on industrial innovation. The cumulative volume of contract research and additional (complementary) activities for the period under review amounts to EUR 3.6 million. (91,785,460 CZK), in contrast to the previous reporting period EUR 2.4 mil. (60,437,036 CZK), which represents an increase of almost 50%.

Promoting gender balance among staff and students

Recognizing the underrepresentation of women in technical disciplines, FEE has implemented several initiatives to promote gender balance:

- Developing a faculty EDI policy: FEE has significantly contributed to developing the [Gender Equality Plan of the UWB](#) and subscribes to its content. A [plan has been adopted](#), setting measurable targets for improving gender diversity.
- HR Award Confirmation: FEE obtained an [HR Excellence in Research Award](#) in 2018. The European Commission awards this award and confirms the proper strategy and human resources management setting. An [interim self-assessment](#) of the current implementation of

the action plan took place in the autumn of 2020, and in February 2021, it was award confirmed.

- Active involvement in international initiatives: FEE actively participates in two COST projects - [Making Early Career Investigators' Voices Heard for Gender Equality](#) (VOICES) and [European Network For Gender Balance in Informatics](#) (EUGAIN).
- Promotion of women in technical sciences: FEE tries to present students who have achieved valuable results to promote its study programs and research. An example is [Shaping the future](#) campaign launched in 2024, showcasing FEE student Michaela Radouchová, who is part of the campaign for PhD studies.

These efforts have contributed to increasing the portion of women in FEE's research, education and administrative staff to almost 20 % in the year 2023 (the portion was 15 % in the previous evaluation period). However, the number of female students in technical fields, particularly electrical engineering, has been relatively low for a long time, and the number of female students in the last 5 years was approximately 5 %.

Enhancing institutional support for intellectual property and technology transfer

To improve the protection and commercialization of research outcomes, FEE has strengthened its intellectual property (IP) management framework through the following actions:

- The legislative base for transfer: The FEE implements IP, transfer and commercialization processes into [Directive No. 6D/2023](#) (Creative and additional activity). The directive defines research data by considering open science principles, IP protection processes, technology transfer, and know-how.
- IP training and workshops: [FEE Doctoral School](#) was introduced in 2023 (the school is defined in [Directive No. 2D/2019](#)), which aims to provide systematic and sustainable doctoral education through a series of joint courses and workshops focused on the core competencies of young researchers. One of the regular workshops is focused on IP and transfer and describes the issue in detail with discussion and examples from FEE.
- Increased Technology Licensing: The number of licensed technologies has risen, with several results successfully commercialized through industrial partnerships, however, the changes introduced in the period under review will be noticeable in the long term.

These measures have improved FEE's role in knowledge transfer and its economic impact. In the period under review, the total income from additional activities, training, licenses and donations for R&D&I have doubled over the period under review, and total non-public funding (with contracted research included) is close to 10% compared to public project funding.

Developing a stronger spin-off and commercialization ecosystem

Acknowledging the need for a robust entrepreneurial environment, FEE has introduced measures to support spin-off companies and commercialization activities:

- Legislative base for spin-offs: FEE explicitly prioritized spin-off as part of its strategy. A key strategic goal for 2021–2025 is to “create processes, standards, and conditions for the creation of start-up and spin off companies.”. The FEE implements processes for founding spin-off companies into [Directive No. 6D/2023](#) (Creative and additional activity). The directive defines the process of establishing spin-off companies and provides legal documents. The first spin-off company of FEE, nextcycle s.r.o., was founded as pilot in 2023.
- Industry collaboration for startups: FEE actively connects startups with academic and industrial partners to facilitate market entry and scaling opportunities. FEE has formed the centre CAMAT (see Section 3.3), which transfers knowledge and technology between universities, well-established companies, and startups. This project has been running since 2023 and has attracted progressive companies from the fields of aviation and agriculture.

These efforts have led to successfully establishing the legislative framework for FEE for start-up and spin-off companies. One start-up project and one spin-off were created as part of the process piloting. The start-up, [nextdrop s.r.o.](#), has already entered the market and nextcycle s.r.o. has licensed technology from FEE in 2024 and [received funding under the CzechInvest](#) (programme Technical Incubation).

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Introductory information about the unit under evaluation		
Statutes of the Faculty of the Electrical Engineering of the University of West Bohemia	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=5e3cc179-b313-4103-9af5-536cf32e227e;1.1&download=0
Directive No. 3D/2018 Organizational regulations of the Faculty of Electrical Engineering of the University of West Bohemia	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=e77fd8de-e55b-4d28-9116-90c61a0f5f21;2.1&download=0
Directive 7D/2020 Career development regulations of the Electrical Engineering of the University of West Bohemia	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=d9983c92-0ab1-4004-87ec-ef9e4e4c1f09;1.3&download=0
Decree No. 5D/2024 - Details concerning proceeding in the Habilitation and Professor Appointment Procedures	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=b2cc0092-f709-48dd-a484-25af8125f50e;1.0&download=0
Dean's Directive No.6D/2023 - Creative and additional activity	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=f94ff442-1c65-4dd9-8e17-a0fb6b560abb;1.0&download=0
Directive No. 1D/2020 - Internal risk management system	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=3ff57fc7-1d48-4538-afc6-c21da1cb1eca;1.0&download=0
Strategic plan of the Faculty of the Electrical Engineering of the University of West Bohemia for the period 2021 - 2025	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=199e9365-0415-4971-b018-a3e77e17e79a;1.0&download=0
Strategic plan of the Faculty of Electrical Engineering of the University of West Bohemia for the period 2016-2020	3.1	https://marowit.civ.zcu.cz/api/alfresco?id=03e2a639-c834-45ff-a131-97b2e05dd7b7;1.0&download=0
Recognition by the research community		
Industry partners of the Faculty of Electrical Engineering of the University of West Bohemia	3.2	https://www.rice.zcu.cz/en/About/Important_partners.html
National Semiconductor Strategy of Czech Republic	3.2	https://mpo.gov.cz/assets/cz/prumysl/zpracovatelsky-prumysl/2024/12/National-Semiconductor-Strategy-CZ.docx
Alliance of Electrical Engineering and IT Faculties aims to boost field interest and innovation	3.2	https://info.zcu.cz/Alliance-of-Electrical-Engineering-and-IT-Faculties-aims-to-boost-field-interest-and-innovation/clanek.jsp?id=6568
To increase interest in the electrical and IT fields and collaboration on innovation. The new alliance of electrical engineering and IT faculties has clear objectives	3.2	https://aktualne.cvut.cz/en/reports/20240521-to-increase-interest-in-the-electrical-and-it-fields-and-collaboration-on

Electrical Engineering and Computer Science faculties of technical universities in the Czech and Slovak Republics establish a joint alliance	3.2	https://fel.cvut.cz/en/what-s-on/news/32098-electrical-engineering-and-computer-science-faculties-of-technical-universities-in-the-czech-and-slovak-republics-establish-a-joint-alliance
And the winners of the Creative Heroes Award Czech Republic 2024 are...	3.2	https://cenakreativnichhrdinu.cz/wp-content/uploads/2024/10/20241018_NCCC-Creative-Heroes-Award-2024-Press-release-Winners.pdf
The Vice Dean for Science of FEL UWB received the Creative Heroes Award in the category 1:1,000,000		https://info.zcu.cz/clanek.jsp?id=7283
Student Fakulty elektrotechnické získal prestižní Cenu Becquerel za jaderný výzkum (in Czech only)	3.2	https://info.zcu.cz/clanek.jsp?id=2984
Student Martin Vítek získal Cenu Josefa Hlávky. Věnuje se miniaturním robotům a také vyučuje (in Czech only)	3.2	https://info.zcu.cz/clanek.jsp?id=3980
CEIDP YP Best Paper Award Winners' Experiences	3.2	https://ieeedeis.org/2024/04/ceidp-yp-best-paper-award-winners-experiences/
Ground fault compensation device wins Golden Amper	3.2	https://info.zcu.cz/clanek.jsp?id=4523
Magnetic Pump from the Faculty of Electrical Engineering Wins at Transfera Technology Day	3.2	https://info.zcu.cz/clanek.jsp?id=5012
Magnetically controlled microfluidic pump (in Czech only)	3.2	https://portfolio.transfera.cz/en/technology-overview/detail/130/
Výzkumníci FEL získali ocenění Best Paper Award na konferenci ELEKTRO 2020 (in Czech only)	3.2	https://info.zcu.cz/clanek.jsp?id=2938
Best Papers and Star Reviewers (IEEE Transactions on Energy Conversion)	3.2	https://doi.org/10.1109/TEC.2023.3330660
Conferences and seminars organised by FEE	3.2	https://www.fel.zcu.cz/en/Research/conferences.html
European Seminar on Computing (ESCO)	3.2	https://esco2024.femhub.com/
International Conference on Diagnostics in Electrical Engineering (CDEE)	3.2	https://diagnostika.zcu.cz/
International Conference on Applied Electronics (APPEL)	3.2	https://www.appel.zcu.cz/
Research projects		
Center for advanced machines and manufacturing technology (CAMAT)	3.3	https://starfos.tacr.cz/en/projekty/TN02000028
Center for Intelligent Drives and Advanced Machine Control (CIDAM)	3.3	https://starfos.tacr.cz/en/projekty/TE02000103
National Centre for Energy	3.3	https://nce.vsb.cz/en
National Centre for Energy (NCE)	3.3	https://starfos.tacr.cz/en/projekty/TN01000007
National Centre for Energy II (NCE II)	3.3	https://starfos.tacr.cz/en/projekty/TN02000025
Centre for Advanced Nuclear Technologies (CANUT)	3.3	https://starfos.tacr.cz/en/projekty/TE01020455
Centre for Advanced Nuclear Technologies II (CANUT II)	3.3	https://starfos.tacr.cz/en/projekty/TN02000012

New generation of traction drive unit for railway vehicles	3.3	https://starfos.tacr.cz/en/projekty/FV10310
Electromagnetic valves with high degree of embedded intelligence	3.3	https://starfos.tacr.cz/en/projekty/TH04010270
Advanced Ceramic Materials and Technologies for Power Electronics	3.3	https://starfos.tacr.cz/en/projekty/FW01010067
NoMaTex: New materials, technologies and textile electronic components for smart textiles	3.3	https://starfos.tacr.cz/en/projekty/FV30051
Organic gas sensors – novel structures, electrical parameters, properties and operation	3.3	https://starfos.tacr.cz/en/projekty/GA20-03913S
Research infrastructure for experiments at CERN	3.3	https://starfos.tacr.cz/en/projekty/LM2023040
Measurement of Anomalies in the Angular Correlation of Electron and Positron Internally Produced in Excited 8Be and 4He	3.3	https://starfos.tacr.cz/en/projekty/GA21-21801S
Seeing the Unseen: The Story of a Czech Scientist at CERN	3.3	https://info.zcu.cz/Seeing-the-Unseen--The-Story-of-a-Czech-Scientist-at-CERN/clanek.jsp?id=7626
Measurement of anomalies in angular correlation of electron and positron internally produced in excited 8Be and 4He	3.3	https://starfos.tacr.cz/en/projekty/GA21-21801S
ENEN2plus: Integrative education and training for European nuclear specialists	3.3	https://cordis.europa.eu/project/id/101061677
PILSMR – the Pilsen International SMR Workshop	3.3	https://enen.eu/index.php/2023/08/01/pilsmr-the-pilsen-international-smr-workshop/
Research results with existing or prospective impact on society		
Apparatus for earth fault compensation in distribution power grids with insulated or high-impedance grounded neutral	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23220%2F20%3A43961292
Ground fault compensation device wins Golden Amper	3.4	https://info.zcu.cz/clanek.jsp?id=4523
Prototype of modified distribution transformer	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23220%2F23%3A43968705
Compact drive unit for traction vehicles	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23220%2F22%3A43967894
Electromagnetic coaxial valve	3.4	https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2024255937
Fully electromagnetic valve (Transfera.cz)	3.4	https://portfolio.transfera.cz/en/technology-overview/detail/247/
The FEE research team led by František Mach took home the bronze from Transfera Technology Day 2023	3.4	https://info-test.zcu.cz/How-to-Take-Advantage-of-AI-in-the-Educational-Process-at-University/clanek.jsp?id=5920
Study of copper thick film metallization on aluminum nitride	3.4	https://doi.org/10.1016/j.scriptamat.2019.09.029
Production technology of aluminium nitride substrates	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23220%2F21%3A43966575
Conductive elastic woven fabric, in particular, conductive elastic woven ribbon	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23220%2F20%3A43960873
Raman spectroscopy and DFT calculations of PEDOT:PSS in a dipolar field	3.4	https://doi.org/10.1039/D1CP03899K

USB & Ethernet Embedded Readout Interface for Timepix3 – Katherine Readout for Timepix3 (Ultimate Edition)	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F4977513%3A23220%2F20%3A43959481
Katherine - Timepix3 readout	3.4	https://www.rice.zcu.cz/en/Offers/products/Katherine.html
MICADO project	3.4	https://www.micado-project.eu/
agros: open-source software for multi-physics simulation	3.4	https://www.agros2d.org
Transfer of results into practice		
Dean's Directive No.6D/2023 - Creative and additional activity	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=f94ff442-1c65-4dd9-8e17-a0fb6b560abb;1.0&download=0
Directive No. 3D/2018 - Organizational regulations of the Faculty of Electrical Engineering of the University of West Bohemia	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=e77fd8de-e55b-4d28-9116-90c61a0f5f21;2.1&download=0
Dean's Decree No. 5D/2024 - Details concerning proceeding in the Habilitation and Professor Appointment Procedures	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=b2cc0092-f709-48dd-a484-25af8125f50e;1.0&download=0
Dean's Directive No. 6D/2020 - Handling of classified information	3.5	https://marowit.civ.zcu.cz/api/alfresco?id=fdea302d-82ed-4501-b03c-7fe8b8515494;1.0&download=0
The most important activities in the field of popularization of R&D&I and communication with the public		
JuniorFEL (in Czech only)	3.6	https://www.juniorfel.zcu.cz/
Mladí technologičtí nadšenci prezentovali své projekty na závěrečné konferenci ScienceFEL Academy (in Czech only)	3.6	https://info.zcu.cz/clanek.jsp?id=5973
Popularizační Český vševěd ve finále: Kdo se dostal mezi šestici finalistů (in Czech only)	3.6	https://www.universitas.cz/osobnosti/9230-popularizacni-cesky-vseved-je-ve-finale-kdo-se-predvede-v-brnenske-scale
František Mach je druhý nejlepší Český VŠEVĚD (in Czech only)	3.6	https://info.zcu.cz/clanek.jsp?id=4693
EDUPix: Education laboratory set with Timepix particle detector	3.6	https://www.rice.zcu.cz/en/Offers/products/Edupix.html
Výukové sady EDUPix ze Západočeské univerzity pomohou zatriaktivnit fyziku na gymnáziích v kraji (in Czech only)	3.6	https://info.zcu.cz/clanek.jsp?id=1795
Makerspace FEL	3.6	https://www.fel.zcu.cz/en/Students/makerspace.html
We innovate Pilsen	3.6	https://www.inovujemeplzen.cz/en/
Shaping Pilsen since 1948	3.6	https://formujemeplzen.zcu.cz/en/
FEE microsite at Shaping Pilsen	3.6	https://formujemeplzen.zcu.cz/en/fee/
Interactive Open Houses and Exhibitions	3.6	https://www.fel.zcu.cz/en/Admission/Bachelor-studies/open_day.html
Instagram channel "Makerspace at FEE UWB" (in Czech only)	3.6	https://www.instagram.com/makerspace_fel_zcu/ https://www.facebook.com/makerspace.fel.zcu/
Instagram channel "Robotics at FEE UWB" (in Czech only)	3.6	https://www.instagram.com/robotika_fel_zcu/ https://www.facebook.com/labrobotiky/
YouTube channel of the FEE UWB (in Czech only)	3.6	https://www.youtube.com/@felzcu

Implementation of the recommendations in Module 3		
Czech National Semiconductor Cluster	3.7	https://www.semicz.cz/
Industry partners of the Faculty of Electrical Engineering of the University of West Bohemia	3.7	https://www.rice.zcu.cz/en/About/Important_partners.html
AI Tea Talks	3.7	https://ai.zcu.cz/
Science & Engineering Lectures	3.7	https://www.fel.zcu.cz/en/Research/Prednasky-veda-a-technologie
Equal Opportunities Plan of the University of West Bohemia	3.7	https://www.zcu.cz/en/University/Career/equal_opportunities.html
Equal Opportunity Policy of the Faculty of Electrical Engineering of the University of West Bohemia	3.7	https://www.fel.zcu.cz/en/Faculty/hr.html#tabs-EqualOpportunityPolicy
Making Early Career Investigators' Voices Heard for Gender Equality (VOICES)	3.7	https://www.cost.eu/actions/CA20137/
European Network For Gender Balance in Informatics (EUGAIN)	3.7	https://www.cost.eu/actions/CA19122/
EUGAIN European Network For Gender Balance in Informatics	3.7	https://eugain.eu/
Dean's Directive No.6D/2023 - Creative and additional activity	3.7	https://marowit.civ.zcu.cz/api/alfresco?id=f94ff442-1c65-4dd9-8e17-a0fb6b560abb;1.0&download=0
FEE Doctoral School	3.7	https://www.fel.zcu.cz/en/Students/PhD/Doktorska-skola
Dean's Directive No.2D/2019 On the implementation of the doctoral study programme	3.7	https://marowit.civ.zcu.cz/api/alfresco?id=5cb241c2-74bc-494f-ae15-4f6e3389a054;3.0&download=0
nextdrop s.r.o.	3.7	https://nextdrop.eu/en/
nextcycle s.r.o. (in Czech only)	3.7	https://or.justice.cz/ias/ui/rejstrik-firma.vysledky?subjektId=1224078&typ=PLATNY
Electrostatic separator (Technology Incubation project CzechInvest)	3.7	https://technologickainkubace.org/en/startupy/nextcycle/

MODULE 3:
FACULTY OF HEALTH CARE STUDIES (FHC)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Health Care Studies

FORD: 3 - Medical and health sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organizational structure and size (staffing, number of students, number of study programs implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The mission of the Faculty of Health Care Studies (FHC), University of West Bohemia in Pilsen (UWB) is, while respecting ethical principles, human dignity, and responsibility in caring for the health of individuals and communities, to provide high-quality education and professional training to students who will be competent to perform non-medical and health care professions and will be employed in healthcare facilities in West Bohemia and surrounding regions.

The vision of the FHC UWB is to produce educated and committed professionals who can respond to local and global challenges of the 21st century and contribute to the sustainable development of society through their professional activities.

The FHC UWB strives to develop innovations and collaborate with regional and foreign universities and commercial entities in the areas of healthcare education, including lifelong learning, research and project activities, and the provision of infrastructure and human resources.

Organizational structure of the UWB Faculty of Health Care Studies:

- Management:
 - Dean – head of the FHC; the highest representative of the Faculty, responsible for its overall management; who acts and makes decisions in FHC matters, unless the law provides otherwise.
 - Vice-Deans – appointed by the Dean; they represent the Dean to the extent determined by the Dean (for teaching activities, for research, for strategy and creative activities, for development and external relations).
 - Secretary – responsible for financial and administrative matters of the Faculty.

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

- Scientific Board – an advisory body to the Dean, which deals with scientific and teaching activities of the Faculty.
- Academic Senate – an independent body of the Faculty, consisting of elected representatives of the academic community, who participate in the management of the Faculty and make decisions on important issues regarding the functioning of the Faculty.
- Disciplinary Committee – a body dealing with disciplinary offenses of students of the Faculty.
- Departments – basic workplaces for educational activities, creative activities, and other activities developed as needed within the entire UWB. A Department is headed by the Head of the Department, who is appointed to this position by the Dean based on a selection procedure. Another Department official is the deputy head of the Department. Departments of FHC:
 - Department of Nursing and Midwifery
 - Department of Rehabilitation Disciplines
 - Department of Emergency Medicine, Diagnostic Sciences and Public Health
- Other workplaces operated by the Dean's Office – Department of Study Affairs, the Department of Health Practice, the Department of Lifelong Learning, the Project Department, the Department of Development and Foreign Relations, established in 2024, and the Health Centre, established by 2024 as the Faculty project and from 2025 as a new Department.

FHC significantly contributes to addressing the long-term shortage of qualified non-medical healthcare personnel through the education and training of students (the number of students in the period 2019-2023 is given in more detail in Table 3.1.4) in professional Bachelor's Degree programs:

- Emergency medical services (full-time study)
- General nursing (full-time and part-time study) and follow-up Master's program (part-time study)
- Laboratory diagnostics in healthcare (full-time study)
- Midwifery (full-time study)
- Occupational therapy (full-time study)
- Orthotics-prosthetics (full-time and, in 2020, also part-time study)
- Physiotherapy (full-time study)
- Radiological assistance (full-time study)

The number of study programs in the period 2019-2023 is given in more detail in Table 3.1.5.

To ensure high-quality education in professional study programs, the Faculty collaborates with experienced healthcare professionals. This collaboration provides students with current, practical knowledge directly from field experts. However, integrating experienced healthcare professionals into academic roles brings challenges, particularly in ensuring staff with Ph.D. degrees and academic positions Associate Professor and Professor (in tables 3.1.1 to 3.1.3)*, especially those with significant expertise in non-medical healthcare practices, to ensure the quality of education in non-medical health study programs. FHC is constantly actively looking for experts with a combination of professional experience and academic qualifications. actively seeks professionals who combine practical experience with academic qualifications. It supports their academic and professional development through the Faculty Motivation System (MS, Decree 6D/2020 with an update 2D/2023), which offers financial awards for achieving higher academic and scientific-pedagogical qualifications. MS also provides financial support to employees engaged in research and innovation activities addressing current healthcare challenges, positively impacting quality of life and healthcare delivery, particularly in areas such as public health and safety, obstetrics and women's mental health, neurorehabilitation, prosthetics, orthotics, and sports sciences.

FHC also supports research development and dissemination in medical and health sciences through its Grant System (GS, Decree 7D/2020 with an update of the conditions in each year of the call). Each project may receive up to 4 thousand EUR, exceptionally even higher, depending on the faculty's total budget and the total number of projects in a given year. The GS aims to fund research leading to scientific publications for evaluation in modules 1 and 2 of M17+. In the evaluation period 2019 to 2023, FHC recorded some publication results with documented societal impact (Indicator 3.4 in more detail). GS and MS FHC contributed to the formation of FHC research teams [1]:

- Caring for the Population Health & Safety (about ten employees)
- Sports Sciences (about two employees)
- (Community) Midwifery & Women's Mental Health (about four employees)
- Research Innovations in Prosthetics (about five employees)
- Neurorehabilitation & Cognitive-Motor Interference (about four employees)

An internal analysis of FHC research capacities from 2019 to 2023 (detailed in Table 3.1.6).

The activities of the FHC research teams lead to the strengthening of cooperation and collaboration with regional and even foreign partners, elevating the recognition of non-medical health professions. In R&D&I, FHC actively engages in research tasks, and projects focused mainly on healthcare innovations, collaborating with multidisciplinary teams, typically comprising technically oriented partners (for more detail, see Indicator 3.3).

FHC contributes to the dissemination of research findings in medical and health sciences and studies through organizing and co-organizing professional conferences and congresses, often in collaboration with professional societies whose members include FHC employees (Indicator 3.2).

* The implementation of the [Internal Salary Regulation UWB](#) effective January 1, 2021, has resulted in a reclassification of FHC FTEs, reducing the number and FTEs of Assistant Professors and an increasing the number and FTEs of Assistants.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	2.880 / 0.000	2.569 / 0.000	3.489 / 0.000	3.501 / 0.000	3.438 / 0.000	15.877 / 0.000
Associate Professor	2.770 / 0.330	2.688 / 0.250	3.438 / 1.250	3.552 / 1.250	2.313 / 1.250	14.761 / 4.330
Assistant Professor	33.650 / 20.260	36.058 / 22.484	18.075 / 8.926	19.439 / 9.668	20.153 / 10.187	127.375 / 71.525
Assistant	1.120 / 1.030	0.376 / 0.294	18.018 / 14.712	17.390 / 13.926	18.767 / 14.665	55.671 / 44.627
R&D Personnel ³	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000
Researchers in other categories ⁴	0.310 / 0.000	0.062 / 0.062	1.375 / 0.875	2.000 / 1.000	0.863 / 0.572	4.610 / 2.509
Technical and economic staff ⁵	21.250 / 14.980	19.392 / 13.967	18.929 / 12.924	16.396 / 10.912	16.796 / 11.210	92.763 / 63.993
Scientific, research, and development staff involved in teaching activities	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000	0.000 / 0.000
Early career researchers ⁶	11.000 / 6.375	11.500 / 7.375	11.813 / 8.250	13.750 / 10.000	13.038 / 9.788	61.100 / 41.788
Total ⁷	61.980 / 36.600	61.145 / 37.057	6.324 / 38.687	62.278 / 36.756	62.330 / 37.884	311.057 / 186.984

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories, and technical and economic staff are mutually exclusive, i.e., one staff member is reported under one category only. Scientific, research, and development staff involved in teaching activities, as well as early career researchers, are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	0	0	2	0	4	0
Associate Professor	0	0	0	0	3	0	0	0	2	1	2	0
Assistant Professor	6	5	17	8	17	12	13	7	3	0	0	0
Assistant	0	0	0	0	0	0	0	0	0	0	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	0	0	0	0	0	0	0	0	0	0	0	0
Technical and economic staff ¹¹	2	1	5	2	8	5	5	5	1	1	0	0
Scientific, research, and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	9	5	3	2	5	3	0	0	0	0
Total ¹³	8	6	22	10	28	17	18	12	8	2	6	0

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories, and Technical and economic staff are mutually exclusive, i.e., one staff member is reported in only one category. The categories of scientific, research, and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	1	0	1	0	4	0
Associate Professor	0	0	1	0	1	0	3	2	1	1	2	0
Assistant Professor	0	0	7	3	11	5	11	9	6	0	0	0
Assistant	5	3	7	5	11	9	5	5	1	1	0	0
R&D Personnel ¹⁵	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁶	2	0	0	0	1	0	0	0	0	0	0	0
Technical and economic staff ¹⁷	1	1	8	3	4	2	3	3	4	4	0	0
Scientific, research, and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	7	3	8	3	7	7	0	0	0	0
Total ¹⁹	8	4	23	11	28	16	23	19	13	6	6	0

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories, and technical and economic staff are mutually exclusive, i.e., one staff member is reported under one category only. Scientific, research, and development staff involved in teaching activities, as well as early career researchers, are reported collectively for all the above-mentioned categories.

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	817	701	819	708	856	728	845	719	849	718	4,186	3,574
Master's ²⁰	38	36	25	25	16	16	5	5	2	2	86	84
Doctoral	0	0	0	0	0	0	0	0	0	0	0	0
Lifelong Learning Courses	0	0	119	101	501	447	488	417	571	523	1,679	1,488
Total	855	737	963	834	1,373	1,191	1,338	1,141	1,422	1,243	5,951	5,146

Table 3.1.5 - Study programs in Czech/English

Type of study program	Total ²¹ / Of which professional study programs											
	2019		2020		2021		2022		2023		Total	
Undergraduate	8/0	8/0	8/0	8/0	8/0	8/0	8/0	8/0	8/0	8/0	8/0	8/0
Master's	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0	1/0
Doctoral	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Lifelong Learning courses	0/0	0/0	3/0	0/0	7/0	3/0	9/0	8/0	15/0	14/0	21/0	17/0
Total	9/0	9/0	12/0	9/0	16/0	12/0	17/0	16/0	23/0	22/0	30/0	26/0

Note: For each SP type, enter the number of SPs in the Czech language in the first cell and insert the number of SPs in the English language after the slash in the same cell (e.g., 15/3), enter the number of professional SPs in the Czech language in the second cell and insert the number of professional SPs in the English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD Share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	1.24
	1.2 Computer and Information Sciences		Zvolte položku.	
	1.3 Physical sciences		Zvolte položku.	
	1.4 Chemical sciences		Zvolte položku.	
	1.5 Earth and related environmental sciences	0.62	Balanced basic and applied research	
	1.6 Biological sciences	0.62	Basic Research	
	1.7 Other Natural Sciences		Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	3.09
	2.2 Electrical engineering, Electronic engineering, Information engineering	0.62	Applied Research	
	2.3 Mechanical engineering		Zvolte položku.	
	2.4 Chemical engineering		Zvolte položku.	

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

	2.5 Materials engineering		Zvolte položku.	
	2.6 Medical engineering	2.47	Applied Research	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental Biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine	1.23	Balanced basic and applied research	85.8
	3.2 Clinical medicine	16.05	Basic Research	
	3.3 Health sciences	66.67	Balanced basic and applied research	
	3.4 Medical biotechnology	0.62	Basic Research	
	3.5 Other medical sciences	1.23	Balanced basic and applied research	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy Science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other Agricultural Sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and Cognitive Sciences	1.85	Applied Research	9.25
	5.2 Economics and Business		Zvolte položku.	
	5.3 Education	1.85	Applied Research	
	5.4 Sociology	1.23	Applied Research	
	5.5 Law	1.23	Basic Research	
	5.6 Political science	0.62	Applied Research	
	5.7 Social and Economic Geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences	2.47	Basic Research	
6. Humanities and the Arts	6.1 History and Archaeology		Zvolte položku.	0.62
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics, and Religion	0.62	Basic Research	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists, and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/program calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

The FHC's position in the research community is mainly helped by employees with the scientific and pedagogical ranks of professor, associate professor, and, occasionally, also employees in the position of assistant professor aspiring to the rank of associate professor, who are usually active members of the editorial boards of scientific journals (for more detail, see Table 3.2.2) and members of professional societies relevant to FORD 3, e.g.:

Prof. MUDr. Ivo Mařík, CSc., founding member and president of the J. E. Purkyně Czech Society for Connective Tissues, president and member of the Federation of European Societies for Surgery of the Hand (FESSH),

Prof. MUDr. Václav Zeman, CSc., member of the European Federation of Sports Medicine Associations (EFSMA),

Doc. MUDr. Jitka Švíglerová, Ph.D., member of the International Society for Heart Research (ISHR),

Prof. MUDr. Jaroslav Racek, DrSc., member of the American Association of Clinical Chemistry and Laboratory Medicine (AACC), the European Renal Association, and the European Dialysis and the Transplantation Association (ERA- EDTA),

Prof. MUDr. Vladimír Resl, CSc., member of the International League of Dermatological Societies (I.L.D.S.), the International Society of Dermatology (ISD), and the Interdepartmental Committee of the Ministry of Health of the Czech Republic for the issues of HIV/AIDS.

Membership in the steering committees and working groups of the European Cooperation in Science and Technology (COST) Actions program, which supports international cooperation between scientists, researchers, and experts across various fields, with the aim of enabling the connection of research teams from different European countries (and associated countries) for the purpose of sharing knowledge, resources, and experience, and the related support of innovation and development in key areas also significantly contributes to strengthening the position of FHC in the research community. Since 2023, the membership of the FHC representative, Mgr. Ing. Alena Lochmannová, Ph.D. et Ph.D., MBA is known in COST Actions:

CA22114 – Maternal Perinatal Stress and Adverse Outcomes in the Offspring: Maximising infants' development (TREASURE) [9]; CA22159 – National, International and Transnational Histories of Healthcare, 1850-2000 (EuroHealthHist) [10], relevant for FORD 3; and COST Actions CA23120 – Religious Identity, Bullying, and Wellbeing at School: A Transnational Collaboration (ORBIT), and CA23129 – Peace Research Community Europe (PEACE), which are directly related to the mission of FHC.

In addition to invited lectures at events of regional and nationwide scope, FHC employees and research team members have been invited to lecture at university institutions in neighbouring

countries Slovakia and Poland (more detail in Table 3.2.3), and they also organized and participated in organizing regular conferences with regional, nationwide and foreign scope, of which the significant International Scientific Conference for Perinatal Palliative Care was organized in cooperation with a members of the research team (Community) Midwifery & Women's Mental Health FHC, and with the Polish Centre for Medical Postgraduate Education in 2022 [11]. The aim of the conference was to spread the concept of perinatal palliative care, identify strengths and weaknesses in the implementation of family-centered care after unsuccessful prenatal diagnosis, and share research results and practical solutions that can contribute to improving the quality of perinatal palliative care.

Especially after the COVID-19 pandemic, FHC was the place of work of more than a hundred foreign scientists and experts in the evaluated period, with less than 1/3 of the experts working within teaching and educational areas and more than 2/3 with professional competence in FORD 3 areas and as support for the development of research topics of FHC research teams. Some experts lectured at events organized by FHC (for the most significant examples of lectures, see Table 3.2.4). Successfully submitted applications for support from the Development System (DS) of the Long-term Conceptual Development (L-TCD) for professional research activities and cooperation of foreign experts with researchers from FHC enabled the creation of more than a dozen high-quality results published in impact journals with the application of the results in Module 2, with the potential for their application in Module 1 if they are cited within high-quality results in professional journals and information sources recognized worldwide and sought after by the scientific community. This is also helped by the fact that some foreign experts, in cooperation with employees and members of FHC research teams, have disseminated the achieved results by participating in foreign events, such as:

43rd and 44th Annual SRIP (Society for Reproductive and Infant Psychology) Conference of (Switzerland);
 24th Days of Psychology – Croatian Psychological Association (Croatia);
 5th Annual Meeting 2023 of the Portuguese Language Group of the Marcé Society for Perinatal Mental Health (Portugal);
 4th International Scientific Conference of the Psychology Department at the Catholic University of Croatia entitled “Changing Life Circumstances – Opportunity for Individual and Community Growth” (Croatia);
 2nd International Conference Of The Rise up-PPD – Knowledge And Implementation Gaps In Peripartum Depression: Innovation And Future Directions (Bulgaria);
 SSHM (Society for the Social History of Medicine) Biennial Conference (Scotland).

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname, and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
-	-	-
-	-	-
-	-	-

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
PhDr. Ingrid Palaščáková Špringrová, Ph.D.	Rehabilitation, 0375-0922
Prof. MUDr. Ivo Mařík, CSc.	Acta Chirurgiae Orthopaedicae et Traumatologiae Cechoslovaca, 0001-5415
MUDr. Richard Pikner, Ph.D.	Clinical Osteology, 2571-1326
Prof. MUDr. Petr Pazdiora, CSc.	Epidemiology Microbiology Immunology, 1210-7913
RNDr. Karel Fajfrlík, Ph.D.	
Prof. MUDr. Jaroslav Racek, DrSc.	Clinical Biochemistry and Metabolism, 1210-7921
Prof. MUDr. Vladimír Resl, CSc.	Czech-Slovak Dermatology, 0009-0514
	Prakticky Lekar, 0032-6739

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
PhDr. Mgr. Krocová Jitka, Ph.D.	Implementation of Nurse Education in the Prevention of Healthcare Associated Urinary Tract Infections	Trnava university, Slovakia, (New Trends in Nursing VIII)	2022
Ing. Lochmannová Alena, Ph.D., MBA; Ing. Klára Gillernová; Mgr. Stanislava Reichertová	Comparison of Simulation and Virtual Reality Emergency Training on the Example of Paramedics	University in Košice, Slovakia (MEFANET 16th international conference of medical and healthcare academic institutions in Czechia and Slovakia)	2023
	Automated External AED Defibrillator in Virtual Reality		
	Mothers in prison: issues, challenges, projects supporting the maternal role	Akademia Nauk Stosowanych im. Stanisława Staszica w Pile, Poland (Criminology and Social Problems in Times of Change. Theory, Method and Practice)	
	Specificity of crime on Polish and Czech province		
Ing. Lochmannová Alena, Ph.D., MBA	Prison tattoos as a tool for revealing second life of convicts	Stanislaw Staszic State University of Applied Sciences in Pila, Center for Criminological Analysis of the University of Warsaw, Poland (XV-th International Scientific Conference „In search of an effective reaction to adult crime and juvenile delinquency”)	

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Prof. Edwin van Teijlingen	Bournemouth University, Fern Barrow, Poole, Dorset, BH12 5BB, United Kingdom	Publishing in International Journals	2019
Prof. Frank Ruppenthal	Immanuel Krankenhaus Berlin, Germany	Orthopedic medicine and manual therapy according to Dr. James Cyriax	2021
Prof. Colin R. Martin Rn MBA PhD	Institute of Health and Wellbeing, University of Suffolk, United Kingdom	Birth Experience: What Is It Important and How Should We Measure It?	2022
Prof. RNDr. Ivan Varga, PhD. et PhD	Comenius University Bratislava, Slovakia	Before We're Born: New Trends in Embryology Research	2022
Prof. PhDr. Marek Majdan, MSc., PhD	Department of Public Health, Faculty of Medicine and Social Work, Trnava University, Slovakia	Analysis of Epidemiological Data: Strategies, Approaches and Tools	2022
Christine De Bosschere, Filip Dejonckheere	Artevelde University of Applied Sciences Gent, Belgium	Palliative Care	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the project/programme call research	Name of the authority/guarantor project/programme call contracting of the	Year
-	-	-	-
-	-	-	-
-	-	-	-

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1–3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

A cross-border research project supported by public funds of the TFEU + MRD CZE from the INTERREG BY-CZ 2014-2020 call, implemented in the period 2021-2022 by a FHC team in the position of primary researcher. Project name: Research Innovations in Prosthetics. Project partners: LSFDA and RTI of FME (UWB), TC Cham (TH Deggendorf, Germany). Associated partners: Protetika Plzeň s.r.o., Otto Bock ČR s.r.o., OT Süd Orthopädietechnik GmbH and Fachklinik Osterhofen GmbH. The project resulted in the development of new procedures in shape, design and 3D printing solutions for the production of an external prosthetic bed for a myoelectric upper limb prosthesis, which have a realistic application in companies developing prosthetic replacements and orthotic aids for physically and mobility-disadvantaged groups of the population. [2]

A cross-border research project supported by public funds of the TFEU + MRD CZE from the INTERREG BY-CZ 2021-2027 call, implemented in the period 2023-2026 by a FHC team as a co-researcher/partner. Project title: Applied Research on an Exoskeleton for Use in Rehabilitation. The primary researcher of the project: TC Cham, TC Hutthurm, MC Bad Kötzing (TH Deggendorf, Germany). Other project partners: LSFDA, RTI of FME, FAS (UWB). Associated partners: Ambulante Krankenpflege Hiebl GmbH, Gesundheitsregion Plus Landkreis Cham, Wirtschaftsförderungsgesellschaft im Landkreis Cham mbH, Protetika Plzeň s.r.o., Ilona Zahradnická. The aim of the project is to develop a test prototype of a state-of-the-art lower limb exoskeleton for rehabilitation purposes using innovations in design, construction technologies, 3D printing and brain-computer interface. The project strengthens joint research capacities for technology transfer in the rehabilitation and prosthetic fields and has the potential for realistic application in companies developing prosthetic replacements and orthotic aids for physically and mobility-disadvantaged groups of the population. [3]

A research project supported by public funds of TA CZE + MI CZE from the Security Research Programme of the Czech Republic 2015-2022 was implemented in 2021-2022 by a FHC team as a co-researcher/partner. Project name: Security Research for the Effective Use of Thermal Imagers in the Event of Epidemic Threats and Crisis Situations. Project primary researcher: NT-RC UWB. Another project partner: Techmania Science Center o.p.s. The Project's focus: research on new solutions for reliable identification of potentially infected persons presenting elevated body

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

temperature; research on the use of non-contact thermal diagnostics for early warning of the emergence of an epidemic situation and monitoring its progress; and research on other possibilities of the application of thermal cameras in the activities of individual components of the Integrated Rescue System of the Czech Republic. [4]

A research project supported by the public funds of TA CZE from the TREND program - 6.VS/ Subprogramme 1 "Technological leaders," implemented in the period 2023-2025 by the primary researcher ILC FACTORY a.s., with the support of partners from UWB (RTI of FME, FHC, FDA), TechSim Engineering s.r.o. and the Faculty of Transport Engineering - University of Pardubice (Czech Republic). Project name: Computational and Experimental Support of 3D Printing Technology of Highly Stressed Plastic Components with Increased Temperature and Fatigue Resistance. FHC, in cooperation with the primary researcher and the project partners, deals with the issue of forearm prostheses, which is an example of the use of 3D printing in medical devices, where the emphasis is on the absolute accuracy of shapes to ensure patient safety. It includes an external stump bed, part of an upper limb prosthesis. The purpose of the external bed is to connect the internal bed with the functional elements of the prosthesis, protect the stump and internal mechanical and electrical parts of the prosthesis, and provide a cosmetic or design replacement with an emphasis on a patient's individual needs. All of these requirements are suitable for the use of new 3D printing technologies, but the exact construction and design procedure needs to be verified and validated in cooperation with patients.[5]

A project supported on the basis of contractual research for the company ALIMADE s.r.o. (the company received a 75% subsidy to cover the costs associated with the implementation of the project from the program of support of cooperation between enterprises and research organizations in the greater Pilsen area regularly announced by the City of Pilsen), implemented in 2023 by an FHC team as the primary researcher. Project name: Methodology for Creating Proposals for Measures to Improve the Ergonomics of Work Activities in a Company. Project result: Methodology for the ergonomics of work positions for professional employees of the company ALIMADE s.r.o. (with an exclusive license for commercial use of the result by the company ALIMADE s.r.o.), which includes a set of methodological guidelines for the development of intervention proposals for the optimization of work positions, for the analysis of the ergonomics of work positions of production plant employees, for the testing and evaluation of grip strength in postural work positions of production plant employees and for the statistical comparison of changes in grip strength in selected postural positions of production plant employees. This includes a questionnaire for the analysis of the ergonomics of work and postural positions for employees of a production plant, recording forms for the study and kinesiological analysis of work positions in the workplace, and the analysis of grip strength in selected postural positions.[6] Three FHC academics and two FHC students collaborated on creating the methodology.

FHC also participated in the following research:

- The project topic concerning diagnostic and decision-making technologies in medical systems and testing new generation lab-on-chip systems in the project Research and Development of Intelligent Components of Advanced Technologies for the Pilsen Metropolitan Area, whose primary researcher and grant recipient was the UWB Faculty of Applied Sciences; the implementation of the project was the period 2018-2023.[7]
- Development and testing of clothing for seniors with sensory, ergonomic, and physiological comfort; a system for monitoring limb swelling; sophisticated clothing for seniors made of unique flat textiles with physiological comfort for integrating electronics into monitoring physiological functions (in the evaluated period, it was a hosiery product for monitoring lower limb swelling and a textile sleeve for monitoring the state of the skin barrier). The project co-researcher and

another grant recipient was the UWB Faculty of Electrical Engineering (FEE) within the project Senior Tex – Smart Modular Clothing and Textile Products with Integrated Electronic Microsystems for Improving the Healthcare of the Aging Population and Handicapped People; its implementation was in the period 2016-2020. The project enabled FEE to create several utility models and functional samples.[8]

- Clinical evaluations in the framework of small-scale contracts in the supplementary activity of FHC without contractual coverage:
 - applicability of the UVC LED source (called "Anti-Covid") for air sanitation in sanitation facilities intended for public transport by the company Škoda a. s. (2021),
 - ergonomic properties of four types of ergonomic vertical computer mice manufactured by IT TRADE a.s., explicitly designed to prevent carpal tunnel syndrome (2021).

Beyond the framework of classic research projects financing research itself, FHC has successfully participated in several international networking projects supporting European Cooperation in Science and Technology in the period 2023-2027, precisely COST Actions relevant to FORD 3:

- CA22114 – Maternal Perinatal Stress and Adverse Outcomes in the Offspring: Maximising infants' development (TREASURE)[9]
- CA22159 – National, International and Transnational Histories of Healthcare, 1850-2000 (EuroHealthHist)[10]

The membership in these networking projects and other initiatives by FHC staff led to FHC participating in a consortium of partner institutions for submitting project applications to two-stage HEU calls: the HEU project AI-Based Gait Assistance and Fall Prevention (ATTENDANT) of the primary researcher from Israel was not supported in the first stage, and the project Intellectual Disability Equity & Access (IDEA) of the primary researcher from Ireland scored full points after the first stage evaluation but was not supported to be implemented after the second stage evaluation.

FHC is also the primary researcher in a cross-border project outside the research project category, which was supported by public funds of the TFEU + MRD CZE from the INTERREG BY-CZ 2021-2027 call, addressed in the period 2023-2026 by a FHC team as the primary researcher. Project name: Education of a multidisciplinary Czech-Bavarian student team in neurorehabilitation (acronym NEURO), with financial revenue in 2023 equalling 389,524 CZK =15,366 EUR (in 2024: 1,437,603 CZK/56,710 EUR). Project partners: Ostbayerische Technische Hochschule Regensburg - Faculty of Applied Social and Health Sciences – Department of Physiotherapy, Faculty of Medicine, Charles University in Pilsen. Associated partners: Medical spa Konstantinovy lázně a.s., Deutscher Verband für Physiotherapie (ZVK) e.V., Štěpánka Korcová. The project focuses on cooperation in unifying the content of educational systems, exchanging and sharing professional information and experience in the neurorehabilitation of stroke in the Czech-Bavarian region, primarily by involving a multidisciplinary student team with teachers from partner universities. As part of the FHC project, UWB introduces partners to its unique approach to diagnosing cognitive disorders (cognitive disorders related to memory, thinking, spatial orientation, and ability to concentrate), which allows for providing appropriate rehabilitation treatment of patients after stroke according to current trends in medicine. In line with the mission of FHC, the project fulfills the specific objective of the call – improving equal access to inclusive and quality services in the area of education, vocational training, and lifelong learning through the development of accessible infrastructure by, among other things, strengthening resilience for distance and online education and vocational training.[12]

FHC is also the leading researcher in the sub-project outside the research category entitled Support for Health Literacy in the Area of Stroke Prevention in the University Environment. The project is financed from the sub-research project entitled Sensors and Systems for Healthcare, which is

financed from the resources of the national project entitled New Directions in Electronics for Industry 4.0 and Medicine 4.0, which was financed for the period 2023-2028 from the National Centre of Competence program of the provider, which is the Technology Agency of the Czech Republic. The partners of the national project: University of Pardubice, ELCERAM a.s., Tech Aid Czech Branch s.r.o., MDT-Medical Data Transfer s.r.o., UVB TECHNIK s.r.o., ARIA PURA s.r.o., Agrotech a.s., XGLU s.r.o., 3Dees Industries s.r.o., MAGICWARE, s.r.o., NETWORK GROUP, s.r.o., FORTES interactive, s.r.o., PHYSTER TECHNOLOGY, a.s., prokyber s.r.o., ICRORISC s.r.o., Colonia press, a.s., Institute of Microelectronic Applications s.r.o., BD SENSORS s.r.o., Brno University of Technology, University of West Bohemia (FEE of UWB), Centre for Organic Chemistry s.r.o., Institute of Macromolecular Chemistry of the Academy of Sciences of the Czech Republic, v.v.i. Project duration: 2023-2028. The sub-project implemented by FHC, with financial revenue in 2023 equalling 124,000 CZK/4,892 EUR focuses on supporting the health literacy of the general public in the area of stroke prevention in the population of the Czech Republic and in accordance with the current goals of the strategic framework of the Ministry of Health of the Czech Republic named Health 2030.^[13]

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands of CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
TFEU + MRD CZE (INTERREG BY-CZ 2014-2020)	Research Innovations in Prosthetics (2021-2022)			698/ 27,529	1459/ 57,567	
MEYS CZE (SUR)	Walking - an integral part of the nursing profession (2018-2019)	13/ 0,522				
	5th Student Scientific Conference of the Department of Nursing and Midwifery	189/ 7,450				
	6th Student Scientific Conference of the Department of Nursing and Midwifery		195/ 7,692			
	7th Student Scientific Conference of the Department of Nursing and Midwifery			140/ 5,523		
	8th Student Scientific Conference of the Department of Nursing and Midwifery				140/ 5,523	
	Evidence-based nursing in the process of implementing nursing practices (2022-2023)				330/ 1,318	37/ 1,447
Total		202/ 7,972	195/ 7,692	838/ 33,052	1,633/ 64,408	37/ 1,447

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

In the role of another participant						
Provider ²⁷	Project name	Support (in thousands of CZK/EUR)				
		2019	2020	2021	2022	2023
GA CZE (TRIO)	Senior Tex - Smart Modular clothing and textile products with integrated electronic microsystems for improving the health care of the aging population and disabled people (2016-2020)	295/ 11,637	149/ 5,890			
MEYS CZE (ITI)	Research and Development of Intelligent Components of Advanced Technologies for the Pilsen Metropolitan Area (InteCom) (2018-2023)	168/ 6,627	127/ 5,010	91/ 3,583		
MEYS CZE (ELIXIR)	Conceptual design of a platform for harmonization of clinical trials for HSCT (2021)			30/ 1,183		
TA CZE + MI CZE (Security Research of the Czech Republic 2015-2022)	Security research for effective use of thermal cameras in case of epidemic threats and crises (2021-2022)			869/ 34,287	1,057/ 41,684	
TFEU + MRD CZE (INTERREG BY-CZ 2021-2027)	Applied research on exoskeleton for use in rehabilitation (2023-2026)					329/ 12,998
TA CZE (TEND)	Computational and experimental support of 3D printing technology of highly stressed plastic components with increased temperature and fatigue resistance (2023-2025)					5/ 2,019
Total		463/ 18,264	276/ 10,900	990/ 39,053	1,057/ 41,684	381/ 15,017

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands of CZK/EUR)				
		2019	2020	2021	2022	2023
Alimade s.r.o.	Methodology for creating proposals for measures to improve the ergonomics of work activities in a company					163/ 6,439
Total						163/ 6,439

Note: List and describe contract research activities with revenue in a given calendar year, regardless of the amount of financial revenue.

²⁷ Ibid.

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how various users use the results, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

Unpublished results of FHC with prospective impact on society:

RYBA, L., BURIÁNEK, A., HAMPAPA, F., JANSOVÁ, D., MAINZ, D. Metodika ergonomie pracovních pozic pro odborné pracovníky společnosti ALIMADE s.r.o., ALIMADE s.r.o., 2023. (with an exclusive license for the commercial use of the result by ALIMADE s.r.o.), according to which ALIMADE employees – expert consultants in the area of ergonomics – proceed when creating proposals for measures to improve the ergonomics of work activities for ALIMADE s.r.o. customers, mainly non-state healthcare facilities providing physiotherapy and occupational therapy interventions in companies employing manual workers, especially in the automotive industry.[6]

Published results of FHC with prospective impact on society:

RESL, V., KUKLOVÁ, I., SALAVEC, M., ZÁKOUCKÁ, H., KAŠTÁNKOVÁ, V., KŘEMENOVÁ, S., PROCHÁZKA, P., ZOUBKOVÁ, H., ČERNÁ, J. Základy depistáže a organizace venerologické práce. 1st edition Pilsen: University of West Bohemia, 2019, 459 pp. ISBN: 978-80-261-0875-7. A professional book evaluated in the H20 criterion regarding social relevance within Module 1 of the 17+ Methodology with the grade 3, i.e., as a quality result that has a positive impact on the development of the field and society, but its scope is limited primarily to the population of Czech healthcare professionals.[14]

HENDRYCH LORENZOVÁ, E.; RAISNEROVÁ, I. Being a Happy Midwife/ Být šťastná porodní asistentka. 1st edition Pilsen: University of West Bohemia, 2020. ISBN 978-80-261-0985-3. 136 pp. A professional book evaluated in the H21 criterion regarding social relevance within Module 1 of the 17+ Methodology with the grade 3, i.e., as a quality result that has a positive impact on the development of the field and society, but its scope is limited primarily to the population of midwives and nurses.[15]

BERÁNEK, V. Innovation and Injury Prevention in Teaching Professional Self-defence for IRS Specialized Professions. 1st edition Pilsen: University of West Bohemia in Pilsen, 2021, 124 pp. ISBN: 978-80-261-1013-2. A professional book evaluated in the H23 criterion regarding social relevance within Module 1 of the 17+ Methodology with the grade 3, i.e., as a high-quality professional publication which includes innovative self-defence techniques that do not threaten the health of attacked persons or attackers, used in practice by instructors, trainers and students of self-defence techniques, and which is expected to be used in the area of public interest, especially among professionals of the integrated rescue system.[16]

²⁹ See Terms definition.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Professional book	2019	Základy depistáže a organizace venerologické práce (English translation: Fundamentals of depistige and organization of venereological work)
Professional book	2020	Being a Happy Midwife/ Být šťastná porodní asistentka
Professional book	2021	Innovation and Injury Prevention in Teaching Professional Self- defense for IRS Specialized Professions
Research report	2023	Metodika ergonomie pracovních pozic pro odborné pracovníky společnosti ALIMADE s.r.o. (English translation: Methodology of ergonomics of work positions for professional employees of ALIMADE s.r.o.)

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

FHC provides its know-how to entities interested in commercializing the results of RDI activities achieved in cooperation with FHC, while entities from the non-university application/corporate sphere listed as project partners in Indicator 3.3 are also users of the know-how and results achieved by FHC's RDI activities. Successful cooperation on research topics of projects with the participation of project partners from the non-university application/corporate sphere, together with the initiative of research team members with the support of the FHC Project Department, allows for a gradual expansion of contact networks and the establishment of new partnerships with the prospect of research cooperation on results available to the wider public.

³⁰ Specify the specific type of result. Add rows as needed.

³¹ In the case of military HEIs, their specific position is considered when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

In the evaluated period, FHC commercialized one unpublished result, Methodology of Ergonomics of Work Positions for Professional Employees of the Company ALIMADE s.r.o.[6] (following the project in Indicator 3.3), with an exclusive license for the commercial use of the result by ALIMADE s.r.o. without the possibility of repeated application of the result by other entities, but with the prospect of cooperation on other projects with the company.

Furthermore, FHC commercialized small-scale contracts in complementary activities:

- Clinical evaluation of the applicability of the UVC LED source (called "Anti-Covid") for air sanitation in a sanitation facility intended for public transport vehicles (the user of the clinical evaluation result: Škoda a. s.).
- Clinical evaluation of ergonomic properties of four types of ergonomic vertical computer mice supporting prevention of carpal tunnel syndrome (the user of clinical evaluation results: IT TRADE a.s. FHC).

Partnership and cooperation of FHC with Techmania Science Center o.p.s. on a research project whose main researcher is NT-RC UWB allowed it to expand the offer of exhibitions of the Techmania Science Center, which is currently visited mainly by the public of the Pilsen region and its adjacent regions. The research project title is Security Research for the Effective Use of Thermal Imagers in the Event of Epidemic Threats and Crisis Situations (from the program the Security Research Programme of the Czech Republic 2015-2022, whose providers are TA CZE and MI CZE [4] (in more detail, see Indicator 3.3).

In addition to the results of applied research achieved mainly through project activities (in the projects listed in Indicator 3.3), FHC has produced publication results predominately in basic research. FHC's publication results, especially articles in professional journals and professional books (described in more detail in Indicator 3.4), are usually applied in research activities of other researchers outside FHC, and are further incorporated, in educational practice directly by the creators of the results, into educational supports within the professional training of students of non-medical healthcare programmes. Students, together with healthcare professionals and experts in FORD 3 fields, are the main users of the FHC's published results, while the publications of professional articles do not represent direct financial gain for FHC; however, they fundamentally contribute to gradual improvement of the quality of study supports and thus also to the improvement of the most important service provided by the Faculty to the public, as enshrined in the Faculty's mission (in Indicator 3.1), which is preparing its students for high-quality performance within non-medical health professions. FHC has supported the creation of book publications written predominantly in Czech (except those listed in Indicator 3.4), for which a measurable economic or social impact has not yet been documented. These books were commercialized by Czech publishers and distributors of book publications. The target group of readers of the books listed below are students, professionals, experts, educators and lay people interested in the areas of Nursing, Midwifery, Obstetrics and Palliative Care. These are mainly the following books:

- Ratislavová, Kateřina and Prokopová, Zuzana. Perinatal Loss: Innovative Teaching Methods. 1st edition. Pilsen: University of West Bohemia in Pilsen, 2021. vi, 154 pp. ISBN 978-80-261-1035-4. [17]
- Lochmannová, Alena et al. Porod v proměnách času a kultur. Červený Kostelec: Pavel Mervart, 2022. 264 pp. Antropos; volume 22. ISBN 978-80-7465-539-5.[18]
- Lochmannová, Alena et al. Porod: péče. Červený Kostelec: Pavel Mervart, 2023. 247 pp. Antropos; volume 25. ISBN 978-80-7465-618-7.[19]

FHC further develops its knowledge gained within R&D activities in cooperation with the Department of the Faculty Health Centre (DFHC), with the vision of establishing an associated spin-

off company by 2030. Within the framework of the DFHC, in cooperation with the Department of Lifelong Learning (DLL), lectures and educational and advisory services are offered for the general public; as part of the regularly provided service at conferences of the Regional Hygiene Station of the Pilsen Region, the sustainability of the equipment (InBody 370) acquired from the European Regional Development Fund (ERDF) is permanently ensured.

In the future, it is expected that the general public will benefit from the results of the project submitted in 2023 and approved for implementation in 2024-2026. Project name: Spa Research Center, Primary researcher: Institute of Spa and Balneology, v.v.i., Project partners: UWB (FHC, LS-FDA, FE), the Czech Technical University (CTU) and the Institute of Physiology of CAS in Prague. The aim of the sub-project Spa Rehabilitation Associated with Therapeutic Outdoor Activity in the Therapeutic Spa Region, in cooperation with FHC and LS-FDA UWB, is to increase the effectiveness of outdoor activity in spa treatment, actively involve patients in their rehabilitation and improve the patient's overall condition within a three-week comprehensive spa treatment.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Conferences	16/ 613		34/ 1,337		
Financial donations			5/ 197		15/ 592
Services provided			20/ 771		
Total	16/ 613		59/ 2,305		15/ 592

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

s

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

FHC regularly participates in long-standing traditional events that directly enable the popularization of FHC research and other activities within the general public. These are primarily the Days of Science and Technology organized by UWB with a regional reach, and the nationwide event Night of Scientists organized in cooperation with the Academy of Sciences of the Czech Republic and Czech universities.

Through the FHC Department of Lifelong Learning (DLL) and the Faculty Health Centre (DFHC), findings from FHC R&D activities are transferred, in the form of popularization lectures, educational events and workshops, to the general public; these are sometimes supported by grant programmes:

- Equalization of opportunities for citizens with disabilities (provider: MOH CZE):
 - Movement educational events for disabled persons (supported repeatedly in the years 2021 and 2022)
- Health prevention, increasing the efficiency and quality of healthcare (provider: MOH CZE):
 - Menopause does not mean the end of health prevention (2022)
 - First aid for secondary school students (supported in 2022)
- Pilsen University City (provider: Pilsen City Council), project name:
 - Lecture Series for Seniors (annually 2019-2022)
 - Healthy Walking School for Primary and Secondary Schools (2020),
 - Suburban Camp for Children with Chronic Respiratory Disease (2020),
 - Basics of Psychohygiene and Prevention of Burnout Syndrome in People with Hearing Impairment (2021)
 - Basics of Psychohygiene and Prevention of Burnout Syndrome in Hearing Impaired Persons (2022)
 - First Aid for Students of the University of the Third Age (2022)

Every year during the evaluated period, members of the FHC research team (Community) Midwifery & Women's Mental Health, in cooperation with the Union of Midwives of the Czech Republic and the Czech Chamber of Midwives, organized the Woman-Mother Journey festival, with access to the general public.

The partnership and cooperation of FHC with Techmania Science Center o.p.s. on the research project whose primary researcher is NT-RC UWB: Security Research for the Effective Use of Thermal Imagers in the Event of Epidemic Threats and Crisis Situations (from the programme the Security Research Programme of the Czech Republic 2015-2022, providers: TA CZE and MI CZE (more detail in Indicator 3.3) brought for the general public a permanent exhibition in the Pilsen Techmania Science Center. This publicly accessible exhibition deals with the issues of reliable temperature measurement of people coming from the outside environment and the use of thermal cameras as potential tools for early warning and monitoring the course of an epidemic; it introduces the public to the activities of various components of the Integrated Rescue System (IRS), with non-contact measurement of body temperature; it also offers the public an opportunity to try lay resuscitation until the arrival of rescuers within the framework of an interactive simulation.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

FHC has implemented the recommendations for applied research projects, contract research and non-public income (except for grants or contract research) arising from research works, and continuously encourages FHC employees and research team members to become more involved in research projects in which FHC employees can provide their expertise to UWB project primary researchers (especially from the faculties LSFDA, FME, FAS, NT-RC, FEE); these can also provide their expertise to public and non-public entities, including foreign partners, associated partners and primary researchers, (see the project description in Indicator 3.3). These and other factors have led to the fact that members of the FHC research teams have been and are project primary researchers where the projects have foreign overlap and involve both other UWB Parts and public and non-public entities, including foreign entities. The FHC staff and other cooperating employees are also the primary researchers of projects that can be managed within the FHC work time and resource limits, including smaller projects supported by the FHC Grant System (GS). The GS supports projects that use the specialization of employees also in the areas of education and training that can be offered to the public. Although the limited FHC budget does not allow the GS to finance purchases of expensive equipment, several successfully implemented small projects included, for example, exploratory, pilot and feasibility studies which provided knowledge for the creation of FORD 3 results published in professional scientific journals; occasionally, small projects have helped start subsequent larger projects or the application of knowledge in successfully implemented contract research orders.

FHC has implemented recommendations for applied research results having both current or future economic and significant non-economic impacts on society by expanding public engagement projects (Indicator 3.3) such as public speaking, seminars, educational books and booklets, videos, developing student projects and organizing student scientific conferences (Table 3.3.1), which support research culture. With the support of FHC GS and the Development System (DS) of the Long-term Conceptual Development (L-TCD) and in cooperation with foreign experts, FHC has ensured high-quality impact results and disseminated them at foreign conferences; FHC, in cooperation with its PR, has informed the public about the positive impact of the services provided by FHC.

FHC has implemented recommendations for the most significant interactions of evaluated units with the non-academic application/business sphere, for the system and support of technology transfer and intellectual property protection, and the strategy for establishing and supporting spin-off companies or other forms of commercialization of R&D&I results by strengthening cooperation with application/business entities (Otto Bock ČR s.r.o. and Protetika Plzeň s.r.o.) and developing cooperation with new entities in the Czech Republic (ILC FACTORY a.s., ALIMADE s.r.o., Techmania Science Center o.p.s., IT TRADE a.s., Škoda a.s., Léčebné lázně Konstantinovy lázně a.s.) and Germany (OT Süd Orthopädietechnik GmbH, Fachklinik Osterhofen GmbH, Ambulante Krankenpflege Hiebl GmbH), especially on research projects (described in more detail in Indicator 3.3); while in collaboration with the FHC Department of Lifelong Learning (DLL), Faculty Health Centre (DFHC) and the Project Department, it was systematically establishing cooperation with

other entities. FHC followed the recommendation to start projects for the transfer and investigation of psychometric properties of assessment tools used by healthcare systems; in this context, it established, for example, a long-term research collaboration directly with the creator of the psychometric tool Birth Satisfaction Scale-Revised (BSS-R) from the University of Suffolk, Colin R. Martin, who, in collaboration with members of the research team (Community) Midwifery & Women's Mental Health of FHC, have achieved the following results (DOI: [10.1080/02646838.2022.2067837](https://doi.org/10.1080/02646838.2022.2067837), [10.1080/02646838.2024.2401828](https://doi.org/10.1080/02646838.2024.2401828)). The cooperation is supported by the DS L-TCD UWB. The results of validated psychometric instruments are disseminated in hospital facilities, e.g., the University Hospital Pilsen, as a partner of the submitted research project Interdisciplinary Approach to Screening for Tokophobia, a subsidy programme of the Czech Health Research Council provided by the Ministry of Health.

FHC has implemented the recommendations for the most significant individual awards for R&D&I and recognition by the international R&D&I community by systematically supporting employees in their activities in international scientific communities and networks for European Cooperation in Science and Technology, on editorial boards of scientific journals with international reach, in lecturing activities including invited foreign lectures and in expert panels and boards with international scope, and in the participation of employees in international scientific communities in the area of healthcare research (Indicators 3.2 and 3.3).

FHC has implemented the recommendations for the most important activities in the popularization of R&D and communication with the public by gradually investing funds in the development of the Faculty Health Centre (DFHC), focused on the provision of non-medical healthcare services for the public with the aim of ensuring that FHC is a non-state healthcare facility with a non-medical model and a simulation centre that would provide a platform for research with national and international collaborators. In gradually achieving this goal, FHC builds on the assets of its employees, and identifies opportunities to support their research. At the same time, FHC identifies and more effectively uses the research potential of its employees, who are more actively involved in healthcare research forums and European research teams and are familiar with international funds through collaboration with project primary researchers who are applying for support from ERC projects.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Overview of research topics of research teams of FHC UWB	3.1 [1]	https://www.fzs.zcu.cz/en/Research/Research_teams
Record with basic project information in the implemented projects section of the FHC UWB website	3.3 [2]	https://www.fzs.zcu.cz/en/Research/Project_department/Implemented_projects
Record with basic project information in the current projects section of the FHC UWB website	3.3 [3]	https://www.fzs.zcu.cz/en/Research/Project_department/Current_projects
Record with information about the project on the web database of research projects of the Technology Agency of the Czech Republic	3.3 [4]	https://starfos.tacr.cz/en/projekty/VI04000029
Record with information about the project on the web database of	3.3 [5]	https://starfos.tacr.cz/en/projekty/FW06010517

research projects of the Technology Agency of the Czech Republic		
Record with evidence of the research report on the website of the R&D&A information system of the Czech Republic	3.3, 3.4, 3.5 [6]	https://isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F23%3A43969524
Record with information about the project on the web database of research projects of the Technology Agency of the Czech Republic	3.3 [7]	https://starfos.tacr.cz/en/projekty/EF17_048%2F0007267
Record with information about the project on the web database of research projects of the Technology Agency of the Czech Republic	3.3 [8]	https://starfos.tacr.cz/projekty/FV10111
List of COST Action members with a member from FHC UWB	3.2, 3.3 [9]	https://www.cost.eu/actions/CA22114/#tabs+Name:Working%20Groups%20and%20Membership
List of COST Action members with a member from FHC UWB	3.2, 3.3 [10]	https://www.cost.eu/actions/CA22159/#tabs+Name:Working%20Groups%20and%20Membership
List of organizing committee members with FHC team members	3.2 [11]	https://www.cmkp.edu.pl/konferencja-perinatalna-opieka-paliatywna-prelegenci
Record with basic project information in the current projects section of the FHC UWB website	3.3 [12]	https://www.fzs.zcu.cz/en/Research/Project_department/Current_projects
Record with information about the project on the web database of research projects of the Technology Agency of the Czech Republic	3.3 [13]	https://starfos.tacr.cz/en/projekty/TN02000067?query=sogqaadallowq
Result record in the information system of R&D&I of the Czech Republic	3.4 [14]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F75010330%3A____%2F19%3A00012837
Result record in the information system of R&D&I of the Czech Republic	3.4 [15]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F20%3A43961404
Result record in the information system of R&D&I of the Czech Republic	3.4 [16]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F21%3A43962244
Result record in the information system of R&D&I of the Czech Republic	3.5 [17]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F21%3A43962848
Result record in the information system of R&D&I of the Czech Republic	3.5 [18]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F22%3A43966576
Result record in the information system of R&D&I of the Czech Republic	3.5 [19]	https://www.isvavai.cz/riv?s=rozsirene-vyhledavani&ss=detail&n=0&h=RIV%2F49777513%3A23310%2F23%3A43970279

MODULE 3:
FACULTY OF LAW (FOL)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Law

FORD: 5 - Social sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The Faculty of Law of the UWB (hereinafter referred to as 'FOL') aims to be an effective part of a major and modern public university primarily by providing high quality education in the field of law, including public administration, complemented by lifelong learning programmes. Its mission is mainly to produce graduates with expertise, solid theoretical knowledge, as well as the necessary basic knowledge of legal practice, making them attractive to employers at the very beginning of their professional life. Inherent in this mission is also the further advancement of knowledge in FOL's fields of interest and the fulfilment of its Third Mission in the regional and supra-regional environment.

FOL was established as a part of UWB in 1993. It is the only law faculty for the Plzeň, Karlovy Vary, Ústí nad Labem and South Bohemia regions, although it also provides education to students from other regions of the Czech Republic. From a geographical point of view, this significantly strengthens the significance of UWB as a university that does not restrict itself to limited regional boundaries. From a factual point of view, FOL enriches UWB with a prestigious humanities field. In terms of its size (by number of students), FOL is more or less comparable to other public law faculties in the Czech Republic.

The organizational structure of FOL is based on the traditional model. In addition to the Dean's office and its directly subordinate service departments, which include the Study office and a Science and Research office. FOL is made up of eleven departments. The composition and structure of the staff of the individual departments corresponds to their respective teaching responsibilities. Attention is

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

paid to the career growth of academic staff, and in the evaluated time period, emphasis began to be placed on gradual generational renewal.

FOL provides education in two areas – law and public administration. In the area of law, FOL's main educational focuses are the five-year long-cycle Master's programme in Law and Legal Science and the doctoral programme in Theoretical Legal Studies, with a specialisation in Civil Law. At the same time, FOL conducts state *rigorosum* examination for graduates of the Master's degree programme, leading to the award of the degree of Doctor of Law (JUDr.). The preparation for this is related to the lifelong learning programmes. Within the framework of public administration, FOL provides education in the Bachelor's degree programme Legal Specialisation and in the Master's programme Public Administration. The interest in studying at FOL is consistently high, far exceeding its capacities. Graduates have no difficulty in securing employment in their fields.

Through its study programmes while maintaining a high standard of quality in the educational process, FOL creates opportunities for prospective students of varying interests to obtain top-quality education. FOL seeks to combine theory with practical legal skills, and to apply current professional knowledge. FOL achieves this primarily through the content configuration of the study programmes, including a wide range of compulsory elective courses, as well as choosing appropriate teaching methods. This approach results in graduates who are sought after by employers for their comprehensive preparedness to pursue careers in the field of law and related professions in the dynamic 21st century.

FOL conducts in-house scientific research activities with the aim of advancing knowledge in the individual fields of law, public administration, and related disciplines. Despite some overlap with other disciplines and related fields, according to long-term statistics, basic research focused on law in a broader sense clearly dominates. The carried scientific research have the potential to make a great contribution to the wider societal sphere, including areas of public interest. The aim is to achieve results significantly enhancing knowledge and having a high societal relevance in accordance with the Methodology M17+ evaluation, usable primarily in legal practice. Funding for these activities is partly provided through projects from various public and private sector providers. Especially when commissioned by public authorities, the results produced are of broad societal significance. In particular, the realisation of projects within the framework of security research for the needs of the country can be highlighted, the findings of which are mainly used by public authorities, but they also have an impact or potential impact on legislation. Indirectly, the publication of the findings through FOL's publishing activities has a societal benefit, influencing the application of law by various entities, including courts of all levels.

Within the limitations set by the specifics of the programmes implemented by FOL, considering that law is, barring exceptions, essentially a national discipline, some of the educational and scientific activities have a broader international dimension founded on the development of partnerships with foreign institutions, especially from the broader Central European area. This enables among other things the involvement of foreign students and academic staff at FOL and the involvement of FOL's own students and academic staff abroad, both in the educational and scientific fields, including joint project activities. However, for a significant part of the evaluated time period, these activities were significantly affected by the impact of measures related to COVID-19 and the deterioration of the international security situation, leading to only limited success.

FOL plays an important role in the societal space, primarily by spreading legal awareness among the society, but also by sharing the acquired professional knowledge with the professional and general public. Consequently, FOL contributes to social development both regionally and nationally and possibly also internationally (with particular emphasis on cross-border connections with Bavaria).

In this activity, FOL involves not only its academic staff, but also its graduates and students (especially those in the doctoral programme). This Third Mission, which also involves frequent interactions of FOL's leaders with representatives of public authorities and various institutions, is the focus of FOL's internal and external communication, its presentation to the media and its daily activities.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	2.470/0.310	2.489/0.313	2.489/0.313	2.353/0.177	2.992/0.150	12.793/1.263
Associate Professor	11.260/1.820	11.407/1.968	12.146/2.333	12.924/2.500	14.702/2.647	62.439/11.268
Assistant Professor	28.530/8.930	28.536/9.326	25.597/8.730	24.204/8.549	21.856/8.714	128.723/44.249
Assistant	3.270/1.160	4.488/1.688	6.739/2.472	7.098/2.614	7.359/2.760	28.954/10.694
R&D Personnel ³	1.456/0.500	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	1.456/0.500
Researchers in other categories ⁴	0.020/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.020/0.000
Technical and economic staff ⁵	19.364/17.540	18.245/16.774	15.732/14.982	15.698/14.982	15.392/14.735	84.431/79.013
Scientific, research and development staff involved in teaching activities	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Early career researchers ⁶	7.95/2.188	7.813/2.125	8.263/2.775	8.138/2.775	8.5/3.638	40.664/13.501
Total ⁷	66.370/30.260	65.165/30.069	62.703/28.830	62.277/28.822	62.301/29.006	318.816/146.987

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	1	0	2	0	4	1
Associate Professor	0	0	1	0	4	1	2	0	6	0	3	1
Assistant Professor	0	0	13	2	26	7	8	4	17	4	4	2
Assistant	2	1	2	1	2	0	0	0	1	1	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	0	0	0	0	0	0	0	0	0	0	0	0
Technical and economic staff ¹¹	0	0	2	1	6	5	8	8	4	3	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	5	0	7	2	2	1	3	1	0	0
Total ¹³	2	1	18	4	38	13	19	12	30	8	11	4

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	2	0	1	0	5	1
Associate Professor	0	0	1	0	8	2	2	1	4	0	4	1
Assistant Professor	0	0	3	2	18	5	11	4	9	2	4	2
Assistant	1	0	2	1	7	3	4	1	3	2	3	2
R&D Personnel ¹⁵	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁶	0	0	0	0	0	0	0	0	0	0	0	0
Technical and economic staff ¹⁷	0	0	3	1	2	2	6	6	5	5	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	4	3	7	3	1	1	1	0	0	0
Total ¹⁹	1	0	9	4	35	12	25	12	22	9	16	6

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	198	117	215	137	226	141	209	145	240	170	1,088	710
Master's ²⁰	1,334	742	1,376	760	1,442	812	1,447	815	1,521	910	7,120	4,039
Doctoral	35	13	36	14	41	14	42	16	41	19	195	76
Lifelong Learning Courses	103	61	61	40	111	75	104	69	62	38	441	283
Total	1,670	933	1,688	951	1,820	1,042	1,802	1,045	1,864	1,137	8,844	5,108

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0
Master's	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0
Doctoral	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0
Lifelong learning courses	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/0	1/0	2/0	2/0
Total	6/0	2/0	6/0	2/0	6/0	2/0	6/0	2/0	5/0	1/0	6/0	2/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	
	1.2 Computer and information sciences		Zvolte položku.	
	1.3 Physical sciences		Zvolte položku.	
	1.4 Chemical sciences		Zvolte položku.	
	1.5 Earth and related environmental sciences		Zvolte položku.	
	1.6 Biological sciences		Zvolte položku.	
	1.7 Other natural sciences		Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	
	2.2 Electrical engineering, Electronic engineering, Information engineering		Zvolte položku.	
	2.3 Mechanical engineering		Zvolte položku.	
	2.4 Chemical engineering		Zvolte položku.	
	2.5 Materials engineering		Zvolte položku.	
	2.6 Medical engineering		Zvolte položku.	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences		Zvolte položku.	

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	98
	5.2 Economics and Business		Zvolte položku.	
	5.3 Education		Zvolte položku.	
	5.4 Sociology		Zvolte položku.	
	5.5 Law	98	Basic Research	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology	1	Basic Research	2
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics and Religion	1	Basic Research	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

FOL is involved in the research community as standard. It is one of the founding members of Association of Law Faculties, founded in 2022, which is involved in the promotion of common interests in the field of education and science, including the popularization of legal education and legal science. Within the Czech-Slovak area, academic staff of FOL are involved in regular departmental meetings held in most disciplines, and FOL also organizes these meetings itself (e.g. The Meeting of Czech and Slovak Civil Law Departments (2019) and planned a meeting of administrative law departments (realised in 2024)). FOL also participates in the organization of the annual Czech-Slovak competition for the best student scientific thesis in the field of law, which is held in the form of a conference touring the individual law faculties. FOL hosted the event in 2019. Additionally, FOL staff are invited to conferences and other events in the Czech Republic and abroad,

and their colleagues from partner institutions regularly attend events organised by FOL. The scientific community's respect for FOL is also evidenced by the involvement of FOL's academic staff in broader collectives of significant publications, including especially major expert commentaries on laws, influencing jurisprudence and legal practice (e.g. M. Tomášek, V. Šmejkal et al., *Smlouva o fungování EU, Smlouva o EU, Listina základních práv EU. Komentář. Praha: Wolters Kluwer 2022, 1696p.*, Z. Králíčková, M. Hrušáková, L. Westphalová et al., *Občanský zákoník II. Rodinné právo. 2.vyd. Praha: C.H.Beck 2020, 1256p.*, and M. Kopecký et al., *Správní řád. Komentář. Praha: Wolters Kluwer 2022, 906p.* Another noteworthy activity is the regular expert work in assessing case law requested within the framework of cooperation with the Supreme Court and the Supreme Administrative Court of the Czech Republic.

Among the individual awards given to FOL's academic staff are the prestigious Lawyer of the Year awards, awarded by Czech Bar Association together with the publishing house EPRAVO.CZ in cooperation with the Ministry of Justice and other professional chambers (Petr Liška 2019, Stanislav Balík 2022, Vlasta Formánková 2023). These awards are contingent not only on profound professional erudition, but also on the social attitudes of the selected candidates.

Academic staff of FOL serve on the editorial or scientific boards of approximately forty national and international professional journals focused on law and related disciplines. The editor-in-chief of the editorial board of the international professional journal *Czech (& Central European) Yearbook of Arbitration* was Alexander Bělohlávek, who was also the co-editor of the *Czech Yearbook of International Law*. The editor-in-chief of the journal *České právo životního prostředí* is Vojtěch Stejskal. FOL's staff members also serve on the editorial board of the professional journal *Právnícké listy*, which is published by FOL.

There are not many professional societies relevant to R&D&I in the field of Law. Therefore, participation of FOL academics in elected positions or societies with elected membership is limited. Nevertheless, it can be mentioned that the president of the French-Czech Association Masaryk is Stanislav Balík, who is also a member of the board of the Union of Czech Lawyers. Jan Hák is the president of the Czech group of the International League of Competition Law (LIDC) and vice-chairman of the Czech national group of the International Association for the Protection of Intellectual Property – AIPPI. The vice-president of Czech Society for Labour Law and Social Security Law is Jakub Morávek. Additionally, Vojtěch Stejskal is a member of the board of directors of Czech Society for Environmental Law and the Czech Construction Law Society. In the Czech Association for Legal and Social Philosophy (national section of Internationale Vereinigung für Rechts-und Sozialphilosophie), the chairman is Aleš Gerloch and the vice-chairman is František Cvrček. One of the committee members of the Czech Society of Antiquaries is Vilém Knoll. The supervisory board of The European Society for History of Law includes Vendulka Valentová. It is also worth mentioning that the honorary president of the World Jurist Association was Alexander Bělohlávek. Among the societies with elected membership, we can mention the Centre for Medieval Studies of the Czech Academy of Sciences and Charles University. Among its elected external members, Fellows, from among the leading experts in medieval studies are Miroslav Černý and Vilém Knoll.

Guest lectures and presentations, including those at international conferences and workshops, are of importance in the field more in the context of professional CVs in relation to professional development. Opportunities are partly limited by the national character of the field, and in the evaluated period were partly restricted as a result of restrictions related to the spread of COVID-19. Experts from partner academic institutions, especially Slovakia and Poland, were invited to FOL, while academic staff of FOL travelled to analogous institutions.

Academic staff of the faculty act as evaluators within national and international agencies, especially within GA ČR (Stanislav Balík, evaluation panel 408), other staff act as evaluators in TA ČR and for

foreign grant agencies in Poland and Slovakia. In addition to national and international agencies, they also serve as external experts in the evaluation bodies of other universities, e.g. in The Commission of Programmes for the Promotion of Science at Charles University (Tomáš Dvořák, Monika Forejtová) and in the Charles University Grant Agency (Petra Hrubá Smržová, Vilém Knoll, Jindřich Psutka).

It is also a sign of recognition within the national professional community that FOL staff serve as members of Expert Body of Evaluators, acting as an expert and advisory body to the Research, Development and Innovation Council. A total of twelve academic staff of FOL act as evaluators of the National Accreditation Bureau for Higher Education, and one person is an evaluator of the Slovak Accreditation Agency for Higher Education.

Another proof of recognition of the professional erudition of FOL's academic staff is the membership of three of them in the Legislative Council of the Czech Government (Aleš Gerloch (Vice-Chairman), Martin Kopecký, Václav Henych), and the membership of three other academic staff members in the Council's working commissions.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
doc. JUDr. Petr Liška, Ph.D.	Lawyer of the Year 2019, category Civil Law (substantive, procedural)	Czech Bar Association and epravo.cz, a.s.
JUDr. PhDr. Stanislav Balík, Ph.D.	Lawyer of the Year 2022, Civil and Human Rights and Constitutional Law	Czech Bar Association and epravo.cz, a.s.
JUDr. Vlasta Formánková	Lawyer of the Year 2023, Civil Law category	Czech Bar Association and epravo.cz, a.s.

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
doc. JUDr. Vilém Knoll, Ph.D.	Annales Universitatis Mariae Curie-Skłodowska, sectio G – Ius, ISSN 0458-4317, e-ISSN 2449-8505
prof. Dr. Mgr. Ing. Alexander J. Bělohávek, Dr.h.c.	Czech (& Central European) Yearbook of Arbitration, ISSN 2157-9490
prof. Dr. Mgr. Ing. Alexander J. Bělohávek, Dr.h.c.	Czech Yearbook of International Law, ISSN 1804-543X, 1804-6223
doc. JUDr. Vilém Knoll, Ph.D.	Ius Novum. Kwartalnik Widziału Prawa i Administracji Uczelni Łazarskiego, ISSN 1897-5577, 2545-0271
JUDr. Jaroslav Větrovský, Ph.D.	JUST. Journal of Language Rights & Minorities, ISSN 2952-2307
JUDr. PhDr. Stanislav Balík, Ph.D.	Journal on European History of Law, ISSN 2042-6402
JUDr. PhDr. Stanislav Balík, Ph.D.	Palestra. Pismo adwokatury polskiej, ISSN 0031-0344
doc. JUDr. Vojtěch Stejskal, Ph.D.	Prawne Problemy Górnictwa i Ochrony Środowiska, ISSN 2451-3431
doc. JUDr. Vilém Knoll, Ph.D.	Studia Iuridica Lublinensia, ISSN 1731-6375, e-ISSN 2449-8289
doc. JUDr. Monika Forejtová, Ph.D.	The Lawyer Quarterly, ISSN 1805-840X, ISSN 1805-8396

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
doc. JUDr. Miroslav Černý, Ph.D., JU.D.	Il nuovo codice civile della Repubblica Ceca e la circolazione di modelli (The New Civil Code of the Czech Republic and the Circulation of Models)	Università degli Studi di Roma "Tor Vergata", Italy	2019
doc. JUDr. Vilém Knoll, Ph.D. – Mgr. Vojtěch Vrba – Mgr. Jakub Hablovič	Selected delict issues of Czechoslovak Law in relation to post-war Jewish migration	Poznańskie Towarzystwo Przyjaciół Nauk (Poznan Society of Friends of Science), Poland; Przestępczość w Europie w okresie II wojny światowej i pierwszej powojennej dekady (1939-1956)	2019
JUDr. PhDr. Stanislav Balík, Ph.D.	Projects of unification of laws about advocacy and notariat in the first Czechoslovak republic (1918-1938)	Faculty of Law and Administration, Jagiellonian University in Krakow, Poland; Difficult Heritage: Interwar Codification Movement in Central and Eastern Europe (1918-1939)	2021
doc. JUDr. Petr Dostálík, Ph.D.	Unwanted continuation. The Instituted of so-called versio in rem in the Austrian Civil Code and inter-war legal discussion in Czechoslovakia	Faculty of Law and Administration, Jagiellonian University in Krakow, Poland; Difficult Heritage: Interwar Codification Movement in Central and Eastern Europe (1918-1939)	2021
doc. JUDr. Jakub Morávek, Ph.D.	Ochrana oznamovateľů v České republice (Whistleblower protection in the Czech Republic)	Faculty of Law, Trnava University, Slovakia; Whistleblowing v medzinárodnej, európskej a slovenskej reformnej perspective	2022
doc. JUDr. Tomáš Dvořák, Ph.D.	Správa společných částí nemovitosti v bytovém spoluvlastnictví bez vzniku právnické osoby v právním řádu České republiky de lege lata (Management of Common Parts of Real Estate in Residential Co-ownership without Establishment of a Legal Entity in the Legal System of the Czech Republic de lege lata)	Faculty of Law, Pavol Jozef Šafárik University in Košice, Slovakia; Košické dni súkromného práva III.	2023
doc. JUDr. Vilém Knoll, Ph.D. – Mgr. Bc. Denisa Kotroušová – JUDr. Aneta Schwarzová – Mgr. Bc. Marián Byszowiec	Service in foreign army and its regulation in Czechoslovak law	Faculty of Law and Administration, Maria Curie-Skłodowska University in Lublin, Poland; The Law of War Time	2023
doc. JUDr. Vilém Knoll, Ph.D.	Bezprawne pozbawienie wolności na ziemiach czeskich w perspektywie historyczno-prawnej (Unlawful deprivation of liberty in the Czech lands in a historical and legal perspective)	Faculty of Law and Administration, Maria Curie-Skłodowska University in Lublin, Poland; Odpowiedzialność karna za bezprawne pozbawienie wolności w prawie polskim, ukraińskim i czeskim	2023
doc. JUDr. František Vavera, Ph.D. – Mgr. et Mgr. Karolína Hanzlová	Deprivation of Liberty in the Czech Criminal Law	Faculty of Law and Administration, Maria Curie-Skłodowska University in Lublin, Poland; Odpowiedzialność karna za bezprawne pozbawienie wolności w prawie polskim, ukraińskim i czeskim	2023

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
doc. JUDr. Miriam Laclavíková, Ph.D. – doc. JUDr. PhDr. Adriana Švecová, Ph.D.	Faculty of Law, Trnava University, Slovakia	Starostlivosť o dieťa v podmienkach I. ČSR na Slovensku (Childcare in the conditions of the First Czechoslovakia in Slovakia)	2019
dr Olgierd Ławrynowicz	Institute of Archaeology, Faculty of Philosophy and History, University of Lodz, Poland	Katyňský zločin z pohľadu forenzní archeologie (The Katyn Crime from the Perspective of Forensic Archaeology)	2022
prof. dr hab. Aneta Michalska-Warias	Faculty of Law and Administration, Maria Curie-Skłodowska University in Lublin, Poland	Crime and criminal law in Poland at the beginning of the 21st century	2022
dr Hubert Mielnik	Faculty of Law and Administration, Maria Curie-Skłodowska University in Lublin, Poland	The Criminology of Nazi German Genocides	2022
prof. JUDr. PhDr. Tomáš Gábriš, Ph.D., LL.M., MA	Faculty of Law, Trnava University, Slovakia	Z metodologie právní vědy (From the methodology of legal science)	2022
Volodymyr Shylov	Head of the War Crimes Department, War Crimes Department of the Main Investigation Department, Ukraine	War crimes in Ukraine	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting authority/guarantor of the project/programme call	Year
JUDr. PhDr. Stanislav Balík, Ph.D.	Evaluation panel 408 – Juridical Science and Political Science	Czech Science Foundation (Grant Agency of the Czech Republic, GA ČR)	2021–present
JUDr. Bc. Peter Brezina, Ph.D.	Evaluation panel HS5, Programs PRELUDIUM, SONATA i OPUS	National Science Centre, Poland	2014–2022
JUDr. Kateřina Burešová, Ph.D.	Fields of AG Legal Sciences, AO Sociology, Demography and AE Management and Public Administration	Technology Agency of the Czech Republic (TA ČR)	2021–present
doc. JUDr. Jakub Morávek, Ph.D.	Commission No. 13 for Economic and Legal Sciences	Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences (VEGA), Slovakia	2022–present

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1–3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

FOL conducts research in various areas of legal science, and these activities are also supported by projects obtained from public and private entities. Particularly significant are projects conducted within the framework of security research for the needs of the government, usually in broader consortia of researchers (see Table 3.3.1). Implemented into legislation at various levels as well as into the training of relevant state force, or in the form of certified methodologies, the results of these projects have an extensive social impact and are widely used in the sphere of security of the country and its people.

As a co-beneficiary, FOL participated in the project *Simulation of Interventions in Air Accidents* implemented within the framework of a security research programme for state needs of the Ministry of the Interior of the Czech Republic (MI CR). The main beneficiary was the Technical University of Košice, and another co-beneficiary was the Faculty of Transport Engineering of the University of Pardubice. As part of the project, a design of a multifunctional simulator for intervention in cases of aviation accidents requiring firefighting and rescue actions was created based on software that was developed within the project. Among the results are the *Simulator Training Methodology, Including Assembled Training Procedures*, the certified *Methodology Setting out the Procedure for the Future Implementation of Changes in Firefighting Training* relating to aviation accidents, and the related *Directive of the General Director of the Fire Rescue Service of the Czech Republic (FRS CR) to Provide a Special Course to Acquire Basic Habits of Firefighters in Conditions of Air Accidents*. FOL's staff contributions to the project have been essential to ensure that the proposed solutions comply with legal regulations and that the knowledge and skills acquired through the simulator training are in line with current legislation and procedures. In particular, they participated in the drafting of the guidelines regulating the required training of firefighters and expert methodology for intervention at the scene of an aviation accident; this methodology was also published in the form of a book. The results of the project provide comprehensive tools for the specialty training of firefighters, which focuses on improving the effectiveness of responding to aviation accidents. They build the knowledge and skills that will enable the application of safe intervention practice and competence in responding to emergency and abnormal aircraft situations, including their subsequent investigation.

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

FOL participated in the project *Use of Civil Sector Expert Capacities to Boost the Capabilities of the Integrated Rescue System (IRS)*. The project was implemented within the framework of a security research programme for state needs of the MI CR. The main beneficiary of the project was the Faculty of Social Sciences of Charles University. The aim of the project was to design a legal framework and methodological measures to utilise the potential of both private and public civil sector entities, based on the identification of opportunities, international experience and economic rationality. Often, these entities have advanced expert and technical capacities and personnel, which can, on the basis of voluntary cooperation, significantly strengthen the capabilities of the IRS, operating in conditions of high stress and limited economic and human resources. Both results of the project were contributed to by academic staff of FOL and were based on a broader interdisciplinary collaboration. One was the certified *Methodology of Using Professional Capacities to Increase the Capabilities of the IRS*, which is based on defining procedures and setting minimum standards for the selection of expert capacities aimed at strengthening the activities of the IRS. The second result was a *research report*, on the basis of which the results of the research were subsequently *incorporated* by the provider *into The Concept Documents of Population Protection Plan Until 2026 with an Outlook to 2035* and into a *draft bill on fire protection*. Hence, the results of the project were incorporated into strategic documents approved by public authorities. Due to the importance of the functioning of the IRS and the FRS CR and its reinforcement in crisis situations, FOL has made a significant contribution to improving the safety of the population and the capabilities to deal with crisis situations in the Czech Republic.

Academic staff of FOL were members of the research team of the project *NaSaPO – National Set of Spatial Objects*, which was funded with the support of the TA ČR within the BETA2 Programme. The NaSaPO has been identified in previously approved GeoInfoStrategy as one of the priority measures for digitalization of public administration agendas and a necessary basic dataset of geographic information. Thanks to this, the results achieved within the project have a broad social impact and applicability. By participating in the project and producing the outputs required by it, FOL contributes to the fulfilment of its mission and purpose of existence as a scientific workplace serving the development of society with its achievements. As part of the project, a plan was developed that defined the basic technical parameters and characteristics of NaSaPO and further specified the conditions for its institutional and organizational support. NaSaPO is to be a source of guaranteed geographical reference data for selected real-world spatial objects throughout the national territory. It is universally applicable to public administration decision-making processes and private sector needs and is useful in solving everyday life situations. FOL staff dealt with the legal aspects of NaSaPO and related procedures. They focused primarily on devising a draft legal regulation for the legislative anchoring of NaSaPOs and related procedures in the legal system of the Czech Republic. The execution of the project constituted a significant multidisciplinary undertaking. The legal aspect of the project was a highly complex matter, based on the expertise of professionals in geomatics, geodesy, topography, cartography, spatial planning, and other technical fields. The main beneficiary was the UWB, the Faculty of Applied Sciences (FAS) in particular, alongside which were private companies GEOREAL spol. s r.o., T-MAPY spol. s r.o., and the Research Institute of Geodesy, Topography and Cartography, v.v.i.

As part of the interdisciplinary cooperation across University departments, FOL staff participated in the *Research and Development of Intelligent Components of Advanced Technologies for the Pilsen Metropolitan Area* project, which focused mainly on research and development work in the field of modern IT technologies in connection with their use in selected activities implemented in the Plzeň Region. FOL participated in the project mainly in cooperation with the Department of Cybernetics of the Faculty of Applied Sciences. The specific work package was focused on the processing of legal texts for the purpose of computer voice synthesis of legal texts and for automatic transcription of

so-called legalese into a textual form, with the possibility of searching acoustic recordings from court hearings. The general aim of the research was to explore the possibilities of further progress in the field of computerization and automation of selected procedures and processes implemented within the judiciary, or in the context of individual court proceedings. From FOL's point of view, the interconnection of the legal foundation of the examined subject matter with the most recent findings in the field of information technology has led to interdisciplinary research of a scope and intensity that are otherwise rather rare in the context of legal scientific research. The contribution of FOL consisted primarily of the provision of the annotation of the recordings of the court proceedings itself, as well as of expert coverage of the theoretical aspects of the research.

In the context of international cooperation, academic staff of FOL participated in the project *Continuity and Discontinuity of Pre-war Legal Systems in Post-war Successor States (1918-1939)*, financed by the International Visegrad Fund. The aim of the project is to bring together the academic communities of the V4 countries to research the matter of the legal heritage of the interwar period and to popularize joint research on this topic. The axis of these activities was therefore the confrontation of the needs of the interwar period with the legal legacy of the pre-1918 period, generating problems of continuity and discontinuity of the pre-war legal systems. The project enabled the use of comparative approaches to identifying similarities and differences in the legal legacy of these countries, with a focus on addressing the problems of codification of law in the interwar period. Besides authoring a series of scientific articles and holding a scientific conference, in order to popularise the legal identity of the V4 countries, expert lectures in English were recorded and English translations of important interwar legal acts were made freely available on the Internet. The project was coordinated by the Faculty of Law and Administration of Jagiellonian University, which was the beneficiary of the funding, and, in addition to our FOL, the Faculty of Law of the University of Trnava (Slovakia) and the Faculty of Law and Political Sciences of the University of Szeged (Hungary) also participated. The contributions of the individual faculties to the project and the project results were equal. The expert materials created, freely available on the Internet, show the common legal and cultural roots of the V4 countries, or rather in the Central European area, and thus contribute to the formation of the current legal culture and mutual understanding of the countries of the participating partners.

FOL has long been carrying out contract research on the basis of commissions from public and private sector entities. Due to the nature of the field, these are mostly occasional and of smaller scope and financial volume (Table 3.3.2). Nevertheless, there are exceptions, which (especially when it comes to longer-term contracts) FOL intends to further pursue. FOL considers contract research to be a prestigious matter, especially in relation to commissions from the public sector and professional chambers.

FOL's academic staff prepared an expert study on the basis of a commission from the Statutory City of Pilsen – Municipal Authority of the City of Pilsen – *Theoretical-legal Analysis of the Issue of Blackout in the Broader Sense, Focusing on Questions de Lege Ferenda*. The contract research project focused on the analysis of the legal regulation related to securing the transmission network and dealing with emergency and crisis situations related to power supply failures leading to mass blackouts. Particular attention was paid to the existing and probable future tasks of the authorities of individual levels of public administration in co-resolving emergency situations in the power engineering sector. Within the framework of this study, the competences and related tasks of local government authorities in the event of such disruptions were defined, primarily stemming from The IRS Act, to be followed in the preparation for emergencies, in rescue and salvage operations and in the protection of the population in crises. The purpose for which the research was commissioned was thus fulfilled and it served as a basis for the development of relevant procedures at the level of

the Municipality of Pilsen in case of an emergency and crisis situation related to energy supply failure. These results are useful to the city of Pilsen and its inhabitants and at the same time fulfil the vision of FOL's activities being beneficial to the region and its population.

On the basis of contract research commissioned by the Municipal Authority of the City of České Budějovice, titled *Real-estate Property Disposition of the Municipality of České Budějovice Towards the Roman Catholic Church*, academic staff of FOL produced an expert theoretical study focused on the complex issue of property disposition options regarding the land owned by the City of České Budějovice in relation to the Roman Catholic Church, which has its roots in the middle of the 16th century. Its aim was to examine the question of the continuation of the city's property rights, especially in the context of the current legal situation, also in connection with specific cases. Should the church be the owner of the land in question, the goal was to determine whether the city had the right to repurchase the land, possibly on the basis of the original 16th century contract. The resulting study, which included recommendations for the municipal government of České Budějovice, became a key foundation for further decision-making. On this basis, the city has saved considerable financial resources that it would most likely have had to spend in the case of the opposite, but realistically considered, course of action. FOL has therefore contributed to the good governance of the local authorities, and the positive impact of the resulting study on the city of České Budějovice and its inhabitants can be inferred, thus certainly fulfilling the mission. Since this issue received media attention at the national level, FOL also contributed to spreading the good name of UWB.

Within the framework of the contract research project *Specific Issues of the Organization of Notaries in the Selected Countries of Western and Central Europe*, an expert theoretical study focused on the specific issues of notarial organisation in the chosen countries of Western and Central Europe where the *numerus clausus* principle for notaries applies was produced at the request of the commissioner, which was the Notarial Chamber in Pilsen, consisting of partial studies focused on Germany, Austria and Slovakia. In particular, the study concentrated on the mechanisms of financially safeguarding the notarial service in peripheral areas of the economy, on securing the staffing of offices in these areas (especially in terms of engaging notary candidates and financing their salaries and training), and on the exercise of territoriality in providing notarial services and its impact on the independence and efficiency of notarial services. The study was partly carried out on the basis of research conducted through internships at partner universities abroad and thanks to cooperation with the Chamber of Notaries of the Slovak Republic. The study has contributed to the current discussion on the changes under consideration regarding the organisation and financing of notarial services in the Czech Republic, which has not yet been concluded. The study thus has the potential to influence the development of the functioning of an important legal profession, which is entrusted with significant competences by the state and whose proper functioning is certainly in the interest of society as a whole.

The contract research project *Unauthorized Provision of Legal Services and Analysis of Terms Used in the Past for Entities Providing Legal Services in This Way* was commissioned to FOL by the Czech Bar Association. Its objective was to carry out an expert study focused on the issue of unauthorized provision of legal services with a special focus on the analysis of terminology commonly used in the past and at present for entities providing legal services in this way. In addition to the analysis and evaluation of individual terms, along with specific illustrative examples of the perception of this issue in contemporary media and literature, the study also analyses the development of the legal regulation of the unauthorised provision of legal services. As a last step, this historical analysis was followed by an assessment of relevant contemporary terminology used for unauthorised providers of legal services. The growing problem of unauthorized provision of legal services not only harms

the legal profession, but – perhaps more significantly – it has a high potential to harm the legal interests of the clients of these persons operating unlawfully. The study generated by FOL has the potential to help eliminate this problem and is used by the commissioner, the Czech Bar Association, in relevant legal disputes with persons providing legal services without authorization. With this study, FOL is thus fulfilling its mission to improve the legal environment and contribute to the positive development of society.

The contract research project, *Changes to the System of Deductions from Wages in Enforcement Proceedings*, was commissioned by the Chamber of Executors of the Czech Republic to provide legal expertise in connection with the proposal (currently under discussion in the Parliament of the Czech Republic) to change the system of distraint by deductions from wages. Its objective was the scientific interpretation of selected provisions of this method of enforcement of judgments for monetary considerations pursuant to Civil Procedure Code. Emphasis was placed especially on the ineffective current legislation on the satisfying of creditors' rights in enforcement proceedings done in this method of enforcement of judgments. Additionally, emphasis was placed on the justification of the need to introduce a legal framework for a basic (minimum) deduction from wages. Closer attention was paid to the introduction of the regulation for basic deduction as a systemic solution, as well as to the need to address the obligations of third parties, in this case employers. The expert report was submitted by the Chamber of Executors to the Parliament of the Czech Republic and constituted an important contribution to the discussion on the amendment in question. Since the issue of distraint directly (but also indirectly) affects a considerable number of people across the entire territory of Czechia, the project, or rather the resulting expertise, has a far-reaching impact on the entire Czech society. As a result of its implementation, FOL has contributed to the further development of legislation and, consequently, legal practice in the important field of distraint law.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
Ministry of Education, Youth and Sports of the Czech Republic (MEYS)	Long-term conceptual development	8,589/ 338,817	9,087/ 358,462	9,116/ 359,606	10,124/ 399,369	10,016/ 395,108
MEYS	DS LCDRO				20/ 779	
European Structural and Investment Funds	Common border region Czech Republic - Bavaria. Overcoming legal obstacles in the areas of governance, economy, social affairs and health (INTERREG V-A (CZ-BY), Project No. 68) - https://region-bez-hranic.eu/en/	2,217/ 87,456				
MEYS	Accounting from the perspective of financial law (SGS-2017-012)	189/ 7,455				

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

MEYS	Law in the Course of Time 2 (SGS-2017-023)	625/ 24,655				
MEYS	Selected Institutes of new legislation of private law and criminal law in the application practice – III (SGS-2019-012)	629/ 24,813	687/ 27,101	700/ 27,613		
MEYS	Sovereignty, state security and human rights in relation to European integration and application of law (SGS-2019-026)	334/ 13,176	362/ 14,280	371/ 14,635		
MEYS	Competition for the best student work of the year 2019 (SVK1-2019-022)	147/ 5,799				
MEYS	Hope of Legal Science – Legal science in practice 2019 (SVK1-2019-023)	131/ 5,168				
MEYS	Law in the Course of Time 3 (SGS-2020-025)		675/ 26,627	800/ 31,558	740/ 29,191	
MEYS	Re-codification of the Czech Accounting Law (SGS-2020-035)		157/ 6,193	159/ 6,272	156/ 6,164	
MEYS	Competition for the best student work of the year 2020 (SVK1-2020-012)		92/ 3,629			
MEYS	Hope of Legal Science – Legal science in practice 2020 (SVK1-2020-015)		127/ 5,010			
MEYS	Hope of Legal Science – Legal science in practice 2021 (SVK1-2021-021)			157/ 6,193		
MEYS	Competition for the best student work of the year 2021 (SVK1-2021-023)			100/ 3,945		
MEYS	Current impulses for reforms of traditional concepts of the protection of the rule of law, sovereignty and security in the context of European and national law and its application practice (SGS-2022-020)				353/ 13,925	334/ 13,176
MEYS	Selected Institutes of private law and criminal law in the theory and application practice (SGS-2022-025)				699/ 27,574	748/ 29,507
MEYS	Hope of Legal Science – Legal science in practice 2022 (SVK1-2022-019)				147/ 5,799	
MEYS	Competition for the best student work of the year 2022 (SVK1-2022-021)				138/ 5,444	
Regional Office of the Karlovy Vary Region	Banned and reconciled. Few chapters from the history of criminal law in Cheb region (KK01545/2021)				25/ 986	
MEYS	Putting the New Czech Accounting Act into Practice (SGS-2023-006)					155/ 6,114
MEYS	Law in the Course of Time 4 (SGS-2023-012)					585/ 23,077
MEYS	Hope of Legal Science – Legal science in practice 2023 (SVK1-2023-007)					168/ 6,627
MEYS	Competition for the best student work of the year 2023 (SVK1-2023-016)					138/ 5,444
Total		12,861/ 507,337	11,187/ 441,302	11,403/ 449,823	12,402/ 489,221	12,144/ 479,053

In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Technology Agency of the Czech Republic	NaSaPO - National Set of Spatial Objects (TITIMV706) - https://starfos.tacr.cz/en/projekty/TITIMV706	329/ 12,978				
MEYS	InteCom: Research and development of intelligent components of advanced technologies for the Pilsen metropolitan area (CZ.02.1.01/0.0/0.0/17_048/0007267)	159/ 6,272	132/ 5,207	8/ 316	14/ 552	
Ministry of the Interior (Czech Republic)	Simulation of interventions in air accidents (Security Research Program for the State, VH20172019027, MV-55820-16/VZ-2017) - https://starfos.tacr.cz/en/projekty/VH20172019027	1,841/ 72,623				
Ministry of the Interior (Czech Republic)	Use of civil sector expert capacities to boost the capabilities of the Integrated Rescue System (Security Research Program for the State, VH20182020040) - https://starfos.tacr.cz/en/projekty/VH20182020040		236/ 9,310			
International Visegrad Fund	Continuity and Discontinuity of Pre-war Legal Systems in Post-war Successor States (1918–1939) (22030159) - https://wyznaniowe.law.uj.edu.pl/visegrad					
Total		2,329/ 91,874	368/ 14,517	8/316	14/552	0/0

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Refugee Facilities Administration of the Ministry of the Interior	Conditions for the procedure of administration of refugee facilities of the Ministry of the Interior in a specific environment for the recovery of receivables from foreigners, taking into account Czech legislation and internal laws of the management of the founder of the Refugee Facilities Administration of the Ministry of the Interior	8/ 316				
Mgr. Alan Havlice, judicial executor	Possibilities and limits of conducting a distraint (enforcement) procedure in relation to a trust de lege lata and de lege ferenda	8/ 316				
Municipal Authority of the City of Pilsen	Theoretical-legal analysis of the issue of blackout in the broader sense focusing on questions de lege ferenda	45/ 1,775				
Chamber of Tax Advisers of the Czech Republic	Interpretation of some provisions of the partnership regulation pursuant to § 2716 et seq. Act No. 89/2012 Coll., the Civil Code	10/ 394				

²⁷ Ibid.

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

Security Information Service	Expert scientific study	10/ 394				
Ministry of the Interior (Czech Republic) – The General Directorate of Fire Rescue Service of the Czech Republic	Legal Analysis of Act No. 133/1985 Coll., On Fire Protection, as amended	90/ 3,550				
Notarial Chamber in Plzeň	Specific issues of the organization of notaries in the chosen countries of Western and Central Europe		12/ 473			
Municipal Authority of the City of České Budějovice	Real-estate property disposition of the municipality of České Budějovice towards the Roman Catholic Church		41/ 1,617			
Občanské sdružení Hrad, z.s.	Menhart of Hradec and hiding crown jewels at Velhartice Castle			17/ 671		
The Czech Bar Association	Unauthorized provision of legal services and analysis of terms used in the past for entities providing legal services in this way			25/ 986		
Holečková Real estate, s.r.o.	Problems of Limitation in Civil and Constitutional Legal Context				100/ 3,945	
Chamber of Executors of the Czech Republic	Changes to the system of deductions from wages in enforcement proceedings					72/ 2,840
Total		171/ 6,746	53/ 2,091	42/ 1,657	100/ 3,945	72/ 2,840

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

The activities FOL undertakes also include the production of results of creative activity, i.e. research, which are applied in practice, with current or prospective impact on society. Among results that are not published are mainly methodologies, expert studies or research reports, which FOL works on as part of various projects, including contract research projects. Most types of this kind of results

²⁹ See Terms definition.

(patents, spin-offs, prototypes, varieties and breeds, etc.) cannot be produced in the legal field due to their nature and the regulations governing the provision of legal services. In this context, the possibility of selling licences is also substantially limited or essentially excluded.

Within the framework of the *Simulation of Interventions in Air Accidents* project, a certified *Simulator Training Methodology, Including Assembled Training Procedures*, was developed. The application of the methodology helps to develop knowledge and skills that will enable the personnel of the FRS CR to apply safe intervention practice and competency in aviation accidents, i.e. in emergency and abnormal events, especially involving small aircraft both at and outside airports. The result of actively taking part in the use of the simulator designed within the project, as well as previously completing the e-learning course, is the acquisition of knowledge and skills in order to demonstrate competence in accordance with applicable legislation and procedures. The simulator training includes training procedures for different types of firefighting units starting from their arrival, theoretical training with e-learning software, theoretical testing, through the preparation of training/hand's-on training, the actual training incident, evaluation of the incident, to the evaluation of the overall training. The simulator training includes a variety of scenarios in order to create different training course models. The methodology is used in connection with simulator training at the School and training facility of the FRS CR, and thanks to cooperation with foreign entities it is also applied internationally. In the Czech Republic, in addition to dozens of airports of various types, there are 19 international airports in total, 5 of which are public airports with regular flights, which handled approximately 17.5 million passengers from all over the world in 2024 and where aircraft from many companies from many countries land. A potential aviation accident would therefore have a far-reaching societal impact. The sustainability of the methodology and other results of the project is ensured by the certified *Methodology Setting Out the Procedure for the Future Implementation of Changes in Firefighting Training*.

Within the framework of the same project, *Methodology of the Procedure for Intervention at the Site of the Air Accident and During the Inspection* was developed and subsequently published in book form (J. Chmelík, P. Kybic, S. Stočesová, *Letecké nehody. Metodika postupu při zásahu na místě letecké nehody a při ohledání. Pilsen: ZČU 2021, 978-80-261-1008-8*). Aviation accidents are among the most serious traffic accidents in terms of their scale and consequences. The complexity of their investigation requires a considerable deployment of manpower and resources, and a high level of professional expertise of the deployed personnel. The methodology develops, at a high theoretical and practical level, the methodological and tactical procedures of the individual units of the IRS, which operate at the scenes of aviation accidents and carry out specialised tasks to eliminate the consequences of air disasters and which, within the scope of their competence, contribute to the identification of their causes and consequences. The methodology comprehensively discusses the investigation procedures, algorithms of procedures at the scenes of accidents, the individual authority of the responding entities, as well as coordination rules, tasks, and the authority of the individual IRS units. The publication is widely preferred and used in practice. It is used, among other things, in the training of firefighters (especially lecturers) in the School and training facility of the FRS CR. Thanks to its cooperation with foreign entities, it is also utilised internationally. Due to the importance and often extensive international impact of any aviation accidents, especially at any of the public airports with international traffic, the assumption that the implementation of this methodology is essential in the area of public interest, not only at a national but also at an international level, which certainly includes the prevention in air traffic safety and the proper investigation of any accident.

Within the framework of the project *Use of Civil Sector Expert Capacities to Boost the Capabilities of the Integrated Rescue System*, implemented by the MI CR within the scope of its security research

programme for the needs of the state, *Program bezpečnostního výzkumu pro potřeby státu*, the academic staff of FOL participated in the development of the certified *Methodology of Using Professional Capacities to Increase the Capabilities of the IRS*. Its main objective was to define procedures and set minimum standards for the selection of professional entities of the private and public civilian sector usable on a voluntary basis to support the activities of the IRS, in particular the FRS CR, by identifying opportunities, foreign experience and economic rationality. In the context of the methodology, FOL staff primarily worked on the starting points, possibilities and limits of the legislative environment, which became the basis for the solutions proposed by the methodology, and contributed to the mechanism of selecting professional capacities from the perspective of the legal environment. The importance of the IRS in dealing with crises, especially on the part of the FRS CR, was demonstrated in a broad range of roles, for example, during the recent floods of 2024. At the times when the IRS is heavily strained, the possibility of providing reinforcement in the form of advanced expert and technical resources, as well as personnel from the civilian sector, constitutes substantial aid, which contributes to the overall resolution of the situation, saving lives and property, as well as contributing to the subsequent damage control and mitigation of the consequences. This perspective demonstrates the positive impact of the methodology on society as a whole.

The second result of the same project was the research report *Use of Professional Capacities to Strengthen the Capabilities of IRS*, on the basis of which the results of the research carried out during the project were subsequently incorporated by the provider into two strategic documents. One of them is *Koncepce ochrany obyvatelstva do roku 2025 s výhledem do roku 2030* (Plan for Population Protection Until 2026 with an Outlook to 2035), approved by government resolution No. 560 of 21 June 2021; the MI CR is responsible for this plan and its guarantor is the Directorate General of the FRS CR. The second document was a draft bill on fire protection. Based on it, a new law is being drafted, the form of which is still being discussed within the FRS CR, as evidenced by the government resolution of 29 January 2025, No. 65, on the strategy for the development of the Fire Rescue Service until 2030, which envisages the adoption of new fire protection legislation in this timeframe. The results of the project have thus acquired the character of results reflected in the approved conceptual and strategic documents of R&D&I bodies of the state and other public administration. The society-wide positive impact of this outcome is clearly determined by the importance of population protection and the need to establish fire protection measures and interventions in case of fires, as well as other disasters handled by the FRS CR.

In the course of the *NaSaPO – National Set of Spatial Objects* project, the *Basis for the Definition and Proposal of the Legislative Anchoring of NaSaPO Objects* was created. The *National Set of Spatial Objects* (NaSaPO) has been identified in the approved GeoInfoStrategy as one of the priority measures for digitalization of public administration agendas and as a necessary basic dataset of geographic information. The guaranteed and harmonised NaSaPO data are to serve as a binding basis for all public administration agendas and the production of national map series. Thanks to this, the results achieved within the project have a far-reaching social impact and applicability. Within the framework of the *Basis for the Definition and Proposal of the Legislative Anchoring of NaSaPO Objects*, a legal regulation initial draft on NaSaPO and amendments to other acts was prepared. This draft builds on the principles of the legal regulation drafted in the previous phase of the project and allows for amendments according to the choice of a solution in the directions indicated. The draft bill amended the *National Set of Spatial Objects*, the rules for its operation and the authority of the relevant public administration bodies. It anchors the terms defined in the monolingual term dictionary of the NaSaPO project; it also deals with the cooperation of organisational units of the state, and natural and legal persons obligated to provide cooperation to public administration authorities in order to ensure the collection of data on the territory relating to phenomena to which the individual subjects have ownership or other property rights. The prepared groundwork

document was used by the MI CR in the draft bill on the national infrastructure for spatial information, which went through a reflection process and was discussed by the government (No. MV-127608-22/LG-2021).

Within the framework of the contract research project ordered by the municipality of České Budějovice, *Real-estate property disposition of the municipality of České Budějovice towards the Roman Catholic Church*, a theoretical study was prepared by the academic staff of FOL, whose results were summarized in the *Summary Research Report of the Project Real-estate Property Disposition of the Municipality of České Budějovice Towards the Roman Catholic Church*. The study focused on the complex issue of property disposition options for the land of the city of České Budějovice in relation to the Roman Catholic Church. The study also examined the question of the continuation of the city's ownership rights and any disposition options for the disputed land, especially in the light of current legal conditions, in relation to specific cases. It also recommended further action for the relevant authorities of the City of České Budějovice. The study became a key basis for further (media-tracked) decision-making by city authorities, especially the city council and other authorities, while it was also utilised by the city's legal representatives. By implementing the proposed recommendations, the city has saved considerable financial means, which it would most likely have had to spend in the case of the opposite – realistically considered – course of action. Therefore, FOL's study has clearly had an impact not only on the city of České Budějovice and its inhabitants, but has also helped to solve similar problems in other municipalities.

Among the indirect results of creative activity produced by FOL which have a documented social impact are also specific services to the public, namely to the state administration, and by extension to researchers. These include, for example, expert activity. Academic staff of FOL dealing with administrative science regularly prepare expert assessments of the texts of the forthcoming collection of decisions of the Supreme Administrative Court of the Czech Republic, *Sbírka rozhodnutí Nejvyššího správního soudu* (Collection of Decisions of the Supreme Administrative Court), at the request of the court's president. The expert assessment takes the form of comments on the presented selected decisions of the Supreme Administrative Court and administrative sections of regional courts, processed in the form of case law. Following a subsequent discussion by the plenary of the Supreme Administrative Court, these case laws are subsequently published in said collection of decisions. The collection has been regularly published for 25 years, and since 2017 in electronic form, on a monthly basis. Its purpose is to ensure uniformity of decision-making of courts within the administrative justice system. In particular, natural or legal persons seek protection before administrative courts against unlawful decisions or public authority proceedings. The collection thus also leads to the unification of decision-making processes within the exercise of public authority. The collection is widely used in legal practice and the formulation of the case law contained therein has a critical impact on the definition of the rights of many subjects, as well as on public authority proceedings. This expert activity of FOL's academic staff therefore has a significant societal impact.

Academic staff of FOL specializing in civil and criminal law regularly make expert assessments of the texts being prepared for the forthcoming collection of judicial decisions and opinions issued by the Supreme Court of the Czech Republic, *Sbírka soudních rozhodnutí a stanovisek* (Collection of judicial decisions and opinions), at the request of the court's president. The collection contains judgments, resolutions and opinions of the plenary of the Supreme Court and selected judgments of the general courts which concern addressing a new or previously unexplored issue. The selection of the decisions for publication is carried out by the Supreme Court Divisions, which submit them for comments. On the basis of the comments, the Divisions then review them and decide on the inclusion of the decisions and opinions in the collection. The decisions and opinions concern cases decided by the Supreme Court, which is the highest judicial authority in civil and criminal

proceedings. The collection serves to ensure uniform decision-making by Czech courts. It has been published in print since 1949, currently at the rate of ten volumes per year. The collection is widely used in legal practice and the formulations of the court decisions and opinions contained therein have a key impact not only on the decision-making practice of courts, but on the practical interpretation of the law as a whole. Thus, it concerns basically all entities and the related expert activity of FOL's academic staff has a significant societal impact.

In spite of the focus on non-publication results of FOL's scientific research activities, it should be mentioned that the transfer into practice of the results of science and research with an impact on society in the field of law, or legal science, most often takes the form of publication of the achieved results in the form of professional publications, especially in the form of specialized books, articles and contributions to collections. At the same time, law commentaries, especially scientific commentaries, published in book form, have the most extensive influence on the development of legal practice and thus have a significant impact on society. They are widely used as an important tool providing reliable support in the application of the law at all levels, from members of the legal profession (lawyers, notaries, etc.) and their employees, through judges and other court staff at all levels, to, for example, civil servants and other persons involved in the application of the law as part of their work. Academic staff of the faculty contributed to various commentaries in the evaluated period, including, for example, *J. Švestka, J. Dvořák, J. Fiala et al, Občanský zákoník. Commentary, Volume I. 2nd ed. Prague: Wolters Kluwer, 2020, 1624 p.; A. Drašík, T. Durdík, A. Janoušková, M. Štika et al, Lex COVID: Komentář. Prague: Wolters Kluwer 2020, 218 p.; Z. Králíčková, M. Hrušáková, L. Westphalová et al., Občanský zákoník II. Rodinné právo. 2nd edition: C.H.Beck 2020, 1256 p.; M. Kopecký et al., Správní řád. Commentary. Prague: Wolters Kluwer 2022, 906 p., and M. Tomášek, V. Šmejkal et al., Smlouva o fungování EU, Smlouva o EU, Listina základních práv EU. Commentary. Prague: Wolters Kluwer 2022, 1696 p. (translated into Ukrainian and dedicated to Ukraine as part of Czech Presidency of the Council of the EU).*

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Legal Analysis of Act No. 133/1985 Coll., On Fire Protection, as amended - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958191
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Elaboration of expert study for Security Information Service - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958192
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Theoretical-legal analysis of the issue of blackout in the broader sense focusing on questions de lege ferenda - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958193
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Possibilities and limits of conducting a distraint (enforcement) procedure in relation to a trust de lege lata and de lege ferenda - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958194
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Interpretation of some provisions of the partnership regulation pursuant to § 2716 et seq. Act No.89/2012 Coll., the Civil Code - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958195

³⁰ Specify the specific type of result. Add rows as needed.

Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Conditions for the procedure of administration of refugee facilities of the Ministry of the Interior in a specific environment for the recovery of receivables from foreigners, taking into account Czech legislation and internal laws of the management of the founder of the Refugee Facilities Administration of the Ministry of the Interior - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958455
Summary research report (Vsouhrn)	2019	Summary research report (Vsouhrn) of the Project Real-estate property disposition of the municipality of České Budějovice towards the Roman Catholic Church - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F20%3A43959423
Software	2019	E-learning software for teaching firefighters for firefighting and rescue work in air accidents - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915611
Software	2019	Software to support firefighters training on prepared simulators - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915648
Summary research report (Vsouhrn)	2019	Project Final Summary Report of the project Simulation of interventions in air accidents - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43960216
Methodology certified by the authorised body (NmetC)	2019	Simulator training methodology, including assembled training procedures - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915651
Methodology certified by the authorised body (NmetC)	2019	Methodology setting out the procedure for the future implementation of changes in firefighting training - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915652
Results reflected in directives and regulations of a nonlegislative nature, binding within the competence of the given provider (Hneleg)	2019	Directive of the General Director of the Fire Rescue Service of the Czech Republic to provide a special course to acquire basic habits of firefighters in conditions of air accidents - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915883
Specialist book (B)	2019 2021	Methodology of the Procedure for Intervention at the Site of the Air Accident and During the Inspection (published in book form: J. Chmelík, P. Kybic, S. Stočesová, Letecké nehody. Metodika postupu při zásahu na místě letecké nehody a při ohledání. Pilsen: ZČU 2021, ISBN 978-80-261-1008-8) – old.starfos.tacr.cz/en/result/RIV%2F49777513%3A23320%2F21%3A43962004
Summary research report (Vsouhrn)	2020	Project Specific issues of the organization of notaries in the chosen countries of Western and Central Europe - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F20%3A43961294
Methodology certified by the authorised body (NmetC)	2020	Methodology of using professional capacities to increase the capabilities of IRS - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216208%3A11230%2F20%3A10424824
Results reflected in the approved strategic and conceptual documents of R&D&I bodies of the state or public administration (Hkonc)	2020	Use of professional capacities to strengthen the capabilities of IRS - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216208%3A11230%2F20%3A10424826
Summary research report (Vsouhrn)	2021	Summary research report (Vsouhrn) of the Project Menhart of Hradec and hiding crown jewels at Velhartice Castle - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F21%3A43962498

Summary research report (Vsouhrn)	2021	Summary research report (Vsouhrn) of the Project Unauthorized provision of legal services and analysis of terms used in the past for entities providing legal services in this way - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F21%3A43962786
Research report (O)	2022	TITIMV706, NaSaPO - National Set of Spatial Objects - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43965147
Research report (O)	2022	Basis for the definition and proposal of the legislative anchoring of NaSaPO objects - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43967751
Summary research report (Vsouhrn)	2022	Problems of limitation in civil and constitutional legal contexts - https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43968023
Expert activity	again from 2022	Supreme Administrative Court of the Czech Republic – Sbírka rozhodnutí Nejvyššího správního soudu (Collection of Decisions of the Supreme Administrative Court)
Expert activity	from 2023	Supreme Court of the Czech Republic – Sbírka soudních rozhodnutí a stanovisek (Collection of judicial decisions and opinions)

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

The application of the results of science and research into practice in the field of law, or legal science, most often takes the form of publication of the results achieved. In particular, in the form of professional publications, especially specialized books, including law commentaries, technical

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

articles and contributions to collective works. In addition, there are also outputs generated in the frameworks of applied research projects, which, especially in the case of contract research, are usually not published, but handed over to the client for use according to their needs. Typical users of the published results provided by FOL are in particular all those who are concerned with the application of law in practice or its creation, or who perform various activities within public administration, i.e. judges of courts of all levels, attorneys, notaries, bailiffs, corporate lawyers, civil servants, members of law enforcement and other persons involved in the fields of law and public administration.

In the case of contract research, the clients are public administration and self-government bodies (e.g. the MI CR, the cities of České Budějovice and Plzeň), professional chambers (the Czech Bar Association, the Chamber of Executors of the Czech Republic, the Notarial Chamber of the Czech Republic) and individual law firms and other entities. The professional reputation of individual academics specialising in the field related to the problem to be solved is usually crucial for the client when commissioning contract research from FOL.

FOL communicates with partners and clients mainly on a personal basis. It cooperates with some important organisations (professional chambers, judicial and public administration authorities) in the form of, on the one hand, membership of their representatives in the Faculty Scientific Board and, on the other hand, membership of FOL's academic staff in their bodies and advisory boards. The participation in the Legislative Council of the Czech Government and its working committees can also be highlighted. In some cases, in view of the positive experience shared by both sides, cooperation agreements have been made, on the basis of which cooperation continues. An example is the MI CR – General Directorate of the FRS CR or the Security Information Service. However, it should be noted that this does not only concern cooperation in the field of R&D&I, but also in the field of education.

Within the field, most of the above forms of commercialisation of science and research results (through start-up or spin-off companies, etc.) cannot be realised due to the legal regulation of the provision of legal services. Severely limited is also the possibility of selling licenses. Related to this are also the limited opportunities to raise funds from sources other than public sources outside of contract research. However, donations or direct funding for technical publications are irregularly obtained when necessary. In the period under review, FOL received minor financial donations from a total of three entities from the commercial sphere to support the realisation of the conference *Metamorphoses of Law 2022*, which was held in Znojmo. When obtaining support for the publication of technical books from sources other than public sources, the funds are usually paid directly to the publisher by the donor. Therefore, these funds are not processed by FOL's accounting department. For example, certain technical books were partly financed by the Royal Canonry of Premonstratensians at Strahov.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Donations towards the <i>Metamorphoses of Law 2022</i> conference				25/986	
Total				25/986	

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

In the area of popularisation of R&D&I and communication with the public, FOL focuses mainly on the professional public, which – if we include persons who come into contact with legal issues to a greater extent in their working life in general – represents a relatively broad segment of society. Thus, not only lawyers are considered, but also public and private sector workers with non-legal backgrounds. The activities aimed at popularising R&D&I among this segment of the public include publications, especially technical books, and the organisation of professional conferences. However, FOL significantly fulfils its mission in this area also by the fact that its staff actively contributes to public debate on important issues of life in society, especially in the Czech Republic. The main media experts of FOL are, when it comes to the field of law and legislation, its Dean and Judge Emeritus of the Constitutional Court of the Czech Republic, Stanislav Balík, and in the fields of public administration and both national and international politics, Lukáš Valeš. Both of them regularly appear on major news and journalistic programming, give interviews and provide expert opinions on a number of important social issues related to their fields of expertise. Given the reach of these media, this is the most significant activity in this area. In addition, FOL communicates the results of its R&D&I activities to the general public through popularisation lectures and discussions for the professional or general public; these events are usually organized in cooperation with other entities. In addition, FOL uses other means, such as cooperation in the preparation of professional exhibitions and displays. Through these activities, members of FOL's academic community spread awareness of the achievements of their creative work, but often also refine the wider civil society.

The most far-reaching societal impact comes from professional media appearances. As mentioned, Stanislav Balík and Lukáš Valeš are among the regular guests of all major news and journalistic programming, especially on Czech Television, but also on CNN Prima NEWS and Prima, TV NOVA, and TN Live. Lukáš Valeš is also a frequent guest of foreign news TV channels – JOJ 24, RTVS and ORF. They also actively collaborate with a wide range of other media in the Czech Republic – seznam.cz (where Stanislav Balík is a member of the editorial board), idnes.cz and MF DNES, lidovky.cz, blesk.cz, Deník (denik.cz), etc. – and with news radio stations ČRo Radiožurnál, ČRo Plus, Rádio Prostor, Radio Impuls, Frekvence 1, etc. They commented primarily on constitutional law matters, often related to the decision-making practice of the Constitutional Court, and on key topics of Czech politics – the 2021 parliamentary elections, the 2022/2023 presidential elections, the political issues of the COVID-19 pandemic in the Czech Republic, etc. In total, it comes to more than a hundred filmed programmes, interviews, etc. in the relevant time period. Given the importance of the topics and the viewership of the media and programmes in question, this activity virtually has a society-wide impact.

Popularisation lectures by experts aimed at the general public only are organized to a limited extent, sometimes in cooperation with other entities. An example of this are lectures focusing in particular on new findings gained in the framework of legal-historical research included in the series of lectures organised by the Czech Society of Antiquaries, at the Museum of Prague, and at the National Technical Museum in Prague. In the evaluation period (considering that several semi-annual cycles were cancelled due to the COVID-19 pandemic), there were a total of eight well-

attended lectures. Prior to COVID, FOL organized regular lectures for the Arts and Law Library of the University Library of UWB on the topics of currently conducted research. Within the framework of cooperation with secondary schools in the region, members of FOL's academic community organize selected lectures for their students, focusing, for example, on financial literacy issues or the increasingly topical issue of distraint.

FOL also to some extent participates in the preparation of exhibitions and permanent displays. In the evaluated period this was primarily the preparation of a study as part of the contract research project *Menhart of Hradec and hiding crown jewels at Velhartice Castle*, based on which a script for a tour circuit and exhibition at Velhartice Castle was prepared under the title of Šumavská klenotnice. Thanks to the involvement of FOL, an exhibition entitled *Advokáti proti totalitě* (Lawyers Against Totalitarianism) was organised in 2022 at the Education and Research Library of the Pilsen Region. The exhibition was one part of the Czech Bar Association's project dedicated to the fate of ten brave lawyers, both men and women, persecuted for their activities by the totalitarian regime.

In the long term, FOL's academic community members have also been involved in reconstructions of historical events in cooperation with various entities, usually from the non-profit sphere, in the role of external consultants, using the knowledge gained from their own research activities. These highly attended events are organised in various locations in the Czech Republic, most often at the sites of various monuments or in the centres of historic towns, and have a far-reaching educational potential.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

In its activities during the evaluation period, FOL utilised the recommendations contained in the evaluation report of the International Evaluation Panel, which reflected the very real limitations of the field of law in a number of respects. At the same time, these recommendations understood the aspects of FOL's specific activities in relation to the external environment, given the predominantly national character of the field of law and the fact that legal regulations limit the possibility of offering professional services in the field.

In accordance with the recommendations, FOL continued to produce scientific monographs, university textbooks and commentaries on legal regulations, which have a societal impact both directly and indirectly by influencing legal practice by contributing to the consistency of judicial decisions. In addition to the work on commentaries and monographs focused on core areas of law, FOL has also focused on recommendations regarding publications focused beyond the core areas of law (for example, by contributing to the commentary on the so-called Lex COVID and the monograph on distraint, *Soudní exekuce*, and by contributing to the commentary on the Enforcement Code, as well as to the commentaries on the Act on Experts, Expert Offices and Expert Institutes and on the Act on the Processing of Personal Data). In accordance with the recommendation, FOL also contributes to the consistency of court decisions by providing expert opinions for collections of decisions issued by the Supreme Administrative Court and now also for collections of rulings issued by the Supreme Court of the Czech Republic.

Following the recommendation to engage in legal issues at all levels of public administration, FOL used its established contacts with municipalities as well as with higher levels of government. As a result several contract research projects were obtained. In connection with this direction, FOL also obtained projects from the MI CR under its security research programme for the needs of the state. The results of these projects achieve either national or regional societal impact.

As for the recommendation to involve FOL's academic staff in the work of legislative commissions involved in the drafting of legislation, two new staff members of FOL who are also members of working commissions of the Legislative Council of the Czech Government. FOL was engaged in the preparation of draft legislation – bills – as part of some of the acquired projects. Consequently, the results, including contract research results, contribute to discussions on possible changes to legislation, which appear in a number of publications and have the potential to become an important basis for future discussions on possible changes. In turn, legal practice is also impacted to a considerable extent by commentaries on laws, as well as by opinions on the application of existing legislation expressed in other forms of publication, by which knowledge is transferred to actual practice.

Of the activities leading to the popularization of professional results intended for the public, the greatest social impact and outreach probably stem from the appearances of FOL's staff on current social and legal issues in the national media, which enable FOL to reach the general public and expand its influence on society.

To the extent possible, given the restrictions resulting from the COVID-19 pandemic and the consequent societal economic problems, FOL sought to expand its activities aimed at securing funds from external sources, including non-public sources, within the limitations set by the objective capabilities of the field of law. As part of these activities, it was possible to obtain grant projects as well as at least some contract research projects from both public and non-public commissioners.

Efforts to increase cooperation with foreign universities, aiming for broader scientific cooperation and mobility of students and staff, as recommended, were limited during the evaluated period by the aforementioned measures against the spread of COVID-19 and later by a worsening international security situation. Nevertheless, it was possible to establish, for example, new cooperation with Ariel University in Israel, including planned collaboration on the topic of legal aspects of Czechoslovak assistance in the establishment of the State of Israel, although this activity was subsequently scaled down due to the security situation. There have also been intensive negotiations with Institut für Ostrecht in Regensburg, which are aimed at extending cooperation to include the Faculty of Law of the University of Regensburg. Currently, an Erasmus+ contract has been concluded, and further deeper cooperation is being discussed. Through Polish partners, cooperation with Ukrainian partners is gradually being developed, but is currently limited by war. For the time being, it takes the form of cooperation at conferences. In the context of comparative research, cooperation with Jagiellonian University has been deepened and a joint V4 project has emerged, while another project has been prepared (and acquired).

As recommended in the evaluation, representation on editorial boards of foreign journals was partially increased (e.g. Vilém Knoll in the Editorial Committee of the journal *Ius Novum* and in the Scientific Board of the journal *Annales Universitatis Mariae Curie-Skłodowska, sectio G - Ius*).

In accordance with the recommendations, FOL's cooperation with entities dealing with law in practice is being strengthened, for example in the form of a contract or memorandum of cooperation with the General Inspectorate of Security Forces, the National Centre for Combating

Organised Crime, the Directorate General of the FRS CR, the Ministry of Defence of the Czech Republic and the Union of Advocates of the Czech Republic. The practical side of this cooperation included several professional conferences, several lectures for members of the abovementioned entities, and in the case of the National Theatre, consultancy in the implementation of theatre plays with legal aspects. Good long-term cooperation with professional organisations from the legal field and with individual courts, including Supreme Courts, continues. It takes the form of jointly organised events, as well as appearances of FOL staff at events organised by these organisations and, for example, the form of guest lectures by prominent legal practice representatives from FOL.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Web site Faculty of Law	3.1	https://www.fpr.zcu.cz/en/
The management of the Faculty	3.1	https://www.fpr.zcu.cz/en/Faculty/faculty-management
The Academic Senate (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/Academic-Senate
The Scientific Board (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/scientific-council.html
The Dean's Board (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/deans-board.html
The Board of Doctoral Study Programme (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/DSP-Board
Board of Education – Law (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/Board-education
The Disciplinary Committee (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/About-us/disciplinary-committee
Departments of Faculty (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Faculty/Departmens/
long-cycle Master's programme (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Bachelor-and-master-studies
State Rigorous Examination (JUDr.) (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Rigorous-studies
Doctoral Degree Programme (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Doctoral-studies
Bachelor's Degree Programme (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Bachelor-and-master-studies
Follow-up Master's Degree Programme (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Follow-up-master-studies
Lifelong Learning Programmes (Faculty website)	3.1	https://www.fpr.zcu.cz/en/Study/Lifelong-Learning
professional journal Právnícké listy, published by FOL (Faculty website)	3.2, 3.6	https://www.fpr.zcu.cz/en/Research/law.html
Scientific conferences – overview (Faculty website)	3.2, 3.6, 3.7	https://www.fpr.zcu.cz/en/Research/conference.html
Projects and Grants – an overview (Faculty website)	3.3	https://www.fpr.zcu.cz/en/Research/projects.html

Common border region Czech Republic - Bavaria. Overcoming legal obstacles in the areas of governance, economy, social affairs and health (INTERREG V-A (CZ-BY), Project No. 68)	3.3	https://region-bez-hranic.eu/en/
Project NaSaPO - National Set of Spatial Objects (TITIMV706)	3.3	https://starfos.tacr.cz/en/projekty/TITIMV706
Project Simulation of interventions in air accidents (Security Research Program for the State, VH20172019027, MV-55820-16/VZ-2017)	3.3	https://starfos.tacr.cz/en/projekty/VH20172019027
Project Use of civil sector expert capacities to boost the capabilities of the Integrated Rescue System (Security Research Program for the State, VH20182020040)	3.3	https://starfos.tacr.cz/en/projekty/VH20182020040
Project Continuity and Discontinuity of Pre-war Legal Systems in Post-war Successor States (1918–1939) (22030159)	3.3	https://wyznaniowe.law.uj.edu.pl/visegrad
Publications and other results of scientific activities – an overview (Faculty website)	3.4	https://www.fpr.zcu.cz/en/Research/publication/
Summary research report (Vsouhrn) of the Project Legal Analysis of Act No. 133/1985 Coll., On Fire Protection, as amended	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958191
Summary research report (Vsouhrn) of the Project Elaboration of expert study for Security Information Service	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958192
Summary research report (Vsouhrn) of the Project Theoretical-legal analysis of the issue of blackout in the broader sense focusing on questions de lege ferenda	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958193
Summary research report (Vsouhrn) of the Project Possibilities and limits of conducting a distraint (enforcement) procedure in relation to a trust de lege lata and de lege ferenda	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958194
Summary research report (Vsouhrn) of the Project Interpretation of some provisions of the partnership regulation pursuant to § 2716 et seq. Act No.89/2012 Coll., the Civil Code	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958195

Summary research report (Vsouhrn) of the Project Conditions for the procedure of administration of refugee facilities of the Ministry of the Interior in a specific environment for the recovery of receivables from foreigners, taking into account Czech legislation and internal laws of the management of the founder of the Refugee Facilities Administration of the Ministry of the Interior	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43958455
Summary research report (Vsouhrn) of the Project Real-estate property disposition of the municipality of České Budějovice towards the Roman Catholic Church	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F20%3A43959423
E-learning software for teaching firefighters for firefighting and rescue work in air accidents	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915611
Software to support firefighters training on prepared simulators	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915648
Project Final Summary Report of the project Simulation of interventions in air accidents	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F19%3A43960216
Simulator training methodology, including assembled training procedures	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915651
Methodology setting out the procedure for the future implementation of changes in firefighting training	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915652
Directive of the General Director of the Fire Rescue Service of the Czech Republic to provide a special course to acquire basic habits of firefighters in conditions of air accidents	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216275%3A25510%2F19%3A39915883
Methodology of the Procedure for Intervention at the Site of the Air Accident and During the Inspection (published in book form: J. Chmelík, P. Kybic, S. Stočesová, Letecké nehody. Metodika postupu při zásahu na místě letecké nehody a při ohledání. Pilsen: ZČU 2021, ISBN 978-80-261-1008-8)	3.4	old.starfos.tacr.cz/en/result/RIV%2F49777513%3A23320%2F21%3A43962004
Project Specific issues of the organization of notaries in the chosen countries of Western and Central Europe. Summary research report (Vsouhrn)	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F20%3A43961294
Methodology of using professional capacities to increase the capabilities of IRS	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216208%3A11230%2F20%3A10424824

Use of professional capacities to strengthen the capabilities of IRS (Results reflected in the approved strategic and conceptual documents of R&D&I bodies of the state or public administration)	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F00216208%3A11230%2F20%3A10424826
Summary research report (Vsouhrn) of the Project Menhart of Hradec and hiding crown jewels at Velhartice Castle	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F21%3A43962498
Summary research report (Vsouhrn) of the Project Unauthorized provision of legal services and analysis of terms used in the past for entities providing legal services in this way	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F21%3A43962786
TITIMV706, NaSaPO - National Set of Spatial Objects. Research report	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43965147
Basis for the definition and proposal of the legislative anchoring of NaSaPO objects. Research report	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43967751
Problems of limitation in civil and constitutional lega contexts. Summary research report (Vsouhrn)	3.4	https://starfos.tacr.cz/en/vysledky-vyzkumu/RIV%2F49777513%3A23320%2F22%3A43968023
Summary of selected materials (Faculty website)	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	https://www.fpr.zcu.cz/en/mep

MODULE 3:
FACULTY OF MECHANICAL ENGINEERING (FME)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Faculty of Mechanical Engineering

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

The Faculty of Mechanical Engineering (FME) has established itself as a regionally significant partner of European level in the field of technical education, research and development. Its aim is to provide quality education focused mainly on mechanical and materials engineering, to promote interdisciplinary overlaps and to contribute to basic and applied research in close cooperation with industry, see Table 3.6 - Disciplinary capacities.

FME strives for international recognition as an educational and research institution that prepares graduates in demand on the labour market not only in the Czech Republic but also in the EU. It also emphasises international cooperation, quality research results and effective knowledge transfer.

FME 's societal contribution is particularly evident in the field of research and innovation, where it contributes to solving industrial and societal challenges, for example in the areas of manufacturing technology and engineering, materials engineering, transport systems, green/environmental or digital transformation, through the Regional Technology Institute (RTI - a large centre with more than 100 employees) and the Energy Research Centre (VVRC - a small centre with less than 20 employees, from 2024 integrated as a laboratory in the RTI). FME promotes innovation through close collaboration with regional and international partners and the use of accredited laboratories. In the field of education, it regularly modernises study programmes and involves practitioners, organises international conferences and popularisation events such as the Children's Technical University and supports the development of students' competences for the 21st century.

Long-term goals of FME include strengthening interdisciplinary, using modern teaching methods, increasing research output and promoting collaboration with industry. FME strives for international

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

projects, increased mobility of students and staff, and deepening regional partnerships. With its focus on education, research and technology transfer, FME strives to contribute to sustainable development, innovation and technological progress.

FME carries out research activities in a broad spectrum, including basic, applied and experimental research. Basic research is focused on long-term development projects in key areas of engineering. These activities form the building blocks for further applications and innovations.

Applied research focuses on the development and implementation of technological solutions that meet the current needs of industry, with RTI and VVRC playing a key role. Experimental development links academia with practice, creating concrete products and technologies with industrial impact.

FME also conducts contract research, whose share in the overall activities supports effective knowledge transfer to practice and contributes to the development of regional and national innovation economy, although it is not the main focus of FME, it is very important and necessary to support the economic growth of our partners.

The organizational structure of FME consists of the faculty management, departments, research centres and supporting units. FME management includes the dean, vice-deans, secretary and other key positions providing management of FME's main activities such as teaching, research, internationalisation and external relations. The FME's departments (5 in total) cover a wide range of engineering disciplines and provide professional teaching and research activities. The FME's disadvantage stems from an organizational decision made by the UWB leadership at the end of the 20th century, whereby FME was not assigned departments covering fields such as mechanics, cybernetics, mathematics, and physics. Fully-fledged faculties of mechanical engineering typically have 10 or more departments. The RTI and VVRC research centres play an important role, focusing on all types of research. Support services provide administrative, technical and economic support for all activities of the FME. This structure enables effective management and interconnection of research, educational and application activities.

FME staffing data, see Table 3.1.1, reflects, among other things, the impact of the COVID-19 pandemic in 2020-2022, where limited challenges (especially at the national level) and associated reduced financial resources have led to a gradual reduction of staff, especially in research. The downsizing has continued with the arrival of new leadership in October 2022, which has placed an emphasis on increasing efficiency. The overall decrease in FTEs from 198,057 in 2019 to 161,749 in 2023 is the result of an overall targeted restructuring. In parallel with the managed decline in staffing costs, FME continues to ensure quality teaching, research and gender balance while optimizing resources and strengthening the efficiency of its processes. The success of this staffing strategy is evidenced by the extension of habilitation and tenure accreditation for 10 years in 2023 and a marked increase in measurable scholarly output, including doctoral student outcomes.

FME has maintained stable staffing and research capacities during the period under review, reflecting the current needs of the academic and industrial environment. Tables 3.1.2 and 3.1.3 show that FME has a balanced age structure of staff with the presence of experienced academics and junior researchers. The increase in the representation of women in some categories and the continuous effort to ensure intergenerational change is positive, although in some areas this process remains gradual.

In the area of studies (Table 3.1.4), FME has maintained a relatively stable number of students with a slight decline at all levels of education. In particular, doctoral studies have seen a gradual decline in students due to increased requirements and thus a tightening of the curriculum, yet it remains a strength with over 100 doctoral students being educated each year. The development of the number

of students in Bachelor and Master programmes is in line with long-term trends and reflects both the dynamics of the labour market and the lower interest of applicants in technical fields.

In the language offer of study programmes (Table 3.1.5), FME continues to provide education primarily in the Czech language, which corresponds to the needs of domestic industry. At the same time, steps are being taken to expand the offer in English in order to strengthen international cooperation.

Research capacities (Table 3.1.6) are concentrated in key technical disciplines, especially mechanical (58.57%) and materials engineering (23.74%), with the main emphasis on a balance of applied and basic research as a whole. Other disciplines have a significant presence, particularly in the natural sciences, physics, medicine, health, social sciences, economics and business, which encourages interdisciplinarity and an innovative approach to research.

Overall, FME strives to follow long-term trends in personnel policy, education and research, responding to the challenges of generational renewal, diversity and internationalisation.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	6.634/0.800	6.656/0.800	6.359/0.850	6.695/0.875	6.225/2.000	32.568/5.325
Associate Professor	17.170/2.188	15.919/2.188	17.670/2.135	16.059/2.235	14.725/1.479	81.541/10.224
Assistant Professor	31.827/3.270	33.723/3.377	23.469/4.533	21.824/4.200	22.374/3.343	133.215/18.723
Assistant	1.958/0.000	1.688/0.000	13.142/0.105	14.695/0.813	13.300/1.000	44.782/1.918
R&D Personnel ³	24.547/5.166	23.870/6.603	22.838/5.691	22.187/6.162	19.393/3.605	112.835/27.228
Researchers in other categories ⁴	87.211/14.236	89.110/14.815	85.445/11.932	88.411/10.746	61.111/7.653	411.287/59.381
Technical and economic staff ⁵	28.711/15.838	29.381/17.692	29.198/16.403	26.135/12.728	24.623/12.518	138.048/75.179
Scientific, research and development staff involved in teaching activities	57.588/6.258	57.985/6.365	60.638/7.624	59.272/8.122	56.623/7.822	292.106/36.191
Early career researchers ⁶	35.782/5.962	43.520/7.045	48.720/6.506	47.400/5.312	33.729/4.491	209.150/29.316
Total ⁷	198.057/41.497	200.345/45.475	198.120/41.651	196.005/37.758	161.749/31.598	954.276/197.979

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	1	0	2	0	3	1	0	0
Associate Professor	0	0	0	0	9	1	3	1	6	2	4	0
Assistant Professor	3	0	16	1	7	2	9	2	3	0	1	0
Assistant	0	0	2	0	2	0	0	0	0	0	0	0
R&D Personnel ⁹	8	2	11	3	4	1	6	2	3	0	1	0
Researchers in other categories ¹⁰	31	7	43	12	16	0	6	1	6	2	7	0
Technical and economic staff ¹¹	0	2	2	7	4	11	4	4	5	2	1	0
Scientific, research and development staff involved in teaching activities	3	0	18	1	19	3	14	3	12	3	5	0
Early career researcher ¹²	10	0	28	6	2	0	0	0	0	0	0	0
Total ¹³	42	11	74	23	43	15	30	10	26	7	14	0

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	1	1	2	0	3	1	4	0
Associate Professor	0	0	1	0	12	1	6	0	4	1	4	1
Assistant Professor	0	0	9	2	11	2	4	1	1	1	1	0
Assistant	1	0	4	0	4	1	5	0	1	0	1	0
R&D Personnel ¹⁵	8	2	6	1	4	2	5	1	2	2	1	1
Researchers in other categories ¹⁶	25	5	36	3	19	5	3	1	6	1	4	0
Technical and economic staff ¹⁷	0	1	2	6	1	7	5	3	3	4	0	0
Scientific, research and development staff involved in teaching activities	1	0	14	2	27	5	17	1	9	3	10	1
Early career researcher ¹⁸	12	1	29	1	4	2	1	1	0	0	0	0
Total ¹⁹	34	8	58	12	51	19	30	6	20	10	15	2

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	613	60	551	56	546	48	496	36	485	30	2,691	230
Master's ²⁰	243	54	225	52	198	44	178	45	185	34	1,029	229
Doctoral	146	20	159	23	148	29	143	30	105	19	701	121
Lifelong Learning Courses	279	45	65	14	60	17	132	29	56	13	592	118
Total	1,281	179	1,000	145	952	138	949	140	831	96	5,013	698

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	2/0	0/0	2/0	1/0	2/0	1/0	2/0	1/0	2/0	1/0	4/0	1/0
Master's	1/0	0/0	5/0	0/0	5/0	0/0	5/0	0/0	5/0	0/0	6/0	0/0
Doctoral	2/1	0/0	4/1	0/0	5/3	0/0	6/3	0/0	5/3	0/0	8/4	0/0
Lifelong Learning courses	33/0	33/0	6/0	6/0	6/0	6/0	14/0	14/0	8/0	8/0	36/0	36/0
Total	38/0	33/0	17/1	7/0	18/3	7/0	27/3	15/0	20/3	9/0	54/4	37/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics	0,36	Applied Research	8,62
	1.2 Computer and information sciences	1,85	Balanced basic and applied research	
	1.3 Physical sciences	5,28	Balanced basic and applied research	
	1.4 Chemical sciences	0,36	Balanced basic and applied research	
	1.5 Earth and related environmental sciences	0,46	Basic Research	
	1.6 Biological sciences	0,31	Basic Research	
	1.7 Other natural sciences		Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering	1,64	Balanced basic and applied research	88,32
	2.2 Electrical engineering, Electronic engineering, Information engineering	3,54	Applied Research	
	2.3 Mechanical engineering	58,57	Balanced basic and applied research	
	2.4 Chemical engineering	0,26	Applied Research	
	2.5 Materials engineering	23,74	Balanced basic and applied research	
	2.6 Medical engineering	0,31	Basic Research	
	2.7 Environmental engineering	0,26	Applied Research	

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine	0,10	Applied Research	0,81
	3.2 Clinical medicine	0,15	Balanced basic and applied research	
	3.3 Health sciences	0,56	Balanced basic and applied research	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	1,69
	5.2 Economics and Business	1,54	Applied Research	
	5.3 Education		Zvolte položku.	
	5.4 Sociology	0,10	Applied Research	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications	0,05	Basic Research	
6. Humanities and the Arts	6.1 History and Archaeology	0,41	Basic Research	0,56
	6.2 Languages and Literature	0,15	Applied Research	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

FME strives to participate in international research activities and is part of the scientific community in the field of engineering and related technical disciplines. During the evaluation period, FME staff participated in major research projects, were active in professional societies and editorial boards of international journals, lectured at foreign institutions and contributed to the evaluation of research programmes at national and European level.

As part of prestigious R&D&I awards, academic staff of FME have received several recognitions for their research, educational and innovative activities, either directly or indirectly (in conjunction with their students' awards). An example is the MSV 2022 Gold Medal for "High Precision Cooling System - ECHO", which was awarded during the International Engineering Fair in Brno, where FME regularly presents its research results. In addition, FME staff participated in award-winning projects within the framework of the Society for Machine Tools Award, the Emil ŠKODA Award and other competitions focused on technical innovation and professional education (Table 3.2.1).

The involvement of the FME's academic staff in the editorial boards of international scientific journals confirms their active participation in the international scientific community. FME members have participated in editorial activities in the journals Neural Network World, MM Science, Manufacturing Technology, International Journal of Mechatronics and Applied Mechanics or Processes. These activities allow FME experts to contribute to shaping research discourse in key areas of mechanical engineering, mechatronics, and manufacturing technology (Table 3.2.2).

The research activities of FME members are further supported by their participation in international universities and international scientific conferences. Some of the most important invited lectures include presentations at La Sapienza University of Rome, National Technical University of Athens, University of Padua and international congresses such as the 42nd International Congress on Applications of Lasers & Electro-Optics. These lectures contribute to the dissemination of FME research results at international level and promote knowledge exchange within academia (Table 3.2.3).

In addition to lectures by its own academic staff, FME has hosted distinguished international experts to present their research findings. In the period under review, lectures were given by, for example, prof. Abílio de Jesus (University of Porto), Prof. Nima Shamsaei (Auburn University, USA) and Prof. Zuheir Barsoum (KTH Stockholm, Sweden). The topics of these lectures focused on the areas of fatigue resistance of materials, additive manufacturing and digital quality control of welded joints, which corresponds to the key research directions of FME (Table 3.2.4).

FME is also involved in the evaluation of research projects at national and European level. Academic staff of FME have been involved in programmes such as Horizon Europe, Methodology 2017+, TREND Programme, EPSILON Programme, ZETA Programme, SMART EUREKA Cluster or TRANSPORT 2020+ Programme. The evaluation of these research calls enables FME to contribute to improving the quality of research in a broader context and to reflect current developments in scientific and technological trends (Table 3.2.5).

In addition to research activities, FME organises professional conferences, workshops and seminars aimed at popularising science and strengthening cooperation between academia and industry. These activities promote an interdisciplinary approach to research and contribute to the development of an innovation ecosystem in engineering disciplines.

Overall, FME strives to actively contribute to international scientific collaboration and knowledge sharing. Its academic staff participate in international projects, serve on editorial boards of scientific journals, present their results at foreign universities and participate in the evaluation of research programmes. FME thus responds to the challenges of the current scientific environment and continues to profile itself as a research-oriented institution with an emphasis on applied research and technological development.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
Luboš Kroft, Eng., Ph.D.; Jindřich Sýkora, Eng.	MSV 2022 Gold Medal in the category Innovative Components in Engineering for "Highly Precise Cooling System - ECHO"	Confederation of Industry of the Czech Republic together with Brno University of Technology at the International Engineering Fair in Brno (MSV 2022)
Rohlíková Lucie; Průcha Tomáš; Fiala Jan; Petr Hořejší, assoc. prof., Eng., Ph.D.; Mentlík Pavel; Duffek Václav; Zíka Miroslav	The Rii Forum 2022 - Social Impact Award. 2022.	Research and Innovation association
Petr Hořejší, assoc. prof., Eng., Ph.D.; Jiří Vyšata, Eng., Ph.D.; Rohlíková Lucie; Polcar Jiří; Gregor Michal	The Rii Forum 2019 - Social Impact Award	Research and Innovation association
Jan Mezuliánik, Eng./ Jan Řehoř, assoc. prof., Eng., Ph.D. (thesis supervisor)	The Society for Machine Tools Thesis Award (2023)	Society for Machine Tools of the Czech Republic (SpOS)
Eva Berková, Eng./ Jan Zdebor, Eng. Ph.D. (head of student)	2nd place for the best lecture awarded by students 1st place - The most active teacher was awarded to Jan Zdebor	The 8th International Nuclear Summer School in Ukraine, organised by NAEK Energoatom (Ukraine) in Varash from 2 to 12 July 2019
Martin Stejskal, Eng./ František Sedláček, Eng. Ph.D. (thesis supervisor)	Emil Škoda Prize 2023 - 3rd place for diploma thesis on the topic: Optimization of interior handrail design using new materials and technologies	Škoda Group, Plzen, Czech Republic
Jindřich Sýkora, Eng./ Jan Řehoř, assoc. prof., Eng., Ph.D. (doctoral supervisor)	Awarded by the Mayor of Pilsen for the Gold Medal at the MSV 2022 in Brno and two national patents	Mayor of Pilsen, Czech Republic

Petr Kučera, Ing. / Ivana Zetková, assoc. prof., Eng., Ph.D. (thesis supervisor)	Awarded by the Governor of the Pilsen Region for the best final diploma thesis on the topic: Design of a work space reduction fixture for the EOS M290	Governor of the Pilsen Region, Czech Republic
Karel Glatz, Ing. / Jan Hlaváč, assoc. prof., Eng., Ph.D. (thesis supervisor)	Competition for the Prof. Boris Sommer Prize awarded by SKČR 2022. 1st place for the diploma thesis on topic: Design of a drive for a 25 MN forging press without a pre-shaft and with a planetary gearbox inside the flywheel on the main shaft	Union of Forges of the Czech Republic, www.skcr.org. The award will be presented at 13. Forging Conference organized by the Association of Forging Plants of the Czech Republic.
Adam Bečvář, Ing. / Jan Hlaváč, assoc. prof., Eng., Ph.D. (thesis supervisor)	Competition for the Prof. Boris Sommer Prize awarded by SKČR 2023. The 1st place for the diploma thesis on the topic: Combined drive of forging press	Union of Forges of the Czech Republic, www.skcr.org. The award was presented at the General Meeting

Note: Provide up to 10 examples. Note 2: **Students of FME** are marked in **bold** and **italics**, **academic/research staff** of FME are marked in **bold**.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Jan Kovanda, prof. Eng. CSc. FEng	Neural Network World, ISSN 1210-0552
Stanislav Hosnedl, prof. Eng. CSc.	MM Science, ISSN 1803-1269
Jan Řehoř, assoc. prof., Eng., Ph.D.	Manufacturing Technology, ISSN 1213-2489
Petr Hořejší, assoc. prof., Eng., Ph.D. (Member until 2023)	Applied Computer Science, ISSN 2353-6977
Petr Hořejší, assoc. prof., Eng., Ph.D.	MM Science, ISSN 1803-1269
Milan Edl, assoc. prof., Eng., Ph.D.	MM Science, ISSN 1803-1269
Milan Edl, assoc. prof., Eng., Ph.D.	International Journal of Mechatronics and Applied Mechanics, E-ISSN: 2559-6497,
Václav Uruba, prof. Eng. CSc.	Processes MDPI, ISSN 2227-9717
František Holešovský, prof. Eng. Dr. (Member until 2023)	International Journal of Nanomanufacturing, ISSN 1746-9392

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period.

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Karel Ráž, Eng. Ph.D.	Lattice structures – FEM application	National Technical University of Athens	2023
Šárka Houdková Šimůnková, Assoc. Prof. Eng. Ph.D.	Performance of HVOF Sprayed Coatings for Power Applications	17th International Symposium on Advanced Materials , NPC, Islamabad, Pakistan	2021

Jiří Martan, Assoc. Prof. Eng. Ph.D.	Infrared online diagnostics for pulsed laser micro-processing	42nd International Congress on Applications of Lasers & Electro-Optics (ICALEO 2023, USA)	2023
Jan Kovanda, prof. Eng. CSc. FEng	Driver Assistance and Vehicle Control	Università La Sapienza di Roma, Itálie	2022
Jan Kovanda, prof. Eng. CSc. FEng	Dynamics of Vehicles with Control Systems and Data Processing Vehicle Dynamics and Safety - some technical issues	Università La Sapienza di Roma, Itálie	2023 2023
Petr Hořejší, Assoc. Prof. Eng. Ph.D.	Using Virtual Reality in Medical Applications	Collegium Nowodworskiego, Jagiellonian University, Krakow, Polsko, vyzvala prof. Anna Visvizi	2023
Miroslav Zetek, Prof. Eng. Ph.D.	Metal additive manufacturing in area of research and industry applications – PBF technology	TC Cham, Klastř MECHATRONIKA spolu s Bayern Innovativ	2021
Miloslav Kepka, Assoc. Prof. Eng. CSc.	From multibody simulations to fatigue of bus components: long way?	9th Int. Conference: Mechanics and materials in design. Funchal/Portugal, 26-30 June 2022.	2022
Miloslav Kepka, Assoc. Prof. Eng. CSc.	Strength, fatigue life, and deformation resistance of bus bodies	University of Padua	2023

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Abílio de Jesus, Prof.	University of Porto, Portugal	Ultra-low-cycle fatigue of pipeline steels	2019
Luis Reis, Prof.	University of Lisbon, Portugal	Design and fatigue testing under VHCF conditions	2019
Nima Shamsaei, Prof.	Auburn University, Alabama, USA	Fatigue behaviour of additive manufactured materials: an investigation into feedstock-process-structure-property performance relationships	2019
Marko Nagode, Prof.	University of Ljubljana, Slovenia	The REBMIX algorithm	2021
Alberto Campagnolo, Dr.	University of Padova, Italy	Peak Stress Method - I - Theory Peak Stress Method - II - Case Studies	2022
Teresa Morgado, Prof.	Politécnico de Lisboa, Portugal	Hybrid techniques to predict the durability of metallic components	2022
Sławomir Luściński, Dr.	Politechnika Świętokrzyska, Poland	Simulation as one of the important pillars of Industry 4.0	2022

Mehdi Ghanadi, Dr.	KTH Stockholm, Sweden	Size effect of welded structures on the fatigue performance	2023
Zuheir Barsoum, Prof.	KTH Stockholm, Sweden	Digitizing weld quality assurance of welded structures subjected to fatigue loading - towards industry 4.0	2023
Gustav Hultgren, Dr.	KTH Stockholm, Sweden	Practical presentation of WINTERIA system for weld quality assurance	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting authority/guarantor of the project/programme call	Year
Jan Kovanda, prof. Eng. CSc. FEng	Prospects 5.0	Horizon Europe (EU)	2023
Jan Hlaváč, assoc. prof. Eng. Ph.D.	Evaluation of results according to the Methodology 2017+	Office of the Government of the Czech Republic	2019-2023
Jan Hlaváč, assoc. prof. Eng. Ph.D.	TREND Program	Technology Agency of the Czech Republic (TA CR)	2019-2023
Jan Hlaváč, assoc. prof. Eng. Ph.D.	EPSILON Program	Technology Agency of the Czech Republic (TA CR)	2022
Jan Hlaváč, assoc. prof. Eng. Ph.D.	ZETA Program	Technology Agency of the Czech Republic (TA CR)	2020
Miloslav Kepka, assoc. prof. Eng. CSc.	SMART 3 - SMART 6: SMART Joint Call	SMART EUREKA Cluster (EU)	2019-2023
Miloslav Kepka, assoc. prof. Eng. CSc.	TRIO Program	Ministry of Industry and Trade of the Czech Republic	2019-2021
Miloslav Kepka, assoc. prof. Eng. CSc.	TRANSPORT 2020+ Program	Sectoral Program of the Ministry of Transport / Technology Agency of the Czech Republic	2019-2023
Ludmila Kučerová, prof. Eng. Ph.D.	TRANSPORT 2030 Program	Technology Agency of the Czech Republic (TA CR)	2019, 2020, 2022, 2023
Václav Uruba, prof. Eng. CSc.	PRELUDIUM 2023, PRELUDIUM 2022, OPUS 2020, OPUS 2019	The Polish National Science Centre (NCN) in the field of ST8 - Production and Process Engineering	2019, 2020, 2022, 2023

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

When selecting projects for self-assessment, FME focused primarily on their economic and social impact on society. Considering its interdisciplinary focus, yet with a primary orientation towards the field of engineering and technology (FORD 2), which accounts for approximately 88% of FME's activities, seven national projects were selected in this area. To highlight FME's international reach, one international project in FORD 2 was included, demonstrating FME's ability to succeed in the global research environment. Given FME's significant role in contract research, one contract research project in FORD 2 was also selected. To reflect interdisciplinary and emphasize broader societal impact, the selection was further enriched by one national project (example 9.) in FORD 5-2-1 (Social sciences – Engineering and Technology – Nature science). This selection represents FME's strategy to combine technological innovation, industrial collaboration, and social responsibility.

1. TN01000015 - National Centre of Competence in ENGINEERING

The project is one of the most important research projects of FME and its continuation until 2028 (TN02000018) confirms its long-term strategic importance. FME plays a key role not only as another investigator but also as a leader in tooling technologies and digital transformation. It is also involved in most of the topics within the whole consortium (from 2023: 9 research organisations and 24 companies). Within these areas, it is the principal investigator of sub-projects such as DP014, on which it collaborates with five other research organisations (incl. NTC/UWB)) and nine industrial companies.

The aim of the project is to support research and development of advanced manufacturing technologies and to connect academia with industrial practice. Key outputs include, for example, the functional sample *Tool for turn milling* (2022 (Ch. 3.4)).

The project is in line with the strategic goals of FME, which promotes applied research, interdisciplinary collaboration and technology transfer. FME financial share is 14% for TN01000015 and 22% for TN02000018. The collaboration with VUTS, JSC (principal investigator) and other entities strengthens inter-institutional knowledge exchange and interdisciplinary research.

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

The interdisciplinary character of the project lies in the combination of production technologies, materials engineering and process optimisation. The project contributes significantly to the fulfilment of the mission of RTI, as a regionally and internationally recognised research centre. It supports cooperation with industry, technology transfer and innovation not only in the field of production technologies. The contribution lies in the strengthening of interdisciplinary research, the application of results into practice and the development of competitiveness not only of industrial enterprises but also of the academic sphere.

2. EF18_069/0010040 - Research of additive technologies for future applications in machinery industry - RTI plus

The project focused on the optimization of 3D printing of metallic and composite materials. Its main outputs include, in addition to bibliometrized results, applied results, in particular three patents, e.g. the patent *Device for recoating a layer of metal powder during additive manufacturing of a metal part* (2023), which allows adaptive change of the coating element during the printing job without interrupting the printing process. This innovative solution improves the reliability, productivity and safety of additive manufacturing processes, minimizes product mismatches, reduces costs and ensures the desired mechanical properties of components. The result has been selected as one of the key results in Ch. 3.4. The results of the project have mainly practical applications in industry and support the development of automation and digital technologies.

The project was carried out without the participation of external partners, with FME being the main investigator. FME, through RTI, has a high level of expertise in additive manufacturing, materials engineering, computing and modelling. The project has produced 63 registered results, more than a third of which are informative in the form of technical publications incl. JIMP, which demonstrates its importance and the breadth of the knowledge achieved. The research was interdisciplinary in nature and brought new opportunities for streamlining production processes. The project was one of the key projects of FME and its solution clearly contributed to the fulfilment of the mission and objectives of FME.

3. LO1502 - Development of Regional Technological Institute

FME considers this project as a key milestone in its research direction. The project has already been evaluated in the MEP for the period 2014-2018, but its real importance, in view of the results achieved, has gained momentum, especially in the period 2019-2021. During the final review process, it was evaluated as a project with excellent results with international overlap, confirming its role within FME and the wider academic and industrial sphere.

The project has contributed to the sustainability and development of RTI, which has become a major centre of applied research in the fields of advanced vehicle design, propulsion systems, manufacturing machinery and advanced technologies. During its implementation, 346 registered results were achieved, evenly distributed between basic and applied research. Among the most important outputs of applied research are, for example, the utility model *Tooling unit with fast and very precise clamping of the cutting tool* (2019), see in Ch. 3.4 and 3.5

The project contributed to the strategic objectives of FME, especially in the areas of technology transfer, interdisciplinary and international cooperation. FME was the sole investigator of the project and demonstrated its ability to conduct research with a direct impact on industrial practice, thus confirming its role as a regional and European centre. The necessary collaboration between the different research teams/laboratories has strengthened internal interdisciplinary links and contributed to the development of the research ecosystem.

This project confirmed FME's ability to transfer its results into practice, but in particular increased the publication activity of researchers and academics in basic research. This only confirms the strong research capacity of FME to successfully address future challenges, especially at the international level.

4. 8I22001 - Enhancement of Hydrogen Storage Properties of AlTiVCr Light Weight High Entropy Alloys (HEA) by Ti3C2 Mxene and Several Plastic Deformation - EHSAL

The international project coordinated by FME focuses on innovative approaches to hydrogen storage, with FME having a 52% financial stake in the project. Hydrogen technologies are key to decarbonising industry and transport, with light metal hydrides providing a greener alternative to existing hydrogen storage methods. The theme is in line with FME's strategic focus.

The project significantly strengthens the international cooperation of FME and its position in the global research area. Thanks to the activities within the project, Prof. Kučerová was invited to participate in the Hydrogen Energy Mission of the Ministry of Industry and Trade in Japan (2023) and the USA (2024). During these missions, the research results of FME were presented at a seminar organized by the Czech Embassy in Japan and at prestigious universities such as the University of Michigan and the University of Chicago.

The main research direction is the development of advanced high-entropy materials for hydrogen storage. The use of advanced methods, such as nanosizing by high-pressure torsion, reflects FME's commitment to the application of cutting-edge technology in research. The development of new materials for hydrogen storage has direct industrial potential in the energy and hydrogen economy.

The research is interdisciplinary and links materials engineering, chemistry, physics and energy. The project also contributes to the modernisation of the curricula.

As one of the main outputs of the project, a joint scientific article "Effect of lattice defects on hydrogen storage properties of HfNbTiZr medium entropy alloy" was prepared in collaboration between FME and five foreign institutions. This collaboration demonstrates the importance of the project at the international level and confirms the role of FME in the development of advanced hydrogen technologies.

5. TN01000026 - Josef Bozek National Center of Competence for Surface Vehicles

The project focused on research and development of innovative technologies for rail and road transport to increase their competitiveness, efficiency and sustainability. FME participated in the project as another investigator with a financial share of 12.3%, while the Faculty of Electrical Engineering also participated in the project as additional participant. In total, 31 organisations participated in the project, of which 8 were research organisations. FME followed the project TE01020038 – Competence Center of Railway Vehicles (2012-2019), where it acted as the principal investigator.

The project promotes interdisciplinary approaches and applied research in close cooperation with industry. The research activities of FME included digital transformation in thermodynamics, aerodynamics, mechanics, electrical engineering and control systems, using advanced numerical simulations and experimental testing. FME applied its long-standing emphasis on linking basic, applied and experimental research in the project, which contributed to the effective transfer of knowledge into industrial practice and increased competitiveness of the Czech transport engineering.

One of the significant outputs of FME was a functional sample *Electric generator in the axle of a railway wagon* (2020), see in Ch. 3.4.

The project had a significant interdisciplinary overlap, linking mechanical engineering, electrical engineering, digitalisation and environmental sustainability of transport. The interdisciplinary aspects were particularly evident in the link between engineering sciences and industrial applications and the search for solutions in the field of environmental sustainability of transport systems.

The project has significantly contributed to the strategic goals of FME, especially in the field of technology transfer, applied research and cooperation with industry. The emphasis on environmental sustainability of transport, reduction of fossil fuel consumption and extension of vehicle lifetime is in line with the long-term direction of FME in the field of innovation and technological progress.

6. EG17_176/0015679 - ATTL A SPOL. APPLICATIONS

The project, whose main investigator was Attl Ltd., focused on the development of a technological production line for the production of welded thin-walled tubes made of corrosion-resistant material. FME participated in it through its research centre Regional Technological Institute (RTI) as another researcher. Its role consisted mainly in researching material properties, optimising the production process and testing the prototype in order to automate production, increase process efficiency and at the same time maintain high weld quality.

FME's share in the project was expressed by a financial participation of 10%. The significant output of the project was *The prototype of a technological production line for the production of welded thin-walled tubes from corrosion-resistant material* (2023) (more in Ch. 3.4), with the FME share of the result transferred to the project's principal investigator, Attl Ltd., for 504 thousand CZK without VAT. This transfer was formalised by a contract on the use of the results, which allowed the immediate practical use of the research results in industrial production. This step strengthened technology transfer, which is one of the main pillars of the strategic direction of FME.

The project had a strongly interdisciplinary character, as it combined materials engineering, manufacturing technology and automation. Thanks to the application of advanced research methods, including numerical simulations, laser welding and heat treatment, it was possible to develop a highly automated and efficient production line, which contributed to increasing the competitiveness of Czech industry.

The project has resulted in the real application of the developed technology, leading to significant economic and social benefits, including lower production costs, increased labour efficiency and reduced environmental burden. FME has thus successfully fulfilled its strategy focused on applied research and cooperation with industrial partners, thus contributing to the further development of Czech engineering.

7. TH04010324 - Research and development of a new generation of tools for preform production

The main investigator was Povrly Copper Industries JSC, while FME participated as an additional participant with a share of 28.7%. FME contributed mainly by researching material properties, optimizing the production process and testing prototypes of press tools. No other unit or organisation was involved in the project.

The main objective of the project was to shorten the development of press tools and reduce the costs of experimental development. FME was involved in the creation of a digital twin of the tool,

which allowed the simulation of the technological process before physical production. This shortened the development cycle from 12 weeks to 14 days and reduced the need for test tools from 6-7 to 1-2 pieces, resulting in a saving of 500 thousand CZK/tool per year.

The main result of the project was a functional sample *Tool for pressing of preforms II* (2021) which was subsequently applied in industrial production, see in Chapter 3.4. and 3.5.

The project was strongly interdisciplinary in nature, as it combined materials engineering, manufacturing engineering and digital simulation. FME leveraged the expertise of the Regional Technology Institute (RTI) with advanced numerical simulations and digital modelling methods.

The gender dimension was reflected in particular through automation and digitalization of the production process, which reduces the physical demands of work and allows for a broader participation of the workforce regardless of gender differences. The results of the project have also contributed to the sustainability of industrial production as the new tool reduces material consumption, energy requirements and production waste.

With this project, FME has met its strategic objectives in the field of applied research and technology transfer and contributed to the development of technologies in line with Industry 4.0.

8. EF16_026/0008389 Research Cooperation for Higher Efficiency and Reliability of Blade Machines

The project was resolved by the Faculty of Applied Sciences (FAS) as the main investigator and FME as an additional participant. Another project investigator was Doosan Škoda Power Ltd. and together they participated in the research and optimization of the geometric properties of turbomachinery impellers, which contributed to their higher efficiency and reliability. The UWB had a share of 82% of the total subsidy, of which FAS 49% and FME 43%, demonstrating the significant contribution of both faculties to the project. This project was carried out by the VVRC and the Department of Power Engineering (KKE) on the part of FME.

One of the objectives was to build a 3D Optical Scanning Laboratory at FME, which enabled precise measurements of geometric deviations of impellers. This laboratory became a shared research space for both academic teams, which significantly deepened the interdisciplinary collaboration between FAS and FME.

The results achieved have both practical and theoretical benefits. FME has published 6 impacted articles (JIMP) and 4 articles (JSC), in which the methodology for the evaluation of geometric inaccuracies of impellers was presented. This approach has been implemented at the industrial partner Doosan Škoda Power Ltd.

The project contributed significantly to the strategic objectives of FME, especially in the area of strengthening interdisciplinary, modernization of teaching and cooperation with industry.

The gender dimension of the project is reflected in the automation of measurement methods and the digitalisation of analyses, which reduce the physical demands of the work and allow for a more involved workforce. The project thus represents an excellent example of inter-faculty collaboration leading to scientifically and practically applicable results with direct industrial impact.

9. TL01000191 - Innovation of Tourism Management Systems Using the Process Management Tools

The main investigator of the project was FME, which had a financial share of 19%. The University of Hradec Králové, Tomas Bata University in Zlín, IDS Advisory Ltd., University College Prague and PERFECT HOTEL CONCEPT Ltd. participated in the cooperation.

The main focus was to modernize the management of hotel companies and tourism organizations through digital process management tools. Significant outputs of the project were the Hotel Process Simulator, which enables practical modelling of hotel operational processes, and an interactive library of process models, which helps to optimise process management. More about the result and its application is presented in Chapter 3.4.

Due to its interdisciplinary nature, the research links mechanical engineering, economics and hotel management. As part of the project, FME has expanded its technological capacity, built a 3D optical scanning laboratory and strengthened cooperation with application partners, thus promoting technology transfer between the academic and service sectors.

The results also contributed to the strategic objectives of FME, especially in the areas of strengthening interdisciplinary, modernising teaching and linking research with practice. The outputs of the project are already actively used in academic environments and professional trainings, while further commercial application is the subject of ongoing negotiations.

The gender dimension has also been given a strong emphasis, as automation and digitalisation of process management allow equal access to managerial positions in the hotel industry for both women and men. The simulator develops analytical decision-making and managerial competences, which promotes equal opportunities in hotel operations management.

The findings represent a significant shift in the digitalisation of process management in the hotel industry. Linking academic research with practical application contributes to further development and future commercial applications that can streamline the operation and management of hotel companies.

10. Contract research for HOFMEISTER Ltd.

FME has been cooperating with HOFMEISTER Ltd. for a long time on the basis of contract research, the framework agreement of which was concluded on 10 June 2013. The cooperation is regularly updated and expanded according to research needs and financial volumes. In the period 2019-2023, 41 functional samples and 3 proven technologies were developed, with the total turnover of FME from the cooperation with HOFMEISTER Ltd. reaching 37 116 thousand CZK.

Research activities focused on the development of innovative machining technologies and their verification on functional samples. These samples enabled testing and optimization of processes leading to practical deployment of new technologies in production. The cooperation also enabled the use of a number of patent solutions and other research results that FME had not yet commercialised, for example by selling licences.

The project had an interdisciplinary character, combining mechanical engineering, automation and digital simulation of production processes. The research results contributed significantly to the strategic objectives of FME, especially in the area of technology transfer and applied research.

The project also takes into account the gender dimension, as automation of production processes reduces the physical demands of work, thus contributing to more inclusive working conditions and wider participation of a diverse workforce in modern manufacturing.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
National project Programme call: EF Provider: MEYS CR Period: 2019- 2/2023	EF18_069/0010040 - Research of additive technologies for future applications in machinery industry - RTI plus	55,212/ 2,178,000	18,997/ 749,000	17,775/ 701,000	8,584/ 339,000	
National project Programme call: LO Provider: MEYS CR Period: 2015- 2020	LO1502 - Development of Regional Technological Institute	38,742/ 1,528,000	19,511/ 770,000			
International project with Japan collaboration Programme call: 8I Provider: MEYS CR Period: 2022- 2025	8I22001 - Enhancement of Hydrogen Storage Properties of AlTiVCr Light Weight High Entropy Alloys (HEA) by Ti3C2 Mxene and Several Plastic Deformation - EHSAL				1,795/ 71,000	2,343/ 92,000
International project Programme call: INTERREG Provider: SFEU Period: 2017-2019	No. 24 - Industry 4.0 without borders	1,985/ 78,000				
International project Programme call: INTERREG Provider: SFEU Period: 2017-2021	No. 90 - Research and Development of a Screw Motor	2,525/ 100,000	1,925/ 76,000			
International project Programme call: INTERREG Provider: SFEU Period: 2022	No. 358 - Cross-border processing of complex technical problems - simulation technology for sustainable product development - "GBA-S"				551/ 22,000	
National project Programme call: TL Provider: TA CR Period: 2018-2022	TL01000191 - Innovation of Tourism Management Systems Using the Process Management Tools	5,91/ 23,000	591/ 23,000	483/ 19,000	71/ 3,000	
National project Programme call: TE Provider: TA CR Period: 2012-2019	TE01020038 – Competence Center of Railway Vehicles	8,336/ 329,000				

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

National project Programme call: TH Provider: TA CR Period: 2017-2020	TH02010303 – 3D printing functional parts for energy industry made by DMLS technology using Inconel 718 and research their final properties	1,100/ 43,000	550/ 22,000			
National project Programme call: TH Provider: TA CR Period: 2017-2019	TH02010553 – Swivelling motor bogie for narrow-gauge low-floor tram	1,308/ 52,000				
National project Programme call: TH Provider: TA CR Period: 2017-2019	TH02010708 – Development of new multi-roll calendars for rubber coating cords and pulling rubber foils	99/ 4,000				
National project Programme call: TH Provider: TA CR Period: 2017-2020	TH02011002 – The development of large forging presses with multi-part frames	745/ 29,000	745/ 29,000			
National project Programme call: TH Provider: TA CR Period: 2023-2026	TH82020002 – Development and Processing of Advanced Metal Hydride Composites with Specific Microstructure Properties for mobile hydrogen storage applications (2023-2026)					845/ 33,000
National project Programme call: TJ Provider: TA CR Period: 2017-2019	TJ01000161 – Systematic applied research of material properties of martensitic steel W-Nr. 1.2709 produced by 3D printing using DMLS technology with the application of research results in practice	1,046/ 41,000				
National project Programme call: TJ Provider: TA CR Period: 2017-2019	TJ01000218 – Production of a prototype carbide cutting tool with additive SLM technology	860/ 34,000				
National project Programme call: TJ Provider: TA CR Period: 2018-2019	TJ01000316 – Laser cladding of outer corrosion-resistant layer on storage containers for underground spent nuclear fuel repositories	1,264/ 50,000				
National project Programme call: TJ Provider: TA CR Period: 2019-2021	TJ02000038 – Analysis of fatigue life and operational reliability of vibration-loaded structures	1,000/ 39,000	1,400/ 55,000	330/ 13,000		
National project Programme call: TJ Provider: TA CR Period: 2019-2021	TJ02000135 – Application of microstructure analysis in development of spraying technology of ceramic-based coating prepared by cascade arc plasma	1,451/ 57,000	2,487/ 98,000	1,036/ 41,000		
National project Programme call: TJ Provider: TA CR Period: 2019-2021	TJ02000182 – Improvement of wear resistance of tool steels by a combination of semi-solid treatment with subsequent hot forming and deep cryogenic treatment (2019-2021)	1,461/ 58,000	2,504/ 99,000	1,043/ 41,000		

National project Programme call: TJ Provider: TA CR Period: 2019-2021	TJ02000274 – Determination of the principles and processes taking place during the stabilization annealing of austenitic stainless steels used in nuclear power	1,237/ 49,000	2,120/ 84,000	895/ 35,000		
National project Programme call: TJ Provider: TA CR Period: 2020-2022	TJ04000024 – Alternative materials and heat treatment processes for development and adjustment of special machining tools from highly forged high-speed steel		1,387/ 55,000	2,940/ 116,000	1,421/ 56,000	
National project Programme call: TJ Provider: TA CR Period: 2020-2022	TJ04000044 – Applied research of a complex system of additively produced maraging steel substrate W-Nr. 1.2709 coated with an abrasion-resistant layer using thermal spraying and PVD technology		680/ 27,000	1,685/ 66,000	540/ 21,000	
National project Programme call: TJ Provider: TA CR Period: 2020-2022	TJ04000265 – Optimization of properties of maraging steel with reverse austenite and TRIP effect (2020-2022)		1,363/ 54,000	2,542/ 100,000	1,170/ 46,000	
National project Programme call: TK Provider: TA CR Period: 2023-2025	TK05010178 – The integration of heat pumps with heat accumulation into district heating systems in the Czech Republic					2,421/ 95,000
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000012 – Center of Advanced Nuclear Technology II					1,306/ 52,000
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000028 – Center for advanced machines and manufacturing technology					1,500/ 59,000
Total		118,960/ 4,693,000	54,259/ 2,140,000	28,729/ 1,133,000	14,132/ 557,000	8,415/ 332,000
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
National project Programme call: TN Provider: TA CR Period: 2019-2022	TN01000015 - National Centre of Competence in ENGINEERING	3,716/ 147,000	18,724/ 739,000	8,977/ 354,000	2,244/ 89,000	
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000018 - National Centre of Competence in ENGINEERING					23,995/ 947,000
National project Programme call: TN Provider: TA CR Period: 2018-2022	TN01000026 - Josef Bozek National Center of Competence for Surface Vehicles	6,083/ 240,000	13,239/ 522,000	9,120/ 360,000	3,229/ 127,000	

²⁷ Ibid.

National project Programme call: EG Provider: MPO CR Period: 2019-2023	EG17_176/0015679 - ATTL A SPOL. APPLICATIONS				521/ 21,000	2,853/ 113,000
National project Programme call: TH Provider: TA CR Period: 2019-2021	TH04010324 - Research and development of a new generation of tools for preform production	2,250/ 89,000	1,759/ 69,000	2,496/ 98,000		
National project Programme call: EF Provider: MEYS CR Period: 2018-2023	EF16_026/0008389 Research Cooperation for Higher Efficiency and Reliability of Blade Machines	10,460/ 413,000	3,209/ 127,000	2,834/ 112,000	3,327/ 131,000	
International project Programme call: HEU Provider: EC Period: 2023-2026	101121853 - CONCEPTUAL DEVELOPMENT OF AUTOMATED MULTI-MODAL MOBILITY- SYSTEMS (2023-2026)					260/ 10,000
International project Programme call: INTERREG Provider: SFEU Period: 2016-2019	53 - Cross-border network for research and innovation in energy efficiency and combined heat and power	2,484/ 98,000				
International project Programme call: INTERREG Provider: SFEU Period: 2021-2022	339 - Research innovations in prosthetics			377/ 15,000	754/ 30,000	
International project Programme call: DE_CZ_BTHA Provider: DE - Bavarian State Ministry Period: 2022	BTHA-AP-2022-7 - Design, construction and testing of unusual turbine architectures for heat recovery using advanced, adaptive manufacturing methods				49/ 2,000	
International project Programme call: DE_CZ_BTHA Provider: DE - Bavarian State Ministry Period: 2017-2019	BTHA-FV-9 - New materials for additive manufacturing	650/ 26,000				
International project Programme call: INTERREG Provider: SFEU Period: 2023-2026	BYCZ01_007_ExRe – Applied exoskeleton research for use in rehabilitation					296/ 12,000

International project Programme call: INTER-EXCELENCE/LT Provider: MEYS CR Period: 2021-2023	LTE220006 – STREAM – Surface Treatment for Additive Manufacturing			933/ 37,000	1,423/ 56,000	1,019/ 40,000
National project Programme call: GA Provider: GA CR Period: 2019-2021	GA17-01641S – Improvement of Properties and Complex Characterization of New Generation Fe-Al-O Based Oxide Precipitation Hardened Steels	1,531/ 60,000	1,531/ 60,000	1,531/ 60,000		
National project Programme call: CK Provider: TA CR Period: 2020-2023	CK01000047 – Increasing of safety of the electric vehicles produced in small series (2020-2023)		873/ 34,000	1,510/ 60,000	1,294/ 51,000	1,200/ 47,000
National project Programme call: CK Provider: TA CR Period: 2021-2024	CK02000177 – Predictive maintenance of the rail traffic routes			1,280/ 50,000	1,680/ 66,000	1,680/ 66,000
National project Programme call: CK Provider: TA CR Period: 2022-2025	CK03000162 – The enhancement of the fatigue strength of the high strength steel welded details for new and temporary bridges and their renovation				927/ 37,000	2,233/ 88,000
National project Programme call: OP TAK Provider: MPO CR Period: 2023-2025	EI22_002/0000416 - Development of a turbine blade produced by additive technology (3D printing)					1,371/ 54,000
National project Programme call: OP TAK Provider: MPO CR Period: 2023-2026	EI22_002/0000924 – A new generation of higher durability modular shearing tools designed using Industry 4.0 principles					1,542/ 61,000
National project Programme call: OP TAK_PZT Provider: MPO CR Period: 2023-2025	CZ.01.01.01/06/23_014/0001341 - Integrating external peripherals into virtual reality applications for effective first aid training					434/ 17,000
National project Programme call: OP TAK_PZT Provider: MPO CR Period: 2023-2025	CZ.01.01.01/06/23_014/0001347 - The use of digital technologies to conduct compensatory exercises for the prevention of occupational diseases (2023-2025)					388/ 15,000
National project Programme call: OP PIK Provider: MPO CR Period: 2015-2021	EG15_019/0004620 - Development of new production approaches of shaped complicated, high strength components for car body using a controlled local modification of technological properties		1,962/ 77,000	5,105/ 201,000		
National project Programme call: OP PIK Provider: MPO CR Period: 2017-2020	CZ.01.1.02/0.0/0.0/16_054/0009220 - Software for assessing the impact of long-term workplace design on workers' health	418/ 16,000				

National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	CZ.01.1.02/0.0/0.0/17_104/0025 577 - D printing of plastic moulds for injection moulding of prototypes and small series			642/ 25,000	1,027/ 40,000	257/ 10,000
National project Programme call: OP PIK Provider: MPO CR Period: 2020-2022	CZ.01.1.02/0.0/0.0/19_264/0019 702 - Virtual and Augmented Reality in Production		277/ 11,000	664/ 26,000	387/ 15,000	
National project Programme call: OP PIK Provider: MPO CR Period: 2020-2022	CZ.01.1.02/0.0/0.0/19_264/0019 848 - Implementation of advanced CAD-CAM tools for product design and efficient production - PZT		230/ 9,000	688/ 27,000		
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2022	CZ.01.1.02/0.0/0.0/20_321/0024 351 - Forging press for drop forging DCL 1 600 (2021-2022)			631/ 25,000	631/ 25,000	
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG20_321/0024409 - Research and development of a multifunctional sports helmet using advanced materials and production technologies				185/ 7,000	986/ 39,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG20_321/0024588 - Research and development of new generation of manhole covers for airport runways			752/ 30,000	494/ 19,000	537/ 21,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	EG20_321/0024618 - Development of a new AIR POWER product				198/ 8,000	461/ 18,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	EG20_321/0024888 - Development of productive tool for superalloy (HRSA) machining			572/ 23,000	240/ 9,000	1,245/ 49,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	EG20_321/0024981 - Research of the additive manufacturing metal waste reuse and its influence on the reliability and functionality of the manufactured parts			309/ 12,000	1,091/ 43,000	900/ 35,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG20_321/0025168 - Development of a self-propelled cab with an innovative drive with an emphasis on eliminating negative ones dynamic effects of the machine on the operator			2,408/ 95,000	2,408/ 95,000	2,408/ 95,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	EG20_321/0025169 - Software solution for determining the residual life of metal pipes				389/ 15,000	4,687/ 185,000

National project Programme call: OP PIK Provider: MPO CR Period: 2022-2024	EG20_321/0025170 - Research and development of a new generation of lifting hooks for binding, clamping and handling equipment with the support of Industry 4.0 in the company ZBÍROVIA JSC				9,676/ 382,000	3,115/ 123,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG20_321/0025230 - Development of honing tools and technologies using super hard cutting materials				85/ 3,000	501/ 20,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG20_321/0025245 - APPLICATION OF THE METHOD OF RESIDUAL LIFE OF THERMOPLASTICS IN THE GAS AND WATER SUPPLY				1,648/ 65,000	
National project Programme call: OP PIK Provider: MPO CR Period: 2020-2022	CZ.01.1.02/0.0/0.0/20_324/0022 346 - SW tool for training employees in virtual reality		168/ 7,000	670/ 26,000	703/ 28,000	
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	CZ.01.1.02/0.0/0.0/20_324/0023 588 - Knowledge transfer for a new SW tool for data collection and evaluation in virtual reality (2021-2023)			534/ 21,000	802/ 32,000	267/ 11,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	CZ.01.1.02/0.0/0.0/20_324/0023 589 - Software tool for automating the analysis of the causes of defects and their impacts in the design of products and their production processes (2021-2023)			738/ 29,000	806/ 32,000	67/ 3,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	CZ.01.1.02/0.0/0.0/20_324/0023 592 - Knowledge transfer for SW tool designed for work safety training in the field of construction through virtual reality (2021-2023)			886/ 35,000	912/ 36,000	76/ 3,000
National project Programme call: OP PIK Provider: MPO CR Period: 2021-2023	CZ.01.1.02/0.0/0.0/20_324/0023 594 - Interconnection of time consumption calculation and ergonomic classification at the workplace in the production preparation phase (2021-2023)			738/ 29,000	806/ 32,000	67/ 3,000
National project Programme call: OP PIK Provider: MPO CR Period: 2022-2024	EG21_374/0026897 - Research and development of a new series of milling cutters with progressive cooling to increase service life				500/ 20,000	1,698/ 67,000
National project Programme call: OP PIK Provider: MPO CR Period: 2022-2024	EG21_374/0026910 - RESEARCH AND DEVELOPMENT OF COMPLEX TECHNOLOGY OF PRODUCTION OF STABLE CHARGE SEMI-FINISHED PRODUCTS				2,176/ 86,000	73/ 3,000

National project Programme call: OP PIK Provider: MPO CR Period: 2021-2024	EG21_374/0027234 – e- Carriage				453/ 18,000	741/ 29,000
National project Programme call: EH Provider: MEYS CR Period: 2023- 2028	EH22_008/0004634 - Mechanical engineering of biological and bio- inspired systems					570/ 23,000
National project Programme call: EF Provider: MEYS CR Period: 2019- 2023	EF16_026/0008404 - Machine Tools and Precision Engineering	1,965/ 78,000	2,992/ 118,000	5,984/ 236,000		
National project Programme call: TRIO Provider: MPO CR Period: 2016-2019	FV10219 – Multifunctional machine for machining of large and complex shaped parts of rotary character, designed for power and renewables	2,995/ 118,000				
National project Programme call: TRIO Provider: MPO CR Period: 2016-2019	FV10578 – Research and development of new solutions for forming technologies	804/ 32,000				
National project Programme call: TRIO Provider: MPO CR Period: 2017-2021	FV20235 – Classical and electronic cam mechanisms for advanced applications in industry	1,326/ 52,000	426/ 17,000			
National project Programme call: TRIO Provider: MPO CR Period: 2017-2021	FV20441 – Research and development of safe tram face	2,000/ 79,000	1,850/ 73,000			
National project Programme call: TRIO Provider: MPO CR Period: 2017-2020	FV20637 – Research And development of new tool system for productive machining of very precise holes	1,119/ 44,000	550/ 22,000			
National project Programme call: TRIO Provider: MPO CR Period: 2018-2020	FV30149 – 3D Metal Printing of the Computationally Components when the DMLS Technology is Used	1,600/ 63,000	1,600/ 63,000			
National project Programme call: TRIO Provider: MPO CR Period: 2019-2022	FV40216 – Composite hydraulic crane	640/ 25,000	1,433/ 57,000	1,470/ 58,000	599/ 24,000	
National project Programme call: TRIO Provider: MPO CR Period: 2019-2022	FV40260 – On-line measurement and analysis of the operational loading of structures with adaptive virtual models	980/ 39,000	1,500/ 59,000	1,390/ 55,000	1,510/ 60,000	

National project Programme call: TRIO Provider: MPO CR Period: 2019-2022	FW40348 – Parts development with advanced numerical simulation tools for the AUTOMOTIVE	1,496/ 59,000	3,015/ 119,000	3,007/ 119,000	2,999/ 118,000	
National project Programme call: TREND Provider: MPO CR Period: 2020-2022	FW01010325 – Research and development of a new generation of locking systems		3,868/ 153,000	2,652/ 105,000	1,648/ 65,000	
National project Programme call: TRIO Provider: MPO CR Period: 2020-2023	FW01010362 – Application of additive metal printing in the construction of rail vehicles		2,303/ 91,000	2,628/ 104,000	2,723/ 107,000	1,650/ 65,000
National project Programme call: TRIO Provider: MPO CR Period: 2020-2024	FW01010364 – Application of high frequency mechanical vibration for increasing fatigue strength and durability of welded joints of rail vehicle components		1,628/ 64,000	2,327/ 92,000	2,700/ 107,000	2,700/ 107,000
National project Programme call: TRIO Provider: MPO CR Period: 2020-2022	FW01010369 – Development of laser cladding process for depositing special corrosion- resistant composites based on non-ferrous and natural inorganic materials onto inner walls of tubes for power generation and chemical industries		1,730/ 68,000	2,407/ 95,000	2,363/ 93,000	
National project Programme call: TRIO Provider: MPO CR Period: 2020-2022	FW01010386 – Research and development of articulated electric bus		1,283/ 51,000	1,050/ 41,000	450/ 18,000	
National project Programme call: TRIO Provider: MPO CR Period: 2020-2023	FW01010462 – Computational and experimental support for 3D printing of metal components made by DMLS technology and exposed to multiaxial fatigue loading		946/ 37,000	1,452/ 57,000	1,400/ 55,000	840/ 33,000
National project Programme call: TRIO Provider: MPO CR Period: 2021-2025	FW03010077 – InTechTex – Innovative Technology for Integration and Encapsulation of Electronic Components for Smart Protective Clothing Resistant to Harsh Environment			708/ 28,000	850/ 34,000	850/ 34,000
National project Programme call: TRIO Provider: MPO CR Period: 2021-2024	FW03010111 – Go-kart engine 125ccm with direct injection			886/ 35,000	897/ 35,000	906/ 36,000
National project Programme call: TRIO Provider: MPO CR Period: 2021-2024	FW03010172 – Highly productive machines for digital factory environments			873/ 34,000	860/ 34,000	855/ 34,000

National project Programme call: TRIO Provider: MPO CR Period: 2021-2024	FW03010323 Research and development of shaped moulds from hardenable steels for casting zinc alloys in the application of modern technologies of additive production, heat treatment, surface treatment and numerical simulations			1,862/ 73,000	1,862/ 73,000	1,862/ 73,000
National project Programme call: TRIO Provider: MPO CR Period: 2021-2023	FW03010376 – Development of an industrial compressor and its digital twin			1,342/ 53,000	1,671/ 66,000	843/ 33,000
National project Programme call: TRIO Provider: MPO CR Period: 2021-2024	FW03010609 – 208/5000 Research and development of shape moulds made of H-13 and HEATVAR for die casting of aluminium alloys in the application of modern technologies of additive production, heat treatment, surface treatment and numerical simulations			2,158/ 85,000	2,158/ 85,000	2,158/ 85,000
National project Programme call: TRIO Provider: MPO CR Period: 2023-2025	FW06010259 – A multifunctional portal-type machine for machining large and complex components, designed for energy and renewable sources with the application of progressive materials in the construction of control nodes					3,084/ 122,000
National project Programme call: TRIO Provider: MPO CR Period: 2023-2026	FW06010462 – Thin-film strain gauge with high sensitivity and durability prepared by magnetron sputtering					1,575/ 62,000
National project Programme call: TRIO Provider: MPO CR Period: 2023-2025	FW06010517 – Computational and experimental support of 3D printing technology of highly stressed plastic components with increased temperature and fatigue resistance					2,598/ 103,000
National project Programme call: TRIO Provider: MPO CR Period: 2023-2025	FW07010048 – Electric bus telematics unit with integrated digital twin, failure prediction and durability life using 5G connection					731/ 29,000
National project Programme call: LQ Provider: MEYS CR Period: 2016- 2020	LQ1603 – Research for SUSEN	4,322/ 170,000	4,474/ 176,000			
National project Programme call: TE Provider: TA CR Period: 2012-2019	TE01020075 – Competence Center – Manufacturing Technology	2,218/ 87,000				

National project Programme call: EPSILON Provider: TA CR Period: 2017-2020	TH02020057 – Turbine profile cascades for supersonic flow fields	600/ 24,000	500/ 20,000			
National project Programme call: EPSILON Provider: TA CR Period: 2017-2020	TH02020086 – Influence of Seal Leakage Flows Interactions on Steam Turbine Efficiency	650/ 26,000	600/ 24,000			
National project Programme call: EPSILON Provider: TA CR Period: 2017-2019	TH02020161 – Development of high-alloy steel with high metallurgical purity, ultra-fine structure and an enormous degree of forming for special applications	634/ 25,000				
National project Programme call: EPSILON Provider: TA CR Period: 2018-2021	TH03010164 – Technologies and components for e-mobility	720/ 28,000	675/ 27,000	634/ 25,000		
National project Programme call: EPSILON Provider: TA CR Period: 2018-2020	TH03010257 – New generation of hydrodynamic industrial bearings with increased stiffness and damping coefficients	567/ 22,000	284/ 11,000			
National project Programme call: EPSILON Provider: TA CR Period: 2018-2020	TH03030216 – KONTRA – Research and Development of the Light, Safe and Ecological Agriculture Tractor Trailer with increased transport capacity designed using High Strength Steels	480/ 19,000	480/ 19,000			
National project Programme call: EPSILON Provider: TA CR Period: 2018-2020	TH03030219 – Research and Development of the Second Generation of Safe and Ecological Skip Lifts using High Strength Steels (2018-2020)	480/ 19,000	480/ 19,000			
National project Programme call: EPSILON Provider: TA CR Period: 2020-2023	TH71020003 – Composite reinforcement in a light stainless steel bus structure		51/ 2,000	429/ 17,000	272/ 11,000	136/ 5,000
National project Programme call: EPSILON Provider: TA CR Period: 2021-2024	TH75020003 – Development of “3D print-thermal spray” systems for dynamically and cyclically loaded applications			1,021/ 40,000	2,227/ 88,000	2,251/ 89,000
National project Programme call: EPSILON Provider: TA CR Period: 2023-2026	TH83020002 – Identification of the effect of hydrogen as a function of structural condition in pipeline distribution infrastructure and storage tanks					202/ 8,000
National project Programme call: THETA Provider: TA CR Period: 2018-2022	TK01020144 – Development of and innovation in austenitic stainless steel sheet with specific properties for spent nuclear fuel storage	1,600/ 63,000	1,031/ 41,000	761/ 30,000	608/ 24,000	

National project Programme call: THETA Provider: TA CR Period: 2019-2023	TK02020033 – Experimental and computational critical heat flux identification of small power output reactor (SMR) fuel rods					
National project Programme call: THETA Provider: TA CR Period: 2020-2024	TK03030121 – Conceptual Design of an Innovative Safety System for Gas-cooled Nuclear Reactors		319/ 13,000	1,797/ 71,000	1,642/ 65,000	1,540/ 61,000
National project Programme call: THETA Provider: TA CR Period: 2022-2025	TK04020056 – High temperature resistant materials for components in thermodynamic cycles				792/ 31,000	748/ 29,000
National project Programme call: THETA Provider: TA CR Period: 2023-2025	TK05020034 – 3D Printed gaskets for energy production and nuclear applications					1,079/ 43,000
National project Programme call: DELTA 2 Provider: TA CR Period: 2021-2023	TM02000031 – Production technology performance increase and distance fabrics utility properties extension for new applications			1,604/ 63,000	957/ 38,000	438/ 17,000
National project Programme call: TN Provider: TA CR Period: 2019-2022	TN01000007 – National Centre for Energy			700/ 28,000	384/ 15,000	
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000025 – National Centre for Energy II (2023-2028)					1,860/ 73,000
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000054 – Božek Vehicle Engineering National Center of Competence (2023-2028)					4,760/ 188,000
National project Programme call: TN Provider: TA CR Period: 2023-2028	TN02000067 – Future Electronics for Industry 4.0 and Medical 4.0 (2023-2028)					1,864/ 74,000
National project Programme call: SIGMA Provider: TA CR Period: 2023-2026	TQ01000361 – Second substance of the technical system (2023-2026)					171/ 7,000
Total		54,788/ 2,161,000	75,990/ 2,999,000	83,537/ 3,294,000	72,637/ 2,866,000	91,628/ 3,617,000

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
National Contract with a Value of EUR 10K/Year and Above						
HOFMEISTER Ltd.	Development and Implementation of Innovative Machining Technologies	7,983/ 315,000	3,988/ 157,000	4,824/ 190,000	7,657/ 302,000	12,664/ 500,000
Doosan ŠKODA Power Ltd.	Optimization of Printing Processes and Aerodynamic Stage Study	2,762/ 109,000		539/ 21,000		
ŠKODA TRANSPORTATION JSC	Analysis and Evaluation of Mechanical Properties		255/ 10,000		988/ 39,000	1,255/ 50,000
Kermi Ltd.	Optimization, Development and Implementation of Cutting Tools, CNC Program Development		436/ 17,000	587/ 23,000	448/ 18,000	
ŠKODA MACHINE TOOL JSC	Optimization of Machine Tool Design, Finite Element Analysis (FEA) Calculations and Implementation	1090/43	678/ 27,000	485/ 19,000		
HEACO XM Ltd.	Development of Lock Design	375/ 15,000	775/ 31,000	440/ 17,000		
AM-CME Ltd.	Frequency Analysis, Pipeline Production Innovation, Metal Part Pressing Development, Solution Optimization, and Design Proposals	385/ 15,000	620/ 24,000		587/ 23,000	
CIE development Ltd.	Measurement Database Development and Application Development			484/ 19,000	354/ 14,000	
ILC FACTORY JSC	Component Implementation and Integrated Joint Analysis		267/ 11,000	577/ 23,000	300/ 12,000	
Pojer Ltd.	Prototype Development			429/ 17,000	674/ 27,000	
TRIBASE electric Ltd.	Cloud System Implementation		399/ 16,000		499/ 20,000	
AIR POWER Ltd.	System Analysis	390/ 15,000	476/ 19,000			
CIE ergonomy Ltd.	Ergonomics Cost Analysis and Database Application Development	394/ 16,000	489/ 19,000			
CIE consulting Ltd.	Development of Beta Application Version and Software Model Solution		807/ 32,000			

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

Precision Castparts CZ Ltd.	Development and Implementation of Prototype Cutting Tools					670/ 26,000
PEŠEK Machinery Ltd.	Design Proposal and Process Optimization				615/ 24,000	
DMKtech Ltd.	Methodology and Software Development					499/ 20,000
CIE technology Ltd.	Application in Virtual Environment				490/ 19,000	
TGS nástroje-stroje-technologické služby Ltd.	Experimental Verification of Cutting Inserts		450/ 18,000			
TES Ltd.	Development of a Comprehensive CFD Model	400/ 16,000				
ACO Industries Tábor Ltd.	Pumping Stations Endcap Type A – Structural Analysis, Dimensioning, Calculations, Optimization, and Verification				274/ 11,000	
Aerotech Czech Ltd.	SEM Analysis and Evaluation	292/ 12,000				
BEDNAR FMT Ltd.	Fatigue Testing of Structural Elements, Analysis, and Evaluation	371/ 15,000			250/ 10,000	
Bratři Horákové Ltd.	Rolling Mill Line Innovation			496/ 20,000		
Centrum výzkumu ŘEŽ Ltd.	Dynamic Calculation, Verification of Part Printability, and Test					646/ 25,000
COMTEST FHT JSC	Analysis, Material Analysis, Studies, and Technology Research and Development					358/ 14,000
DAIHO CZECH Ltd.	Metrological Evaluation and Analysis	253/ 10,000				300/ 12,000
DEVINN Ltd.	Development and Design of Pressing Tools			420/ 17,000		
E-CORECO Ltd.	Development of Membrane Pump Design			400/ 16,000		
Electrolyte Ltd.	Development of Lid Lock Design					266/ 10,000
Element Materials Technology Pilsen Ltd.	Verification of Printability and Production Optimization Design					692/ 27,000
ELKOP Technik Ltd.	Development of Mechanical Securing System				450/ 18,000	
Ept connector Ltd.	Analysis, Optimization, and Process and Data Analysis				340/ 13,000	
G D K Ltd.	Optimization of Blowing Mechanism	340/ 13,000				

GTW BEARINGS Ltd.	Design Proposal, Metrological Analysis, Functional Samples, and Technology Development	359/ 14,000	954/ 38,000			
HEKON Ltd.	Development of Steel Hatch Design	310/ 12,000				
HOUDA Ltd.	Analysis and Numerical Simulation of Injection Moulding			350/ 14,000		
Ing. Jiří Tomášek	Web Application Development			399/ 16,000	495/ 20,000	
Ing. Josef Forejt	Development and Design of Control Unit			399/ 16,000	495/ 20,000	
INOTECH ČR Ltd.	Metrological Analysis	461/ 18,000				
ISOS Automation Ltd.	Development of Technological Time Tracking System				475/ 19,000	
Jan Mikyska	Development, Design, and Construction of a 3D Model			320/ 13,000		
LaserTherm Ltd.	Material Analysis and Evaluation			399/ 16,000		
LINTECH Ltd.	Optimization of Business Processes				490/ 19,000	
LUBRICANT Ltd.	Development of 3D Models and Determination of Cutting Conditions					260/ 10,000
MDS Engineering L.P.	Verification of Part Printability					420/ 16,000
Měď Povrly JSC	Analysis and Development of a Pressing Tool			265/ 10,000		
Mubea Ltd.	Design Proposal				252/ 10,000	
NILAN Ltd.	Cloud Application Development		399/ 16,000	495/ 20,000		
OKULA Nýrsko JSC	Metrological Analysis					284/ 11,000
PEARTEC Ltd.	Prototype Development	395/ 16,000	399/ 16,000			
PM – TECH Ltd.	Testing and Diagnostics of Cutting Tools			254/ 10,000		247/ 10,000
REHEAT Ltd.	Design of Control Systems	399/ 16,000	399/ 16,000			
Safran Cabin CZ Ltd.	Metrological Analysis of Interior Parts for the Aerospace Industry			363/ 14,000		
Stäger Inovac Packaging Ltd.	Metrological Analysis and Evaluation			266/ 10,000		
STAX Metal Fibers Ltd.	Innovation of the Wire Drawing Process	330/ 13,000				

Streicher Ltd Pilsen	Design of Manufacturing Plant Concept			369/ 15,000		
Strojírna Slaviček Ltd	Analysis and Evaluation of the Manufacturing System	500/ 20,000				
ŠKODA AUTO JSC	Topological Optimization of Vehicle Structure	260/ 10,000			244/ 10,000	
ŠKODA JS JSC	Material Analysis and Verification of Part Printability				245/ 10,000	382/ 15,000
UNIOSO Ltd.	Testability Analysis and New Algorithm Development			277/ 11,000	612/ 24,000	546/ 22,000
UNO PRAHA Ltd.	System Analysis and Evaluation		2,000/ 79,000			
UNREAL Ltd.	Design Proposal	245/ 10,000				
Victory Czech Ltd.	Workplace Layout Design		350/ 14,000			
Wepuko Pahnke Ltd	Finite Element Analysis (FEA) Calculations					320/ 13,000
XR Institute Ltd.	System Analysis and Evaluation			491/ 19,000		495/ 20,000
Zahradnictví flos Ltd.	Optimization of Business Processes				483/ 19,000	
ZdravýPodnik Ltd.	Consulting and Expert Services		380/ 15,000			
International Contract						
SolidCAM Ltd (ISR)	Development of the iMachining Module	281/ 11,000	107/ 4,000			
Alfmeier Präzision SE (DEU)	Analysis and Evaluation of Test Samples			153/ 6,000		
Gesellschaft für metallurgische Technologie und Softwareentwicklung GmbH (DEU)	Experimental reprocessing of Steel Bars	155/ 6,000				
Hartzerspannung Voestalpine eifeler Vacotech GmbH (DEU)	Experimental Machining of Inconel Alloy	62/ 2,000	74/ 3,000	42/ 2,000		40/ 2,000
J. Bauer GmbH & Co. Entwicklungs KG (DEU)	Long-term Testing, Analysis, and Evaluation of Results	171/ 7,000			50/ 2,000	
KOSTAL Kontakt Systeme GmbH (DEU)	Material Analysis and Ergonomics			9/ 355		98/ 4,000
Nexans autoelectric GmbH (DEU)	FEM Calculation of Static Force Simulation	72/ 3,000				
Rohde & Schwarz GmbH & Co. KG (DEU)	Development of a Prototype Knife for Cable Sharpening					66/ 3,000
Uniflex-Hydraulik GmbH (DEU)	Technological and Material Analysis		72/ 3,000		12/ 473	12/ 473

Voestalpine eifeler Coating GmbH (DEU)	Long-term Testing of Cutting Tool	41/ 2,000				
Total – National Contracts with a Value of EUR 10K/Year and Above		18,294/ 723,000	1,451/ 575,000	14,328/ 566,000	17,716/ 701,000	20,304/ 801,000
Total – National Contracts		22,282/ 878,000	19,947/ 787,000	17,104/ 675,000	22,924/ 905,000	23,080/ 910,000
Total – International Contracts		*	253/ 10,000	204/ 8,000	62/ 2,000	216/ 9,000
Total		23,064/ 909,000	20,200/ 797,000	17,308/ 683,000	22,986/ 907,000	23,296/ 919,000

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

1. Functional sample (Gfunc) - Tool for turn milling (2022)

The result was developed in direct connection with the project TN01000015, specifically within the sub-project DP38. It is an optimised tool for rotary milling and turning, which increases the machining efficiency of hot sprayed and additively manufactured parts. The key innovation (compared to the 2020 baseline) is the removal of unnecessary side-edge cooling channels and the optimization of the control elements, which simplifies operation and speeds up cooling changeovers between operations. The solution is supported by two Czech patents (CZ 308917 and CZ 308859) and is linked to two proven technologies Rotary milling technology Inconel 718 – HVOF (2022) and Rotary milling technology Inconel 718 – HVOF (2022).

The research result has high application potential and is currently pre-commercialization. FME is in negotiations with Plasmamet Ltd. to sell the technical solution including patent protection for exclusive use, with the company's condition being the granting of a European patent, which is expected in early 2025. The expected impacts on industry include the replacement of the original grinding technology, which will bring higher machining productivity and also the elimination of health risks associated with dust in shallow cut grinding.

The new technology contributes to the sustainability of production by reducing tool consumption - compared to grinding, it requires only one cutting tool instead of several special grinding wheels. It also allows for a reduction in the thickness of the hot-spray, leading to material and energy savings.

²⁹ See Terms definition.

The economic benefit is a reduction in production costs for end users due to lower tooling operating costs and increased efficiency in the production process.

The project does not have a direct gender dimension, but its impacts in terms of ergonomics and working conditions can positively influence the working environment for a wider range of workers. The societal benefit lies in the direct improvement of safety and efficiency in industrial machining, leading to an increase in the competitiveness of Czech industry at a global level. FME plans to further develop the application of this technology through contract research for specific industrial partners.

2. Patent (P) - CZ309765: Device for recoating a layer of metal powder during additive manufacturing of a metal part (2023)

The result was developed within the framework of the project EF18_069/0010040 and is directed towards practical application in industrial practice. It is currently undergoing physical testing in the form of a working sample and will then lead the next steps towards commercialisation. The solution enables adaptive change of the coating element during a print job, leading to minimised incorrectly produced parts, increased productivity and reduced operating costs. The technology finds its primary application in industrial additive manufacturing, particularly in companies using the Powder Bed Fusion (PBF) method to produce metal parts with high precision and mechanical property requirements.

Potential users are manufacturing companies in the aerospace, automotive and energy industries that are focused on additive technologies and seek to automate and streamline production. The solution contributes to reducing material waste and energy consumption, which brings economic benefits and environmental sustainability. With the possibility to reduce operator intervention and increase work safety, it positively influences working conditions in production facilities.

In terms of the gender dimension, the research did not include specific measures. The co-inventor of the patent is a woman and furthermore the higher level of automation of the process will contribute to a wider inclusion of workers regardless of physical demands. In terms of sustainability, the solution brings environmental and economic benefits by reducing waste, saving raw materials and energy efficiency. The outcome thus represents a step towards more responsible production processes and industrial modernisation in line with industrial digitalisation and sustainable innovation.

3. Utility Model (Futil) - CZ 32685: Tooling unit with fast and very precise clamping of the cutting tool (2019)

FME considers the result as one of the most important results of its research. This result has been developed within the project LO1502 - Development of Regional Technological Institute and its main contribution is the streamlining of processes in the field of precision machining. The technology enables fast and very precise clamping of machine tools without the need for additional adjustments, thereby increasing productivity and reducing production costs.

This result has already found direct application in industrial practice, specifically in the automotive and hydraulic sectors. The licence to use the technology has been sold to FINAL Tools JSC, which is implementing it in its production processes worldwide. The benefits of the technology are reduced production downtime, increased machining quality and reduced energy consumption, leading to economic and environmental impacts.

An important aspect of the result is its alignment with Industry 4.0 principles, where automation and digital control of production processes play a key role. The system increases production efficiency not only in batch but also in piece production, which extends its application potential to a wide range of industrial enterprises. In terms of sustainability, it delivers energy savings and reduces the carbon footprint by eliminating inefficient operations and extending the life of machine tools.

In the context of the gender dimension, the technology contributes to improving ergonomics and reducing the physical demands of work, which may lead to an increase in the representation of women in technical professions related to precision machining. The result therefore strengthens the competitiveness of the industry while reflecting the social and environmental aspects of modern production.

4. Functional sample (Gfunc): Electric generator in the axle of a railway wagon (2020) - Mental share: 30% FME/UWB (G), 20% DAKO-CZ JSC, 50% FEL/UWB

The result represents a significant applied result of FME developed within the project TN01000026 - Josef Bozek National Center of Competence for Surface Vehicles. This innovative system enables independent power generation directly from the movement of the railway carriage and contributes to the development of digitalization and automation of railway transport.

The 200 W generator is integrated into the axle of the carriage and provides a stable 24 V voltage to power diagnostic systems that monitor speed, temperature and vibration via the CAN-bus. The technology enables preventive diagnostics and proactive maintenance, resulting in reduced operating costs, increased reliability and longer vehicle life. An important practical benefit is the rapid reactivation of railcars after a prolonged outage, even in locations without access to the power grid.

The result has already found application in industry, specifically at DAKO-CZ (project partner), which has developed a special version of the generator for freight wagons based on this research. The economic impact is to increase the efficiency of rail transport, reduce the risk of unplanned outages and optimise fleet management.

The technology supports the sustainability of transport by reducing fossil fuel consumption and extending the lifetime of vehicles. Although the research does not take into account a direct gender dimension, its outputs have a positive impact on society at large in terms of environmental impact and transport safety. The result represents a significant contribution to the rail industry with real and long-term applications.

5. Prototype (Gprot): The prototype of a technological production line for the production of welded thin-walled tubes from corrosion-resistant material (2023)

FME participated in the development of the result, which was created within the project EG17_176/0015679 (see Chapter 3.3) implemented by Attl Ltd. This research result was successfully applied in industrial practice and brought measurable economic and social benefits.

Thanks to the technological innovations in which FME participated in the areas of materials research, production process optimisation and prototype testing, production speeds have been significantly increased up to 25 m/min, which means a twofold increase compared to the existing technologies. Increased production efficiency has resulted in reduced costs, minimised waste and optimised energy consumption. These factors have enabled the company to increase its order volume to 51.33 million CZK annually and strengthen competitiveness on foreign markets.

An important aspect of the result is the high level of automation, which allows remote management, precise monitoring of production and optimization of quality control. Thanks to this innovation, the need for manual intervention and the reduction of physically demanding work is reduced, which promotes an inclusive work environment and enables a more inclusive workforce, regardless of gender differences. Automation and the reduction in the need for heavy manual labour facilitate women's access to technical and manufacturing occupations, contributing to greater diversity of work teams in industrial production.

The result also contributes to the sustainability of industrial production. Innovations in laser welding, heat treatment and materials research have led to lower material consumption, optimised production processes and reduced carbon footprints.

This technologically innovative and economically beneficial result significantly supports the competitiveness of Czech industry and brings practical application of modern production technologies in line with the principles of Industry 4.0. With this project, FME has fulfilled its strategy of technology transfer and applied research, which has strengthened its long-term partnership with the industrial sector.

6. Functional Sample (Gfunc): Tool for pressing of preforms II (2021)

FME has participated in the development of an innovative tools (I and II) for pressing preforms, which was developed within the project TH04010324 (see Chapter 3.3), implemented by Povrly Copper Industries JSC. This research result has been successfully implemented in industrial production and has brought measurable economic and technological benefits.

An important benefit is the use of a digital twin of the tool, which allows to simulate the production of pre-presses before physical production, thus reducing production errors and extending tool life. The new solution has also reduced scrap rates from 0.65% to 0.35%, improving production efficiency and the company's competitiveness.

At the same time, FME commercialised its share of the results by transferring the rights to the exclusive use of the functional samples to Povrly Copper Industries JSC (see Chapter 3.5).

The gender dimension of the result consists in the increased inclusiveness of industrial production as automation reduces the physical demands of work. The result also contributes to the sustainability of production by reducing material consumption and production waste and optimising energy consumption.

This innovative result supports the competitiveness of Czech industry and fulfils the principles of Industry 4.0. With this project, FME has strengthened its long-term cooperation with industrial partners and has demonstrated its ability for effective technology transfer.

7. Software : Process Simulator of Hotel (2021)

The result was developed as one of the main results of the project TL01000191 - Innovation of management systems of tourism entities using process management tools, whose main investigator was FME. FME had a financial share of 38% in the result. This software tool enables the simulation of key decision-making processes in hotel management, which helps to improve the efficiency of hotel operations management and optimise process management in the tourism sector.

The simulator has been used in an academic environment, especially at University College Prague, where it has become part of the teaching of courses focused on revenue management, sales and marketing in the hotel industry. It provides students with a practical opportunity to understand the impact of decisions in hotel operations, including setting pricing policies, capacity management and marketing strategies.

Professionals have appreciated the benefits of the simulator in training sessions and conference presentations. Some participants expressed interest in applying process simulation tools at their universities, which may lead to innovation in selected courses of study. Although the software has not yet been sold commercially, a Commercial Use Agreement has been concluded which sets out the rules for future monetisation.

The result of the research contributes to the strategic objectives of FME, especially in the area of strengthening interdisciplinary and developing competences relevant for the 21st century. Through the use of the simulator in education and training, it promotes equal access to analytical and managerial skills in the hotel industry. The gender dimension is taken into account through the automation and digitisation of decision-making processes, allowing for the reduction of physical barriers and a more inclusive workforce, regardless of gender differences.

8. Functional Sample (Gfunc): Modification of the functional elements of a shearing knife (2021)

As part of a contract research solution, FME developed a final functional sample that was successfully introduced into the production process of Kermi Ltd., a leading European manufacturer of heating elements and part of the international Arbonia AG group. The development took place in two phases over the period 2020-2021 with the aim of increasing (maximising) tool life, reducing production costs and streamlining the entire pipe cutting process.

The key benefit of the result was an increase in tool life, where the cutting interval was extended from the original 1 week to 8 weeks, and the tool life itself was increased from 2 to 10 cycles, resulting in savings of 750,000 CZK per year. These results were achieved by modifying the geometry of the blade, changing the main cutting angle and using powdered tool steel, which showed better resistance and longer durability.

Another innovation was the replacement of the original EDM sharpening process with an innovative hard milling process, which contributed to better edge quality and reduced the intensity of tool wear. The result is lower production rejects, higher cutting accuracy and the elimination of additional production costs. The technology has been successfully used since the end of 2021 and its application is planned for the following years.

The result also has social and environmental benefits, as it reduces material losses and energy consumption due to lower scrap rates. Although the research does not take into account a direct gender dimension, the outputs lead to a more efficient production process and a reduction in the physical intensity of labour, which encourages a wider participation of the workforce.

This innovative result has significantly strengthened the competitiveness of Kermi Ltd. in the field of heating elements production and contributed to the optimization and efficiency of production processes, thus fulfilling the long-term strategic objectives of FME in the field of applied research and technology transfer.

9. Patent (P) - CZ 309545: **Machining tool** (2023)

The high-precision ECHO cooling system, developed at the Regional Technological Institute (RTI) of FME, represents an innovative solution in the field of machining technology. This system was awarded the Gold Medal at the International Engineering Fair (MSV) in Brno in 2022 in the category Innovative Components in Engineering (see Ch. 3.2 and Tab. 3.2.1).

The ECHO system focuses on the precise supply of coolant directly to the cutting point, which significantly increases machining efficiency. By combining standard tooling with additive manufactured elements, an increase in efficiency of 15-40% and an increase in tool life of up to 350% has been achieved. This design allows precise cooling of the entire cutting edge from a very short distance, which contributes to uniform tool wear and stability of the machining process.

The patent protection of this system was granted on 15 February 2023. Subsequently, a spin-off Czech company ECHO Tools Ltd., ID: 19973501, was established, whose founder is the originator of the patent and a researcher at FME. An agreement on the transfer of the patent rights was concluded, which ensures a regular income for FME for ten years, as well as a cooperation agreement specifying the rights and obligations of all parties involved.

The development of the ECHO system was supported by an internal project funded by Institutional funding. This success demonstrates FME's ability not only to develop cutting-edge technologies, but also to effectively transfer research results into practice through collaboration with industrial partners and to foster innovation on a regional and international scale.

10. Functional sample (Gfunc): **Functional sample of a safe tram facet with a reduced risk of injury to a pedestrian in a collision with a tram** (2021)

The project FV20441 - Research and development of safe tram face is the innovative functional sample of a tram headboard with increased pedestrian protection in a collision. A research team consisting of FME, ŠKODA TRANSPORTATION JSC and the Research Institute of Rolling Stock (VÚKV) has developed a frontal structure which, thanks to advanced geometric and material design, minimises the risk of injury in a collision with a tram. FME contributed 30% to the result.

The aim was not only to mitigate the consequences of collisions, but also to contribute to European legislation on tram safety. The geometry of the nose and the use of new materials were optimised using advanced computer simulations and then verified on a working sample. The resulting solution reduces the likelihood of fatal injuries to pedestrians and contributes to an overall increase in urban transport safety.

The agreement on the use of result(s) dated 15 March 2022 allows ŠKODA TRANSPORTATION JSC to use all the results of the project free of charge, while FME receives the right to use the know-how in the contract research, see in Chapter 3.5.

Another important contribution of the project is the extension of knowledge on plastic materials suitable for use in safety components. This knowledge has been applied in other contract projects and developments. In terms of the gender dimension, the project contributes to a more inclusive workforce through automation and digitalisation, which reduce the physical demands of work. This result has contributed to strengthening the international competitiveness of Czech industry and has also supported the objectives of FME in the field of technology transfer, innovation and applied research.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Patent (P)	2023	Modular injection mould
Functional sample (Gfunc)	2023	Measurement unit for motorcycle assistance system
Functional sample (Gfunc)	2023	125cc kart engine without accessory
Functional sample (Gfunc)	2023	Accessories for 125cc direct injection kart engine
Proven technology (Ztech)	2023	Preparation of recycled metal powder for reliable printing
Proven technology (Ztech)	2023	3D printing of topologically optimised shapes
Proven technology (Ztech)	2023	3D printing of the safety intermediate layer of a sports helmet
Proven technology (Ztech)	2023	Connection of the shell and the inner part of a sports helmet
Proven technology (Ztech)	2023	Production technology of the innovative exchangeable liner
Proven technology (Ztech)	2023	Production technology of the innovative tool
Proven technology (Ztech)	2023	Application technology of the innovative exchangeable insert
Proven technology (Ztech)	2023	The technology of using an innovative tool
Proven technology (Ztech)	2023	Verified technology for the production of a prototype of a new honing tool
Proven technology (Ztech)	2023	Verified technology for the use of the new honing tool
Patent (P)	2023	Rotary tool with internal cooling
Patent (P)	2023	Machining tool
Patent (P)	2023	Device for variable application of printing powder
Patent (P)	2023	Method for Manufacturing a Component with a Surface Coating
Patent (P)	2023	Device for recoating a layer of metal powder during additive manufacturing of a metal part
Patent (P)	2023	Vehicle suspension mechanism
Patent (P)	2023	Cutter with winding
Semi-operation (Zpilot)	2023	Semi-production of a new hook shape die for a lifting eye sling hook of strength grade 8, size 6
Prototyp (Gprot)	2023	Milling cutter for chip machining with progressive cooling
Prototyp (Gprot)	2023	Prototype honing tool with PKD/CBN
Prototyp (Gprot)	2023	Universal chassis type/e-Carriage
Prototyp (Gprot)	2023	The prototype of a technological production line for the production of welded thin-walled tubes from corrosion-resistant material
Industrial design (Findus)	2023	Arresting jig for the 3D printing
Patent (P)	2023	Modular injection mould
Utility Model (Futil)	2023	Additional safety stop for shelving unit
Functional sample (Gfunc)	2022	Optimization of the pressure element for fixing the cutting part of the milling tool
Functional sample (Gfunc)	2022	Multi-phase steel alloyed with manganese and aluminium processed by hot stamping
Functional sample (Gfunc)	2022	Composite hydraulic crane

³⁰ Specify the specific type of result. Add rows as needed.

Functional sample (Gfunc)	2022	Testing specimen BATMAN 30
Functional sample (Gfunc)	2022	OLIN_3: on-line measuring system No. 3
Functional sample (Gfunc)	2022	System of locking components of the lock
Functional sample (Gfunc)	2022	Door bracket
Functional sample (Gfunc)	2022	Milling head
Functional sample (Gfunc)	2022	Tool for turn milling
Proven technology (Ztech)	2022	Technology of forge-welded blade from experimental high-speed-steel on the tool body
Proven technology (Ztech)	2022	Technology for the production of a cutting insert from an alternative material
Proven technology (Ztech)	2022	Optimization of 3D printing and thermal spraying parameters in order to increase utility properties
Proven technology (Ztech)	2022	Optimization of the recycled metal powder preparation for printing
Proven technology (Ztech)	2022	Technology for the production of a shaped sheet metal part made of steel with reduced density and increased corrosion resistance
Proven technology (Ztech)	2022	Design of 3D printing technology of a clamp part made of composite material
Proven technology (Ztech)	2022	Technology of production of self-aligning element – AM 250 kN
Proven technology (Ztech)	2022	Rotary milling technology Inconel 718 – HVOF
Proven technology (Ztech)	2022	Rotary milling technology Inconel 718 – DMLS
Patent (P)	2022	Single-axle bogie for rail vehicles
Patent (P)	2022	Milling head with rod construction
Patent (P)	2022	Tool for machining
Patent (P)	2022	Turning tool
Patent (P)	2022	Manhole cover
Prototyp (Gprot)	2022	Semiproduct - wire for the preparation of the spring with the reduced density and enhanced corrosion resistivity
Software	2022	Software for simulating the physical properties of materials
Functional sample (Gfunc)	2021	Copposite spring
Proven technology (Ztech)	2021	A flutter measurement technology using a stand in UWB
Functional sample (Gfunc)	2021	Cutting knife for production of heating system features
Functional sample (Gfunc)	2021	Reference sample for verification of principles of stabilization annealing on mechanical properties
Functional sample (Gfunc)	2021	Tool for pressing of preforms II
Functional sample (Gfunc)	2021	Functional sample of a safe tram facet with a reduced risk of injury to a pedestrian in a collision with a tram
Functional sample (Gfunc)	2021	Radial rotor wheel with reduced weight
Functional sample (Gfunc)	2021	OLIN_2: on-line measuring system No. 2
Functional sample (Gfunc)	2021	Modification of the functional elements of the shearing knife
Functional sample (Gfunc)	2021	Lightweight public transport handle element optimized for 3D metal printing

Proven technology (Ztech)	2021	Technology of production for structure with fine carbide precipitates by the combination of semi-solid processing followed by thermomechanical processing
Proven technology (Ztech)	2021	APS spraying of Cr ₂ O ₃ based ceramic coating
Patent (P)	2021	Cutting tool
Patent (P)	2021	Cutting tool
Software (R)	2021	Process Simulator of Hotel
Utility Model (Futil)	2021	Piston cleaning pneumatic gun
Utility Model (Futil)	2021	Horizontal machine tool stand
Utility Model (Futil)	2021	Heavy machine tool turntable plate
Utility Model (Futil)	2021	Tool for machining technology
Functional sample (Gfunc)	2020	Experimental rig for testing of subsonic flutter
Functional sample (Gfunc)	2020	Cutting knife for shaped division of rectangular pipes
Functional sample (Gfunc)	2020	Experimental test specimen for high cycle verification of blade locks for the energy industry
Functional sample (Gfunc)	2020	Hollow screw with internal cooling
Functional sample (Gfunc)	2020	3D printed self-aligning element
Functional sample (Gfunc)	2020	Composite upper collector arm
Functional sample (Gfunc)	2020	Guiding plate for cutting knife of 130°
Functional sample (Gfunc)	2020	V001 - CTS FV TN 20-62-S - TRAILER
Functional sample (Gfunc)	2020	V001- CTS FV DRN001 – DOUBLE ARM CARRIER
Functional sample (Gfunc)	2020	Tool for pressing of preforms
Functional sample (Gfunc)	2020	TTSL Cutting Tool – NiCrBSi
Functional sample (Gfunc)	2020	Electric generator in the axle of a railway wagon
Functional sample (Gfunc)	2020	Cutting tool for HF machining
Functional sample (Gfunc)	2020	TTSL Cutting Tool – FeCr
Proven technology (Ztech)	2020	Finishing of functional surfaces of a 3D printed self-aligning element
Proven technology (Ztech)	2020	Proven production technology of the segment produced by AM
Proven technology (Ztech)	2020	Proven welding technology of high-strength steels in the production of two-arm container carriers
Proven technology (Ztech)	2020	Proven technology of robotic welding of high-strength materials in the production of a tractor trailer
Proven technology (Ztech)	2020	Optimization of the production of a topologically modified body
Proven technology (Ztech)	2020	Technology of honing
Proven technology (Ztech)	2020	Thermal sprayed coating OT- NiCrBSi
Proven technology (Ztech)	2020	Deposition of ta-C PVD coating
Proven technology (Ztech)	2020	Technology of HF machining
Patent (P)	2020	Method of manufacturing a tool for ultrasonic welding of electrically conductive and non-conductive materials and a tool manufactured in this way
Utility Model (Futil)	2020	Rotating shell containing lightweight structure
Industrial design (Findus)	2020	Ergonomic handle shape

Functional sample (Gfunc)	2019	Prototype machining tool
Functional sample (Gfunc)	2019	Structural design of the pad for the jig for automotive part II.
Functional sample (Gfunc)	2019	Bogi frame EVO 1000
Industrial design (Findus)	2019	Additional wheelchair drive
Functional sample (Gfunc)	2019	Traction, rotating, narrow-gauge bogi EVO 1000
Functional sample (Gfunc)	2019	Integrated cooling system into specially lightweight cutter body
Functional sample (Gfunc)	2019	Reference element for the process and postprocess calibration of the DMLS technology
Functional sample (Gfunc)	2019	Lightweight pedal structure
Functional sample (Gfunc)	2019	Turbine blade modification for 3D printing of the vault without supports
Functional sample (Gfunc)	2019	Threaded rod made by 3D printing
Functional sample (Gfunc)	2019	Experimental blade for flow measurement
Functional sample (Gfunc)	2019	Bogie drive unit EVO 1000
Utility Model (Futil)	2019	Tooling unit with fast and very precise clamping of the cutting tool

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

The transfer of results generated at FME into practice is implemented through the Knowledge Transfer and Contract Research Unit (TSV), whose team is composed of qualified experts in the field of intellectual property protection, knowledge transfer and marketing. This is a centralized procedure at the UWB regulated by internal guidelines with university-wide scope. Researchers will report results with commercial potential to the TSV, which will prepare an opinion on the applicability of the result, propose a form of industrial legal protection and help to secure it. The originator or the research team together with the TSV will negotiate the specific contractual conditions for the exploitation of the result (licence agreements, contracts, etc.). (e.g., a contract on the transfer of rights to the result, a contract on the transfer of rights to the result, a contract on the transfer of rights to the result, a contract on the transfer of rights to the result. (agreements on the exercise of co-ownership rights to the result, establishment of a spin-off company)

The most typical users of the results are companies operating in the field of mechanical engineering (HOFMEISTER Ltd.), Automotive (ŠKODA AUTO JSC), additive manufacturing (Element Materials Technology Pilsen Ltd.), road and rail vehicles (ŠKODA TRANSPORTATION JSC), digital engineering (Daikin Industries Czech Republic Ltd.) in the Czech Republic and abroad. In addition, there are research organisations and universities (domestic and foreign). Last but not least, we also cooperate with state and local government bodies and entities established by them (museums, schools) and IRS units. In all of these cases, knowledge is transferred through contract research contracts, work contracts with a licence to use the work, R&D projects and agreements on the use of results.

Examples of transfer of results:

- 1) we actively seek and approach potential partners for R&D areas in key FME activities (marketing plan, business manager position) - HOFMEISTER Ltd;
- 2) in many cases we are approached by companies/entrepreneurs themselves who are looking for solutions to their problems (expert team, consultancy) - Daikin Industries Czech Republic Ltd.;

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

- 3) we build on successful cooperation with new activities (R&D, contract research) - ŠKODA TRANSPORTATION JSC;
- 4) presenting current topics at national and international conferences and trade fairs, publishing in prestigious periodicals, opens up opportunities for direct personal contacts with universities, research organisations and companies, which are then part of the research teams of ŠKODA AUTO JSC;
- 5) Students - the topics of the year-long theses are translated into further cooperation with companies. Possibly the establishment of a Start-up, BOOST UP. Element Materials Technology Pilsen Ltd.

As mentioned above, the cooperation with application partners takes place in the field of contract research (turnover for the evaluated period 106 914 thousand CZK), various types of national and international R&D projects (119 national and 16 international for the evaluated period), teaching and assignment of year papers. In addition, FME actively seeks new potential partners for contract research or special-purpose funding, maintains relationships and takes care of existing partners (marketing plan established, position of business manager established). These activities are carried out through face-to-face meetings, meetings, conferences and seminars, participation in trade fairs, offers to set up co-working spaces. Within the framework of these activities, cooperation, confidentiality, framework work or service agreements are concluded with selected partners. During the reporting period, FME concluded a total of 37 confidentiality/NDA, non-disclosure agreements, 48 work/service agreements and 62 cooperation/partnership agreements. The effectiveness of FME in the area of cooperation and finding new partners can be seen in the increase in partners. In the period under review, there was an increase of 85 partners of which 16 were foreign.

The process of commercialisation of the results achieved at FME is carried out by the TSV, which ensures the publication of results in the "Expert Database", which serves companies for searching technologies with application potential and research teams at the UWB, as well as publication of results in the information systems of the Enterprise Europe Network or the Transfera.cz association. Another way of commercialisation is the organisation or active participation of researchers in conferences, trade fairs (MSV Brno), interdisciplinary and intersectoral meetings, seminars and workshops. Last but not least, face-to-face meetings, meetings and the use of social networks have by far the greatest reach. Commercialization is also supported by the training of FME researchers in this issue, both in legal terms (Mgr. Matěj Kliman - a leading expert on the establishment of spin-off companies and intellectual property rights, Mgr. Ing. Josef Dvořák, Ph.D. - internal training in intellectual property law), as well as in terms of personal presentation skills (George Deriso - professor at the University of Colorado Boulder, experienced manager, entrepreneur and consultant who has worked with companies of all sizes around the world; Ing. Ondřej Staněk - Pitch Skills training; Dr. Vladimír Tuka - Individual professional development - coaching consultation) including a set incentive system for successful commercialization of results and establishment of a spin-off company.

Results generated at FME are commercialized for a fee or without financial compensation (e.g. knowledge exchange). The most common way of putting a result into practice is when it is produced in a joint R&D project with a company, which then uses it in its own activities. For example:

1) Prototype: *The prototype of a technological production line for the production of welded thin-walled tubes from corrosion-resistant material* (2021) achieved within the project "ATTL A SPOL. APPLICATIONS" No. EG17_176/0015679 - transfer of the rights to the result in the amount of CZK 503 616/ EUR 19 866 to Attl Ltd. Machine Factory, ID No.: 48110566.

2) Set of functional samples: *Tool for pressing of preforms* (2020) and *Tool for pressing of preforms II* (2021) created within the project 'Research and development of a new generation of tools for the

production of preforms¹ No TH04010324 - exclusive commercial use by Měď Povrly JSC (now Povrly Copper Industries JSC), ID No: 49903039 for a one-off fee of CZK 240 000/ EUR 9 468.

Another case is the search for a suitable partner/company, through the above activities, to use the result in practice, which was created outside R&D projects or by establishing a spin-off company, e.g.:

3) Utility model: *Tooling unit with fast and very precise clamping of the cutting tool* (2019) - transfer of rights to FINAL Tools JSC, ID: 25502352 in the amount of CZK 150 000/ EUR 5 917.

4) Patent CZ 309545: *Machining tool* (2023) - Patent protection granted on 15.02.2023, (applied for on 23.12.2021), Establishment of spin-off company ECHO Tools Ltd., ID: 19973501 by the originator of the patent, who is also a researcher at FME. A contract on the transfer of the right to the patent ensuring regular profits for FME for 10 years and a cooperation agreement specifying the rights and obligations of the parties involved.

5) An example of the transfer of a result into practice without financial compensation is the exchange of knowledge obtained in the framework of the project "Research and development of safe tram face" No. FV20441 for a *Functional sample of safe tram facet with reduced risk of injury to a pedestrian in a collision with a tram*, where a contract on the use of the result was concluded, on the basis of which FME is entitled to use the knowledge and know-how obtained in the implementation of the sub-result "External lining of the functional sample" in the framework of contract research. In contrast, ŠKODA TRANSPORTATON JSC is entitled to use all the results of the project free of charge. The acquired know-how in the field of passive safety, namely the collision of a standing pedestrian with a tram and the extension of the knowledge base in the field of plastic materials applicable for safety elements, was subsequently applied in other contract research orders and R&D projects.

The funds from non-public sources totalled 30 697 thousand CZK/ EUR 1 209 000 thousand for the period under review. These include income from complementary research activities, educational courses, professional training, translations, and donations from partners/companies and, last but not least, knowledge transfer in the form of various forms of granting rights to R&D results (transfer of a share in the result, granting of commercial use of the result, granting of a licence).

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Additional activities in research, educational courses, translations	5,816/ 229,000	3,659/ 144,000	6,125/ 242,000	4,870/ 192,000	3,625/ 143,000
Donations and financial contributions received	2,865/ 113,000	400/ 16,000	460/ 18,000	566/ 22,000	625/ 25,000
Licence, Spin-off		278/ 11,000	240/ 9,000		544/ 21,000
Knowledge transfer - training	123/ 5,000	115/ 5,000		285/ 11,000	83/ 3,000
Total	8,804/ 347,000	4,452/ 176,000	6,825/ 269,000	5,721/ 225,000	4,877/ 192,000

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

FME has long been striving to popularize science, research and innovation (R&D&I), as evidenced by regularly published final reports on FME's activities available on its official website. It emphasises inspiring young talent, promoting technical education and involving the public in innovation projects. FME collaborates with its industrial partners on popularisation activities, for example by organising the Children's Technical University and participating in FME and university-wide public events. FME presents its research projects to primary and secondary schools in the form of demonstration days, school scientific conferences or expert lectures and excursions on its premises. The most interesting and media-attractive scientific results are presented to the public through regional and national press, radio and television stations and internet news servers. It informs about current events in the field of R&D&I in posts on its social networks and on its website. It actively cooperates with the project of the Regional Development Agency of the Pilsen Region "Go Higher" to support talented high school students, for whom it prepares professional lectures and excursions.

Main activities and examples in the period 2019-2023(24):

1. FME Open Day

FME regularly organizes an Open Day to introduce FME's curriculum offerings, research projects and technological facilities. Visitors can see the classrooms, laboratories and participate in demonstration activities prepared by the different departments. Current research projects and achievements are presented by current students who are already involved in the research activities of FME and its RTI Research Centre during their studies. Emphasis is also placed on interfaculty and interdisciplinary cooperation, as well as cooperation with FME's industrial partners. They regularly participate in the Open Day and present to those interested in studying the possibilities of work experience during their studies, cooperation in the creation of final theses and also the chances of a prospective employment in industrial enterprises after graduation.

2. International conferences

The International Conference on Mechanical Engineering Technology Pilsen, organised by the Department of Machining Technology of FME since 2004, is an important platform for connecting academia and industry. The eighth edition took place in February 2019 at the Techmania Science Center. Due to the Covid-19 pandemic, the conference was not held in 2021 and 2023. The ninth edition was held on 7-9 February 2024 at the Vienna House Easy Pilsen, welcoming more than 180 participants and offering over 50 expert lectures. The main topics of the conference are modern technologies in mechanical engineering, including machining, additive manufacturing, metrology, diagnostics, design methods and industrial applications. Presentations by PhD students and support for innovations with direct application in industrial practice are also an important part of the programme. The conference is supported by leading companies in the field such as Workpress Aviation, GTW Bearings, VKV Tools and Zeiss. Papers are published in renowned journals (MM

Science Journal, Manufacturing Technology). In addition to the professional programme, the event offers social activities such as an excursion to the Pilsner Urquell brewery or a tour of FME. From 2026, the conference will become the main professional event of FME and will extend to all its research areas. The tenth anniversary edition will thus set a new standard for professional meetings within FME and will reflect modern trends and challenges of contemporary engineering.

3. International Engineering Fair

In 2019, 2020, 2021 and 2022, FME participated in the International Engineering Fair in Brno, where its research centre RTI - Regional Technological Institute was also presented. In 2022, it won the Gold Medal in the category of Innovative Components in Engineering for its specific high-precision cooling system for ECHO machine tools. In addition, the RTI presented here, for example, an innovative forge welding technology in modern machining or the machining of an aluminium part developed for use on the Ariane 6 (ESA) launch vehicle. It also showcased the Medusa, a milling machine for productive machining of the refractory alloy IN718, which is designed from the outset to be produced by 3D printing from metal.

4. Nuclear Days

Nuclear Days have been held in Pilsen for 14 years. They are organized annually by the Department of Power Engineering and Equipment together with Skoda JS and the CENEN (Czech Nuclear Education Network). The aim is to arouse interest in nuclear energy not only among students, but also among the public, and thus help to remove some of the myths that prevail about the use of nuclear energy. Nuclear Days opens with a two-day international conference attended by a number of prominent Czech and international experts. The event is accompanied by an exhibition in the premises of FME, in which companies from the Czech Republic and abroad participate. The programme also includes lectures for secondary schools combined with a competition and an international competition of professional works by university students.

5. Presentation in Techmania Science Center

FME regularly presents its projects or unique tools in the Pilsen Science Center, e.g. *Trends in AM Workshop* - as part of the cooperation with BTHA-FV-9 and technology transfer between Bavaria and the Czech Republic, a workshop focused on new technologies and trends in engineering was held at Techmania in 2019. Here, FME presented a concept for a new generation of cutting tools produced exclusively by 3D printing from metal, with an emphasis on a milling head called Kraken, which used a rod structure with an optimized internal cooling system for the face and especially the tool back. This tool is followed by other designs that take advantage of additive manufacturing. The new generation of milling head was also presented by FME at the 2019 Engineering Forum.

6. University-wide popularization events

Science and Technology Day

The interactive exhibition of the UWB has been turning Pilsen's Republic Square into a science laboratory once a year for 19 years. Dozens of exhibitions present scientific disciplines from an unconventional point of view and visitors can try many things for themselves. The target group is mainly pupils and students of primary and secondary schools and families with children. The purpose of the event is to introduce children and young people to science in a playful way and to motivate them to study science and engineering. In recent years, the event has expanded to the region, where UWB presented itself in Klatovy and Tachov. FME is regularly involved in this event through several

expositions, in which it presents in an attractive and understandable form, for example, modern machining technologies, plastic and metal 3D printing, material research or student formula.

Researchers' Night

Every year, FME also participates in the Researchers' Night, a pan-European popularisation event aimed at connecting science and society and increasing the interest of children and young people in science. For one evening, they open the doors of universities and scientific institutions and reveal what interesting things are happening in their laboratories. During the last edition, FME and its research centre presented, for example, virtual reality, vortices and turbulence, a robotic rover and a CNC milling competition. The event is held right on the university campus, and visitors can try out many things for themselves.

7. Media impact

Patents and innovative technologies

In 2023, the Regional Institute of Technology of FME received the most patents from the entire West Bohemian University - eight in total. These include an adaptive system for applying metal powder during 3D printing, a lightweight milling machine with winding or a cooling system for machine tools. The university issued a press release on this topic, which had a very good impact in the media, for example, a report by Czech Television.

The Asian Hornet (Vespa velutina nigrithorax)

The RTI Research Centre has been involved in the fight against the invasive Asian hornet. It has developed monitoring traps to help monitor and reduce populations of this dangerous insect. It designs and tests suitable bio-materials, inlet and outlet sizes, surfaces and colours. The traps are printed on a 3D printer and are now being produced on an injection moulding machine in 3D printed moulds. This activity has had a great media response - for example, Czech Television, Czech Radio, regional press and news servers have all contributed articles on this topic. RTI cooperates with the Agency for Nature and Landscape Conservation of the Czech Republic and the West Bohemian Museum. The installation of the trap on the university campus was also attended by the Minister of the Environment, Petr Hladík.

8. Formula Student

Every year, students from several faculties join forces to design and build a monopod for international competitions. The student formula project links education with practice and innovation. The aim is to apply the knowledge gained through study to practice, deepen knowledge and learn teamwork. In 2024, the first electric-powered formula was created. The UWB Racing team, which was established at UWB in 2009 and currently includes students from the faculties of mechanical engineering, electrical engineering, applied sciences and economics, presented it at an international competition in Portugal, where it won 3rd place. In addition, it won the Efficiency discipline and took home the award for the best designed component.

9. DESIGN+ programme

Design and Mechanical Engineering - together DESING+ is an educational project of interdisciplinary cooperation between students of different faculties of ZČU on the design of technical innovations commissioned, consulted and finally jointly evaluated by major Pilsen companies. The DESING+ project is not only a means to gain practical skills and experience, but also to connect theory with practice. The project, founded, developed and supervised by Prof. Stanislav Hosnedl from the Department of Machine Design at FME, teaches students to work together in multidisciplinary

teams, develops their creativity, systematicity and other qualities important for future employment. At the same time, he contributes to the development and global success of the Engineering Design Science Methodology (EDSM) discipline, which has been developed at the Department of Machine Design for decades in connection with leading technical universities in the world and which is continuously applied and verified by the students in the project. Since 2004, over 1500 students from five faculties of the UWB have participated in the project, working on 57 different topics in 210 team projects. It involves 20 Czech and German industrial and institutional partners. A significant result of the project are utility and industrial designs on original parts of the proposed solutions.

10. Children's Technical University

The Children's Technical University is organised by FME for the 8th year. It is designed for primary school pupils and students of the corresponding years of multi-year grammar schools, offering them the basics of technical education in the form of games and workshops. During the school year, they come to the university every week and can try out everything they learn. In the spring, they will then have a real graduation ceremony where they will receive their university diploma. The programme of the Children's Technical University is prepared by all departments, the RTI centre and industrial partners. It is tailored to ensure that children are able to master it and take away a positive attitude and good experiences from each session. Hundreds of pupils and students participate each year.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

1. Although the FME has shown an improvement, they need to put an effort to expand and increase their income from non-public sources (apart from the research contracts and research grants) as compared with the research related sources. Further, it would be a good idea if FME try to increase the size and number of their contracts that are mentioned in section 3.4.1 which is limited to a few only.

In the period 2019-2023, FME has seen an improvement in FME's ability to raise revenue from non-public sources, despite the challenging conditions affected by the pandemic crisis. Average annual revenues have increased by approximately 50%, with increases in licenses, spin-off activities and donations indicating a successful revenue diversification strategy. This progress goes hand in hand with FME's staffing policy, which underwent significant changes during the pandemic and subsequent restructuring. The gradual reduction in staffing from 198.057 FTE in 2019 to 161.749 in 2023 reflects management's focus on increasing efficiency and optimizing resources. The positive impact of the restructuring is also confirmed by stable revenues from ancillary activities, including training (especially upskilling employees of major industrial partners) and increased revenues from knowledge transfer. Overall, FME has not only managed the transition period, but has shown the capacity for growth and adaptation, which is essential for its long-term sustainability.

2. FME is a large academic institution, the evaluators believe that the most important recommendation is to maximize and increase the amount of results and also publish more journal papers. Particular attention should be paid to the recruitment of new academic staff: young researchers and graduate students who understand the need of producing scientific output in general, and papers in particular, should be targeted.

In the period 2019-2023, FME management focused on improving the quality of publications, which was reflected in a significant increase in the number of scientific articles published in more prestigious journals. Publications in the Q1 and Q2 quartile bands according to JIF (WOS) have increased from a total of 11 (2014-2018 period) to 74 (2019-2023 period), representing a more than six-fold increase in monitored/recommended activity. The total number of publications in WOS has decreased from 185 to 171, but when comparing the total number of articles (95 in 2019-2023 vs. 24 in 2014-2018), it is clear that there has been a significant decrease in the number of papers in conference proceedings (Type D). Thus, it is clear that FME has become and continues to focus primarily on JIMP and a reduced weight on D (but still a priority due to the experience of students and young researchers conditional on active participation in international conferences). FME leadership has responded to recommendations to recruit young researchers and graduate students primarily through the involvement of a significant majority of incoming full-time PhD students simultaneously in RTI or VVRC, thereby engaging them in research topics at an early stage and gradually increasing their involvement/publication of JIMP papers over the reporting period (2019 - 10, 2020 - 20, 2021 - 30, 2022 - 26, 2023 - 24). The decrease in 2022 and 2023 is due to a reduction in the number of PhD students due to increased demands on PhD students and a general decrease in student interest in technical fields (see Table 3.1.4).

3. It is fair to say that the FME is at its beginning steps to explore possibilities of further economically transferring knowledge. Therefore, although the initial steps are very crucial and important and promising, as time goes by, the actual assessment criteria will remain based on desired and deliverable outcomes. This aspect of university activities requires a lot of effort and can produce unsatisfying results. An advice could be to get in contact with some European or American universities that have more experience on supporting technology transfer and intellectual property protection.

Following the Panel's recommendations, we have implemented several activities aimed at developing competences in the field of technology transfer and IP protection. In 2019, Ing. Vit Prokůpek (leading European negotiator and consultant, lecturer at Anglo-American University) at FME course "Negotiation Training" where he focused on negotiation training, key for concluding licensing agreements, as well as Mgr. Matěj Kliman (Lawyer with a focus on technology transfer) conducted a seminar on public support in research, development and innovation, including spin-off companies and licensing issues. In 2020, the "Pitch Skills" training was followed by Ing. Ondřej Staňek, which focused on effective presentation and communication skills. In 2021, we established international cooperation with Prof. George Deris from the University of Colorado, Boulder (USA), who conducted an online workshop on leadership, and we also started individual professional development in the form of coaching with Dr. Vladimír Tuka (2021/2022). As an example of the effort to sell the result, we started negotiating the license of our successful patented result "Kraken", a milling machine with spacers, protected by patents in the Czech Republic (No. 306748, 2016) and subsequently in the EU, USA (US 11,219,955 B2), Turkey (TR 2018 15038 B), Japan, Israel (P-15614-IL) and India. In 2019, Dr. Eli Zamir of Shalmir Holdings Ltd. was appointed to negotiate the sale of the patent and held talks with ISCAR Ltd. (Israel) under an NDA agreement (06-12/2019). Although successful trials of the cutter were underway at ISCAR's headquarters in Israel in 2020, the negotiations did not lead to an agreement and were suspended after the death of Dr. Zamir in 2021. Following a consultation with Dr. Veronika Šmigolová, Ambassador of the Czech Republic to Israel,

the Embassy of the Czech Republic in Tel Aviv, namely Lukas Přibyl (Scientific, R&D and Innovation Counsellor Embassy of the Czech Republic to Israel), was entrusted with further negotiations with ISCAR Ltd. in October 2022. However, these negotiations have not yet yielded clear results, especially after the outbreak of war in Israel in 2023. Despite these obstacles, we continue to actively seek strategic partners for the commercialization of our other patents.

4. The FME achievements in this regard are very important and there are some faculty members in the FME who are well recognized worldwide. However, although the list of faculty members invited to the FME (3.11.2/3.11.3) is significant, the list can be improved to numerous well-known scholars in the field from outside Europe such as Australia, US and China.

FME actively participated in international cooperation and hosted experts from prestigious foreign institutions during the evaluation period. Most of the invited lecturers came from European universities, but FME has already had collaborations with experts outside Europe during this period. In particular, Prof. Nima Shamsaei from Auburn University (USA) gave a lecture on the fatigue behaviour of additive manufacturing materials, which corresponds to the research priorities of FME (Table 3.2.4). In addition, faculty members have presented at several international events, including the 42nd International Congress on Applications of Lasers & Electro-Optics in the USA, which has contributed to expanding professional contacts (Table 3.2.3). An important step in the internationalization of FME was also the visit of Prof. Ioan D. Marinescu from the University of Toledo (USA) at the beginning of 2024, which was already planned for 2023. Prof. Marinescu focuses on advanced manufacturing processes and his presence at FME contributed to strengthening research collaboration in this area. Although most of the foreign guests in the period under review came from Europe and the USA, the invitation of experts from Australia and China has not yet been implemented, which represents room for further development. FME is aware of this fact and will focus on deepening cooperation with institutions outside the European area as part of its future direction.

5. Popularisation: The FME needs to keep up good work in this regard!

FME is systematically devoted to the popularization of R&D&I and has long been trying to reach the public, students and experts, see Ch. 3.6.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Supporting Documents and Sources (Folder)	3.1 – 3.7	https://www.fst.zcu.cz/en/Research/evaluation.html

MODULE 3:
LADISLAV SUTNAR FACULTY OF DESIGN AND ART (FDA)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: Ladislav Sutnar's Faculty of Design and Art

FORD: 6 - Humanities and the arts

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

In the period 2019-2023, the Ladislav Sutnar Faculty of Design and Art (FDA) increased outcomes at both the qualitative and quantitative levels. One of the primary goals was to strengthen creative activities. All internal processes were continuously optimized, and the Creative Activity Department was strengthened. The number of prospective students, the number of mobilities, and the number of national and international partners are increasing. The study offer is expanding. In the sphere of practical applications, FDA has expanded its portfolio of cooperating companies, increased the number of licensing arrangements, strengthened interdisciplinary research results and increased the volume of income as well as its portfolio of grant programmes. As a progressive and internationally oriented educational institution, it continues to consolidate its position at a national and international level.

Creative and artistic activities of FDA

FDA has long supported the development of cultural and creative industries, which includes cooperation with industrial enterprises as well as the non-profit sphere through design and artistic works. It regularly brings prominent personalities to the region and offers cultural events, which are enriched by accompanying programmes, for example, on the occasion of the annual Ladislav Sutnar Prize or within the framework of three international symposia.

In 2022, new Faculty leadership was established. Changes were gradually applied, with five departments replacing the original two, including the new Department of Art Theory and

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

History. At FDA, 21 specializations have been defined, and they are led by prominent figures from the fields of art and design.

The project and production team has been expanded, and an **Editorial Board** for publication issues and an **Exhibition Board** for strategic planning and improvement of exhibition activities have been established.

In terms of **artistic activities**, FDA focuses on developing cooperation with prestigious foreign art schools and other institutions. It is strengthening its position through participation in international exhibitions, conferences, competitions and projects in synergy with selected University of West Bohemia (UWB) units and foreign partners. FDA successfully utilises subsidies and grants from regional, national and foreign funds. It is also developing long-term partnership relations within the Association of Art Faculties of the Czech Republic and the ELIA and CUMULUS international organizations of art schools. In 2023, it became a founding member of the Association of Faculties in Audiovisual Art. It is also a member of the International Society for Artistic Research (SAR) and shares its results through the Research Catalogue.

For reporting artistic outputs at the national level, FDA uses the **Register of Artistic Outputs**, which is the main statistical tool in the Czech Republic for reporting artistic creative activity. Thanks to an established functioning data collection system and team of coordinators, FDA has demonstrated long-term high-quality performance compared to other schools with an artistic focus.

Another step that significantly supported the development of creative and scientific activities was the accreditation of **doctoral studies** in the "Interdisciplinary Research through Visual Arts" study programme in 2021. This made it possible to develop the concept of interdisciplinarity to a greater extent. FDA plays a crucial integrating role within the heterogeneous university, focusing on multidisciplinary projects and increasing the number of outputs in the **Register of Information on Results (RIV)**. FDA started to fund high-quality projects from its own resources and use the UWB Grant System to support research and visits from foreign experts.

Research areas and outputs

FDA is dominated by applied research with a focus on interdisciplinary results especially of a non-publication nature. In terms of grants received and contracted collaboration with external entities from the public or non-profit sector, it is possible to identify its main areas of research, namely orientation towards innovation in medicine, materials research and production technologies, sustainability and biodiversity protection, digital media and interactive design, art-based research and art theory.

The **Ladislav Sutnar Archive**, managed by FDA, is an ever-present source of inspiration, representing a workplace with research potential and a means of establishing foreign institutional contacts. The Ladislav Sutnar Archive was established in 2018 thanks to the support of Radoslav Sutnar and FDA-funded acquisitions. Basic record keeping of the collection of objects and inventory-taking of historical records is still ongoing. In 2023, the restoration of 19 paintings by Ladislav Sutnar from the Venus series was completed in cooperation with the Academy of Fine Arts and Design in Bratislava, and the restoration of other paintings continues. Materials from the archival collections were used in an exhibition on Ladislav Sutnar at the Czech Centre in Paris, and were lent out for the filming of television series and subsequently a feature film, which maps the story of Czech graphic design.

Long-term goals

The development of scientific and research creative activity is planned primarily in the creation of teams within FDA, the operation of which will be linked to grant opportunities in response to current technological and social developments. The formation of stable teams of academic and

research staff will help ensure the sustainability of projects and continue to improve research performance. In this regard, FDA is strengthening its team of theoreticians with the aim of achieving publication excellence. FDA also plans to increase the number of collaborating experts and consultants, as well as the portfolio of **collaborating foreign universities with doctoral programmes**. In the period under review, FDA began to develop a comprehensive concept for exhibition activities led by Czech curator Daniela Kramerová. Jan Van Woensel, a Belgian curator, continued to be engaged in the role of external curator for international collaborations and will focus on mediating exhibition opportunities abroad. Although the **doctoral programme** is currently undergoing modifications in order to improve its quality, it already serves as a source of inspiration for other art schools. The first students are expected to graduate in 2025, allowing FDA to apply for the accreditation of the Associate Professor appointment procedure. The **Ladislav Sutnar Archive** will complete the inventory-taking and cataloguing of collections, and internal methodological guidelines will be created to establish a regime for the handling of the collection.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	6.000/0.000	6.750/0.000	5.820/0.000	6.126/0.000	6.104/0.000	8.250/0.000
Associate Professor	12.830/3.670	12.503/3.003	13.166/3.000	12.146/3.000	11.667/3.000	16.166/4.670
Assistant Professor	18.890/4.570	20.885/4.952	7.171/3.938	8.391/4.672	9.696/5.308	21.073/5.496
Assistant	7.750/2.330	8.679/3.139	23.541/5.875	26.026/6.721	29.013/7.476	31.013/7.476
R&D Personnel ³	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Researchers in other categories ⁴	0.000/0.000	0.000/0.000	0.250/0.000	0.583/0.000	0.312/0.312	1.083/0.312
Technical and economic staff ⁵	27.290/15.690	28.742/15.046	30.465/16.935	29.124/17.175	33.239/20.498	50.427/31.436
Scientific, research and development staff involved in teaching activities	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Early career researchers ⁶	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000	0.000/0.000
Total ⁷	72.760/26.260	77.559/26.140	80.413/29.748	82.396/31.568	90.031/36.594	128.012/49.390

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	1	0	3	0	3	0
Associate Professor	0	0	1	1	4	0	1	0	5	2	2	0
Assistant Professor	0	0	7	2	12	3	5	2	2	1	1	0
Assistant	0	0	4	2	3	1	2	0	0	0	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	0	0	0	0	0	0	0	0	0	0	0	0
Technical and economic staff ¹¹	7	5	15	14	15	6	3	1	2	1	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹³	7	5	27	19	34	10	12	3	12	4	6	0

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	0	0	4	0	3	0
Associate Professor	0	0	0	0	5	1	1	0	4	2	2	0
Assistant Professor	0	0	3	2	7	4	3	2	1	0	0	0
Assistant	2	1	14	4	14	5	2	0	3	0	2	1
R&D Personnel ¹⁵	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁶	2	2	1	1	0	0	0	0	0	0	0	0
Technical and economic staff ¹⁷	2	2	19	12	12	6	5	3	4	1	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹⁸	0	0	0	0	0	0	0	0	0	0	0	0
Total ¹⁹	6	5	37	19	38	16	11	5	16	3	7	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	449	344	478	366	498	382	489	383	490	373
Master's ²⁰	226	158	262	187	250	185	235	169	224	154
Doctoral	0	0	0	0	0	0	21	13	28	15
Lifelong Learning Courses	364	253	45	33	35	28	397	318	505	386
Total	1,039	755	785	586	783	595	1,147	883	1,240	926

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	2/0	0/0	2/0	0/0	6/0	0/0	6/0	0/0	6/0	0/0	6/0	0/0
Master's	2/0	0/0	6/0	0/0	6/0	0/0	6/0	0/0	6/0	0/0	6/0	0/0
Doctoral	0/0	0/0	0/0	0/0	0/0	0/0	1/0	0/0	1/0	0/0	1/0	0/0
Lifelong Learning courses	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0	2/0	0/0
Total	6/0	0/0	10/0	0/0	14/0	0/0	15/0	0/0	15/0	0/0	15/0	0/0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	1.5
	1.2 Computer and information sciences	1.5	Applied Research	
	1.3 Physical sciences		Zvolte položku.	
	1.4 Chemical sciences		Zvolte položku.	
	1.5 Earth and related environmental sciences		Zvolte položku.	
	1.6 Biological sciences		Zvolte položku.	
	1.7 Other natural sciences		Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	3
	2.2 Electrical engineering, Electronic engineering, Information engineering		Zvolte položku.	
	2.3 Mechanical engineering		Zvolte položku.	
	2.4 Chemical engineering		Zvolte položku.	
	2.5 Materials engineering	1.5	Applied Research	
	2.6 Medical engineering		Zvolte položku.	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies	1.5	Applied Research	

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences		Zvolte položku.	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	15
	5.2 Economics and Business	7.5	Applied Research	
	5.3 Education	7.5	Applied Research	
	5.4 Sociology		Zvolte položku.	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology	8.5	Applied Research	80.5
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)	56	Applied Research	
	6.5 Other Humanities and the Arts	16	Applied Research	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

FDA offers 21 specialisations with high-quality technical facilities and a wide range of skills and means of expression. The nature of artistic research allows for free movement between disciplines and collaboration with many research areas.

Thanks to its multidisciplinary projects, FDA's disciplinary portfolio is broad and the results are applied mainly in Arts and Other Humanities and the Arts. However, in addition to the primary discipline group, most of our Faculty results are classified within other discipline groups in the natural sciences, engineering and social sciences. For example, History and Archaeology, Computer and Information Sciences, Other Engineering and Technologies, Health sciences, Education, Economics and Business, Materials Engineering, and others.

For reporting artistic outputs at the national level, the Register of Artistic Outputs (RUV) is used. In the studied period, FDA reported a total of 2,219 results in the RUV database with a score of 56,864 points, which ranks it among leading art-oriented schools in the Czech Republic. From the total, eight results are of fundamental importance and 788 results have an innovative contribution.

FDA has reported 78 results in the RIV (Register of Information on Results) database for the assessment period 2019-2023, which is a high increase given the nature of the art faculty and is also visible in individual years. From these results, 26 are of a publishable nature and 52 are of a non-publishable nature.

The individual studios are led by prominent personalities in art and design, as evidenced by their rich artistic output, many years of academic experience, regular exhibition activity, national and international awards and membership in artistic councils and expert committees.

Membership of academic staff in professional societies (a selection):

Prof. Mikoláš Axmann, M. F. A. – member of the Association of Czech Graphic Artists HOLLAR

Prof. Jiří Barta, M. F. A. – member of the European Film Academy and member of the Czech Film Academy

Prof. Karel Míšek, M. F. A., Ph.D. - Chairman of the Administrative Board of GESTOR, the Union for the Protection of Authorship

Prof. Rostislav Vaněk, M. F. A. – Honorary member of the Art Council and external member of the Editorial Board of the Academy of Fine Arts in Prague

Prof. Boris Jirků, M. F. A. – member of the Association of Czech Graphic Artists HOLLAR, chairman of the international project Figurama

Doc. Ditta Jiříčková, M. F. A. – member of the KK3 Concretist Club

Doc. MgA. Vojtěch Domlátil – member of the Council of Animated Film
Mgr. Tomáš Chochole, Ph.D. – member of the Review Committee of the European Conference on Arts & Humanities, Birkbeck, University of London
Mgr. Andrea Sloupová, Ph.D. – member of the Czech Association of Art Historians, member of IBBY / International Board on Books for Young People
PhDr. Zlata Gersdorfová, Ph.D. – President of the International Castellological Society Comité
Doc. Josef Mištera, M. F. A. – chairman of the Administrative Board of the Sutnar Foundation – Radoslav and Elaine Sutnar Foundation
MgA. Vojtěch Aubrecht – member of the association of Czech artists Umělecká beseda, chairman of the Administrative Board of APELLA fine arts o.p.s.
Doc. Mgr.art. Jana Potiron, ArtD. – Vice-Chair of the international jury of the Inspireli Awards
Prof. Ing. Arch. Zdeněk Fránek – member of the Royal Academy of Engineering

Guests and international context

FDA actively develops international relations with faculties or universities with similar profiles, thus increasing and improving the mobility of students and teachers and implementing projects in cooperation with international partners. In terms of internationalisation, the aim of FDA is to strengthen, define and consolidate its position within Europe, which requires active cooperation in interdisciplinary relations and projects, as well as presentation at international art shows and competitions. It has long been developing partnership relations in the ELIA and CUMULUS international associations of art schools. It is also a member of SAR (Society for Artistic Research), a non-profit international society dedicated to the development and dissemination of artistic research practices.

In the framework of the Erasmus+ programme, FDA has concluded agreements with 42 institutions in 14 European countries. In addition, it cooperates with 29 other institutions in Europe, USA, Israel, Japan, China, Pakistan and Taiwan through bilateral agreements. Out of these agreements, contractual partnerships have been newly established with 12 universities in the period 2019-2023, including those with the Royal Academy of Fine Arts Antwerp, Joshibi University of Art and Design in Japan, Kibbutzim College of Education, Technology and the Arts in Israel, and the National Taipei University of Technology in Taiwan.

During the studied period, FDA was visited by more than one hundred distinguished foreign guests from various fields of design and art. These included invited experts in the support of research and doctoral studies, and prominent artists and theorists in symposia and exhibitions, especially the International Photography and Time-Based Media Symposium Boundaries, Jiří Trnka International Symposium, International Symposium on Large Format Lithography Living Stone, International Summer School ArtCamp and Ladislav Sutnar Awards. A significant number of foreign guests at FDA also include members of international consortiums, ambassadors, representatives of companies and experts from the sphere of practical application. The integration of experts and academic representatives into the life of UWB took place in relation with organised lectures, workshops, exhibitions and consultations.

FDA's academic staff members are regularly invited to give lectures, as evidenced by their participation in a number of conferences and workshops abroad. During the studied period, they made more than 40 trips to give guest lectures.

2019 - Orléans – France; Santiago de Chile – Chile; Tainan, Taipei – Taiwan; Washington DC, Temple, Chicago, Minneapolis – USA; Dublin – Ireland; Paris – France; Tokyo – Japan; Changsha, Shanghai, Wuhan – China;

2021 - Bratislava – Slovakia; Waseda – Japan (online); Deggendorf – Germany; Beijing, Tianjin, Shanghai – China;

2022 - Dresden – Germany; Koupio – Finland, Linz – Austria; Brussels – Belgium; Sarmade – Italy; Kendal – UK; Tokyo – Japan; Regensburg, Deggendorf – Germany; Kuala Lumpur – Malaysia; Beijing, Shanghai – China;

2023 - Athens – Greece; Bratislava - Slovakia; Hong Kong - China; Medellín, Bogotá – Colombia; Lodz – Poland, Paphos – Cyprus; Berlin, Amberg-Weiden – Germany; Zurich – Switzerland; Jerez de la Frontera – Spain; Tangerang, Bandung – Indonesia

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
MgA. Ing. Václav Šlajch	Japan International Manga Award for the book IOGI	Ministry of Foreign Affairs of Japan
prof. Ing. Arch. Zdeněk Fránek	Architect of the Year 2020	ABF, a.s.
akad. mal. Renáta Fučíková	Golden Ribbon 2023 for the book "Heroines: Stories of Prominent Czech Women" awarded to the best authors, illustrators and translators of literature for children and youth	Česká sekce IBBY
prof. MgA. Kristýna Fišerová	Joseph Binder Award 2022, category: Information design, Vienna	Design Austria
prof. MgA. Kristýna Fišerová	Nomination for AWDA Women in Design Award, AIAP, Italy, Milano 2023	Aiap, Associazione italiana design della comunicazione visiva
	Nomination for Red Dot Award for the CTPark hall, 2022	Red Dot GmbH & Co. KG
MgA. Ing. Václav Šlajch	Golden Pen of Belgrade: award for illustrations for the book "The Curse of Prince Fabris"	International Biennial of Illustration
akad. mal. Renáta Fučíková	Vyšehrad Publishing House's award for the book "Chekhov &", 2022	Vyšehrad Publishing House
doc. Mgr.art. Jana Potiron, ArtD.	Nomination for the Make Me! Award 2021	Lodz design festival, Lodz, Polsko
	Winner of the KOLABO competition for the project Do Not Disturb My Coffee Zen	Čerstvé ovocie, Bratislava, Slovakia
doc. MgA. Zdeněk Veverka	Winner of BIG SEE Product Design Awards 2021 and 2022 for the design of the TO water heater and VyplašTo rodent repellent design	BIG SEE, Ljubljana, Slovenia
prof. akad. mal. Mikoláš Axmann	Hollar Fund Prize 2021 for small-format graphics for the XXVII Small-format Graphics Festival and nomination for the Graphic Artist of the Year Award 2022	Association of Czech Graphic Artists HOLLAR

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Mgr. Tomáš Chochole, Ph.D.	HUB — Journal of Research in Art, Design and Society, in the framework of the Research Catalogue – an International Database for Artistic Research, Amsterdam, Holland, ISSN: 2975-9250

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
MgA. Ing. Václav Šlajch	Comics in the Czech Republic	Senshu University, Tokyo, Japan	2019
prof. Mgr. Štěpán Grygar	Photography as Visual Language – New Visualism	ESAD Orléans, France	2019
prof. Ing. Arch. Zdeněk Fránek	Z. Fránek's Lecture on Czech Green Architecture and Creation	National Cheng Kung University Taiwan, Taiwan	2019
Akad. Mal. Renáta Fučíková	Lecture on the "Velvet Effect 1988-1993" project	Washington DC, USA	2019
Akad. Mal. Renáta Fučíková	Lecture on the "Heroines" project	Lexicon Library, Dún Laoghaire, Ireland	2022
Mgr. Tomáš Chochole Ph.D.	Interdisciplinarity in design practice	17 th Eureka 2022 International Engineering and Computing Research Conference, Taylor's University, Kuala Lumpur, Malaysia	2022
MgA. Ing. Václav Šlajch	Lecture and workshop "Working with Art Students" and "Project IOGI"	Kendal College, UK	2022
Mgr. Libuše Jarcovjáčková	Lecture on the work of L. Jarcovjáčková	Between Bridges Exhibition, Belin, Germany	2023
Mgr. Tomáš Chochole, Ph.D.	Challenges and Opportunities in Interdisciplinary Research	6 th International conference on Business, Economics, Social Sciences, and Humanities (ICONBEST), Indonesia Computer University, Bandung, Indonesia	2023
Akad. Mal. Renáta Fučíková	Lecture on the books "Prague in the Heart" and "Franz Kafka. Man of Our Times"	University of Bogotá, Columbia	2023

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Maurizio Corbi (IT)	Pininfarina	Automotive Design lectures and workshops	2019
Gérard Lo Monaco (FR)	Les Associés Réunis	Pop-up book lecture and workshop	2019

Ross Sawyers (USA)	Columbia College Chicago	International Photography Symposium Boundaries 2019 / Integrated Photography	2019, 2023
Michael Anthony Arbib (USA)	University of California University in San Diego	Interdisciplinary approach to brain research	2021
Fanuel Hanán Díaz (CO)	Pontificia Universidad Javeriana, Bogotá	Jiří Trnka International Symposium lecture: Building Atmosphere Through Illustration in Children's Books	2022
Yael Eylat van Essen (IL)	Senior lecturer at the Design Faculty at HIT (Holon Institute of Technology) and she also teaches at the Interdisciplinary master's programme at the Art faculty in Tel-Aviv University	lecture and workshop: Mapping as a tool for artistic creativity – looking for new connections	2023
Richard Kegler (USA)	Rochester Institute of Technology // P22 Foundry (USA)	Typo-lecture	2023
Michael Bielicky (DE / CZ)	Media Art department – University of Art and Design Karlsruhe / ZKM Staatliche Hochschule für Gestaltung Karlsruhe	lecture, workshop and exhibition at International Photography and Time-based Media Symposium Boundaries: Travel	2023
Magdalena Jetelová (DE / CZ)	Academy of Fine Arts of Munich	Ladislav Sutnar Prize 2023 / laureate lecture	2023
Leonhard Grond (AT)	Universität für Angewandte Kunst Wien Universitätsbibliothek: Wien, Wien, AT	Ladislav Sutnar Prize 2023 / laureate lecture: Dizziness and Freedom: States of dizziness as the possibility of possibility	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting authority /guarantor of the project/programme call	Year
Mgr. Tomáš Chochole, Ph.D.	ÉTA	Technology Agency of the Czech Republic (TAČR)	2023
Mgr. Tomáš Chochole, Ph.D.	HUB Journal of Research in Art, Design and Society	Research Catalogue – an International Database for Artistic Research, Amsterdam, Holland	2023
Mgr. Tomáš Chochole, Ph.D.	Mobility Innovation Hub - Call TISUP 1/2023	CZECHINVEST	2023

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1-3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

- **Horizon EU: 101095160 Palimpsest: Creative Drivers for Sustainable Heritage Landscapes**

Provider: European Commission

Project coordinator: Politecnico Milano

FDA Implementation Team: Prof. Ing. arch. Zdeněk Fránek, Doc. Mgr. art. Jana Potiron, ArtD., MgA. Kristina Zejkanová, Ing. arch. Dana Nováková
2023-2026

The PALIMPSEST project is concerned with the identification and development of culturally determined, environmentally friendly practices. It responds to pressing issues arising from the imbalance in the relationship between humans and nature, focusing in particular on the challenges of climate and the transition to sustainability. The aim is to introduce new scenarios and services in relation to the landscape/ecosystem, experimenting with practices linking human activity, landscape heritage and sustainability objectives. The focus is on indigenous processes of positive interaction between nature and humans, in contrast to current manifestations of disharmony and tensions and contradictions between human activities and the natural realm. This is achieved through the involvement of the pilot sites – Jerez, Milano and Lodz – in which local stakeholders as well as international artists, designers and architects are activated. Design and architecture are seen in the project as tools for transforming the environment and as a resource for generating sustainable solutions. The project uses architecture, design and artistic practices to reconnect with nature through artistic intervention in public space. FDA's team coordinates the nature and implementation of case studies of art projects that aim to enhance the sustainability of the landscape in various ways and also conducts database analysis. It regularly provides expert conceptual and technical support in finding practical ways to achieve specific objectives for creative activities in pilot cities.

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

- **Computational and Experimental Support for 3D Printing Technology of Highly Stressed Plastic Components with Increased Temperature and Fatigue Resistance – 3D Printing by ILC and Co.**

Provider: Technology Agency of the Czech Republic (TAČR)

FDA implementation team: Doc. MgA. Zdeněk Veverka, Mgr. Tomáš Chochole, Ph.D.
joint project with the Regional Technology Centre and the Faculty of Health Care Studies, UWB
2023-2025

The project focuses on significant innovation in the field of computational and experimental support for 3D printing exposed plastic components that are subjected to, for example, cyclic loading or are operated at low or high temperatures. All collaborators of this project use additive manufacturing methods in their business, research or educational activities. The common goal is to advance the field in terms of production methods and the use of materials for the piece production of components of highly innovative products or the provision of contract research services. Based on the knowledge gained over the course of the present project, it will be possible to predict the future applicability of 3D printing technology for a wide range of products.

FDA's team is responsible for the material research and innovative shape design of an upper limb prosthesis based on the needs of application users.

- **Prevention of Pelvic Floor Disorders**

Provider: Interreg Czechia-Bavaria

FDA implementation team: Mgr. art. Jan Korabečný, BcA. Radka Krajíčková
joint project with NTC (New Technologies - Research Centre) of UWB
2023-2026

Pelvic floor disorders interfere with quality of life, affect women's social and personal activities, and have an impact on mental health. The project's purpose is to raise awareness of the issue. It aims to develop a non-invasive device to assess adequate contraction of the pelvic floor muscles. The system will be based on objective clinical data and advanced simulation technologies. The partners bring together expertise from the fields of healthcare, cybernetics, biomechanical modelling, industrial design and technology. The information obtained will be made available to a target group of healthy women aged 18-45, the general public, as well as professionals in the field of gynaecology and physiotherapy. The developed technology will be presented as a functioning sample, whose development, material and shape testing is the responsibility of a team of industrial designers from FDA.

- **Entwining – From Country to Country**

Provider: Cross-border Cooperation Programme Czech Republic - Free State of Bavaria

Main project implementor: the Klatovy/Klenová Gallery

FDA implementation team: Prof. Jiří Beránek, M.F.A., Doc. MgA. Benedikt Tolar

Project partners: the Ladislav Sutnar Faculty of Design and Art of the University of West Bohemia in Pilsen, the City of Schönsee - Centrum Bavaria Bohemia (DE), the City of Vilseck (DE)
2018–2020

The main concept of the project was to create a network and to develop cultural dialogue between organizations and artists from the border regions of the Czech Republic and Bavaria through the work of Czech and German sculptors in the landscape - land art. All the partners involved had already had experience with this specific form of artistic cultivation of the landscape. Thanks to this connection, many authentic works could be created on both sides

of the Czech-German border. In the Klatovy/Klenová Gallery, a large land area around the Klenová Castle and Chateau was used for the creation of land art objects by students of the Sculpture and Space Studio. Symposiums of Czech and German artists were held in Vilseck and Klenová. During the symposium, the art trail in Vilseck and the sculpture park in Klenová were supplemented with new objects. The town of Schönsee provided the students of the FDA sculpture studio with a place for an artistic internship in Bügellohe, a vanished German village, where, under the guidance of Benedikt Tolar, they created a symbolic work reflecting its turbulent history. The final output of the project was a photographic exhibition with an international scope and a trilingual publication. The publication and exhibited photographs, which document the project activities and resulting works, were created by FDA students and artists.

- **Research Innovation in Prosthetics**

Provider: Cross-border Cooperation Programme Czech Republic - Free State of Bavaria, Objective (European Territorial Cooperation) 2014–2020.

FDA implementation team: Doc. MgA. Zdeněk Veverka; Mgr. Tomáš Chochole, Ph.D.

joint project with the Regional Technology Centre and the Faculty of Health Care Studies UWB

2020-2021

The project focuses on the development of new modelling methods, design and 3D printing solutions for the production of external prosthetic beds for upper limbs. 3D printing enables new approaches in the production of individualised components. Particularly in the medical and prosthetic fields, this adaptability offers critical advantages, as each patient's anatomy is different and requires a tailored solution.

This can bring significant innovations in the field of prosthetics, where these technological procedures are still being introduced. Until now, upper limb prostheses have mostly been made by hand, which is a very lengthy and expensive process. The FDA research team is focusing on developing the shape and design to ensure that prostheses are not only functional but also meet patients' aesthetic requirements.

- **Applied Research on Exoskeleton**

Provider: Interreg Czechia - Bavaria

FDA implementation team: doc. MgA. Zdeněk Veverka; Mgr. Tomáš Chochole, Ph.D.

joint project with the Faculty of Health Care Studies, UWB

2023–2026

This project is aimed at developing joint research capacity between the Technische Hochschule Deggendorf and the University of West Bohemia in Pilsen in the field of applied research with a focus on the development of a prototype of a lower limb exoskeleton for rehabilitation purposes using innovation in design, construction technologies, 3D printing and the conversion of brain signals into limb movement. The project is being implemented through a multidisciplinary research team involving five associated practice partners. This will strengthen the research capacity for technology transfer in the fields of rehabilitation and prosthetics. The FDA team is working on designing a new exoskeleton shape in the form of a functional prototype, which will be ready for technology transfer in the healthcare and rehabilitation fields.

- **DESING+**

Provider: Internal grant resources of UWB

FDA implementation team: Mgr. art. Jan Korabečný; Mgr. Tomáš Chochole, Ph.D.

Joint project with the Faculty of Mechanical Engineering of UWB

2019–2023

Design and Mechanical Engineering – together DESING+ is an educational project of interdisciplinary cooperation between students at the faculties of UWB in designing technical innovations that are commissioned, consulted and finally jointly evaluated by major companies in Pilsen. The DESING+ project is, among other things, a means to gain practical skills and experience, but also to connect theory with practice. The aim of the long-term project is to promote creativity, innovation and cooperation between students of different fields.

The project, which is founded, developed and supervised by **Prof. Stanislav Hosnedl** from UWB's Faculty of Mechanical Engineering, teaches students to cooperate in multidisciplinary teams and develops their creativity, systematic skills and other qualities important for future employment. At the same time, it contributes to the development and global success of the discipline of Engineering Design Science Methodology (EDSM), which has been developed at the Department of Machine Design of the Faculty of Mechanical Engineering for decades in connection with leading technical universities in the world and which students involved in the project continuously apply and verify. Since 2004, more than 1,500 students from five faculties of the University of West Bohemia in Pilsen have participated in the project, dealing with 57 different topics in more than 200 projects. It involves 20 Czech and German industrial and institutional partners. A significant result of the project are utility models and industrial designs of original parts of the proposed solutions.

- **CerDee: Creative Entrepreneurship in Ceramic Regions – Developing, Educating, Encouraging**

Provider: ESF Interreg Central Europe

Main project implementor: Porzellanikons Selb (DE)

Project partners: Ladislav Sutnar Faculty of Design and Art + Faculty of Economics of the

University of West Bohemia in Pilsen, Muzeum Ceramiki w Bolesławcu (PL), Museo

Internazionale delle Ceramiche in Faenza – Fondazione onlus (IT), New Design University

Privatuniversität GesmbH (A), Narodni muzej Slovenije (SLV), Technische Universität Ilmenau

(DE), Závod za turizem in kulturo Kranj (SLV)

FDA Implementation team: doc. MgA. Gabriel Vach and students from the Studio of Ceramics

Joint project with the Faculty of Economics

2019–2022

Ceramics are an integral part of our everyday lives, and the quality of products depends on creative designers who understand the materials and their characteristics. Central European regions have a long tradition in this field and offer business opportunities for young artists and designers. The aim of the project was to share the cross-border experience of regions with ceramics and porcelain industries and to support young ceramic artists in developing their work and business. FDA, together with important foreign partners, participated in the analysis of the needs of creatives and entrepreneurs in this area and the development of a marketing strategy to achieve progress in the creative ceramics sector. It has organised ceramics/porcelain workshops to expand skills and techniques in working with the material, as well as to support young creators' start-up businesses. FDA also contributed to the creation of

Ceramics in Europe, an inspiring international portal with a virtual library and gallery of the most interesting examples from the history and present of ceramic creation.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
Czech Ministry of Culture+Pilsen Region	Boundaries Travel (2023)					155/ 6,458
Pilsen Region	LandArt (2019-2022)	60/ 2,500	70/ 2,917	50/ 2,083	70/ 2,917	
City of Pilsen	Jiří Trnka (2022)				70/ 2,917	
Embassy of Israel, 700 Years of the City of Pilsen Fund	The Secret Bond (2020)		45/ 1,875			
City of Pilsen	University City Pilsen (drone, pilotless airplanes, public transportation stops, live campus, micromobility) 2019-2022	50/ 2,083	53/ 2,208	70/ 2,917	130/ 5,417	
City of Pilsen	ArtCamp 2023					158/ 6,583
Total		110/ 4,583	168/ 7,000	120/ 5,000	270/ 11,251	313/ 13,041
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
European Commission (EU)	PALIMPSEST – Value- generative landscape practices for sustainability transition					756/ 31,500
Technology Agency of the Czech Republic	Computing and Experimental Support for 3D Printing Technology of Highly Stressed Plastic Components with Increased Temperature and Fatigue Resistance					191/ 7,958

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

²⁷ Ibid.

Programme INTERREG Bavaria - Czechia 2021-2027 (EU)	Pelvic Floor Disorder Prevention					221/ 9,208
INTERREG Bavaria - Czechia 2021-2027 (EU)	Applied Research of an Exoskeleton for Use in Rehabilitation					212/ 8,333
EU, MMR	Research Innovation in Prosthetics			237/ 9,875	479/ 19,958	
MPO	CZ.01.1.02/0.0/0.0/20_321/0024420_ADAPT, Fraus				51/ 2,125	
Interreg Central Europe (EU)	CerDee Creative Entrepreneurship in Ceramics Regions – Developing, Educating, Encouraging 2019-2022	325/ 13,541	514/ 21,416	1,192/ 49,666	383/ 15,958	
INTERREG ETC Goal Czech Republic	Growing Through – From Land to Land	276/ 11,500	660/ 27,500			
Czech Ministry of Education	Desing+ 2023	200/ 8,333	200/ 8,333	2,000/ 8,333	200/ 8,333	200/ 8,333
Total		801/ 33,374	1,374/ 57,249	1,629/ 67,874	1,113/ 46,374	1,580/ 65,332

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
Hebei Haijie Modern Educational Equipment Co.	Hebei – design of an office chair with wheels		420/ 16,800			
Capital City of Prague	Capital City of Prague – Presentation of the Baba Project				356/ 14,240	
Municipality of Chotěšov	Municip. of Chotěšov- Monument Digitalization		1,401/ 56,040			
Pilsen Region	Pilsen Region – Mapping Cultural and Creative Industries					142/ 5,680
Roman-Catholic Parish Klatovy	Roman-Catholic Parish KT- Monument Digitalization			336/ 13,440		
Roman-Catholic Parish Klatovy	Roman-Catholic Parish – exposition		372/ 14,880			
Roman-Catholic Parish Plasy	Roman-Catholic Parish – Monument Digitalization			342/ 13,680		
Roman-Catholic Parish Pilsen	Roman-Catholic Parish – Exposition design			449/ 17,960		
Roman-Catholic Parish Přeštice	Roman-Catholic Parish Přeštice-church renewal					160/ 6,400
Charles University	Charles University – Development of a prototype for the decellularization of the liver					110/ 4,400

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

VR training s.r.o.	VR training – Development/design of a VR case					83/ 3,320
West Bohemian Museum in Pilsen	West Bohemian Museum Pilsen-revitalization		342/ 13,680			
Total		0	2,535/ 101,400	1,127/ 45,080	356/ 14,240	495/ 19,800

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

- **Czech Heroines**

project, publications, exhibitions
Since 2020

The project "Czech Heroines" was created from the initiative of Renáta Fučíková, M.F.A. Under her guidance over the course of three semesters, students at the Didactic Illustration Studio illustrated more than one hundred portraits of important female personalities from Czech history and present. The project includes the publication of the book "Heroines" and related exhibition activity with global dimensions.

The book "Heroines" was published by Euromedia in 2020 and won the national Golden Ribbon Award in 2021. It was inspired by the 100th anniversary of the enactment of equal suffrage for Czechoslovak women in 1920. It is a joint project of the Ladislav Sutnar Faculty of Design and Art, Czech Centres and Prague International Radio. The publication has had a total of nine reprints, and 20,000 copies have been printed to date. A "Czech Heroines" exhibition was also created, consisting of 50 portraits accompanied by brief biographies. The exhibition has been translated into 18 languages. Since 2020, it has been presented at more than 60 exhibitions around the world – in Israel, Luxembourg, Italy, the Netherlands, Finland, Georgia, France, Germany, Poland, Romania, Hungary, Greece, Portugal, Kosovo, Slovakia, Ukraine, Egypt, the USA, South Korea, Hong Kong, Pakistan and Nigeria.

The project began as original student research, in which the illustrators explored feminine themes such as health and mental or physical illness, but also issues of appearance.

International social significance: thanks to the exhibitions, the publication has inspired numerous books around the world. Six similar books have been written in different countries,

²⁹ See Terms definition.

for example in Nigeria (Czech and Nigerian Heroines) and Pakistan (Czech and Pakistani Heroines - with portraits of Pakistani heroines under the direction of Professor and Vice-Chancellor of the National College of Arts, Murtaza Jafri).

- **IOGI**

Publication

Sutnar Books (Japanese), Kavka Books (Czech) and Centrala (English, Polish)

2021

IOGI is a comic book, which is the result of the creative activity and research of artists from FDA under the direction of Václav Šlajch. The content and final form of the publication is the result of the artistic rendering of the traditional Japanese style of drawing by Czech artists, who have mastered it to the extent that they were able to succeed in the competition among local Japanese illustrators. The book won the prestigious Japan International Manga Award in 2021, making it the first Czech book awarded in this competition. The current Japanese Ambassador to the Czech Republic, Hideo Suzuki, presented the award to the authors in person in May 2022 at FDA in Pilsen. The book was presented at four exhibitions in Japan and five exhibitions in the Czech Republic. In 2023, the book was the winner of the Muriel Award in the Best Screenplay category.

The book contains eleven illustrated comic stories about the everyday life of people in Japan in the residential area of Sugunami around IOGI train station on the outskirts of Tokyo. The book avoids the common stereotypes and typical images Europeans have of Japanese life. It contributes to the positive formation of national and cultural identity. It aims to offer an unbiased view of Japan, invites mutual understanding of cultures and creates true images of life beyond the borders of the Czech Republic.

The book is supported by sociological research. Japanese sociologist Naoko Takeda of Waseda University in Tokyo provided advice for the proposals.

The book's preface was written by Jean-Gaspard Páleníček and the author of the afterword is Pavel Kořínek, a prominent historian and researcher at the Institute for Czech Literature of the Czech Academy of Sciences.

- **Revitalization of the Chotěšov Monastery**

Digitisation of the monument

Multimedia Studio, FDA

Municipality of Chotěšov, Czech Republic

2020

The authors created a unique digital tour route in the partially revitalized Chotěšov Premonstratensian Monastery in the Pilsen region. This made it possible to officially open the building, which would otherwise have remained closed to the public. The common concept of the whole project is access to information in digital space, which primarily serves for the presentation and promotion of this monument. The form of the outputs responds to the current efforts of European institutions for digital transformation in the cultural heritage domain with the aim of protecting cultural values and promoting education for all of society.

The uniqueness of the realization lies in its digitized form, which is rarely used in this kind of monument in the Czech Republic. The contract research also included the creation of a custom application reflecting the requirements of the project. Thanks to the digital guide, the space remains visually and physically intact, respects the genius loci of the site and at the same time

provides visitors with a rich interactive experience. The digital representation of each space is the work of a team of artists, designers and programmers, which draws on written historical sources, period photographs and interviews with local residents and is supported by a study of the surviving architectural and stylistic morphology.

The sightseeing route is accompanied by text and QR codes in three languages (Czech, English and German), which increases the attractiveness for foreign visitors in the long term.

Digital presentation outputs:

- time-lapse video documentary
- digital guide to the site with enhanced digital media content - audio / video / AR / VR
- virtual videomapping of the space of the exposition of Baroque sculptures

- **Design of a Device for the Decellularization of Liver Tissue**

FDA implementation team: Jan Korabečný; Jonáš Baierl; Kristýna Lacigová; Vít Gabriel; Jan Javorský

Cooperation with the Faculty of Medicine of Charles University in Pilsen
2023

The aim of the contract research project is to optimize the decellularization process for liver transplantation with emphasis on safety and efficiency. The FDA design team investigated various methods of fixation and placement of liver tissue during the process, focusing on ergonomics and tissue friendliness. The resulting prototypes are tested using liver tissue models, leading to incremental optimization and the creation of a functional sample. The work presents a comprehensive view of innovation in liver transplantation and provides a basis for further research and development.

Design and testing were carried out with the Faculty of Medicine of Charles University in Pilsen. The contract research describes the genesis of the shape design of liver tissue decellularization devices and the output are designs and models that test partial hypotheses. The final functional model is a compilation of these findings. It sets some boundaries and represents a springboard for further research in this field, whether in the field of materials engineering or overall workplace ergonomics and the application of individual elements and procedures to clinical practice.

- **VR Case – Internal Storage Liner for Work Case**

Industrial design

FDA implementation team: Jan Korabečný; Václav Svítal; Lukáš Melichar; Marek Bárdy; Radka Krajíčková

Client: CIE – Group
2022

Design of a virtual reality goggle transmission device. In the medical sphere, VR goggles are mainly used for the rehabilitation of patients in hospitals, or for training workers in various spheres of the public and private sector (rehabilitation, training for operating equipment and mechanisms, simulators, ergonomic studies). The portable device was designed for a customer developing mainly software and virtual reality environments.

The requirement was to develop a shape solution that would not be designed preferentially for one type of eyewear, but would be versatile and easy to maintain, eliminating soft materials that are difficult to disinfect. The result is the design of a portable case that can meet these very difficult conditions while keeping the manufacturing cost of the entire set at an affordable

level. This design brings innovations to the portability and storage of the VR set and their application to the needs of the medical environment. The proposal presents a timeless solution applicable to different types of virtual goggles and their controllers.

- **CTPark Hall**

Author: prof. MgA. Kristýna Fišerová

Location: Borská pole, Pilsen

2021

A large-scale work of art for the CTPark Hall building. With an area of 2,215 square metres, it is the largest example of a large-scale wall painting in a public space in the Pilsen Region. It is also one of the largest mural artworks in the Czech Republic. It involved covering a wall of a developer's warehouse with a colourful coating. It was commissioned by the company CTPark Pilsen. The wall of the hall was covered with a special foil with a graphic design dominated by FDA's colours of red, black and white. The entire implementation of the Pilsen mural began in mid-May 2020 and lasted four weeks. For the implementation of the large-scale painting, the author Prof. MgA. Kristýna Fišerová received two award nominations – the Red Dot Award 2022 and AWDA Women in Design Award, AIAP, 2023 and the highest rating of excellence (grade A) in the Register of Artistic Outputs. This is a dominant artwork that cultivates public space and emancipates the post-industrial landscape into a gallery space that is viewed by thousands of passers-by every day.

- **Visual Identity of Prague Integrated Transport**

Author: MgA. Bohumil Vašák, Dis.

Co-authors: Mikuláš Macháček, Petr Štěpán

2022

A new graphic design for public transport vehicles and a complete visual identity of the integrated public transport system of the Czech capital city of Prague and the Central Bohemian Region emerged from a design competition held by the professional organisation Czechdesign. The aim of the competition was to present the public transport service as a modern but above all comprehensible and coherent system of the 21st century, to facilitate orientation during travel so that passengers would always find all the necessary information intuitively in the same or similar places in all types of transport vehicles and regardless of the transportation provider. The Prague Integrated Transport System (PID) now includes 27 providers. There are currently 67 different types of transport vehicles. Currently, the PID system is being extended to the entire territory of the Central Bohemian Region, and therefore it is the right time to modernise and unify the visual presentation of the entire system so that its users can clearly identify at first glance that a PID ticket is valid in a given vehicle. Up to now, there was a different graphic manual for urban and suburban buses, while no unifying style was applied to trains, trams or the metro. The most striking element on the vehicles is the red vertical stripes, which are based on the new visual style. They will promote traffic safety, easy visibility at a distance and orientation when boarding, as they usually mark individual doors. The graphic design received the highest rating of excellence (grade A) in the Register of Artistic Outputs.

- **The “AJ VANA BE” Installation – Fête des Lumières**

Art installation

Author: Doc. MgA. Benedikt Tolar

Lyon, France

2023

The Festival of Lights (Fête des Lumières) in Lyon, France, has 30 years of tradition. Every year at the beginning of December, it lights up with an explosion of colours and light. Streets, squares, monument facades and city parks host art installations created by local and international lighting designers, visual artists and video artists. The Festival of Light is visited by several million spectators each year.

Sculptor Benedikt Tolar is one of the most prominent artists of the contemporary Czech art scene, and he recycles everyday objects and transforms them into works of art. Fragments of cars, bathtubs, or painted satellites – he transforms all of these things into artefacts that are placed in a new context of meaning and symbolism.

The art installation "AJ VANA BE" at the Fête des Lumières deals with the question of water and recycling. A tower composed of 32 recycled bathtubs creates a light show and a musical experience. This living sculpture comes to life at night when the different parts are illuminated and accompanied by original music. The bathtubs, representing the principles of recycling and upcycling, symbolise typical socialist households in prefabricated housing. The final impression is underlined by the atmospheric fusion of the play of lights and the musical accompaniment by creators Ena Eno and Sylvain Delbart, which reflects the changeability and omnipresent noise of the housing estate agglomeration. The work then transports us to reality, where the viewer is given the freedom to marvel at the transience of life and its transformations against the backdrop of eternity.

- **The Sky walk Świeradów-Zdrój**

Author: Prof. Ing. Arch. Zdeněk Fránek

Implemented construction

Poland

2021

The work of the eminent Czech architect and teacher at FDA Prof. Ing. Arch. Zdeněk Fránek is a unique landmark towering over the spa town of Świeradów-Zdrój. It leads visitors to a height of 62 metres above the ground, from where it is possible to see the natural beauty of the border area. The Sky Walk is 64.8 metres high. A winding 799 m long walkway, wheelchair and pram accessible, climbs gently to the top of the viewpoint. The entire structure is made of steel, with only some of its elements clad in wood to imitate heavy timber beams. The viewpoint occupies a plot of 3,414 m². The path fascinates with its intertwining and refined disorder. Unlike other trails, there are no quizzes, photo points or carved animals waiting for you on the way up. Instead, the trail contains successful adrenaline-boosting extras such as a floor-to-floor rope tube, a flexible net and a glass viewing platform.

Prof. Zdeněk Fránek is a distinctive personality of Czech architecture, an implementor of award-winning green buildings, where he seeks his own forms, experiments with morphology and technologies. He has been working at FDA since 2019 as the Head of the Environmental Design for Architecture studio, where he directs his students to think more deeply about ecology in their work and to behave responsibly towards natural resources. He was named Architect of

the Year in 2020. He is a researcher of the Horizon Europe project: Palimpsest at FDA, author of the study of the planned building of the joint research centre on the UWB campus and the author of numerous buildings constructed around the world.

- **ETA Lento Hand Mixer**

Author of the design: doc. MgA. Zdeněk Veverka

Client: ETA

2023

This hand mixer was designed by one of the leading Czech designers and teachers at FDA Doc. MgA. Zdeněk Veverka, who emphasized functionality and convenience of use. The overall design is lightweight and ergonomically shaped directly for the hand. The creator's work is characterized by a friendly, minimalist design and thoughtfulness of the structure for easy handling. The Lento hand mixer represents one of the many successful designs by the artist that are used and appreciated around the world. He has designed a number of kitchen appliances that are produced in large series. His designs are used by thousands of people around the world every day. The hand whisk was originally designed for the ETA brand, but is now manufactured by the Spanish company BOJ and outsourced to a Chinese manufacturer, making it available to a wide range of users. The product can be purchased throughout Europe, but also in Asia (Thailand), Africa (Egypt), Mexico and Saudi Arabia. The product was launched in 2023; the following year it won the prestigious BIG SEE Product Design Award.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
licence, book (O - Other)	2019	History of Czechs in the USA
implemented architecture	2019	Extension to the Liko-s Li-Kovo hall
implemented work of art	2019	Governor's Chain for the Karlovy Vary Region
implemented design	2019	Redesign of a unified visual style for the University of Pardubice
implemented design	2019	Rosenthal Christmas Porcelain Collection 2019
implemented work of art	2019	ELH - opening jingle for the ice hockey Extraliga
implemented work of art	2019	Global Warming Explainer Animation for Seznam Zprávy
implemented design	2019	Medium-sized bagless vacuum cleaner
implemented design	2019	Handle for a rehabilitation machine
implemented design	2019	Car caravan for the MIY company
licence, book (O - Other)	2020	Heroines: Stories of Prominent Czech Women
licence, book (O - Other)	2020	Velvet Effect publication
book (O - Other)	2020	A Mysterious Bond. A book about the extraordinary relationship between the Czech and Jewish people in the past, present and future.
implemented work of art, research analysis	2020	Revitalisation of the Dobřív Water Hammer Mill National Heritage Site - digitisation of the monument

³⁰ Specify the specific type of result. Add rows as needed.

implemented work of art, research analysis	2020	Revitalisation of the Chotěšov Monastery - digitisation of the monument
implemented work of art, research analysis	2020	Design of an office chair with wheels, lecture system, charging box
Implementation of a work of art, research analysis	2020	Jesuit Church in Klatovy - exposition realization
implemented design	2020	Kristýna Fišerová: Hall CTPark, Borská pole, mural art
implemented work of art	2020	Jiří Barta: Waiting for the Golem
implemented design	2020	Rehabilitation Aid
implemented design	2020	Public Transport Terminal Chrudim
implemented design	2020	New visual style of the West Bohemian Museum in Pilsen and its branches
implemented design	2020	Visual Style of the Creative Liberec Project
implemented design	2020	Nano Cleaner for VR Sets
implemented work of art	2020	Braunarium - Exhibition of Sculptures by M. B. Braun
implemented work of art	2020	Baroque Days in Valeč
implemented work of art	2020	LandArt / Growing Through – From Land to Land
implemented architecture	2020	Neratovice Church
implemented design	2020	Interior of UWB's International Relations Office
implemented architecture	2020	Complex of Family Houses in Croatia
implemented design	2020	Rosenthal Christmas Porcelain Collection 2020
licence, publication	2021	A Cup of Art
licence, publication	2021	Audio Heroines
licence, publication	2021	Pelvic Floor Centre Logo
licence, publication	2021	SDGs Publications for Children
Implementation of a work of art, research analysis	2021	Jesuit Church in Klatovy - digitisation of the monument
implemented work of art, research analysis	2021	Revitalization of St. Bartholomew's Cathedral - exhibition in the attic of the cathedral
implemented work of art, research analysis	2021	Church of the Assumption of the Virgin Mary - digitisation of the monument
implemented work of art, research analysis	2021	Interactive Training of Employees in Engineering Using Virtual Reality tools
implemented architecture	2021	Trail in the Clouds Swieradow-Zdroj
implemented design, O - Other	2021	Do Not Disturb My Coffee Zen
implemented architecture	2021	Dolní Břežany Parking Garage
implemented design	2021	Visual Identity of Prague Integrated Transport
implemented work of art, book (O - Other)	2021	IOGI - Comic Book
implemented design	2021	Visual Style of the Liberec 2028 Project
implemented work of art	2021	Chotěshow - Mapping the Chotěšov Monastery

implemented design	2021	Visual Style: 37. Prix Bohemia Radio - Festival of Radio Production
implemented design	2021	"Technická" Tram Stop - graphic design of the shelter
implemented work of art	2021	Eight Lights - mapping for Pilsen's synagogue
implemented design	2021	Urban Electric Motorcycle
implemented design	2021	Marten Repellent
implemented design	2021	Rosenthal Christmas Porcelain Collection 2021
implemented work of art	2021	Valeč in Gothic Style - multimedia exposition
implemented design	2021	Handheld Cordless Vacuum Cleaner
implemented design	2021	Visual Style and Graphic Design of the Exposition of the J. A. Comenius Museum in Uherský Brod
implemented design	2021	Interior of UWB's International Affairs Office
industrial design (Fprum)	2022	Floating Rescue Cradle
licence, publication	2022	Things That Run on the Ground
licence, publication	2022	Bremen Musicians
licence, publication	2022	Lost in Porcelain
licence, publication	2022	Marble Brooches
licence, publication	2022	"EU - United in Diversity"
licence, publication	2022	"February, 4 AM"
licence, publication	2022	"Letters from a Construction Cabin"
licence, publication	2022	Oddballs
licence, book (O - Other)	2022	The Immortal Twentieth
licence, publication	2022	Dominika Perlínová: The European Union
implemented work of art, research analysis	2022	Presentation of the Baba Project
implemented work of art, research analysis	2022	Church of the Assumption of the Virgin Mary in Přeštice - digitisation of the monument
implemented work of art, (O - Other)	2022	Planet Campus
realization of a work of art	2022	AJ VANA BE - monumental installation
implemented design	2022	Visual Identity of Prague Integrated Transport
implemented design	2022	Rosenthal Christmas Porcelain Collection 2022
implemented architecture	2022	Kahuzi Biega Training Centre Building
implemented architecture	2022	Mefou Primate Rescue Station
implemented design	2022	Uniform Visual Style – Bohemian-Moravian Hunter's Union
implemented design	2022	Design Progress Catalogue – a reconstruction of L. Sutnar's work
implemented design	2022	Implementation of Visual Style - Prague City Tourism

implemented design	2022	The UMPRUM Technology Centre's Orientation System
implemented work of art	2022	Ars for Nons - work for Ars Electronica
implemented architecture	2022	Svébohov Tower (Háječek Lookout Tower)
industrial design (Find – industrial design)	2023	VR Case - Internal Storage Liner for Work Case
licence, publication	2023	Karel Hunger
licence, publication	2023	Black Frame
licence, publication	2023	Punta y Tunta
licence, publication	2023	Mazel Tov
licence, book (O - Other)	2023	Among the Roots
licence, publication	2023	Neither Girl nor Boy
licence, publication	2023	Back and Forth
licence, publication	2023	Karel Jaromír Erben, Božena Němcová: Czech Fairy Tales
licence, publication	2023	Punťa a Ľunťa. How They Wanted to Get to the Top of the Food Chain.
licence, book (O - Other)	2023	Wardrobe Treasures
licence, product	2023	Graphic Designs for Porcelain Mugs
realisation of prototype, research analysis	2023	Design of a Device for the Decellularization of Liver Tissue
implemented design	2023	ETA Lento Hand Mixer
implemented work of art, (O - Other)	2023	Nexus - art installation with laser module programming
implemented design	2023	The 2024 IIHF Ice Hockey World Championship, Czechia
implemented design	2023	Rosenthal Christmas Porcelain Collection 2023
implemented design	2023	Footstop T-REX 2 Regular
implemented design	2023	Prague Integrated Transport - Design of Service Vehicles
implemented work of art	2023	Monastery Garden 23
implemented work of art	2023	Series of Illustrations for the Project "Here and Now" (Czech Centres)
implemented design	2023	Josef Jungmann - postage stamp, postmark, FDC
implemented design	2023	Reconstruction of the Interior of the Old Town Hall and Prague City Tourism Information Centre
implemented design	2023	Design of the Renewable Energy Sources Exposition

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

Due to the primary focus of FDA on the application domain, the number of design commissions is growing proportionally. All departments of FDA, especially the Department of Design and Applied Arts and the Department of Graphic Design and Illustration, are involved in cooperation with the sphere of practical application to varying degrees. There are 21 specialisations presented at FDA, which have high-quality technical equipment and a wide range of skills and means of expression. Creative activity thus becomes an excellent tool for the promotion of science, application, entrepreneurship, innovation or user testing.

Cooperation is fulfilled with companies, the industrial domain, non-profit organizations and public administration organizations, for which FDA provides innovative design solutions and artistic installations. FDA has a strong position in the region and therefore tends to select from the calls of the commissioning bodies that are beneficial to FDA's or University's portfolio and that cultivate public space or contribute to improving the quality of life of the end users.

The application of the results of applied research of artistic and scientific creative activities at FDA is based on licensing arrangements with third parties. In this area, FDA has taken several major steps towards the systematic conclusion of licensing agreements and their registration. It has set up unified communication with companies, and it keeps regular records of planned collaborations through the heads of departments. Thanks to these processes, FDA has increased the volume of contracts and thus the funding from non-public sources several times in the period under review, and it still maintains an upward trend.

FDA records the outputs of artistic creative activities in the Register of Artistic Outputs (RUV). The results of applied research that are more non-publication in nature are reported in the Register of Information on Results (RIV). On the basis of the implemented orders, FDA defines contracting

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

authorities from five typical areas, in which the end user is always the professional or general public.

1. Industrial enterprises and companies

The contracts are fulfilled by industrial, product and graphic designers. The implementation of designs is oriented towards mass-produced products, prototypes of components, machines and tools for industrial enterprises, and the design and installation of public interiors. Furthermore, orders are processed for the design of gift items and complex solutions for the visual identity of companies and promotional materials. The academic staff includes a number of authors whose designs are mass-produced and distributed worldwide, such as the kitchen appliances and products for ETA by Doc. MgA. Zdeněk Veverka, limited collections of tableware with pictorial decoration for the German company Rosenthal by Renáta Fučíková, M.F.A., designs for transport vehicles by MgA. Jan Korabečný and his students, a caravan for MIY, San Chunang Alliance Technology Co., Ltd. or an electric motorcycle for Devs s.r.o.

2. Cultural heritage and conservation

FDA cooperates closely with galleries, museums and entities managing properties or other monuments under state protection. In particular, the Department of Audiovisual Art is the main provider of contracts and the author of projects in the field of cultural heritage protection and is involved in a number of digitisation projects in heritage care. Outputs include a wide range of digital and physical forms of presentation, such as mappings, projections, VR/AR, digital trails, mobile apps, sound and light design, interactive works and installations. Physical outputs also include the scenography of spaces or, for example, exhibition systems for museums and galleries. Successful film production plays an equally important role. Since 2019, FDA has installed a number of audiovisual works in cooperation with conservation authorities. For example, the revitalization of the Chotěšov Monastery, the implementation of the exhibition and digitalization of the Jesuit Church in Klatovy, the Church of the Assumption of the Virgin Mary in Přeštice or the Valeč Castle.

3. Cities, local governments and landscape

In addition to their own original work, design majors and students specialising in fine art also engage in public space. Implementations include building designs, sculptures and artworks in public space and urban furniture designs. In graphic design, this involves the complex development of visual identities for cities and municipalities, means of transport or wayfinding systems in cities or for specific public buildings. From the perspective of landscape sustainability, we can mention the implementation of environmentally friendly green buildings from the work of Prof. Ing. arch. Zdeněk Fránek, such as the Trail in the Clouds Świeradów-Zdrój, the Mefou Primate Rescue Station, the Neratovice Church and other outputs of multidisciplinary projects based on direct interaction with nature and alternative materials, such as land art projects or the Planeta Kampus interdisciplinary project.

4. Medical and technical sciences

The promotion of health and quality of life, which is one of the sustainable development goals (SDG3), is a source of collaboration and a strongly represented theme, especially in the Industrial and Product Design studios, which handle commissions and projects for the healthcare area, cooperating with hospitals and medical teams. The main task is mainly designing prototypes for medical purposes - medical devices or lifesaving elements, where different materials and user interactions are tested in addition to shape design. Furthermore, FDA implements models or prototypes created within research projects, which are often closely related to digital technologies, such as the 3D printing of materials (prostheses, exoskeleton, decellularization of

liver tissue), implementation of sensors and chips, or elements of virtual and augmented reality (VR case).

5. Publishing entities

Cooperation with publishing houses represents the largest share of concluded licences, of which FDA concluded a total of 27 in the period under review. FDA successfully capitalises on the results of artistic creative activity by publishing illustrated books and comic books through prestigious publishing houses, which are often produced in several languages. Among the most important publications of this type are Heroines: Stories of Important Czech Women, Immortal Twentieth, The Mysterious Bond, Between the Roots, or the comic book IOGI.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
Bike Shelter (contract)	110/ 4,583				
Station + Bike House Design for Konplan (contract)	60/ 2,492				
Comtes / Water Pedal Boat Design	49/ 2,059				
Illustration and Graphic Design for Pilsen Region Card Game and Calendar (contract)	67/ 2,792				
Bartholomew Cathedral (contract)	40/ 1,667				
Incubator Design (contract)	74/ 3,083				
Toilet for Daikin (contract)	2/ 69				
Caravan Design (contract)	145/ 6,026				
Literary Supplement for Reflex Magazine(contract)	7/ 275				
Continuation of Bike Shelter (contract)		20/ 833			
Daikin - Reliability Office (contract)		23/ 958			
Interactive Exhibit - Toy for Waiting Rooms (contract)		18/ 729			
IBIS Interiors Pilsen (contract)		30/ 1,250			
Voda Voděnka Comics (contract)		20 / 833			
Graphics for CCA's corporate website (contract)		26/ 1,083			
Heroines: Stories of Prominent Czech Women (licence)		37/ 1,542			
Velvet Effect Publication (licence)		60/ 2,500			
Bečov - Castle and Chateau (contract)			50/ 2,075		
Depo 2015 - Industry Mapping (contract)			30/ 1,250		
Strahov - 900 Premonstratensians (contract)			245/ 10,208		

Valeč Wolfgang (contract)			119/ 4,974		
Animation Fraus (contract)			88/ 3,667		
NTC Promo (contract)			170/ 7,083		
Depot 2015 - Mysterious Forest - Slide (contract)			40/ 1,667		
Exposition of the Bartholomew Cathedral (contract)			449/ 18,713		
UMO3 - Pilsen for Pilsen (contract)			60/ 2,500		
Czech Technical University – Therapy Equipment (contract)			33/ 1,375		
Surgicare - Illustration and Animation (contract)			41/ 1,708		
One World (contract)			6/ 233		
UWB International Relations (contract)			58/ 2,410		
Visual Light Show (contract)			30/ 1,240		
BIP Stream (contract)			30/ 1,238		
Loučím Bartholomew (contract)			35/ 1,458		
MHD Design (contract)			186/ 7,750		
Stream GKSW (contract)			20/ 813		
NTC stream (contract)			15/ 625		
Eight Lights (contract)			148/ 6,171		
Scientists' Night (contract)			35/ 1,458		
National Heritage Institute - Patrimonium (contract)			200/ 8,333		
National Heritage Institute – the St. Maurus Reliquary - exposition (contract)			247/ 10,283		
A Cup of Art (licence)			80/ 3,333		
Audio Heroines (license)			6/ 250		
Pelvic Floor Centre Logo (licence)			20/ 833		
SDGs Publication for Children (licence)			30/ 1,250		
Illustrated Informative Poster About a Specific Country (contract)				58/ 2,396	
Design of interior for the Hotel and Tourism Academy (contract)				41/ 1,722	
Graphic Designs - Sketch Fees (contract)				5/ 208	
Things That Run on the Ground (license)				45/ 1,891	
Bremen Musicians (license)				2/ 101	

Lost in Porcelain (license)				10/ 411	
Marble Brooches (licence)				4/ 171	
"EU - United in Diversity" (licence)				70/ 2,917	
"February, 4 AM" + "Letters from a Construction Cabin" (licence)				16/ 659	
Oddballs (license)				20/ 833	
The Immortal Twentieth (license)				30/ 1,250	
Table Top Design (contract)					30/ 1,240
Blovice Museum (contract)					17/ 692
Blovice Museum 2 (contract)					25/ 1,033
Czech Television Animation (contract+licence)					104/ 4,333
Medals (contract)					60/ 2,500
Karel Hunger + Black Frame (licence)					20/ 813
Punta y Tunta (license)					15/ 611
Mazel Tov (license)					12/ 483
Among the Roots (licence)					15/ 644
Neither Girl Nor Boy (license)					14/ 583
Back and Forth (licence)					6/ 268
Karel Jaromír Erben, Božena Němcová: Czech Fairy Tales (licence)					10/ 417
Punťa a Ľunťa. How They Wanted to Get to the Top of the Food Chain (license)					40/ 1,667
Wardrobe Treasures (license)					10/ 417
Graphic Designs for Porcelain Mugs (6pcs) (licence)					12/ 500
IOGI in Polish and English (licence)					22/ 929
Multimedia (long-term contracts)				631/ 26,291	563/ 23,453
TOTAL	554/ 23,046	234/ 9,729	2,470/ 102,899	932/ 38,849	987/ 40,582

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

During the relatively short period of its existence, FDA has become one of the most prominent domestic institutions in the field of higher education in design and fine arts. These activities help to develop the socio-cultural environment of cities and wider areas in a positive way.

Since its foundation, FDA has strived to connect domestic experts and institutions not only with its home university, but also with foreign countries. It brings important personalities to the region and organises a number of public cultural events enriched by an accompanying programme. It has been organising the ArtCamp International Summer School for the public since 2005, it is the organiser of the TeenDesign competition for secondary schools, and it annually awards the Ladislav Sutnar Prize to prominent personalities, educational institutions and organisations.

It is the organizer of three international symposia with varying periodicity – the Jiří Trnka International Symposium, the Boundaries Symposium of photography and time-based media, and Living Stone large-format stone printing.

In 2019–2023, FDA organized a number of conferences, workshops, lectures and exhibitions with the aim of involving foreign experts in teaching and research, which contribute to the development of students' and teachers' competencies, as well as promoting and increasing the visibility of the results of creative activities inside and outside FDA. In the City of Pilsen, it manages three galleries – the Incubator Gallery in the Faculty building, the Ladislav Sutnar Gallery in the historical centre, and Gafa in the creative zone of Depo 2015.

Between 2019 and 2023, it organised a total of 83 exhibitions of domestic and foreign artists in its own galleries. It also exhibits beyond the borders of the region, i.e. throughout the Czech Republic and abroad, where it has organised more than 90 other exhibitions of its artists and distinguished guests.

A selection of conferences, workshops and exhibitions in 2019–2023

- **Butterflies Don't Live in the Ghetto**, exhibition with a critical catalogue, 2019, hybrid conference 2021
- **Boundaries International Photographic Symposium**, 2019–2023
- **ArtCamp International Summer School**, 2019, 2021–2023
- **Philip Pearlstein, In War and Peace: The 1940s and 1950s. Graphic Design and Drawings**, exhibition, 2020
- **Intervals of Seeing**, exhibition, Jerusalem, Israel, 2020
- **21 Galleries, 21 Forms of Normalisation Collections**, exhibition, 2020
- **Masaryk Square – AR/VR, Relationship in Motion / Vztah v pohybu**, international online conference with HIT, Israel, 2021
- **Jiří Trnka International Symposium: Gardens in Us**, 2021
- **Footprinting**, workshop at the International Design Week with HIT, Israel, 2022

- **Text – Code – Image, Dialogue Between Design and Science, Visualising Data and Visualising Through Data**, hybrid conference with HIT, Israel, 2022
- **Jiří Trnka International Symposium: All the Colours of a Fairy Tale 2022**
- **Be Creative! Strengthen your Teamwork and Problem Solving!** workshop in cooperation with THD Deggendorf and OTH Amberg-Weiden, Germany, 2022
- **Architecture, Design and Mental Health: Communication, Interpretation, Identity.** Conference with the Psychiatric Clinic of the University Hospital Pilsen, 2023
- **Living Stone 2**, symposium, 2023

Major conferences, workshops and exhibitions:

- **Jiří Trnka International Symposium 2021: Gardens in Us**

Jiří Trnka International Symposium 2022: All the Colours of a Fairy Tale

The life work of Pilsen native Jiří Trnka, animation filmmaker, puppeteer, illustrator and artist, became the inspiration for an international symposium of illustration and animation, which commemorates the strong Central European tradition of both the disciplines and contributes to their further development through mutual discussions, lectures and workshops with Czech and foreign professional artists and theorists.

- **Boundaries International Photographic and Time-Based Media Symposium**

The intention of the symposium is to promote and reflect the formal and conceptual identity of photography and other time-based media by creating a dynamically developing team of foreign and Czech artists, photographers and students. In 2023, the 12th edition was held under the secondary title of *Travel*, which included exhibitions at the Ladislav Sutnar Gallery, GAFA Gallery, Entrée Gallery and Prague's 3Kino Art Gallery.

- **Shapes: Venus** – exhibition, conference, 2022

This exhibition at the Ladislav Sutnar Gallery brought together artworks that reflected Sutnar's paintings from the 1960s and 1970s. FDA students from the Photography, Fashion Design and Metalworking and Jewellery Design studios exhibited their work alongside students from Steven Heller's School of Visual Arts, NYC. There was also a hybrid conference focusing on Sutnar's iconic Venus paintings, bringing together connoisseurs of his work such as Caitlin Condell, Cynthia Trope, Steven Heller, Tomáš Vlček and others. The project involved a printed publication and an international student exhibition at the Incubator Gallery in the FDA building.

- **Butterflies Don't Live in the Ghetto (Motýli v ghettu nežijí)** - exhibition, conference, 2019–2023

A long-term research, exhibition and publishing project engaging students in critical and introspective reflection on the history of the Second World War through research and art assignments that address key moments of the war. The project engages in the debate between history and contemporary art, resulting in exhibitions (Czech Republic, Slovakia, Israel) and publications containing artworks, conceptual texts and essays. It also includes a conference in autumn 2021. FDA started the project in 2019 on the occasion of the 75th anniversary of the liberation of the Auschwitz-Birkenau Nazi concentration and extermination camp.

- **Text – Code – Image, Dialogue between Design and Science, Visualising Data and Visualising through Data** – hybrid conference (CZ/ISRAEL), 2022

A hybrid conference where lecturers focused on data visualization and optimizing the way information is understood through visualization. It was a follow-up to the 2020 DesAlign - The Impact of Artificial Intelligence (AI) on Contemporary Design conference on the role of artificial intelligence in design and architecture. The conference brought together researchers from fields using exponentially increasing amounts of data, designers and artists.

- **ArtCamp International Summer School**

FDA, 2019, 2022–2023

The ArtCamp International Summer School is organized by FDA, which since 2005 has been giving those interested the opportunity to spend the summer in a creative environment, develop their talent, meet interesting Czech and foreign artistic personalities or prepare for entrance exams. In courses led by FDA teachers and visiting Czech and foreign lecturers, participants of different age groups, nationalities and backgrounds create their works together.

- **Chimera – exhibition**

DOX+ (Centre for Contemporary Art DOX+), Prague, 2019

"Chimera" is an extraordinary collective exhibition of Taiwanese new and digital media art curated by Yu-Chuan Tseng, artist, curator and Associate Professor at Shih Hsin University based in Taipei; and Jan Van Woensel, curator at the Ladislav Sutnar Faculty of Design and Art at the University of West Bohemia in Pilsen. The exhibition is organized in two spaces at DOX+ (DOX, Centre for Contemporary Art in Prague). The following artists are presented here: Chenwei Chiang, Chi-Ping Chin, Kung-ta Tseng, Scottie Chih-Chieh Huang, Tien-Chun Chang, Yu-Chuan Tseng, Yun-Ju Chen. The exhibition was organized by FDA with financial support from the Spotlight Programme of the Taiwan Ministry of Culture.

- ***The World of Tomorrow – exhibition***

Jerusalem, Cinematheque, Israel, 2019

The World of Tomorrow is the long-term research project of Jan Van Woensel, chief curator at Ladislav Sutnar Faculty of Design and Art, about the life and legacy of Ladislav Sutnar (1897–1976). The title of his project refers to the motto of the 1939 New York World's Fair where Sutnar was sent after Nazi Germany invaded and occupied Czechoslovakia. The Czechoslovak Pavilion and the Jewish-Palestine Pavilion at the World's Fair in New York both became locations of great symbolic value that expressed the importance of resilience and sovereignty in the politically tense Europe of that time. The World of Tomorrow was an itinerant poster exhibition that focused on the synergy of old and contemporary graphic design and typography created by Ondrej Zámeš and Vojtech Liebl.

- ***Travel: We Will Know Where When We Get There – exhibition***

GAMP (Gallery of the City of Pilsen) and the Ladislav Sutnar Gallery, 2023

In all its forms, travel is a theme that occurs in the work of contemporary artists, linking what is here with what is elsewhere, the familiar with the unknown, routine with the tension of various adventures, and security with vulnerability. The extensive part of the project, installed in the Gallery of the City of Pilsen, presented artworks and projects by teachers, graduates and students at FDA. The exhibitions offered the public a visually and thematically rich experience, which was made possible by contributions from the studios of Painting, Photography, Illustration, Graphic Design, Interactive Design, Sculpture, Multimedia, New Media and Animation Art. As part of the newly commissioned projects, Sutnarka's eight studios engaged in a visual and conceptual exploration of the theme of travel, offering the public a wide range of new perspectives and horizons.

- **Mysterious Bond** – exhibition, international online conference, book presentation CZ / ISRAEL, 2020

To mark the 30th anniversary of the re-establishment of diplomatic relations between Czechoslovakia and the State of Israel, a publication titled *Mysterious Bond* was created to describe the exceptional relationship between the Czech and Jewish peoples. The text was written by diplomat and Hebraist Dr. Robert Řehák. The illustrations and graphic design are the work of students from the Didactic Illustration Studio under the guidance of illustrator Renáta Fučíková. The book has been presented at several exhibitions in the Czech Republic, specifically at Rožmberk Palace (Prague, 2020), the Smetana Gardens (Pilsen, 2021), and Náměstí Míru Square (Prague, 2021).

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

Implementation of the MEP recommendations 2020

1. Applied research projects, contract research

*Recommendation 3.2, 3.3 and 3.4 from 2020: In the upcoming period, FDA may open up more to **internationalization in its research activities**. FDA have a good record of grant capture with national providers and should continue to seek grant funding from these sources. The project outcomes are clearly of interest nationally. FDA are encouraged to seek further international opportunities by **disseminating project outcomes internationally**. In this way they may find partners in projects' funding applications.*

In the evaluated period, FDA achieved a significantly higher level of internationalisation in implemented projects - for example, it is a co-leader of the international projects Horizon Europe and Interreg. In the last two years of the evaluation period, FDA has seen an increase in the number of grants received, as well as in the volume of income from national and foreign grant programmes focused on science, research and innovation.

FDA has doubled its income from public sources from €149k (2014-2018) to €311k in (2019-2023). There has been a 700% increase in applied contract research, from €26k (2014-2018) to €188k.

2. Applied research results and social relevance

*Recommendation 3.5 and 3.6 from 2020: As it is presented in the report, the great success of the FDA projects relies on collaboration with other disciplines. The FDA has presented how linking with the Archaeology department, Engineering and etc has provided them with a platform for demonstrating the values of FDA in enriching their projects. It is recommended that FDA continue to assess the needs and evaluate their potential contribution to other projects to maintain this success. The same strategy could be applied on an **international level** by being more **proactive** in demonstrating the contribution of the FDA in addressing global issues.*

Priority continues to be given to projects of an interdisciplinary nature and applied research in cooperation with faculties and research centres at UWB. Within the University, cooperation is developing intensively thanks to the long-term project Desing+ with the Faculty of Engineering and the Faculty of Economics, as well as cooperation with the Faculty of Health Care Studies, for example in the projects "Research Innovations in Prosthetics" and "Applied Research on the Exoskeleton for Use in Rehabilitation". Cooperation with the NTC (New Technologies Research

Centre) is taking place in the framework of the newly submitted scientific research project "Pelvic Floor Disorder Prevention". Other projects are being conducted by FDA with the Faculty of Electrical Engineering and the Faculty of Education. In the future, it expects to develop interdisciplinary cooperation in other areas as well.

Before the accreditation of doctoral studies, the project activities of FDA were mainly focused on supporting the artistic activities of students and teachers. With the accreditation of the doctoral programme in the fall of 2021, FDA is focusing more on scientific research activities, where it emphasizes the interdisciplinary aspect. At the same time, FDA has strengthened its cooperation with foreign partners such as the Holon Institute of Technology (Israel), Politecnico di Milano (Italy), Technische Hochschule Deggendorf, Ostbayerische Technische Hochschule Amberg-Weiden (Germany), etc. This is demonstrated by the increasing number of applied research results that are produced as outputs of projects and contract research, namely the implementation of artworks, designs and prototypes.

3. Non-academic application/corporate sphere, commercialisation of results

Recommendation 3.7, 3.8 and 3.9 from 2020: In regard to the transfer of technologies, better results can be reached via cooperation with other subjects in the academic sphere, that deal with issues leading to patents and licenses. As current products represent the success in collaboration with the other disciplines continuing this pathway is recommended. FDA in the future should put more effort on commercialization of its potential and know-how.

As regards the commercialisation of results, FDA took several major steps in the period evaluated to improve cooperation with the corporate domain and the use of applied research results under licensing arrangements with third parties. Licensing agreements are systematically concluded and registered. The project team has been strengthened, regular collection of application-related data has been set up, and uniform communication with companies has been established. Due to these steps, FDA has increased its contract and license revenues by almost 400% in the evaluation period, from €54k (2014-2018) to €215k (2019-2023), and is still maintaining an upward trend. The number of reported licenses has increased several times, and FDA has also registered two industrial designs.

4. Recognition by the community, awards, memberships, lecturers, guests

Recommendation 3.10 and 3.11 from 2020: The evaluators recommend continuing the effort.

Academic staff and their students are recipients of major national and international awards. They are involved as members or chairs of many prestigious professional associations in the field of art and design. During the period assessed, the number of lectures given by academics and PhD students abroad, the number of visits by international guests and experts, and representation on evaluation panels of international project calls increased. Active participation in exhibitions, conferences and competitions has been steadily increasing.

5. Popularization and communication

Recommendation 3.12 from 2020: The systematic and strategic approach presented by the FDA staff in engaging with public needs, values are encouraged to be continued.

In the period under review, FDA strengthened its exhibition activities by establishing an Exhibition Board for strategic planning and improving the quality of exhibitions, engaged an additional curator and expanded the production team and PR department. These steps have enabled FDA to increase the number of exhibitions and better communicate with the public. Through the organization of three symposia, the International Summer School ArtCamp and other cultural events and accompanying programs, FDA brings its activities closer to the professional and lay public and reflects current social events.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Website of FDA	3.1	https://www.fdu.zcu.cz/en/
Implementation Plan for the Strategic Plan 2023	3.1	https://www.fdu.zcu.cz/en/Faculty/ImportantDocuments/
Ladislav Sutnar Prize, Foundation, Gallery	3.1	https://www.fdu.zcu.cz/en/Faculty/LadislavSutnar/index.html
Departments of Faculty	3.1	https://www.fdu.zcu.cz/en/Faculty/Departments/
Organizational structure People at Sutnar Faculty	3.1	https://www.fdu.zcu.cz/en/Faculty/AboutUs/People/
PhD Programme	3.1	https://www.fdu.zcu.cz/en/Admission/DoctoralStudies/
Areas of research at FDA	3.1	https://www.fdu.zcu.cz/en/Research/Areas-of-Research/
Research Catalogue Expositions of Artistic Projects	3.1	https://www.researchcatalogue.net/view/3100044/3100045
Cumulus Association membership	3.1	https://cumulusassociation.org/our-community/our-member-institutions/university-of-west-bohemia/
Guests and international context	3.2	https://www.fdu.zcu.cz/en/Partnership/InternationalCooperation.html
Projects current a implemented projects, internal grants	3.3	https://www.fdu.zcu.cz/en/Research/Projects/
Palimpsest: Creative Drivers for Sustainable Heritage Landscapes: Horizont Europe	3.3	https://www.palimpsest-project.eu/
Computational and Experimental Support for 3D Printing Technology of Highly Stressed Plastic Components: TAČR	3.3	https://old.starfos.tacr.cz/en/project/FW06010517
Desing+ Interdisciplinary project of UWB	3.3	https://info.zcu.cz/Student-teams-searched-for-smart-solutions-to-problems-in-the-DESING--project/clanek.jsp?id=6462
Interdisciplinary projects: Prevention of Pelvic Floor Disorders; Applied Research on Exoskeleton; Research Innovation in Prosthetics	3.3	https://www.fdu.zcu.cz/en/Projects/InterdisciplinaryProjects.html

Entwining – From Country to Country: Cross-border Cooperation Programme Czech Republic - Free State of Bavaria	3.3	https://www.gkk.cz/cs/vystavy/archiv/landart--prorustani-od-zeme-k-zemi-/ https://info.zcu.cz/clanek.jsp?id=2728
CerDee: Creative Entrepreneurship in Ceramic Regions – Developing, Educating, Encouraging: ESF Interreg Central Europe	3.3	https://programme2014-20.interreg-central.eu/Content.Node/CerDee.html
Czech Heroines project, publication	3.4	https://czechcentres.gov.cz/en/projects/ceske-hrdinky
IOGI comic book	3.4	https://info.zcu.cz/clanek.jsp?id=4074 https://www.manga-award.mofa.go.jp/en/prize/15th/index.html
Revitalization of the Chotěšov Monastery Digitisation project in heritage care	3.4	https://www.avmedia.cz/en/events/references/video-mapping-in-chotesov https://plzen.rozhlas.cz/klaster-chotesov-laka-na-opravene-interiery-i-nove-expozice-8562457
Planeta Kampus project and publication	3.4	https://denisapubalova.com/planeta-kampus
LIKO-vo Hall by Zdeněk Fránek	3.4	https://www.archiweb.cz/en/b/prumyslova-hala-liko-vo
The Sky walk Świeradów-Zdrój	3.4	https://www.skywalk-swieradow.pl/en/ https://www.dolnimorava.cz/en/about-the-sky-walk
Publications research and artistic publications	3.5	https://www.fdu.zcu.cz/en/Research/Publications/index.html https://eshop.fdu.zcu.cz/publikace/odborne-publikace
Cooperation contract research, industrial design, licenses	3.5	https://www.fdu.zcu.cz/en/Research/Cooperation/
Conferences and events FDA website	3.6	https://www.fdu.zcu.cz/en/Research/SpecialEvents/
Boundaries International Photographic and Time-Based Media Symposium	3.6	https://www.fdu.zcu.cz/en/Research/SpecialEvents/PhotoSymposium.html

Jiří Trnka International Symposium	3.6	https://www.fdu.zcu.cz/en/Research/SpecialEvents/JiriTrnka.html
International Summer school ArtCamp	3.6	https://www.fdu.zcu.cz/en/ArtCamp/index.html
Exhibitions and Galleries	3.6	https://www.fdu.zcu.cz/en/Exhibitions/
Register of Artistic Outputs	3.6	https://www.fdu.zcu.cz/en/Research/RegisterOfArtisticOutputs.html

MODULE 3:
NEW TECHNOLOGIES - RESEARCH CENTRE (NTC)

SELF-EVALUATION REPORT FOR MODULE 3

THE NAME OF THE UNIT BEING EVALUATED: New Technologies – Research Centre

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

The evaluated unit will describe its mission and vision and provide a general self-reflection of the societal contribution of R&D&I, along with its long-term goals in the fields it develops. The distribution of research activities by type of research will also be commented on.¹ The evaluated unit will describe its organisational structure and size (staffing, number of students, number of study programmes implemented, etc.) based on the data provided in annex tables 3.1.1 to 3.1.6.

Maximum 1000 words.

This is a non-rated indicator that serves as an introduction to the evaluated unit, providing context for data in indicators 3.2-3.7.

Self-assessment:

New Technologies – Research Centre (NTC, <https://www.ntc.zcu.cz/en>) has for 25 years been contributing to the advancement of knowledge in the field of basic research and the transfer of knowledge in the field of applied research. It is divided into 8 research teams (<https://www.ntc.zcu.cz/en/Research/index.html>), dedicated to addressing challenges in advanced and quantum materials, ecological energy resources, smart mobility and the quality of human life. NTC has significantly strengthened its position in the global R&D ecosystem. This is proved by significant publications in the journals of the Nature family. NTC pushes the boundaries of human knowledge and belongs among renowned institutes in advanced and quantum materials. Strong material research also supports the topic of ecological energy resources, where joint laboratory with foreign partners were established.

A significant milestone was the completion of the sustainability project CENTEM+ in 2019. NTC secured major projects from both domestic and international sources. The most important ones were the National Competence Centres in the field of applied research and projects of OP RDE in the field of basic research and development of human resources. The successful implementation of OP RDI projects was followed by the acquisition and implementation of the "Excellence in Research" project from OP JAC valued at CZK 500 million, which NTC is leading. Last but not least, it is necessary to highlight projects from the EU Horizon 2020 and Horizon Europe and significant cross-border cooperation with the Free State of Bavaria. NTC has managed to establish strategic partnerships with notable domestic (e.g. the Faculty of Mathematics and Physics of the Charles University in

¹ Basic, applied, contract, artistic research (see Definition of Terms in Methodology HEI2025+).

Prague), European (e.g. the University of Cergy-Pontoise) and non-European (e.g. The University of Western Australia) research organizations.

NTC is an inspiring place that prominent domestic and foreign researchers seek out to contribute their research work to the sustainable development of individuals, industry and society as a whole. This has been achieved by development of the organizational culture and shared values and by strengthening the personnel policy in accordance with the HR Award and Gender Equality Plan, which led to attracting recognized scientists and a number of doctoral students and postdocs from all over the world.

NTC management consists of the director, deputy directors and the secretary. They meet at least once a week. The regular business and other issues of NTC are addressed at monthly meetings of the Centre's Board, where participate in addition to the management, the heads of individual research teams, NTC's member of the Academic Senate and member of the university unions. Strategic matters are decided at the annual meeting of the Scientific Council, which includes not only prominent experts from the research fields, but also influential figures from social and political spheres, considering the formulation of strategies at both national and international levels. Given the presence of several foreign members of the Scientific Board, the meetings are held in English and all NTC documentation is published bilingually. NTC operates at all levels in bilingual mode.

An effective setup of internal processes enables NTC to maintain stable staffing, with 100 FTE (average over the period) dedicated to R&D, supported by 17 FTE (average over the period) technical, economic, and administrative staff. Year-on-year changes are influenced by the arrival of new employees, primarily postdoctoral researchers, retirements, and, last but not least, the specific needs of individual research projects. NTC has a stable ratio of approximately 3.5 FTE professors. The slight decline in the number of associate professors is due to their career advancement to full professorship, while new associate professors are being prepared through habilitation process at faculties. NTC strength is the category of early career researchers of around 20 FTE per year. These early career researchers rotate in line with standard international research practices among top global research institutes. The age distribution follows a Gaussian curve with a leftward skew, which shows the most significant age representation between 30 and 50 years.

NTC has pursued its vision of being a respected partner of progressive global RTOs and companies in accordance with the strategic plans of UWB and NTC 2021 – 2025. NTC actively contributes to the shaping of regional (e.g. RIS3), national (e.g. National Strategy for Quantum Technologies or Strategic Plan of the Ministry for Higher Education for the period from 2021) and global (e.g. OECD Quantum Technologies Policy Primer) strategies and policies.

From the perspective of the third role, NTC also plays a significant role in the popularization of science for high school students, organizing competitions for high school students as well as for professionals and general public.

The long-term goal of NTC is to strengthen its position as a respected partner of recognized global institutions, to continue pushing the boundaries of human knowledge in the area of basic research with a focus to modern topics (e.g. quantum technologies), and to build a portfolio of strategic partners in industrial and clinical practice in the area of applied research and to transfer the knowledge to them to increase competitiveness, sustainable development, and the quality of human life and health.

NTC cannot itself be the holder of any study program, but cooperates in the implementation of PhD study programs with faculties. NTC participates in these doctoral study programs by having its experts in the doctoral study boards, providing supervisors, and by providing laboratories. Similarly, NTC also collaborates with foreign institutions, e.g. Cergy-Pontoise University. Table 3.1.4 lists the students involved in this way. Additionally, NTC contributes financially by allocating its Specific Research Funds to projects of the Student Grant Competition (SGS), in the investigation of which master and doctoral study programs students participate on joint topics with NTC. Hosting students at NTC premises applies not only to faculties of UWB, but also to universities in the Czech Republic, Europe, and beyond.

NTC has accredited two professional lifelong training courses for technicians (Diagnostic Technician - Thermography, according to ČSN ISO 18436) and teachers for working with thermal cameras (LabIR Edu), a total of 41 participants completed these courses in the evaluation period.

Table 3.1.1 - Staffing per FTE²

Academic/ Professional position	Total / Of which women					
	2019	2020	2021	2022	2023	Total
Professor	3.74 / 0.00	1.39 / 0.00	3.48 / 0.00	3.45 / 0.00	3.38 / 0.00	15.43 / 0.00
Associate Professor	7.98 / 1.56	6.90 / 1.56	4.59 / 1.06	4.06 / 0.00	4.22 / 0.07	27.74 / 4.25
Assistant Professor	11.11 / 0.46	14.21 / 0.75	5.67 / 0.00	5.88 / 0.00	5.88 / 0.00	42.74 / 1.21
Assistant	0.81 / 0.00	0.81 / 0.00	0.97 / 0.00	1.00 / 0.00	1.00 / 0.00	4.59 / 0.00
R&D Personnel ³	12.40 / 4.60	5.03 / 1.88	6.29 / 2.54	5.44 / 1.69	5.00 / 1.25	34.16 / 11.96
Researchers in other categories ⁴	36.68 / 3.92	43.87 / 5.23	45.94 / 4.34	48.85 / 4.95	45.66 / 3.97	221.01 / 22.41
Technical and economic staff ⁵	15.36 / 10.11	20.25 / 11.42	16.62 / 11.88	16.19 / 11.39	17.00 / 10.88	85.41 / 55.68
Scientific, research and development staff involved in teaching activities	3.29 / 0.00	0.18 / 0.00	9.54 / 0.75	9.15 / 0.75	8.80 / 0.75	30.96 / 2.25
Early career researchers ⁶	18.71 / 4.10	15.77 / 2.53	17.97 / 1.73	21.21 / 2.25	20.40 / 2.28	94.05 / 12.89
Total ⁷	88.09 / 20.66	92.46 / 20.84	83.55 / 19.82	84.86 / 18.03	82.13 / 16.16	431.09 / 95.51

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one

² The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

³ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁴ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁵ Who participates in the management and support of R&D&I in the institution.

⁶ See Definition of Terms in Methodology HEI2025+.

⁷ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

3.1.2 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2019 (numbers of physical employees and personnel)⁸

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	0	0	1	0	2	0	5	0
Associate Professor	0	0	2	0	5	0	2	1	2	1	1	0
Assistant Professor	0	0	9	1	3	0	0	0	0	0	0	0
Assistant	0	0	0	0	1	0	0	0	0	0	0	0
R&D Personnel ⁹	0	0	0	0	0	0	0	0	0	0	0	0
Researchers in other categories ¹⁰	6	2	20	12	7	4	0	1	0	1	1	0
Technical and economic staff ¹¹	5	3	6	3	11	6	3	3	3	1	1	1
Scientific, research and development staff involved in teaching activities	0	0	0	0	0	0	0	0	0	0	0	0
Early career researcher ¹²	2	1	20	5	1	0	0	0	0	0	0	0
Total ¹³	11	5	37	16	27	10	6	5	7	3	8	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D Personnel, Researchers in other categories and Technical and economic staff are mutually exclusive, i.e. one staff member is reported in only one category. The categories of scientific, research and development staff involved in teaching activities and early career researchers are reported collectively for all the above-mentioned categories.

⁸ The total number of employees/workers as of 31st December of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

⁹ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁰ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹¹ Who participates in the management and support of R&D&I in the institution.

¹² See Definition of Terms in Methodology HEI2025+.

¹³ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I Personnel, Researchers in other categories and technical and economic staff.

3.1.3 Age structure of R&D&I personnel of the evaluated unit and their structure by job title and gender in the year 2023 (numbers of physical employees and personnel)¹⁴

Academic/ professional position	Under 29 years		30-39 years old		40-49 years old		50-59 years old		60-69 years old		70 years and older	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0	0	0	0	2	0	2	0	2	0	1	0
Associate Professor	0	0	0	0	5	0	0	0	2	1	1	0
Assistant Professor	0	0	0	0	5	0	1	0	0	0	0	0
Assistant	0	0	0	0	0	0	1	0	0	0	0	0
R&D Personnel ¹⁵	0	0	1	0	4	1	0	0	0	0	1	1
Researchers in other categories ¹⁶	5	0	19	5	23	6	0	0	2	0	0	0
Technical and economic staff ¹⁷	0	0	3	1	8	6	5	5	1	0	0	0
Scientific, research and development staff involved in teaching activities	0	0	0	0	8	1	1	0	0	0	0	0
Early career researcher ¹⁸	5	0	12	2	11	2	0	0	0	0	0	0
Total ¹⁹	5	0	23	6	47	13	9	5	7	1	3	1

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, R&D personnel, researchers in other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

¹⁴ The total number of employees/workers as at 31.12. of the calendar year in question is to be entered, irrespective of the level of time worked, but only in an employment relationship (including agreement on work activity, excluding agreement on work performance). Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹⁵ The category "R&D Personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers in other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

¹⁸ See Definition of Terms in Methodology HEI2025+.

¹⁹ Total is the sum of the categories: professor, associate professor, assistant professor, assistant, R&I personnel, researchers in other categories and technical and economic staff.

Table 3.1.4 – Students

Type of study	2019		2020		2021		2022		2023		Total	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Undergraduate	0	0	0	0	0	0	0	0	0	0	0	0
Master's ²⁰	0	0	0	0	0	0	0	0	0	0	0	0
Doctoral	23	3	26	4	27	6	26	6	24	2	23	3
Lifelong Learning Courses	0	0	0	0	0	0	10	4	31	8	41	12
Total	0	0	0	0	0	0	10	4	31	8	41	12

Table 3.1.5 - Study programmes in Czech/English

Type of study programme	Total ²¹ / Of which professional study programmes											
	2019		2020		2021		2022		2023		Total	
Undergraduate	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Master's	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Doctoral	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Lifelong Learning courses	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0	1 / 0	2 / 0	2 / 0	2 / 0	2 / 0
Total	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 0	1 / 0	2 / 0	2 / 0	2 / 0	2 / 0

Note: For each SP type, enter the number of SPs in Czech language in the first cell and insert the number of SPs in English language after the slash in the same cell (e.g. 15/3), enter the number of professional SPs in Czech language in the second cell and insert the number of professional SPs in English language after the slash. Follow a similar procedure in the last column of the table (Total).

3.1.6 – R&D&I capacities

R&D&I field	FORD	FORD share [%]	Predominant type of research	Total share of industry group [%]
1. Natural Sciences	1.1 Mathematics		Zvolte položku.	55
	1.2 Computer and information sciences	5	Basic Research	
	1.3 Physical sciences	40	Balanced basic and applied research	
	1.4 Chemical sciences	10	Basic Research	
	1.5 Earth and related environmental sciences		Zvolte položku.	
	1.6 Biological sciences		Zvolte položku.	
	1.7 Other natural sciences		Zvolte položku.	

²⁰ All master's degree students are listed, regardless of the length of their programme of study.

²¹ The total number of study programmes for which admissions have been announced in a given academic year.

2. Engineering and Technology	2.1 Civil engineering		Zvolte položku.	40
	2.2 Electrical engineering, Electronic engineering, Information engineering		Zvolte položku.	
	2.3 Mechanical engineering	15	Applied Research	
	2.4 Chemical engineering	10	Balanced basic and applied research	
	2.5 Materials engineering	10	Basic Research	
	2.6 Medical engineering	5	Applied Research	
	2.7 Environmental engineering		Zvolte položku.	
	2.8 Environmental biotechnology		Zvolte položku.	
	2.9 Industrial biotechnology		Zvolte položku.	
	2.10 Nanotechnology		Zvolte položku.	
	2.11 Other engineering and technologies		Zvolte položku.	
3. Medical and Health Sciences	3.1 Basic medicine		Zvolte položku.	
	3.2 Clinical medicine		Zvolte položku.	
	3.3 Health sciences		Zvolte položku.	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries		Zvolte položku.	
	4.2 Animal and Dairy science		Zvolte položku.	
	4.3 Veterinary science		Zvolte položku.	
	4.4 Other agricultural sciences		Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences		Zvolte položku.	5
	5.2 Economics and Business		Zvolte položku.	
	5.3 Education	5	Applied Research	
	5.4 Sociology		Zvolte položku.	
	5.5 Law		Zvolte položku.	
	5.6 Political science		Zvolte položku.	
	5.7 Social and economic geography		Zvolte položku.	
	5.8 Media and communications		Zvolte položku.	
	5.9 Other social sciences		Zvolte položku.	
6. Humanities and the Arts	6.1 History and Archaeology		Zvolte položku.	
	6.2 Languages and Literature		Zvolte položku.	
	6.3 Philosophy, Ethics and Religion		Zvolte položku.	
	6.4 Arts (arts, history of arts, performing arts, music)		Zvolte položku.	
	6.5 Other Humanities and the Arts		Zvolte položku.	
Total		100 %	-	100 %

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

The evaluated unit will briefly comment on its position in the research community. It shall consider individual and other prestigious R&D&I awards, participation of its academic staff in the editorial boards of international scientific journals, elected membership in professional societies, major invited lectures given by the evaluated unit's academic staff abroad or by foreign scientists and other relevant guests at the evaluated unit. Additionally, it will address the involvement of staff in the evaluation of national or European project/programme calls over the period of 2019–2023 based on the data provided in annex tables 3.2.1 to 3.2.5 (max. 10 most relevant items). If necessary, the evaluated unit shall list any additional services to the scientific community that it considers relevant.

Maximum 1000 words.

Self-assessment:

A unique appreciation by the global scientific community came in response to a 2023 discovery (confirmation of a new type of magnetism with significant application potential in microelectronics), in which Prof. Minár's team from NTC significantly participated. The findings were published in Nature journal and were later recognized in 2024 by Science journal as the most significant discovery in physics and one of the top ten scientific breakthroughs of the year.

The long-term recognition by the scientific community is also evidenced by the involvement of Prof. Dr. Andre K. Geim, the Nobel Prize Laureate (2010) for the physics of experiments carried out on the two-dimensional material graphene, in the international scientific board of our QM4ST project (described in Chapter 3.3). NTC is the principal investigator and consortium leader of this project.

Thanks to its excellence and long-term stability in its research areas, NTC has become a respected partner for cooperation in joint scientific laboratories with foreign partners. In 2023, a new joint laboratory was built with Ariel University in the field of development of advanced materials for fuel cells and also to support research activities in the field of electrochemistry. NTC also established a joint laboratory with CY Cergy Paris University. As part of this mutual cooperation, NTC has access to the infrastructure under the CEA ATTOLAB platform at the French National Research Agency.

One of the results of this joint laboratory with CY Cergy Paris was a project submitted to the ERC call in 2021, which was evaluated with a grade of B, which made it eligible to be supported from the national ERC CZ call with the title "New quantum properties using structured light in the interaction between radiation and matter (TWISTnSHINE)". The implementation of this project builds on research in the QM4ST project (see Chapter 3.3). NTC has been preparing other projects to upcoming ERC calls.

The prestigious Neuron Award for connecting science and business, which was awarded in 2022 to experts from NTC, who established startup Pinflow Energy Storage demonstrates the motivation of young researchers to transfer of scientific knowledge into the practice. The start-up Pinflow Energy Storage is currently capable not only of producing batteries and their components but also of developing complete energy systems, which it successfully installs worldwide.

The significance of NTC in shaping national and international research and education strategies is demonstrated by the appointment of NTC Director Mgr. Petr Kavalíř, Ph.D., MBA as the Special Envoy for Quantum Technologies of the Government of the Czech Republic. The NTC Director also serves as the Vice-Chair of the Czech Government Council for Information Technology, a member of the OECD expert team for quantum technologies, and a member of the expert team for R&D&I at the

Confederation of Industry and Transport. He also represents our country in the European working groups on quantum technologies.

In the context of shaping the research environment at universities, Mgr. Petr Baierl is a member of the Representative Commission of MEYS, a member of the National Education Convention of the Minister of Education, a member of the working team of the Economic and Social Agreement Councils for Regional Development and EU Funds as well as for Education and Human Resources, a member of the Committee for Digital Education at MEYS, and a member of the Monitoring Committee for OP JAC.

The position in the research community is also evidenced in international appointments (see table 3.1.1). As part of strengthening international ties and fostering collaboration, the distinguished researcher Prof. Ján Minár held positions as Honorary Fellow at Munich University of Applied Sciences, Germany and Liaison Professor at the University of Toyama in Japan. Assoc. Prof. Ing. Luděk Hynčík holds the positions of Visiting Professor at the Tianjin University of Science and Technology and Adjunct Associate Professor at The University of Western Australia, where he also received the prestigious Gledden Fellowship Grant in 2023.

NTC researchers also hold important positions in international professional organizations. In the framework of the elected four-year period, Assoc. Prof. Ing. Luděk Hynčík, Ph.D. held the position of Vice President for Education in The international membership organisation for the technology of mobility community FISITA between 2016 - 2020 and has been working there as an education advisor since 2020. Assoc. Prof. Ing. Jiří Martan, Ph.D. was re-elected to the Board of Stakeholders of the European technology platform Photonics21 in 2022. Assoc. Prof. Ing. Šárka Houdková, Ph.D. is a member of the Research Council of the Czech Technology Agency.

NTC researchers also serve in editorial boards of recognized journals with regard to the NTC research fields and perform significant activities within the peer-review processes in other research field-relevant journals. It goes without saying that NTC experts are represented on scientific boards of various institutions.

NTC experts regularly deliver invited lectures. Recognized experts from not only partner institutions were invited for short-term and longer-term visits, during which they participated to NTC topics and delivered invited lectures.

Table 3.2.5 summarizes involvement in national (e.g. TAČR, MEYS, Ministry of Foreign Affairs) and international programs (e.g. MSCA, ERC).

NTC also significantly participates in the promotion of technical fields and talent search, e.g. by giving lectures to high school students or by involving them in summer research activities. This is also facilitated by the membership of Doc. Dr. RNDr. Miroslav Holeček in the Supervisory Board and Assoc. Prof. Ing. Luděk Hynčík, Ph.D. as a Chairman of the Board of Directors of Techmania Science Center.

The international reputation of scientific activities at NTC is also evidenced by the hosting of interns from all over the world (e.g. Brazil, France, Japan, USA), who have chosen NTC for their professional internships, even though they pay all costs themselves.

Table 3.2.1 - Prestigious R&D&I awards granted during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the award	Awarding institution
Prof. Dr. Ing. Juraj Kosek, Ing. Petr Mazúr, Ph.D., Ing. Jaroslav Pocedič, Ph.D., Ing. Jiří Vrána, Ph.D.	Neuron Prize 2022	The Neuron Endowment Fund
Prof. Dr. Ján Minár	Honorary Fellow of Munich University of Applied Sciences	Munich University of Applied Sciences, Munich, Germany
Prof. Dr. Ján Minár	Liaison Professor	University of Toyama, Toyama, Japan
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Adjunct Associate Professor	The University of Western Australia
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Visiting Professor	Tianjin University of Science and Technology
Prof. Denitsa Docheva	Memorial medal for services to the university and cooperation	UWB
Prof. RNDr. Josef Voldřich, CSc.	Memorial medal for outstanding scientific work or findings and artistic work	UWB
Ing. Tomasz Bońkowski Ph.D.	Finalist of Transfera Technology Day 2023	Transfera.cz
Prof. Ing. Milan Honner, Ph.D.	Finalist of Transfera Technology Day 2022	Transfera.cz
Ing. Jaromír Pocedič, Ph.D., Ing. Jiří Vrána, Ph.D., Ing. Jan Dundálek, Ph.D., Prof. Dr. Ing. Juraj Kosek, Ing. Petr Mazúr, Ph.D.	Visionary 2022	The Pilsen Region

Note: Provide up to 10 examples.

Table 3.2.2 Participation of academic staff of the evaluated unit in editorial boards of international scientific journals during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of scientific journal, ISSN
Doc. Dr. RNDr. Miroslav Holeček	Applied and Computational Mechanics, online 2336-1182, print 1802-680X
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	International Journal of Vehicle Safety, online 1479-3113, print 1479-3105
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Automotive Innovation, online 2522-8765, print 2096-4250
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Highlights of Vehicles, 2696-8347
Prof. Ing. Milan Honner, Ph.D.	Journal of Thermal Spray Technology, 1059-9630
Dr. Saleem Ayaz Khan	Journal of Nanoscope, 2707-711X

Note: Please provide up to 10 examples of academic staff participation in editorial boards of international scientific journals (e.g. editor, editorial board member, etc.).

Table 3.2.3 The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Invited lecture title	Name of host institution, or name of conference or event	Year
Assoc. Prof. Ing. Tomáš Kovářík, Ph.D.	Bioceramics and Bioglasses	Laboratory of Experimental Trauma Surgery, Department of Trauma Surgery, Regensburg	2019
Ing. Vít Nováček, Ph.D.	Human body modelling at New Technologies – Research Centre	Angers University, France	2019
Prof. Dr. Ján Minár	Photoemission response by means of one-step model of photoemission	Lecture at Gwangju institute of technology. Gwangju (Korea)	2019
Prof. Dr. Ján Minár	Theoretical description of photoemission	Lecture at Faculty of Physics, University of Warwick (UK)	2020
Prof. Dr. Ján Minár	Multiple scattering and spectroscopies of quantum materials	WE Heraeus school of Physics: The Green's function approach to multiple scattering theory in electronic structure and spectroscopies	2021
Dr. Sunil D'Souza	Multiple scattering theory applied Magnetism	Hands-on course on magnetism and spectroscopy, Daresbury, (UK)	2021
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	On developing subject-specific human body models for clinical and industrial applications	The University of Western Australia	2022
Assoc. Prof. Ing. Jiří Martan, Ph.D.	Infrared online diagnostics for pulsed laser micro-processing	42nd International Congress on Applications of Lasers & Electro-Optics (ICALEO 2023, USA)	2023
Prof. Dr. Ján Minár	From Multiple Scattering to Electronic Structure and Spectroscopy	Blending the DFT-Based Multiple Scattering Greens' Function Approach to Spectroscopies with Machine Learning, Les Houches School of Physics (France)	2023
Dr. Aki Pulkkinen	Theoretical description of soft and hard x-ray photoemission spectroscopy using the one-step model of photoemission	15th International Conference on Electronic Spectroscopy and Structure, Oulu, Finland	2023

Note: Provide up to 10 examples.

Table 3.2.4 - The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period

Name, surname and title(s) of the lecturer	Lecturer's employer at the time of the lecture	Invited lecture title	Year
Prof. Jorge Alcala	Universitat Politècnica de Catalunya (Spain)	A statistical pathway to characterizing dislocation avalanches spanning crystal structures, temperatures and sample sizes	2019
Prof. Bongjin Simon Mun	Gwangju Institute of Science and Technology, Department of Physics and Photon Science, Gwangju, Korea	Oxidation Dynamics of Vanadium Thin Film via Ambient Pressure XPS	2019
Prof. Christine Richter	Laboratory of Physics of Materials and Surfaces (LPMS), Department of Physics, CY Cergy Paris University (formerly Cergy-Pontoise University), Cergy-Pontoise, France	Structures of self organisation of Bi on InAs surfaces	2019
Prof. Molly M. Stevens	Imperial College London, UK	Exploring and engineering the cell material interface	2021
Dr. Alexander Axelevitch	Micro- and Nanotechnology Department; Thin Film and Nanotechnology laboratory, Faculty of Electric and Electronics Engineering Holon Institute of Technology, Holon, Israel	Current research activities in the field of semiconductors and renewable energy sources at the Holon Institute of Technology	2021
Dr. Didier Sebilleau	Theory Group, Département Matériaux-Nanoscience, Institut de Physique de Rennes, Université de Rennes, France	THE MEMORY FUNCTION APPROACH: The Swiss army knife of statistical physics – Application to dielectric function	2021
Prof. Michael John Aziz	Harvard University	Recent Progress in Organic Aqueous Flow Batteries	2022
Associate Prof. Keisuke Hatada	Faculty of Science, University of Toyama, Gofuku, Toyama, Japan	Theoretical studies of Molecular Flame Photoelectron Angular Distributions spectroscopy	2022
Prof. Karol Miller	The University of Western Australia	Computational Biomechanics for Medicine: success stories from neuro and vascular surgery	2023
Prof. Peter Krüger	Materials Science Department, Chiba University, Chiba, Japan	Circular dichroism and final state effects in angle-resolved and resonant photoemission spectroscopy	2023

Note: Provide up to 10 examples.

Table 3.2.5 - Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period

Name, surname and title(s) of the evaluated unit's staff member	Name of the research project/programme call	Name of the contracting authority/guarantor of the project/programme call	Year
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Czech Health Research Council	Ministry of Health of the Czech Republic	2019
Prof. Dr. Ján Minár	MSCA Postdoctoral Fellowships	European Commission Marie Skłodowska-Curie Actions	2019-2023
Assoc. Prof. Ing. Luděk Hynčík, Ph.D.	Security Research	Ministry of Foreign Affairs of the Czech Republic	2020
Prof. Dr. Ján Minár	Project funding	Swiss National Science Foundation	2020
Prof. Dr. Ján Minár	FWF Funding, Stand-alone Projects	FWF, Austria	2020, 2022
Ing. Richard Matas, Ph.D.	Théta, Call 4	Technology Agency of the Czech Republic	2021
Prof. Dr. Ján Minár	Preludium-21	Narodowe centrum Nauki, Poland	2021
Ing. Jindřich Křourek, Ph.D.	Théta, Call 5	Technology Agency of the Czech Republic	2022
Prof. Dr. Ján Minár	ERC Starting	European Research Council	2023
Prof. Dr. Ján Minár	IP-2022-10-3382	Croatian Science Foundation, Croatia	2023

Note: Provide up to 10 examples.

RESEARCH PROJECTS

3.3 Research projects

The evaluated unit shall list at most 10 (considered most significant by the evaluated unit) research projects/activities (regardless of whether they are supported by public funds or based on contract research²²) that it has implemented or participated in during the period of 2019–2023²³. This should be done from the full list in annex tables (Table 3.3.1–3.3.2)²⁴, regarding particularly the results achieved or the application potential of the projects. The unit should also describe how the research projects contributed to the mission and purpose of the evaluated unit. If the evaluated unit has been a participant in listed project, it shall indicate which other entities were involved and describe its contribution to the project. The interdisciplinary aspects of the projects will also be commented on, along with any collaboration with other units of the evaluated HEI.

Maximum 300 words per project.

Self-assessment:

The **project Quantum Materials for Sustainable Technologies (QM4ST)**, funded by the Ministry of Education, Youth and Sports of the CR under the OP JAC (Programme Johannes Amos Comenius) "Excellence in Research" call (project no. CZ.02.01.01/00/22_008/0004572, 2023–2028), focuses on

²² For the definition of contract research for the purposes of evaluation in the HE segments, see Article 2.2.1 of the Community Framework for State Aid for Research, Development and Innovation 2014/C 198/01.

²³ Regardless of whether the projects are completed or still ongoing, provided that at least part of the project was implemented during the evaluation period.

²⁴ The evaluated unit shall only fill tables that are relevant to it.

the research of quantum materials for sustainable technologies. Quantum technologies are multidisciplinary fields combining physics, chemistry, mathematics, computer science and materials science. Quantum mechanics supports R&D by enabling material design and process control in advanced devices. Quantum materials serve as the foundation for next-generation devices with the potential for significant impact on low-emission sustainable technologies. Key areas of interest include spintronics, superconductivity, photocatalysis, electrolysis, fuel cells, and photonics. Discoveries will support energy-efficient technologies, including green hydrogen and ammonia production, data storage materials, and sensors. Revolutionary approaches in theoretical modeling, mathematical simulations, and experimental techniques enable the design and synthesis of quantum materials, including nanostructures, thin films, and doped systems. The principal investigator of the project is the New Technologies - Research Centre (NTC) at the University of West Bohemia, which focuses on the prediction of quantum materials for sustainable technologies. The most significant achievement of this project to date is the confirmation of altermagnetism, a discovery published in Nature. This finding challenges the traditional classification of magnetism into two branches (ferromagnetism and antiferromagnetism). The NTC contributed to this discovery through material characterization using the SARPES instrument, a key expertise of the centre. This result is expected to have a significant impact on applied research, particularly in the development of energy-efficient IT components. The importance of this discovery is further demonstrated by its ranking as the top breakthrough in physics in Science magazine's 2024 list of major discoveries. Project partners include other faculty from the University of West Bohemia, Charles University, and Masaryk University, along with CEITEC at Brno University of Technology.

The **European Spectroscopy Laboratory for Modeling Materials of the Future** (acronym EUSPECLAB, funded by HORIZON under the Marie Skłodowska-Curie Doctoral Networks 2021 call, project no. HORIZON-MSCA-2021-DN-01, duration 2022–2026) is the only project of its kind at the University of West Bohemia (ZČU) focused on establishing the EUSpecLab doctoral network. The project's main goal is to shape the next generation of theoretical materials scientists (physicists and chemists) who will be capable of conducting computational and research work in academic and industrial laboratories, predicting material properties while utilizing the full potential of cutting-edge spectroscopic tools and materials informatics. Our objective is to bridge the gap between industrial processes, technological advancements, and theoretical understanding, particularly at the quantum (microscopic) level. Researchers will acquire specialized interdisciplinary and cross-sectoral skills. The EUSpecLab project involves 11 partner universities and research organizations, with the Centre National de la Recherche Scientifique (CNRS) as the lead institution. Other participating entities include: Université de Liège (Belgium), Aalto University (Finland), University of Camerino (Italy), Uppsala University (Sweden), Danmarks Tekniske Universitet (Denmark), Martin Luther University Halle-Wittenberg (Germany), Ruhr Universität Bochum (Germany), Technische Universität Munich (Germany), Technische Universität Wien (Austria). The New Technologies – Research Centre (NTC) at the University of West Bohemia in Pilsen is one of the main coordinators of this project, significantly contributing to its preparation and currently leading its implementation since September 2022. Selected PhD students will undergo three years of training while contributing to the development of spectroscopic tools and materials informatics for material prediction and characterization. These students will participate in joint workshops and other activities, sharing their scientific outputs. They will also have access to numerous professional workshops and various soft-skills training programs.

The **Computational and Experimental Design of Advanced Materials with New Functionalities** project (acronym CEDAMNF, funded by the Ministry of Education, Youth, and Sports of the Czech Republic under OP VVV, project no. CZ.02.1.01/0.0/0.0/15_003/0000358, duration 2017–2022) was one of NTC's flagship projects. A key and fundamental activity of the project was establishing an

excellent international research team under the leadership of Prof. Ján Minár. This newly formed team successfully applied for the QM4ST project under the Excellent Research call. The team includes leading experts in electronic and spectroscopic material research, combining theoretical and experimental approaches. Members come from France, Germany, Slovakia, India and Pakistan. Another objective was to strengthen collaboration between the regional research centre and top international institutions, boosting scientific output through high-impact publications and new technologies. This success is reflected in securing the European EUSPECLAB project and publishing prestigious scientific articles, mostly in partnership with top research institutions. The main theme of the new research program was the establishment of an experimental and theoretical study of the structural, electronic, magnetic, and spectroscopic properties of technologically promising materials within a single research centre. Combining theoretical and experimental research in one institution is rare in Europe. The project led to several groundbreaking results. One of the most significant outcomes is the paper "Large Magnetic Gap at the Dirac Point in $\text{Bi}_2\text{Te}_3/\text{MnBi}_2\text{Te}_4$ Heterostructures," published in Nature 2019, co-authored by J. Minár and S.A. Khan. A key project discovery was an unexpected magnetic property of an exotic material—manganese-doped multiferroic germanium telluride (GeTe)—which could pave the way for an era of energy-efficient computers requiring less than one-millionth of the energy to switch one bit. This result was achieved in collaboration with École Polytechnique Fédérale de Lausanne (EPFL), represented by Prof. H. Dille, and Johannes Kepler University Linz, represented by G. Springholz.

The interdisciplinary project of pre-application research **Application of Modern Technologies in Medicine and Industry** (acronym AMTMI, provider Ministry of Education, Youth and Sports within the call OP VVV ITI, No. CZ.02.1.01/0.0/0.0/17 048/0007280) was carried out in cooperation of the Faculty of Medicine in Pilsen of Charles University, Faculty of Applied Sciences of the University of West Bohemia and NTC in the period 2018 - 2022 and succeeded in applying new technologies to the medical environment. The first activity of the NTC was to apply the developed virtual biomechanical human body model for injury analysis with respect to different modes of transport, including future autonomous mobility. Second, the NTC team focused on childbirth injury prevention as part of the project. The project has developed a scaling algorithm that uses points defined on the bony pelvis to create a personalized model of the pelvic floor of a specific parturient and uses numerical simulation to predict the risk of injury during vaginal birth with respect to the compatibility of the child's head and pelvis. These are two core activities that the HBM team has been developing for a long time with the support of domestic and international projects or donations. Both activities have resulted in significant publications, e.g. in prestigious SAE Technical Papers series or impacted journal publications in the first two quartiles.

The **High-performance Green Redox Flow Batteries** project (acronym HIGREEW, Horizon 2020 provider, no. 875613, website <https://higreew-project.eu>) ran from 2019 to 2023 under the Horizon 2020 programme and focused on the development of innovative organic redox flow batteries that would replace vanadium batteries with more sustainable and cost-effective alternatives. The key objective was to develop novel organic electrolytes and selective membranes using abundant and recyclable materials. This technology allowed the battery voltage to be increased to 1.3-1.5 V and energy efficiency to be improved while reducing costs to €0.05/kWh/cycle, in line with the targets set by the European Commission for 2030. The result was a 5 kW prototype installed at Siemens Gamesa, which successfully demonstrated the batteries' ability to support energy storage from renewable sources such as solar and wind power plants, thus contributing to the decarbonisation of the energy sector. In addition to UWB, eight other partners from across Europe participated in the project, including CIC energiGUNE, Fraunhofer ICT, Siemens Gamesa, UAM, the British company C-TECH and others. The UWB NTC team participated in the optimization of key components such as membranes and electrodes, thereby contributing to technical progress and increasing the efficiency

of the system. Cooperation between academic institutions and industrial partners emphasized the interdisciplinary nature of the project, combining chemistry, materials engineering and energy applications. The HIGREEW project contributed to the fulfilment of the UWB mission, which was involved in the development of sustainable technologies, supporting international scientific cooperation and engaging in solving global challenges in the field of energy. Thanks to this, the project not only expanded the application potential of flow batteries, but also strengthened the position of Czech researchers in the European research area and brought practical use in the field of sustainable energy storage.

The aim of the project **Security Research for the Effective Use of Thermal Cameras in the Case of Epidemic Threats and Crisis Situations** (acronym BETERKA, provider Ministry of the Interior, No. VI04000029, 2021 - 2022) was to learn from the COVID-19 epidemic and to prepare a solution for a functional system of reliable thermodiagnosics of people in the Czech Republic for future epidemic threats manifested by increased temperature of infected people. The project was focused on the research of thermodiagnostic methods using thermal cameras as tools for contactless and rapid identification of people with elevated temperatures, as well as tools for effectively ensuring the security of the state and its citizens and managing crisis situations and epidemic threats. The project included research into new solutions for reliable identification of potentially infected persons with manifestations of elevated body temperature, research into the use of contactless thermodiagnosics for early warning of an epidemic situation and monitoring its course, and research into other possibilities of using thermal cameras in the activities of the Integrated Rescue System of the Czech Republic.

The project **Transforming Road Safety in Africa** (acronym TRANS-SAFE, provider Horizon Europe, no. 101069525, website <https://www.trans-safe.org>) from the RIA call is implemented in the period 2022-2026 and is coordinated by Technische Universität Berlin (TUB). In addition to ZČU (specifically the NTC and FF units), a total number of 29 partners from Europe and Africa are involved in the project. These include universities, research institutions and non-profit organisations, and the importance of the project is also reflected in the involvement of the United Nations as one of the partners. The thematic focus of the project is on the high rate of road traffic fatalities in Africa. The project aims to maximise the impact of safety solutions by bringing together agencies and road safety experts from Europe and Africa to drive policy action. Together they promote effective approaches to road safety development. The members of the consortium have extensive experience and expertise in research related to Africa. Overall, the project will help deliver the joint EU-Africa strategy and accelerate countries' progress towards the 2030 Agenda for Sustainable Development. The NTC team contributes to almost all work packages in the project. However, the focus of its work lies in WP3 (Road safety assessment and management). Its role is the leader of subtask T3.5 (Safe road users). Here, the NTC team uses its expertise in biomechanics and transportation safety. Supported by numerical simulations, NTC proposes effective and affordable solutions to improve traffic safety from the perspective of the accident victim. This involves testing different accident scenarios and predicting injuries to participants precisely to minimise the risk of injury. This is an interdisciplinary project with considerable potential for societal impact, as it aims at nothing less than reducing road traffic fatalities in Africa.

The international project **Therapeutic Hydrogel-Fibers Patches for the Treatment of Inflammatory Skin Disease** (acronym HyFiPatch, provider of the Ministry of Education and Science in the V4 call with South Korea, No. MSMT-21927/2023, 2023 - 2026) addresses the current topic of treatment and prevention of inflammatory skin diseases. The interdisciplinary approach of the project investigators links the fields of polymer chemistry, surface biology and medicine. The CPB group is developing and testing a multi-component fiber-hydrogel, which is further characterized by partner teams from Sungkyunkwan University, South Korea (In vitro testing) and Warsaw University of

Technology, Poland (antimicrobial testing). The project activities of all partners represent a high added value in basic research in the field of regenerative medicine. The outputs are already supported in the first year of the project by superior publication activity, in Chemical Engineering Journal (Q1, D, IF 13.4) and Acta Biomaterialia (Q1, D, IF 9.4).

The **Mechanical Engineering of Biological and Bioinspired Systems** (MebioSys, funded by MEYS under the OP JAC call, project no. CZ.02.01.01/00/22_008/0004634, 2023 – 2028) focuses on strengthening international cooperation, team development, and conducting cutting-edge research to develop a new generation of groundbreaking engineering products resulting from the convergence of biological and technological evolution. The project includes internationalization efforts through collaboration with foreign institutions, mobility programs, modernization of technical equipment, and deeper integration of participating institutions. Expected outcomes include scientific publications, technical implementations, and several patents. The core activities of the project revolve around two research objectives: the first research intention is Bioinspired Mechatronic Systems – focused on developing materials based on theoretical approaches and bioinspiration, superlubricity of mechanical components inspired by biosystems, and the development of SMART material structures and bioinspired metamaterial systems. The second research intention is Mechatronic Systems for Biomedical Engineering – focused on hybrid and composite biomaterials, surface modification and nanostructuring of biomaterials, and mechatronic systems for biomedical applications. One of the significant research achievements within this project is a publication in Nature Communications by J. Minár, titled Interplay between Disorder and Electronic Correlations in Compositionally Complex Alloys. This paper explores the mechanical, electronic, and phononic transport properties of high-entropy alloys. NTC contributes to both research objectives: In the first objective, NTC focuses on developing materials based on theoretical approaches and bioinspiration. In the second objective, researchers work on modifying and nanostructuring biomaterial surfaces. Additionally, the project aims to research internationalization, host top foreign experts, prepare international projects, and improve university-level education to enable the implementation of excellent research. The project is led by Brno University of Technology and collaborates with the Institute of Physics of Materials (Czech Academy of Sciences, Brno), University of Chemistry and Technology in Prague and Czech Technical University in Prague.

The National Competence Centre for **Mechanical Engineering** (NCKS) focuses on research, development, and innovation activities essential for enhancing the competitiveness of the Czech mechanical engineering industry. The strategic research agenda addresses customer and user needs, economic, environmental, and societal factors, and especially technological advancements. The key priorities include: Improving machine and equipment performance and efficiency, reducing energy consumption, automating production processes, saving materials and minimizing environmental impact, digitalizing processes and adapting to Industry 4.0 trends. The research activities are divided into several thematic areas: Advanced and sustainable manufacturing technologies – aimed at preserving or enhancing the key functional properties of manufacturing machines and technologies while simultaneously improving sustainability, digital transformation and flexible automation – addressing growing demands for quality, performance, efficiency, reliability, product customization, and extended services. The integration of control systems and data analysis from real and virtual simulation models will enable the development of innovative solutions. New Materials and Nanotechnologies – an area where NTC plays a crucial role. Research focuses on advanced materials, including nanomaterials, which have become an essential part of modern engineering. New material applications include: functionally structured materials with different properties in various locations based on local stress conditions, materials capable of dissipating deformation energy, high-energy-accumulation materials, materials for specialised media contact, and materials with unique magnetic properties. The NCKS project represents a

collaboration of 33 partners, including 8 research institutions, working together in advanced mechanical engineering across the Czech Republic. Through this collaboration and shared expertise, 55 high-impact subprojects, and 135 tangible research outcomes were achieved by the end of 2023. Following the success of the first NCKS project, a second phase was launched in 2023, set to run for six years. This phase primarily focuses on applied research outcomes to enhance the competitiveness of Czech mechanical engineering in the medium, and light engineering sectors.

Table 3.3.1 Projects supported by public funds

In the role of beneficiary						
Provider ²⁵	Project name	Support (in thousands CZK/EUR) ²⁶				
		2019	2020	2021	2022	2023
Czech Science Foundation (GACR)	Quantum-dimensional and boron-doped nanodiamonds synthesized by HPHT process from molecular precursors			1,515 / 59,763	1,515 / 59,763	1,515 / 59,763
MPO	NTC Techlab - Technological Center			10,611 / 418,580		
MPSV	Girls' Labs: Motivational STEM programs for secondary school girls					450 / 17,751
Ministry of Education, Youth and Sports (MEYS)	Laser-assisted consolidation of fiber-reinforced thermoplastics				234 / 9,231	479 / 18,895
MEYS	CENTEM+	26,863 / 1,059,684				
MEYS	Therapeutic Hydrogel-Fibers Patches for the Treatment of Inflammatory Skin Disease (HyFiPatch)					346 / 13,649
MEYS	Computational and Experimental Design of Advanced Materials with New Functionalities	14,547 / 573,846	11,792 / 465,168	11,282 / 445,049	13,201 / 520,750	636 / 25,089
MEYS	Pre-application research of infrared technologies (LabIR-PAV)	8,648 / 341,144	13,516 / 533,176	19,616 / 773,807	24,932 / 983,511	
MEYS	Quantum materials for applications in sustainable technologies					3,385 / 133,531
MV ČR	Security research for the effective use of thermal imagers in the event of epidemic threats and crisis situations			5,307 / 209,349	4,550 / 179,487	

²⁵ If the provider is from abroad, please indicate the provider's country of origin in brackets. For the determination of the country of origin of the provider, the place of residence of the provider is decisive.

²⁶ Indicate the total amount expressed in thousands of CZK and the conversion of the total amount into Euro.

MV ČR	Methodology of fast non-contact and non-destructive detection of gunshot residue					8,985 / 354,438
MV ČR	National contact point on infrared technologies for international security research					780 / 30,769
SFEU + MMR	Virtual models for optimization of medical training			606 / 23,905	2,529 / 99,763	
SFEU + MMR	Pelvic Floor Disorder Prevention					941 / 37,120
SFEU + MMR	Optimization of FLM process by thermodiagnosics (OPTHERM)					1,254 / 49,467
SFEU + MMR	Quantum Technologies for Czech-Bavarian Region (QuantumNetX)					
SPIE	Grant to organize a teacher training with LabIR thermography camera		102 / 4,024	105 / 4,142		
TA ČR	Therapeutic Care for Convicted (TERAPEUT-VTOS)	616 / 24,300	785 / 30,966	702 / 27,692	16 / 631	
TA ČR	Research and development of advanced flow energy storage technologies	995 / 39,250	4,144 / 163,471	4,146 / 163,550	4,202 / 165,759	4,456 / 175,779
TA ČR	Advanced coating substrate preparation by shifted and ultrafast laser texturing (ADVENTURE)			941 / 37,120	1,983 / 78,225	2,168 / 85,523
Total		51,669 / 2,038,225	30,339 / 1,196,805	54,831 / 2,162,959	53,162 / 2,097,120	25,395 / 1,001,775
In the role of another participant						
Provider ²⁷	Project name	Support (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
ESA	Non-contact NDI for polymeric composite structures (EXPRO+)		321 / 12,663	360 / 14,201	4 / 158	
European Commission	Affordable High-Performance Green Redox Flow Batteries (HIGREEW)	55 / 2,170	805 / 31,755	2,461 / 97,081	1,356 / 53,491	382 / 15,069
European Commission	Transforming Road Safety in Africa (TRANS-SAFE)				830 / 32,742	378 / 14,911

²⁷ Ibid.

European Commission	European Spectroscopy Laboratory to model the materials of the future (EUSpecLab)					1,475 / 58,185
GACR	Electronic structure of lanthanides-doped materials for phosphor-converted white light emitting diodes	708 / 27,929				
GACR	Strength of materials and mechanical components based on iron: Multi-scale approach	489 / 19,290				
GACR	X-ray absorption and dichroic spectra of low-dimensional systems: description and interpretation		775 / 30,572	840 / 33,136	840 / 33,136	
GACR	Nanodiamonds as selective protein traps to regulate disorders caused by aberrant FGF2 signaling					1,144 / 45,128
MEYS	Application of Modern Technologies in Medicine and Industry	3,429 / 135,266	4,914 / 193,846	5,757 / 227,101	7,188 / 283,550	
MEYS	Mechanical engineering of biological and bio-inspired systems					2,760 / 108,876
SFEU + MMR	Thermoplastic Composite Structures (TheCoS)	1,763 / 69,546				
SFEU + MMR	Virtual human models for the prevention, therapy and rehabilitation of shoulder diseases	1,145 / 45,168				
SFEU + MMR	Cross-border platform for research on future energy storage systems and their integration (FSTORE)	3,219 / 126,982	423 / 16,686			
SFEU + MMR	Obstetrics 2.0 – virtual models for injury prevention during childbirth	1,237 / 48,797	908 / 35,819			
SFEU + MMR	Advanced porous biomaterials functionalized with stem cells for enhanced implant osseointegration (MATEGRA)	1,550 / 61,144	2,352 / 92,781	1,931 / 76,174		
SFEU + MMR	Augmented treatment of osteoporotic bones with innovative metal surfaces enriched with organic-inorganic nanoparticles (OSTEOMET)			858 / 33,846	3,390 / 133,728	18 / 710
TA ČR	Advanced technologies for heat and electricity production	1,214 / 47,898				

TA ČR	Experimental and computational critical heat flux identification of small power output reactor (SMR) fuel rods	713 / 28,126	2,944 / 116,134	3,104 / 122,446	2,990 / 117,949	1,171 / 46,193
TA ČR	Reactors with high adaptability towards new electrochemical technologies					2,095 / 82,643
TA ČR	Technologies for manufacturing of industrial scale redox flow batteries					1,255 / 49,507
TA ČR	Power distribution cables with integrated cooling and heat distribution system for energy recovery					975 / 38,462
Total		15,522 / 612,316	13,442 / 530,256	15,311 / 603,984	16,598 / 654,753	11,653 / 459,684

Table 3.3.2 - Contract research activities

Client ²⁸	Activity name	Revenue (in thousands CZK/EUR)				
		2019	2020	2021	2022	2023
ALPHA CZECH s.r.o.	Analysis of optical-thermal properties of materials					62 / 2,452
AM-CME s.r.o.	Characterization and analysis of material structure on performed steel samples		50 / 1,972			
Aremco Products Inc.,	Analysis of optical-thermal properties of materials					84 / 3,313
Ariel Scientific Innovations Ltd.	Synthesis of Catalyst and Support Materials (testing of samples and analysis work)					725 / 28,595
Automotive partner (anonymous due to NDA)	CFD simulation of multiphase flow in complex geometries of powertrain parts	1,494 / 58,921	1,844 / 72,756	2,498 / 98,527	4,666 / 184,080	7,447 / 293,755
Automotive partner (anonymous due to NDA)	Analysis of control units before and after stress tests				1,142 / 45,056	
AV Universiteit Gent	Analysis of optical-thermal properties of materials		166 / 6,540			
Ball Beverage Packaging Czech Republic s.r.o.	Analysis of solid particles in water					13 / 497
BME CONSULTING FRANCE	CT analysis of morphology of automotive catalyst samples at the micro level		240 / 9,472			
Bonafa projekt s.r.o.	Analysis of optical-thermal properties of materials				37 / 1,465	
BRISK Tábor, a.s.	Proposal of mold optimization solution	11 / 434				
BRISK Tábor, a.s.	Analysis of chemical composition of shards		5 / 178			
BRISK Tábor, a.s.	Analysis of elements on spark plugs					19 / 746
CALEN GROUP s.r.o.	Study of driver kinematics		18 / 710			
Research Centre Řež	Material analysis	8 / 301				
CiS Forschungsinstitut für Mikrosensorik GmbH	Analysis of optical-thermal properties of materials					167 / 6,596
COMDES CZ s.r.o.	Analysis of optical-thermal properties of materials	1,980 / 78,114	1,220 / 48,126	120 / 4,734		
COMTES FHT a.s.	Flow analyses in plasma and gas burners and in 3D printed parts	248 / 9,770	278 / 10,957		245 / 9,673	92 / 3,624

²⁸ If the client is from abroad, indicate in brackets the country of origin of the client.

COMTES FHT a.s.	Material analysis of metals using EBSD texture and phase analyses on TEM microscope			84 / 3,331	379 / 14,970	301 / 11,864
COMTES FHT a.s.	X-ray analysis of ledeburitic steel X165CrMoV12					40 / 1,578
Continental Automotive Czech Republic s.r.o.	Analysis of laser treatment technology of materials		59 / 2,318			
Contipro a.s.	Analysis of nanostructure of separation membranes	20 / 789				
CORRO BOHEMIA, s.r.o.	Analysis of optical-thermal properties of materials			9 / 341		
ČEZ, a.s.	Numerical simulations of flue gas flow with scattering of active particles to ensure emission limits and numerical modeling of desulfurization processes	590 / 23,254	951 / 37,503	882 / 34,779	1,030 / 40,643	
Czech Technical University in Prague	Analysis of optical-thermal properties of materials				75 / 2,944	18 / 699
DAIDO METAL Co., Ltd.	Analysis of optical-thermal properties of materials		15 / 601	135 / 5,314		
Daikin Industries Czech Republic s.r.o.	Analysis of parameters of gas leakage standard	11 / 415				
DIAMORPH hob certec s.r.o.	Analysis of homogeneity and porosity	34 / 1,323				
DIAMORPH hob certec s.r.o.	Determination of sample composition	13 / 497				
DIAMORPH hob certec s.r.o.	Analysis of crystalline materials with EDS microanalysis on SEM microscope		57 / 2,245	64 / 2,517	36 / 1,406	108 / 4,260
Dr. Patrick Popp	L5E vehicle safety analysis					208 / 8,198
EB safety system s.r.o.	Measurement of mechanical properties of personal protective equipment (PPE) in drop tests		94 / 3,688			
Energotrans, a.s.	Numerical CFD analyses of flue gas flow in flues of thermal energy source	141 / 5,568				
EnergyCloud, a.s.	Research of battery regeneration processes					2,631 / 103,777
EnergyCloud, a.s.	Research of testing methods of used lithium batteries at the level of cells, packs and modules					4,615 / 182,043
EnergyCloud, a.s.	Thermodiagnostics of battery systems					5,868 / 231,466
Eurometalgroup s.r.o.	Design and verification of a measuring and testing system for fireplace stoves	489 / 19,285	74 / 2,934			
FCT electronic czech s.r.o.	Analysis of optical-thermal properties of materials	10 / 379				
Frentech Aerospace s.r.o.	Analysis of optical-thermal properties of materials	36 / 1,430	20 / 777	24 / 939		

GREEN ENERGY CONSULTING, s.r.o.	Research on laser surface treatment technology			1,350 / 53,254		
GREEN ENERGY CONSULTING, s.r.o.	Research on modifications of optical-thermal properties of plastics			1,000 / 39,448		
GTW Technik s.r.o.	Computational analysis and assessment of segmented axial bearings	37 / 1,460				
Chropýňská strojírna, a.s.	Development of a measuring system for spot weld inspection		700 / 27,613	950 / 37,466		
Jablotron alarms a.s.	CFD numerical analysis of flow in detectors	104 / 4,112	108 / 4,249	52 / 2,036		
JANTAR Plzeň s.r.o.	Software development		160 / 6,312			
JLC service s.r.o.	Analysis of optical-thermal properties of materials		252 / 9 941			
Kingspan a.s.	Analysis of optical-thermal properties of materials	24 / 931	38 / 1,516			
KOTRBATÝ V.M.Z. spol. s r.o.	Analysis of optical-thermal properties of materials				15 / 585	
Krajské ředitelství policie Plzeňského kraje	Expert opinion on possible variants of falling from the roof					29 / 1,141
LaserTherm spol. s r.o.	Software development			160 / 6,312		
MAHLE Behr Holýšov s.r.o.	Solution to the problem of inhomogeneities in injected composite parts	265 / 10,462	93 / 3,675			
MEGA a.s.	CT analysis of the morphology of ion-exchange membranes at the micro level	81 / 3,195				
Mektec CZ s.r.o.	Analysis of optical-thermal properties of materials	2 / 87				
Metrostav DIZ s.r.o.	Numerical CFD analysis of flue gas flow				115 / 4,538	
MICROTERM COLOR s.r.o.	Analysis of optical-thermal properties materials	14 / 533				
NET4GAS, s.r.o.	Computational analysis of natural gas flow in the transmission system pipeline system	174 / 6,877				302 / 11,926
NILAN s.r.o.	Software development	398 / 15,700				
NIMETAL, spol. s r.o.	Laboratory research on cadmium battery recycling	600 / 23,669				
NIMETAL, spol. s r.o.	Design and assembly of an experimental line for cadmium battery recycling				500 / 19,724	
NOVEM Car Interior Design k.s.	Determination of physical properties of granulate			5 / 181		
OZM Research s.r.o.	Analysis of particle size distribution					44 / 1,749
PILSEN TOOLS s.r.o.	Software development	395 / 15,582				

Plastoplan s.r.o.	Analysis of optical-thermal properties of materials	38 / 1,491				
Plzeňská teplotárenská a.s.	Assessment of fan energy consumption					25 / 970
Plzeňský Prazdroj, a.s.	Simulation of flow in combustion chambers of heating technology	67 / 2,651			227 / 8,959	683 / 26,930
PREDITEST s.r.o.	Research on methods of non-destructive testing of materials	171 / 6,761				
Proino Mühendislik Danışmanlık Sanayi Ve Ticaret	Analysis of optical-thermal properties of materials				33 / 1,320	
PSG Procurement Services GmbH	CT analysis of the morphology of polymer particles at the micro level				84 / 3,301	
Red Bull Technology Ltd	Analysis of optical-thermal properties of materials	90 / 3,557				
REVLAN s.r.o.	Analysis of optical-thermal properties of materials			22 / 871		
SCG Chemicals Co., Ltd.	Analysis of optical-thermal properties of materials	86 / 3,411	172 / 6,795			490 / 19,346
Sécheron Hasler CZ, spol. s r.o.	Extension of the computational tool for analysis of dynamic behavior of traction collector	585 / 23,077				
Schunk Xycarb Technology B.V.	Analysis of optical-thermal properties of materials			95 / 3,756	94 / 3,721	149 / 5,896
SKLÁŘSKÉ STROJE ZNOJMO, s.r.o.	Analysis of optical-thermal properties of materials				263 / 10,362	
Starkstrom-Gerätebau GmbH	Investigation of ventilation grid characteristics					50 / 1,980
Starkstrom-Gerätebau GmbH	Flow simulation in a test model of a cover with ventilation grids					114 / 4,478
Stokvis Promi s.r.o.	Analysis of optical-thermal properties of materials			6 / 237		
ŠKODA AUTO a.s.	Analysis of optical-thermal properties of materials	122 / 4,814		110 / 4,345		
ŠKODA AUTO a.s.	Development of a thermodiagnostic system and research of thermal resistance of a vehicle and elements for thermal comfort	648 / 25,574				235 / 9,278
ŠKODA AUTO a.s.	Research of braking systems	188 / 7,422	457 / 18,034	48 / 1,876	13 / 527	
ŠKODA AUTO a.s.	Computational analysis of temperature response, preparation of a 2D computational tool	392 / 15,472				
ŠKODA AUTO a.s.	Measurement of performance characteristics of a heat exchanger					129 / 5,098
ŠKODA JS a.s.	Analysis of optical-thermal properties of materials			21 / 846		
Technický a zkušební ústav stavební	Analysis of optical-thermal properties of materials				11 / 443	
TESLA Electron Tubes s.r.o.	Analysis of the composition of the surface layer	32 / 1,243				

Thai Oil Public Company Limited	Analysis of optical-thermal properties of materials	95 / 3,741				
Thermal Focus BVBA	Development of thermographic technology	10 / 394	75 / 2,946	31 / 1,203		
Thorlabs Canada ULC	Analysis of optical-thermal properties of materials		14 / 548			
TOSEDA s.r.o.	Analysis and characterization of solar cells			200 / 7,890		
UJP Praha a.s.	Material analyses	180 / 7,101	200 / 7,890	310 / 12,229	150 / 5,917	230 / 9,067
Charles University	Analysis of optical-thermal properties of materials					60 / 2,367
Charles University	Creation of geometry and personalization of the pelvic floor	58 / 2,282	58 / 2,282	66 / 2,608	66 / 2,608	41 / 1,630
UNO PRAHA, spol. s r.o.	Analysis of optical-thermal properties materials		220 / 8,679			
Institute of Plasma Physics, Czech Academy of Sciences	Research on high-temperature testing methods for materials			309 / 12,170		183 / 7,221
Institute of Plasma Physics, Czech Academy of Sciences	Development of laser structuring technology	60 / 2,367				
Nuclear Physics Institute, Czech Academy of Sciences	Analysis of optical-thermal properties of materials		20 / 782			
Institute of Thermomechanics, Czech Academy of Sciences	Phase composition analysis using SAXS				48 / 1,893	
Institute of Thermomechanics, Czech Academy of Sciences	Diagnostics of fuel cell membrane assembly		55 / 2,170			
VALEO VÝMĚNÍKY TEPLA k.s.	Pre-production tomographic analysis of Al joints	7 / 274			85 / 3,353	
Technical university of Ostrava, centrum ENET centre	CFD numerical simulations of flow in flues of thermal energy source	437 / 17,219				
VUK objekt s.r.o.	Analysis of mechanical strength of composites			5 / 213		
University of Chemistry and Technology in Prague	Analysis of optical-thermal properties of materials		15 / 608			
Brno University of Technology	Analysis of optical-thermal properties of materials			10 / 412		
Výzkumný a zkušební ústav Plzeň s.r.o.	Analysis of thermomechanical properties of samples		3 / 107			

Výzkumný a zkušební ústav Plzeň s.r.o.	Research of laser surface treatment technologies	203 / 8,008	258 / 10,158			
Výzkumný a zkušební ústav Plzeň s.r.o.	X-ray diffraction analysis of power plant fly ash			6 / 252		
Výzkumný a zkušební ústav Plzeň s.r.o.	X-ray diffraction analysis to determine the structural analysis of performed hot sprays				17 / 677	
Západočeské muzeum v Plzni	Chemical analysis and analysis of the elemental composition of bronze alloys				13 / 507	
ZF Engineering Plzeň s. r. o.	CFD simulations and analyses				630 / 24,840	
ZVVZ GROUP, a.s.	Mentoring support				155 / 6,102	
ZVVZ-Enven Engineering, a.s.	Analysis of flow in flues of thermal energy source	399 / 15,740		35 / 1,385		
ZVVZ-Enven Engineering, a.s.	Analysis of the effects of pulse flushing of filtration equipment		90 / 3,538			
Total		11,045 / 435,686	8,077 / 318,621	8,606 / 339,471	10,130 / 399,614	25,161 / 992,541

Note: List and describe contract research activities with a revenue in a given calendar year, regardless of the amount of financial revenue.

3.4 Research results with existing or prospective impact on society

The evaluated unit shall briefly comment on a maximum of 10 (considered most significant by the evaluated unit) research results already applied or realistically heading towards application during the period of 2019–2023, based on the overview annex table 3.4.1 (it is recommended to indicate results with a link to projects listed in indicator 3.3). The evaluated unit must demonstrate in its description that the research results have led or will soon lead to positive impacts²⁹, on society (e.g. description of how the results are used by various users, the range of persons/institutions for which the result is relevant, measurable economic impacts, etc.). The evaluated entity shall indicate in its commentary whether the gender dimension is considered in these results and discuss the impacts of the results regarding sustainability.

Maximum range 300 words/result.

Self-assessment:

The vanadium redox flow battery stack (functional sample), which was developed at the NTC and licensed by Pinflow Energy Storage s.r.o., represents an advanced energy storage technology of key importance for the development of renewable sources and sustainable energy. It enables long-term and efficient energy storage, grid stabilization, and support for solar and wind power plants, which increases energy security and self-sufficiency. Thanks to its long lifespan, recyclability, and low OPEX, it offers economic savings and contributes to the decarbonization of industry and households. Environmental benefits include waste minimization thanks to battery recyclability and sustainable vanadium mining. This technology is therefore not only a technical solution, but also a tool for social and economic transformation that supports the transition to a green economy, strengthens resilience to energy outages, and helps achieve climate policy goals. Positive results from real-world operation of an installed industrial battery with parameters of 15 kW 70 kWh confirm the suitability

²⁹ See Terms definition.

of this technology for massive deployment. Specific commercial partners, as well as financial and commercialization indicators of the results, cannot be disclosed, as they are secret under the license agreement. However, the fact that Pinflow Energy Storage received the NEURON award for connecting science and business in 2022 speaks very significantly about the success of commercialization: <https://www.nfneuron.cz/person/pinflow-energy-storage>.

Based on the signed license agreement and the 2021 amendment with **Nimetal, spol. s r. o., a verified technology** for recycling metallic cadmium from used NiCd batteries was created. NTC developed a technological line for the thermal processing of various types of NiCd batteries for Nimetal premises in Ústí nad Labem. On this line with a batch capacity of 500 kg, operational tests were carried out to optimize the construction elements, the operating parameters of the process, but also to measure emissions generated during the operation of the line by a specialized company. All knowledge and data obtained from the experimental operation were used by Nimetal when submitting the "Technological line for the processing of batteries" (EIA). The plan, which includes the construction and operation of three other similar furnaces, is now in the process of being approved by the relevant authorities. After the approval, the line will change from experimental to commercial operation and Nimetal will receive a license agreement from UWB, which it is obliged to use and pay UWB license fees, which are, however, subject to commercial secrecy. In terms of benefits for society and sustainability, it can be stated that the implementation of the plan and the operation of the facility will enable better compliance with the provisions of EU and Czech legislation in waste management, which require an increase in the share of recyclable waste components, including the removal and reuse of hazardous components. The new technological line ensures this and enables the subsequent use of individual sorted components - separately, in particular metals, plastics and battery operating fluids. The presented result fully takes into account the gender dimension, since unrecycled NiCd batteries would negatively affect the health of the entire population in the event of damage and leakage of hazardous substances into the environment.

Helmet with multi-directional suspension system and the process of helmet manufacturing (domestic patent within the project Application of modern technologies in medicine and industry): The patent represents a significant advance in the technology of head protection. By addressing both linear and rotational impact forces, this innovation offers increased safety for motorcyclists, cyclists, horse riders and other users prone to head injuries. The tensegrity-based design improves force dissipation and reduces the risk of serious brain injury by minimizing angular acceleration. Given the inadequate handling of rotational forces by helmets, this breakthrough is in line with emerging helmet safety standards and offers a timely solution to a serious societal problem. The societal impact of this research is significant, as helmet use directly reduces the number of fatal and severe injuries that are the leading cause of death and disability worldwide. Statistics show, for example, that helmets reduce the risk of fatal injuries among motorcyclists by almost 40% and could save 37% of cyclists killed in accidents. By introducing a helmet that effectively absorbs rotational impacts, this innovation has the potential to significantly reduce injury rates, reduce healthcare costs and improve the quality of life of users. The gender aspect is taken into account implicitly, as head injury affects individuals regardless of gender. In terms of sustainability, innovation promotes durability and safety while incorporating manufacturing methods such as 3D printing that can optimise material use and reduce waste. In summary, this research represents a significant step forward in safety technology with clear societal benefits, the potential for inclusivity and sustainable design principles. The result is currently protected by a Czech patent, a PCT patent application and an EU patent. In the competition with other top result, it was a finalist in the Transfera Technology Day 2023.

Thermal imaging system for accurate measurement of human body temperature (patent CZ 309718): Within the BETERKA project, a functional sample of a thermal camera system for accurate measurement of human temperature - LabIR Face Scanner - was designed, created and tested. An innovative way of arranging the measuring system was used - a reference element with known temperature and emissivity is part of the design of the measuring system. It is continually in the view of the IR camera, so the measured values are constantly corrected. The device's software uses artificial intelligence to find the head and eye area, from which it evaluates the maximum temperature, while alerting the person being measured to the presence of glasses that make it impossible to measure in the corner of the eye. The created measuring system was installed in the number of 7 pieces in various places in Pilsen, where people with elevated temperature were expected. Over 48,000 IR images were obtained in one year. The system has proven its functionality for measuring the temperature of people in real conditions. The created compact measuring system can contribute to improving the protection of public health thanks to the ability to quickly and reliably identify people with elevated temperatures, which is crucial, for example, in epidemiological crises. The introduction of this system reduces the risk of spreading infectious diseases and supports the safety of public spaces such as transport terminals, hospitals and administrative buildings. The result created brings not only technological progress, but also specific benefits for society in the field of health protection and prevention.

System for non-destructive testing of spot welds (patent CZ 309 174 within the project Pre-application research of infrared technologies): A new, reliable and fully automated method of spot weld quality control (<https://spotweld.labir.cz>). The technique is able to distinguish ok and nok welds based on individual customer criteria. The principle is based on laser excitation of the weld surroundings and recording the heating and cooling phase of the monitored area with an infrared camera. The weld area heats up because it is not affected by previous welding. Thanks to this, the same thermo-optical properties can be expected in all places in this area, and thus uniform heating occurs. In addition, laser heating can be individually adapted to the individual weld seam types (materials, sheet dimensions, etc.) to meet inspection requirements in terms of time and cost. This innovative technology brings a number of benefits to the industry. Its ability to control quality quickly and accurately optimizes production processes and reduces the number of defective products. This not only increases production efficiency, but also significantly reduces the costs associated with repairs or complaints. A fully automated system eliminates human error, speeds up the production cycle and enables manufacturers to achieve higher quality consistency. The social benefits of this method are no less significant. Increased production quality contributes to improved transport safety, as higher weld reliability is key for automotive and aerospace components, for example. In this way, the risk of breakdowns and accidents caused by poor quality connections can be minimized. The technology also promotes sustainable development by reducing the waste of materials and energy, which has a positive impact on the environment.

Educational thermal camera (sold license to use know-how to build a thermal camera and control software within the Pre-Application Research of Infrared Technologies project): An educational thermal camera that was designed as an innovative tool for the imaging of physical and natural science phenomena in real time. A thermal camera in the classroom allows students to clearly observe processes that would otherwise remain invisible – such as heat flows, evaporation, condensation or energy dissipation. The use of the created thermal camera supports the development of conceptual understanding and at the same time offers an opportunity to apply modern digital tools, thus supporting the development of pupils' digital literacy and work with modern technologies. The use of the thermal camera is mainly in physics, chemistry, biology, technical and environmental education. Thanks to the transfer in the form of a license, thermal cameras are now manufactured in the spin-off company TIMI CREATION. The number of thermal

cameras in Czech schools has already reached 250. Before the development of the educational thermal camera, the number of thermal cameras was in units. The rapid expansion allows the development of didactic content and thus further expands the use.

The **ASE2SPRKKR software** package enables using SPR-KKR, an electronic structure calculation program, within ASE (the Atomic Simulation Environment). This simulation environment is built on the Python programming language, allowing the integration of various electronic structure calculation programs through a well-designed interface. The implementation of SPR-KKR makes it possible to address electronic structure calculation challenges that were previously unsolvable, such as linking SPR-KKR with spectroscopy programs. One of the primary functions of the ASE2SPRKKR package is to read and write configuration and definition files for SPR-KKR and to extract information from its output. This approach ensures that the file format definitions remain highly readable and, most importantly, sustainable for repeated calculations. This, for example, facilitates updating the file format definition to reflect changes introduced in new versions of SPR-KKR, as well as defining a new section in the problem definition file.

Forensic analysis and a new investigation into the death of the Czechoslovak Minister of Foreign Affairs in 1948 (peer-reviewed paper / technical study within the project SGS-2019-002 at FAS):

NTC investigated the death of the Czechoslovak Foreign Minister Jan Masaryk. This case contains many gaps over time, being already investigated 4 times. In 2003 it was closed strictly as a murder - perpetrator unknown. NTC took measurements directly at the Czernin Palace and by laboratory jump measurements. NTC performed numerical simulations of the whole situation, taking into account the anthropometry of Jan Masaryk, the geometry of the building, the position of the body. As a result, NTC obtained the intervals of distances a person can realistically reach when jumping/falling out of a window. The study considered just different scenarios of "leaving" the window, such as falling, jumping or slipping. The results were compared with data and measurements from the crime scene and showed that it is not unrealistic for a body to end up in the position and distance in which it was found. This finding was in direct contradiction to the last investigation by police. The result has thus contributed significantly to the current state of knowledge. The gender aspect is not considered as it is a biomechanical analysis of one particular case. The societal impact is significant within the country, as the case was reopened based on our study and the new investigation was based on the findings of this study. The fifth investigation finally concluded that the possible variants of Jan Masaryk's death were murder, suicide and also an unfortunate coincidence. This whole case brought very strong media coverage, all under the banner of UWB, which thus positively promoted itself to the public. This study also helped to correct the untruth with which the case was closed.

Expert opinion on possible variants of a fall from a roof using a biomechanical human body model and mathematical simulation (summary research report within the framework of contract research):

In 2023, the NTC was approached by the General Crime Department of the Police of the Czech Republic to provide an expert opinion on a case involving the death of a young woman. Due to the situation and the ambiguity of the testimony, the Police Department requested an expert biomechanical statement/opinion on the entire situation, which will be supported by numerical simulations and calculations. A model of the whole situation was created and a total of 15 final scenarios were defined. Each scenario was modelled using the Virthuman numerical model and it was assessed whether the situation was realistic, considering the initial conditions and the final position of the body and the mechanism of injury of the victim. The result was an expert opinion on the situation, supported by physical principles and numerical calculations. This provided the police and the court with a tool to assess the credibility of the statements and the correct assessment of the entire case. The gender aspect is not taken into account in this output, as it is a biomechanical analysis of one specific case. Here it was a model of a woman. However, the social impact is

significant. Taking into account the situation, it can be said that also thanks to the expert opinion on the situation, the person was not charged with a violent crime. According to the biomechanical data the person may not have committed this (his intentional culpability was not clearly proved).

Female pelvic floor model for teaching (license agreement with two foreign universities): The model is the result of long-term research on the female pelvic floor at the NTC. The first comprehensive model was created in 2019-2020 on the basis of magnetic resonance images and on the basis of anatomical documents and sections within the framework of Czech-Bavarian cooperation projects and the project Application of modern technologies in medicine and industry. Its applications are in the prediction of possible childbirth injuries in different delivery designs. Furthermore, a scaling algorithm has been developed to generate personalized models. As of 2022, a new reference model is being developed including the directions of the muscle fibers are defined, allowing us to simulate active muscle contractions. The application of this model is directed more towards the prevention of pelvic floor disorders. The whole model is converted to the SfePy software (<http://www.sfe.py.org>). The entire model is being developed in the framework of long-term cooperation with medical experts, namely the Faculty of Medicine at Charles University in Pilsen and the Institute for Mother-Child Care in Prague. The gender aspect is not taken into account. The social impact is considerable, as the model serves many medical institutions and health care professionals both to optimise treatment procedures and to train future professionals. Different variants of the model of the female pelvic floor are used to teach medical doctors at the Faculty of Medicine of Charles University in Pilsen, physiotherapists at Rehaspring (from 2024) and midwives at the Frýdek-Místek Hospital. Thanks to the model, medics can better see the internal structure of the small pelvis. They can independently view its individual parts, rotate the model and observe the locations of muscle tendons, which simplifies the spatial understanding of the body structure and accelerates the awareness of the interrelationships between organs.

Table 3.4.1 - Overview of research results in the period under evaluation

Type of result ³⁰	Year of application	Name
Software	2019	Hynčík L.: Software for personalising human model RIV/49777513:23640/19:43961648
Domestic patent	2019	Honner M.: Device and method for on-line control of remote transmission laser welding of materials, Patent CZ 307 993 RIV/49777513:23640/19:43957888
Foreign patent (CHS - Switzerland)	2019	M. Kučera, V. Lang: Verfahren zur unwahrnehmbaren Markierung CH 000533/2021
Foreign patent (EU)	2019	M. Kučera, V. Lang: Method of imperceptible marking, European patent Application EP3894233
Foreign patent (Germany)	2019	M. Kučera, V. Lang: Verfahren zur unwahrnehmbaren Markierung DE 11 2019 003 468.5
Functional sample	2020	J. Martan, L. Prokešová, D. Moskal, B. C. Ferreira de Faria, M. Honner, V. Lang.: Functional sample of a measuring system for the analysis of heat accumulation in laser micromachining with ultrashort pulses RIV/49777513:23210/20:43961287
Sold license	2020	License to use know-how to assemble thermal camera and control SW https://timic.cz/homepage/camera
Software	2020	Havelková L., Zítka T., Fiala P., Rybarova M., Tupý R., Kalis V., Ismail K.M.: Data for: Hand muscles attachments: A Geometrical model, https://zenodo.org/records/3954024

³⁰ Specify the specific type of result. Add rows as needed.

Domestic patent	2020	Švantner M., Lang V.: Equipment for infrared non-destructive testing of materials, Patent CZ 308 638 RIV/49777513:23640/20:43961444
Functional sample	2021	Muzika L., Klepáček J., Skála J., Švantner M., Kučera M.: Functional sample KHAL-IRNDT - Compact portable device for IRNDT inspection with halogen excitation RIV/49777513:23640/21:43963539
Functional sample	2021	Honnerová P., Martan J., Veselý Z., Honner M.: Functional sample of measurement system for emissivity analysis of semitransparent coatings at ambient temperature RIV/49777513:23640/21:43964227
Functional sample	2021	J. Tesař, V. Lang, J. Skála, L. Muzika, M. Honner: Function sample of infrared camera system for early warning and monitoring of epidemy, RIV/49777513:23640/21:43964228
Functional sample	2021	V. Lang, J. Tesař, J. Šikula, L. Smeták, J. Šroub, M. Honner: Functional sample of an external environment simulator for tests of thermal camera systems measuring the surface temperature field of people RIV/49777513:23640/21:43964229
Software	2021	Software ASE2SPRKKR for electronic structure calculation RIV/49777513:23640/21:43964558
Domestic patent	2021	J. Martan, M. Kucera, D. Moskal: Method of shifted laser surface texturing, Patent CZ308932 RIV/49777513:23640/21:43967588
Sold license	2021	License to use the trademark for labelling thermal imaging paints LABIR Paints sold to TIMI CREATION, s.r.o. https://paints.labir.cz/en https://timic.cz/homepage/paints
Functional sample	2022	Lang V., Klepáček J., Kohlschutter T., Smeták L.: A functional sample of a thermal camera system for accurate measurement of the core temperature of people in the conditions of outer environment RIV/49777513:23640/22:43967577
Functional sample	2022	Lang V., Honner M., Jáchim J., Klepáček J., Kohlschutter T., Šroub J., Nová K., Soutner Š.: A functional sample of the research-educational measuring system for the demonstration of the use of thermal cameras in the activities of HZS, PČR, ZZS and KHS RIV/49777513:23640/22:43967579
Expert study	2022	Špička J., Čermák M.: Forensic analysis and a new investigation into the death of the Czechoslovak Minister of Foreign Affairs in 1948, RIV/49777513:23640/22:43969060
Software	2022	Cimrman R.: Hoofstats, RIV/49777513:23640/22:43967522
Research report	2022	Čechová H., Havelková L., Hynčík L., Jansová M.: Creation of the geometry of the supporting structures of a detailed model of the pelvic floor of a woman based on MRI and the correlation of the internal and external dimensions of the bony pelvis, RIV/49777513:23640/22:43967943
Domestic patent	2022	Honner M., Muzika L., Šroub J.: Method for inspection of welds, in particular spot welds, Patent CZ 309 174 RIV/49777513:23640/22:43967589
Domestic patent	2022	Honner M., Skála J., Tesař J.: A method for measuring area distribution of emissivity of the material surface, Patent CZ 309 252, RIV/49777513:23640/22:43967592
Functional sample	2023	Charvát J., Pcedič j., Svoboda M., Vrána J.:80ty cell stack of vanadium flow battery RIV/49777513:23640/23:43971396

Functional sample	2023	Kraft S., Martan J., Moskal D., Schille J., Honner M., Lang V., Skala J., Loeschner U.: Functional sample of highly productive laser system for texturing of surface with fast temperature monitoring during the process RIV/49777513:23640/23:43971098
Functional sample	2023	Dlouhá Ž., Vostřák M., Houdková Š., Matějček J., Mušálek R., Kraft S., Schille J., Martan J.: Functional sample of Stellite 6 coating applied by HVOF method on a laser textured substrate, 2023, RIV/49777513:23640/23:43971105
Research report	2023	Bońkowski T., Hynčík L., Talimian A., Vychytil J.: Technical Report: Safety Assessment of an L5 Vehicle Concept, RIV/49777513:23640/23:43970744
Research report	2023	Hynčík L., Špička J., Vychytil J.: Expert opinion on various possible variants of falling from the roof using a biomechanical human model and mathematical simulation, 2023, RIV/49777513:23640/23:43970646
Domestic patent	2023	Bońkowski T., Hynčík L.: A helmet with a multi-directional suspension system and a helmet assembly procedure, 2023 RIV/49777513:23640/23:43971054
Domestic patent	2023	Honner M., Muzika L., Skála J.: Laser thermographic system workspace cover, Patent CZ 309719. 2023 RIV/49777513:23640/23:43971162
Domestic patent	2023	Honner M., Lang V., Švantner M., Šroub J., Kohlschutter T, Klepáček J.: Equipment for thermographic temperature measurement, Patent CZ 309718, 2023 RIV/49777513:23640/23:43971165
Utility model	2023	Křenek T., Pola J., Pola M., Vála L.: A device for laser functionalization of porous materials in liquid and gaseous environments, PUV2023-40992, 2023 RIV/49777513:23640/23:43971655
Prepared license contract	2023	Female pelvic floor model https://1url.cz/81P6Q
Verified technology	2023	Svoboda M., Šnita D.: Line for recycling nickel-cadmium batteries, RIV/49777513:23640/23:43971487

Note 1: Please list and describe the results already applied in practice or heading towards application in practice with existing or prospective impact on the society (e.g. domestic or foreign patents, sold licenses, spin-offs, prototypes, varieties and breeds, methodologies, significant analyses, surveys, expert outputs for policymaking or other forms of non-publication outputs, etc.). Indirect results of research, development and creative activities with documented societal impact, e.g. expert activities, services to the public/government/scientific community, may also be reported.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

The evaluated unit shall briefly describe its system for transferring results into practice. It shall also indicate up to five of the most typical users of its results, whether in the university environment or in the non-university application/corporate sphere, detailing how it collaborates with them and how it seeks out new users (using a maximum of five specific examples).

It will also indicate whether and how it commercialises R&D&I results (e.g. selling licences, setting up start-up or spin-off companies, etc.)³¹, providing brief description of the commercialisation methods used. The effectiveness of the transfer of results and the commercialisation of R&D&I results will be described using a selection of results (max. five) listed in annex table (Table 3.4.1).³²

Additionally, the evaluated unit shall briefly comment on the funds received during the period of 2019–2023 from non-public, non-grant sources (e.g. licences sold, spin-off revenues, donations, etc.). A full summary shall be provided in annex table (Table 3.5.1).

Maximum 500 words plus 200 words for each provided example of finding a new user of results and commercialization.

Self-assessment:

The system for creating results: The requirements of the application sphere are continuously analyzed. To do this, we interact with representatives of the application sphere in the form of participation in professional societies, participation in user meetings, representation in professional platforms and cooperation networks, and, last but not least, personal meetings with representatives of companies and research organizations. Building our technical know-how consists of using solved projects and contracts and the use of institutional resources to increase the knowledge and competencies of NTC sub-teams and in the development of instrumentation (purchase and development of hardware and software). Intellectual property protection is provided in the form of patents and utility models (national and international, NTC cooperates with several patent offices), in the form of implementation of new procedures in its software or methodologies for using NTC technical equipment for customers. The creation and transfer of results are contractually secured through NDAs, cooperation agreements, and license agreements. Information about the offer of results for transfer and marketing is provided in the form of organizing workshops for potential users of the results, in the form of presentations of results at professional conferences, in the form of an annual report, the form of websites, and in communication through social networks.

The system for transfer of knowledge: NTC uses various forms to transfer results, about the nature of the result and its potential for application in practice. One form is establishing spin-off/start-up companies to commercialize the results. In the past, NTC employees founded the start-up Pinflow energy storage (<http://www.pinflowes.com/about.html>), with which close cooperation and implementation of results in energy storage systems takes place. In 2020, the spin-off TIMI CREATION (<https://www.timic.cz>) was established to commercialize the results in the field of infrared technologies, which is dedicated to the production and distribution of educational thermal cameras and the worldwide sale of thermal imaging paints developed in NTC. Other results, such as thermographic or computer software, are transferred directly to manufacturers or end users. In all these cases, the transfer takes the form of license agreements. Another form of transfer of results

³¹ In the case of military HEIs, their specific position is taken into account when evaluating the commercialisation/evaluation of R&D&I results.

³² If the commercialisation of R&D&I results is carried out in this way.

into practice is the offer of R&D services. It typically concerns analyses of material or component samples on NTC devices or computations of mechanics and CFD tasks on NTC systems. In the period 2019-2023, NTC handled the application of results for 90 companies (of which 18 were foreign) in a total volume of CZK 63 million/ EUR 2.5 million (see Table 3.3.2). References include the application of results in companies such as Aremco Products, CiS Forschungsinstitut für Mikrosensorik, Continental Automotive Czech Republic, Daikin Industries Czech Republic, Frentech Aerospace, Kingspan, PLZEŇSKÝ PRAZDROJ, Red Bull Technology, ŠKODA AUTO. Another form of transfer is the implementation of knowledge in professional training. These trainings take place in the UWB Lifelong Learning mode and are paid. From 2019 to 2023, several runs of accredited courses in Technician Diagnostics - Thermography took place throughout Europe per ISO 18436. NTC is an approved training facility of the Association of Technical Diagnosticians of the Czech Republic.

The project **Pre-application research of infrared technologies** (acronym LABIR-PAV, provider of MEYS within the call OP VVV ITI, No. CZ.02.1.01/0.0/0.0/18_069/0010018, 2018 - 2022) was focused on the implementation of pre-application research in the field of infrared technologies. The output is NTC's internal methodology on effective transition from new ideas to innovative research results with the potential for use in the application sphere to their commercialization in the form of contract research and knowledge transfer. Within the project, 35 sub-topics were addressed, of which 3 topics have already reached the commercialization stage. These are thermal imaging paints (result of international importance, transfer license), educational thermal camera (transfer license) and non-contact inspection of spot welds (transfer license). Other results were transferred to follow-up projects (measurement of heat accumulation during laser texturing, thermal imaging systems for monitoring human temperature and monitoring the development of the epidemic). The output of the project is also 6 applications for inventions that have already been granted a Czech patent, the process of granting a European patent is underway and commercialization is being prepared.

The project Pre-application research of infrared technologies (acronym LABIR-PAV, provider of MEYS within the call OP VVV ITI, No. CZ.02.1.01/0.0/0.0/18_069/0010018, 2018 - 2022) was focused on the implementation of pre-application research in the field of infrared technologies. The output is NTC's internal methodology on effective transition from new ideas to innovative research results with the potential for use in the application sphere to their commercialization in the form of contract research and knowledge transfer. Within the project, 35 sub-topics were addressed, of which 3 topics have already reached the commercialization stage. These are thermal imaging paints (result of international importance, transfer license), educational thermal camera (transfer license) and non-contact inspection of spot welds (transfer license). Other results were transferred to follow-up projects (measurement of heat accumulation during laser texturing, thermal imaging systems for monitoring human temperature and monitoring the development of the epidemic). The output of the project is also 6 applications for inventions that have already been granted a Czech patent, the process of granting a European patent is underway and commercialization is being prepared.

An example of contract research is a cooperation with a major company in the field of automotive engineering (name cannot be stated, limited by NDA), which took place throughout the monitored period 2019-2023 and in the volume of CZK 18 million. CZK / 700 thousand EUR. This research support of a regional industrial partner (multinational company) had a significant international overlap within the solution of sub-projects for its foreign branches. The projects were focused on advanced CFD analysis, including the use of progressive gridless computational methods on powerful GPU stations. These were mostly multiphysical tasks with the necessary interdisciplinary approach. The results of the sub-projects were applied and used in its products in the field of advanced mobility. This is a support in the field of applied research with immediate application in practice. This is entirely in line with NTC's mission and vision, which focus on smart mobility,

environmental aspects and quality of human life, as well as partnerships with progressive global companies. The cooperation also included mentoring support from NTC, which contributed to the transfer of knowledge from the research environment to the application sphere and thus complemented the educational role of NTC.

An example of licensing is the cooperation with Nimetal, spol. s r. o. in the field of recycling of cadmium metal from used NiCd batteries. Based on a cooperation agreement, in 2019-2023, the NTC research team developed a technological line for the hot-dip processing of various types of nickel-cadmium batteries, which was built for Nimetal on its premises in Ústí nad Labem. On this line with a batch capacity of 500 kg, operational tests were carried out to optimize the line's structural elements, operating parameters, but also to measure the emissions that occur. All the knowledge and data obtained from the experimental operation were used by Nimetal in submitting the "Technological Line for Accumulator Processing" (EIA) Plan. The plan, which includes the construction and operation of three other similar furnaces, is now in the process of approval. The line will change its status from experimental to commercial operation and Nimetal will pay fees to UWB according to the concluded license agreement, which, however, are subject to trade secret. The implementation and the operation of the facility will make it possible to better comply with the provisions of EU and Czech legislation in waste management.

An example of the commercialization of products is LabIR Paints (<https://paints.labir.cz/en>) thermographic paints. These are specially designed paints with high emissivity in the infrared spectrum. The paints are intended as a supplement for thermodiagnostic measurements with thermal cameras and therefore have a suitable combination of physical properties for local or general treatment of the measured surfaces. The development took place at NTC within various projects for more than 8 years and included analyses of photo-thermal properties using NTC-developed analytical instruments and the start of sales and distribution of products to customers worldwide. In 2019, the washable paint was evaluated according to the national methodology for evaluating excellent results M2017+ as a result of category I - world leading. In view of the growing global sales, it was subsequently decided to transfer, which was concluded by signing a license agreement with the UWB spin-off TIMI CREATION in 2021 (<https://www.timic.cz/homepage/paints>). Currently, LabIR Paints is distributed by TIMI CREATION (worldwide and Czechia), THERMAL FOCUS (Benelux countries), APLITER TERMOGRAFIA (Spain) and ETINSTW (Taiwan). References include companies such as ABB, BLUE ORIGIN, DANFOSS, DLR, HP, ONERA, ONSEMI, RED BULL RACING, ROLLS ROYCE, etc.

An example of software is SfePy (Simple Finite Elements in Python) - open-source software for numerical solution of partial differential equations using the finite element method. It is written in Python and allows you to solve various problems such as continuum elasticity, thermal analysis, piezo-elasticity, and other multiphysics (<https://sfepy.org/doc-devel/index.html>) problems. Its main author is NTC employee Robert Cimrman. SfePy is popular among researchers and engineers due to its flexibility, modularity, and easy extensibility. Users can define their own equations, boundary conditions, or implement new calculation methods. The software is compatible with popular libraries such as NumPy, SciPy, and Matplotlib, making it easy to analyse the results. Publications on SfePy have over 50 citations with applications ranging from biomechanics to nuclear reactors for space research or topological optimization to the calculation of electronic structures in quantum mechanics. Around the world, SfePy is mainly used in academia for research and teaching. It is also used by small engineering firms and independent developers to solve specific problems. The community contributes to the development of new features, documentation, and bug resolution, making it a vibrant project.

Table 3.5.1 - Summary of non-public revenues received during the period under evaluation

Type of revenue	Revenue (in thousands CZK/EUR)				
	2019	2020	2021	2022	2023
License for know-how to measure fast processes in laser technology research (Aalen University)				41 / 1,630	
License to use measurement software (Eurometalgroup s.r.o.)		8 / 326			
License to use software PD (LaserTherm spol. s r.o.)	10 / 391	10 / 391	10 / 391	10 / 391	10 / 391
License for LabIR NDT thermographic measurement and analysis software (Vysilacky24.cz)		62 / 2,445			
License to use a vanadium battery stack (Pinflow energy storage, s.r.o.)			21 / 824	125 / 4,931	125 / 4,931
License to use LabIR thermography software (Thermal Focus BVBA)	61 / 2,418	172 / 6,768	66 / 2,591		66 / 2,587
License for know-how to the production of thermal imaging cameras and the LabIR brand (TIMI CREATION s.r.o.)			48 / 1,874	25 / 986	35 / 1,381
License to verified technologies achieved in the NCKS project (Wikov Gear s.r.o)					12 / 473
Donation to support biomechanics (John H. and Amy B. Lawrence Foundation)	452 / 17,830	508 / 20,044	314 / 12,372	255 / 10,057	174 / 6,879
Donation for development of protective equipment against COVID-19 (SDH Brnířov)		10 / 394			
Donation for workstation (Škoda Auto)		175 / 6,903			
Donation for development of brake stand (Škoda Auto)			200 / 7,890		
Donation to support educational platform LabIR Edu (LabIR Edu)				10 / 394	
Donation to support accident analyses (Jan Stluka - kancelářský nábytek)				100 / 3,945	100 / 3,945
Donation to support educational platform LabIR Edu (Robert Bosch)					
Total	523 / 20,640	945 / 37,272	658 / 25,941	566 / 22,335	522 / 20,587

Note: Enter funds raised for R&D&I from non-public sources besides grants or contract research (e.g. licences sold, spin-off company revenues, donations, etc.) in the calendar year.

POPULARIZATION OF R&D&I

3.6 The most important activities in the field of popularization of R&D&I and communication with the public

The evaluated unit shall briefly describe its main activities related to the popularisation of R&D&I and communication with the public (e.g. popularisation lectures, citizen science initiatives, etc.) during the period of 2019–2023 and provide up to 10 examples that it considers the most significant.

Maximum 500 words plus 200 words for each example given.

Self-assessment:

NTC promotes R&D&I and public outreach, both in collaboration with the UWB and through its own initiatives.

Since mid-2021, NTC has managed a LinkedIn profile for industrial outreach (1,840 followers by 12/2023) and a Twitter/X account (500 followers) targeting journalists and policymakers. It shares research via INFO UWB (university news), its website, and Vědavýzkum.cz portal. NTC's work has gained national and international media attention. Among its most significant media successes are the Ministry of Industry and Trade award for the innovative furnace project for NIMETAL (2021), the Neuron Prize awarded to the spin-off company Pinflow Energy Storage (2022), and nationwide media coverage of the QM4ST project, alter magnetism and the appointment of NTC Director Petr Kavalíř as the Special Envoy for Quantum Technologies in 2023.

NTC actively contributes to expanding publicly accessible knowledge about technologies and sustainable development. It engages in lifelong learning, STEM promotion, and science events such as Robotics Competition ROBO, Science and Technology Days, and Researchers' Night under the UWB umbrella brand. Independently, it organizes annual school excursions and has participated in various festivals, including BLIK BLIK (2020), Innovation Week (2021), and Maker Fair (2022), focusing on science popularization.

In 2023, NTC contributed to Digital Czech Week with a lecture on quantum technologies and launched a public lecture series on quantum physics and technologies. A close collaboration has been established and continues with the Techmania Science Center in Pilsen, where NTC, for example, organized the National Biomechanics Day (2019), installed IR cameras during the pandemic (2020–2021), and created a new exhibition on infrared technologies in 2022. Collaboration also extends to Pevnost poznání in Olomouc, Sluňákov, NVIAS, and other organizations.

Since 2018, NTC has upheld HR AWARD standards and joined UWB's Gender Equality Plan (GEP) in 2022.

EXAMPLES OF EVENTS:

First Workshop for Teachers - Girls' Labs Project – (December 10, 2023)

The first workshop of the Girls' Labs project, led by NTC, took place in Řevnice. It was designed for secondary school teachers and focused on motivational STEM programs for female students. The project, co-funded by the EU (OPZ+), aims to break gender stereotypes and inspire girls in science and technology.

NTC introduced the workshop, followed by a session on gender-sensitive education by the NORA Gender Information Centre. Teachers explored using infrared (IR) cameras as an innovative STEM teaching tool. The second day covered gender stereotypes and inclusive teaching methods.

IR cameras were highlighted for visualizing complex physical and chemical phenomena. The event also featured Assoc. Prof. Ľubomíra Valovičová (Constantine the Philosopher University, Nitra, Slovakia) is an expert in science popularization and physics education.

The Girls' Labs project will continue with further activities to support teachers and students in STEM.

Quantum Lectures by Former UWB Rector – Digital Czech Week (November 24–25, 2023)

Assoc. Prof. Miroslav Holeček, former UWB rector, delivered lectures on quantum computing and the Second Quantum Revolution during Digital Czech Week.

One lecture explained quantum computing's vast potential beyond classical computing, its fundamental principles, and current development challenges. The second lecture introduced quantum physics, quantum phenomena, and applications across various fields. The talks were designed to be accessible even to those without a physics background.

The lectures, held at NTC and the SKLEP University Club, marked the start of a broader series on quantum technologies, which NTC continues to organize.

NTC at the Prestigious Les Houches Physics School (2021 – 2023)

Since 2021, NTC at the University of West Bohemia, led by Ján Minár, has co-organized the École de Physique des Houches, a renowned summer school in France. Managed by Université Grenoble Alpes, the school brings together young scientists and world-class experts.

In 2021, Minár's team proposed a program on Green's Functions in Electronic Structure Calculations, followed by SUCCESS 2022, focusing on spectroscopy of correlated electronic systems. In 2023, Minár, alongside Didier Sébilleau and Patrick Rinke, introduced a new program combining density functional theory (DFT), Green's functions, and machine learning in spectroscopy.

NTC's involvement provides young researchers access to cutting-edge physics education and global collaborations, reinforcing its position in advanced materials research.

Solar Butterfly and a Lecture on Redox Flow Batteries (September 6, 2022)

On September 6, the Solar Butterfly team, a Swiss initiative promoting renewable energy, visited the UWB in Pilsen. The Solar Butterfly mobile home, powered by solar panels, serves as both a showcase of sustainable technologies and a power source for electric vehicle towing.

The event drew high school students and Boot Camp summer school participants from the Faculty of Applied Sciences. Visitors explored the Solar Butterfly and attended a presentation on its mission and renewable energy.

A workshop at the Faculty of Electrical Engineering followed, where Jiří Vrána (NTC) introduced innovative battery systems for transportation and energy. Jan Řeboun (UWB) explained concentrated photovoltaics, while Ladislav Sobotka (Škoda Electric) discussed zero-emission mobility, including hydrogen buses and hybrid trains.

The event sparked discussions on sustainable energy and transportation solutions.

Infrared Technology Exhibition at Techmania Science Center (June 18, 2022)

On June 13, 2022, Techmania Science Center unveiled the exhibition IR – When the Human Eye Is Not Enough, developed under the BETERKA project, funded by the Czech Ministry of the Interior. Led by Milan Honner from NTC, the project explored using infrared (IR) cameras in crisis management, including detecting fire-prone areas and identifying individuals.

The exhibition featured applications of IR cameras in security and emergency response, hands-on demonstrations of resuscitation techniques, and displays by police, firefighters, and paramedics. The opening event brought together academic representatives, local government, and rescue services.

Designed by Štěpán Soutner from the Ladislav Sutnar Faculty of Design and Art, the exhibition showcased how scientific innovations enhance public safety. Collaboration between NTC and Techmania strengthened science communication, making cutting-edge research accessible to the public.

HIGREEW Project Workshop on Redox Flow Batteries (RFBs) (March 2–3, 2022)

The HIGREEW Project Workshop on redox flow batteries (RFBs) occurred in Plzeňský Prazdroj's Grand Hall on March 2–3, 2022. Organized by NTC in collaboration with CIC energiGUNE, Uniresearch, and Pinflow Energy Storage, the event attracted 60 in-person and 160 online participants.

Funded by European grants, the HIGREEW project develops high-energy-density, eco-friendly RFBs. The first day was open to the public, while the second day focused on expert discussions. Notable speakers included Peter Fischer (Fraunhofer Institute), Anthony Price (Flow Batteries Europe), and Michael J. Aziz (Harvard University). NTC researchers, including Miloš Svoboda and Jiří Vrána, presented project findings, contributing to discussions on the future of energy storage.

The workshop underscored RFBs' potential in the energy transition, bringing together researchers, industry leaders, and policymakers.

Medical Thermography Diagnostic Technician Course – 2020

Developed in response to the COVID-19 pandemic, this course provided professional training in using IR cameras to measure body temperature in high-density environments such as hospitals, schools, and businesses. Created in collaboration with the Faculty of Health Care Studies at ZČU, it addressed both technical and health-related aspects of thermographic diagnostics.

Participants learned to operate thermographic equipment, minimize measurement errors, evaluate thermograms, and detect potentially infected individuals. The curriculum also covered the organization of measurement procedures and the safe handling of personal protective equipment.

The three-day (26-hour) training included sessions on thermographic technology, thermogram evaluation, thermoregulation basics, and first aid. It was designed for professionals responsible for health monitoring and the course qualified graduates to conduct temperature diagnostics following recognized procedures. The training proved particularly valuable in crisis scenarios and environments with high concentrations of at-risk individuals.

Infrared Cameras for Schools – LabIREdu (Activities 2019–2023)

The project LabIREdu, launched in 2019, aimed to popularize STEM education through affordable IR camera technology for schools.

2020: The prototype was tested in workshops with Elixír do škol. SPIE grants enabled IR camera loans to Pilsen region schools, alongside summer outreach and teacher training.

2021: The project expanded across the Czech Republic, training 230+ teachers and engaging 2,800+ students. Collaborations with Valeo, Bosch, and Pevnost poznání led to new implementations. The Termotalent competition was launched.

2022: The distribution network became nationwide, and the project gained international visibility. Specialized educational materials were introduced.

2023: The project focused on e-learning development and structured educational resources. Public and commercial collaborations continued. More at <https://edu.labir.cz>.

Science Café, Brussels – Biomechanical Models of the Human Body (October 3, 2019)

Held at the Pilsen House in Brussels, this Science Café was organized by the Czech Liaison Office for Research, Development, and Innovation (CZELO) and partners. Assoc. Prof. Luděk Hynčík, then Vice-Rector for Research at UWB, led the discussion on impact biomechanics and human body modeling.

The event explored differences between digital models and crash test dummies, highlighting advancements in motorcycle helmet safety, healthcare applications, and biomechanics for autonomous vehicles. Challenges in model validation and the future of biomechanical research were also discussed.

Traditional partners of Science Café included the Czech Centre in Brussels, the Czech Embassy, and regional representations from South Moravia, Pilsen, and Prague.

National Biomechanics Day – Techmania Science Centre, Pilsen (April 10, 2019)

Organized under the Czech Society for Biomechanics, in cooperation with UWB, this event focused on knee biomechanics. Eight student teams participated in interactive stations before assembling a functional knee model. A girls' team from Hořovice Elementary School won the competition.

The program featured expert lectures: Vít Nováček (NTC UWB) on "The Adventures of a Biomechanist" and Libor Lobovský (FAS UWB) on sacral fracture fixation. Experts from Zdravekoleno, Ottobock, and Mindball provided insights.

The event attracted 606 visitors, with 202 actively engaging in workshops. The event followed the tradition of the American Society of Biomechanics, inspiring young scientific talents.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

The evaluated unit will briefly describe how it has implemented the recommendations for Module 3 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

NTC has accepted all recommendations of the previous international evaluation panel and has taken appropriate steps to implement them. Responses to each recommendation are provided below. Note that the limit of 1000 words does not include specific recommendations (by bold italic).

Several collaborative applied research projects demonstrated a very active link with Bavaria. However, projects supported by a provider from another country could be probably strengthened:

NTC leveraged the connections of its experts (see paragraph 3.2) and focused not only on cross-border cooperation projects, but also on the entire European research area. It managed to obtain not only **other cross-border cooperation projects**, but also several **new projects from the Horizon Program**. A significant achievement was the **ERC CZ** project based on a successfully evaluated **ERC** project as well as the **Horizon MSCA projects**, which, in addition to fostering professional development, enabled NTC to strengthen its capacities by bringing in international experts (Ph.D. students and postdocs). Collaboration also expanded beyond Europe e.g. transport safety within the framework of a prepared project with Great Britain and Thailand within the framework of the Royal Academy of Engineering project or the prevention of birth injuries within the framework of a prestigious internship at **The University of Western Australia**. It is also important to highlight key collaborations that have facilitated networking and the acquisition of high-profile projects, such as the partnership with EPFL Lausanne, where NTC researchers are co-authoring prestigious publications in top-tier journals focused on physical sciences. A renowned professor from EPFL Lausanne is also member of the NTC Scientific Council.

The income of contract research from international companies could probably be matter for an attempt to increase it:

NTC has focused on global commercial companies whose subsidiaries operate in the Czech Republic. An example is the development of collaboration with a major company in the field of automotive engineering (name restricted due to NDA), which has also become a significant source of revenue from commercial activities.

To maintain the capability to attract large research contracts:

NTC has established significant research contracts (from both an economic and scientific perspectives) with the above-mentioned company in the field of **automotive engineering** or with the companies **ČEZ a.s.** and **Nimetal s.r.o.** For the latter, NTC has developed a new solution for recycling cadmium from used NiCd batteries, from which significant license fees will come in the following years.

To put in actions activities to increase the income from non-public sources (besides grants or contract research) from research work:

NTC has developed relations with the **John H. and Amy Bowles Lawrence Foundation**, USA, which has financially supported NTC during the evaluation period in the field of biomechanics, specifically traffic safety and childbirth injury prevention. It has also managed to obtain several financial donations from **Škoda Auto a.s.** and **Robert Bosch**, which indicates the importance of NTC work and results for these recognized companies.

To try to increase the average size of the contracts mentioned in point 3.3 in order to increase the income and reduce the administrative burden:

Here it is necessary to mention again the above-mentioned companies in the field of **automotive engineering** and **ČEZ a.s.**, for which the amount of contract research reached 23 million CZK for the evaluation period, and the company **Nimetal s.r.o.** with significant future potential with regard to license fees.

The web page [www.pinflowes.com](http://pinflowes.com) was not reachable when we tried:

The website <http://pinflowes.com> is active and contains all the information about this startup. Pinflow is a major partner of NTC, from which NTC also receives licensing fees.

The only recommendation for applied and significant research results with economic and non-economic impact on society is to keep working to produce more results and more papers. Sometimes it is not easy to assess the real potential to produce some income. In the next self-assessment, information with more quantitative details should be added:

In the evaluation period, NTC focused on state of the art topics in the field of physics (advanced and quantum materials), in the field of biomechanics applied on personalized medicine (injury prevention), developed materials chemistry as a field missing at UWB (battery storage and fuel cells), infrared technologies (with applications to industry and healthcare) and strengthened connections to commercial companies with regard to optimizing income from grant projects and contract research. NTC focused on the quality of publication results (with a focus on D1, Q1, Nature and Nature Communications) and also created a number of significant non-publication results useful in the commercial sector and the public sphere (see Table 3.4.1).

Recommendation to the most significant interactions with the non-academic application / corporate sphere, system and support of technology transfer and intellectual property protection and strategy for setting up and support of spin-off firms or other forms of commercialization of R&D&I results: Interactions of NTC with the private sector are considerable, they might be relying too much on just one single company, Skoda Automobile, so diversifying by starting collaborations with other companies or institutions would be a positive step:

NTC has diversified its portfolio, or rather expanded it by other companies (a recognized company in the field of automotive engineering, ČEZ a.s., Nimetal s.r.o.).

NTC is at the beginning of exploiting economically the transfer of knowledge, the initial steps are very promising, the future will tell us if the desired outcomes have been obtained. This aspect of university activities requires a lot of effort and can produce unsatisfying results. An advice could be to get in contact with some European or American universities that have more experience on supporting technology transfer and intellectual property protection:

During the evaluation period, NTC has visited TTOs, e.g. at Holon Institute of Technology, Bar Ilan University and Ariel University (Israel), SAE International (USA) or The University of Western Australia, from where it received valuable advices for the technology transfer. Those advices were applied, e.g. when establishing a new startup Timmi Creation s.r.o. or during licensing negotiations with Nimetal s.r.o.

Recommendation to the most significant individual awards for R&D&I and recognition by the international R&D&I community: An advice is to put in place initiatives such as the one that recruited Prof. Minár to attract other good scientists:

During the evaluation period, NTC recruited Prof. Alex Schechter from Ariel University in Israel on a part-time basis, with whom a joint laboratory on renewable energy sources with a focus on fuel cells was established. In this area, with a focus on chemistry, another recognized expert with a global reputation Prof. Martin Pumera has been working at NTC since 2022. He is building an international research team in the new laboratories developed by NTC.

Moreover, although the list of faculty members invited to the NTC is significant, the list can be improved to numerous well-known scholars in the field from outside Europe such as Australia, US and China:

NTC has also focused on territories outside the European research area. In 2019, it organized an international workshop, to which recognized speakers from USA (Ford, SAE), Korea and China were invited. During the evaluation period, a number of invited lectures by experts from USA, Australia and other European and non-European countries took place at NTC.

No particular recommendation to the most significant activities in the popularisation of R&D&I and communication with public, NTC should just keep doing what they are doing:

Although the international evaluation panel did not provide any specific recommendations for these activities, NTC strengthened its image on social media. It regularly communicates its activities on social media and in other regional and national media. It has 1,837 followers on LinkedIn and 491 followers on Twitter at the end of the evaluation period.

Overall rating (further summary recommendations):

Increase the research funds by increasing non-public sources and interacting with more than one single private sector company like Skoda Automobile:

As summarized and described above, a recognized company in the field of **automotive engineering**, **ČEZ a.s., Nimetal s.r.o.**

Increase the collaboration also with non-European universities/research centres:

As summarized and described above, projects within the Horizon Programs (European Research Area), The Royal Academy of Engineering (cooperation with Thailand), The University of Western Australia.

Increase the research outcome and publications, e.g., by recruiting more research staff:

As summarized and described above: exploitation of Horizon MSCA projects thanks to Prof. Minár, recruitment of new excellent scientists (Prof. Schechter, Prof. Pumera).

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 3

Document name	No. criteria	Location (link in HTML)
Web site	3.1	https://www.ntc.zcu.cz/en
Statute	3.1	https://1url.cz/B1cl5
Research teams	3.1	https://www.ntc.zcu.cz/en/Research/index.html
Organisation structure	3.1	https://www.ntc.zcu.cz/en/About_us/Organizational_structure.html
Scientific Council	3.1	https://www.ntc.zcu.cz/en/About_us/Scientific_council.html
HR Award	3.1	https://www.ntc.zcu.cz/en/About_us/HR_AWARD.html
Gender Equality Plan	3.1	https://www.ntc.zcu.cz/en/About_us/Gender_Equality
Strategic implementation plan 2022	3.1	https://1url.cz/q1cdX
Strategic implementation plan 2023	3.1	https://1url.cz/h1cNk
Annual report 2019	3.1	https://1url.cz/01cNT

Annual report 2020	3.1	https://1url.cz/B1cNj
Annual report 2021	3.1	https://1url.cz/q1cNd
Annual report 2022	3.1	https://1url.cz/V1cN4
Annual report 2023	3.1	https://1url.cz/41cND
Strategic plan of the Ministry for Higher Education for the period from 2021	3.1	https://1url.cz/V1P65
OECD Quantum Technologies Policy Primer	3.1	https://1url.cz/s1P6X
The most important invited lectures delivered by the academic staff of the evaluated unit at foreign institutions during the evaluation period	3.2	https://1url.cz/z1P6S
The most important lectures by foreign scientists and other guests relevant to R&D&I at the evaluated unit during the evaluation period	3.2	https://1url.cz/61P60
Involvement in the evaluation of national/European research project/programme calls relevant to the R&D&I area at the unit during the evaluation period	3.2	https://1url.cz/r1P6v

MODULE 4:

VIABILITY

SELF-EVALUATION REPORT FOR MODULES 4 AND 5

HIGHER EDUCATION INSTITUTION NAME: UNIVERSITY OF WEST BOHEMIA IN PILSEN

COMPANY REGISTRATION NUMBER (CRN): CZ49777513

MODULE 4 – VIABILITY

ORGANISATION AND MANAGEMENT OF R&D&I

4.1 Organisation and management of R&D&I

The HEI will briefly describe its organisational structure¹ and describe the R&D&I management system including the role of the HEI's central management, the management of faculties, and the HEI's institutes in organizing and managing R&D&I. It should also describe the role and structure of the technical and economic apparatus.

Maximum 1000 words.

Self-assessment:

In general, the [organizational structure of the University of West Bohemia](#) in Pilsen (UWB) is divided into several main levels and components that ensure the effective management and functioning of the University. In accordance with the [Statute](#) of the University of West Bohemia in Pilsen, the [Organizational Regulations](#) set out the general principles of organization and management at the University of West Bohemia in Pilsen, the organizational structure of UWB, the competences and responsibilities of the individual units of UWB and the Rectorate, and the organizational structure and professional activities of the Rectorate. UWB is a public higher education institution, and its organizational structure complies with the legal requirements and needs of the University. The Rector is the highest representative of the University and is responsible for its overall management and representation, and is elected by the UWB Academic Senate. The Vice-Rectors are responsible for specific areas such as studies, science and research, external relations, strategy and development. The Bursar is responsible for the economic and operational affairs of the University and the Chancellor provides administrative support to the University management. The Academic Senate is a self-governing body comprised of elected representatives of academic staff and students. It has legislative and control functions, approves the budget and strategic documents, and elects the Rector. The Scientific Council is an advisory body to the Rector and is comprised of prominent scientific and professional figures. It deals with matters of science, research and education. The Board of Directors is the supervisory body that oversees the management of the University and the fulfillment of its mission.

Until the end of 2024, UWB had 9 faculties and 2 university institutes (from 1 January 2025, there is only 1 university institute), which are the basic organizational units conducting educational and scientific activities. Each faculty has its own management, which consists of the Dean of the Faculty and Vice-Deans who are responsible for specific areas, such as studies, science, development, foreign relations, etc. The Academic Senate of a faculty is the self-governing body of the faculty and oversees the financial management of the faculty and the fulfillment of its mission. In the case of a university institute, it is headed by the Director of the institute, who appoints his/her responsible deputies for important areas in terms of the institute's focus.

¹ A graphical representation of the organisational structure will be provided as an annex.

The science and research management system at the University of West Bohemia in Pilsen is a key part of the strategic development of the University. This system is designed to promote excellence in research, efficient use of resources, interdisciplinary collaboration and internationalization.

The main responsibility for science, research and innovation at the university level lies with the Rector, with operational and methodological management falling under the Vice-Rector for Creative Activities and Doctoral Studies (PR-V), who coordinates the strategy, priorities and the focus of research activities. Based on current regulations approved by the University governing bodies, the PR-V is responsible for supporting the long-term conceptual development of the research organization (LCDRO), incentive systems and knowledge transfer. The PR-V is responsible for the activities of the Division of Research, Development and Knowledge Transfer (VVT), which is divided into the Department of Research and Development (VYZ) and the Department of Knowledge Transfer and Contract Research (TSV), as well as the activities of the Project Center, which is further subdivided into the Department of Project Administration, the Department of University-wide Project Management and PC Administration.

The Division of Research, Development and Knowledge Transfer is responsible for proposing the allocation of subsidies for specific university research and for the long-term conceptual development of the research organization for the purposes of preparing the UWB budget. It administers the grant system and ensures the activities of the grant committee. It also organizes the habilitation and appointment procedures at UWB and the agenda of the UWB Scientific Council. It also organizes the evaluation of the quality of creative activities, habilitation and professor appointment procedures, and processes statistical data for research and development. It manages the agenda of intellectual property, knowledge transfer and contract research.

The Project Center ensures the administration of projects implemented at UWB. It provides methodological support to project leaders, manages project records and project documentation, searches for, publishes and notifies units of project opportunities. It is also responsible for the preparation of projects of university-wide or strategic significance and ensures their project management.

The highest body for R&D is the [Scientific Council](#) (VR), which consists of the Rector and 41 other members appointed for the Rector's term of office, where at least 1/3rd of the members are from outside the University. The members of the VR are prominent representatives of academia and industry with international connections. The VR reviews scientific activities and proposals for the appointment of professors and supports the development of scientific priorities. Each unit of UWB also has its own scientific or art council, some of which include experts from abroad (NTC). For example, the FME has an Industrial Council established beyond the scope of the law. UWB also has three faculty research centers, namely the European Center of Excellence New Technologies for the Information Society (NTIS), which is part of the FAS, the Research and Innovation Center for Electrical Engineering (RICE), which is part of the FEE, and the Regional Technology Institute (RTI), which is part of the FME.

The advisory body of PR-V is the Vice-Rector's Board, which consists of Vice-Deans and representatives for R&D from individual units of UWB. These members of the Board are responsible for R&D in their units and are directly linked to their science and research departments or directly to the research teams.

For the development of international and interdisciplinary cooperation, a group of representatives of the units of UWB for international project activities has been established, which is tasked with expanding and enhancing international cooperation and the involvement of the units of UWB and their research teams in these activities on the basis of information from the Project Center.

R&D&I QUALITY MANAGEMENT AND SUPPORT SYSTEM

4.2 System of support for a quality R&D&I environment and incentive measures for quality science

The HEI will briefly describe the systemic incentive measures/tools to support quality R&D&I (if applicable). For each measure/tool described, an example will be provided to illustrate the effectiveness of the measure/tool in practice (e.g. number of projects supported by internal grants, statistics on the use of advisory systems, number of newly established research teams, etc.). The description will pay particular attention to:

- A system of support for attracting national and international projects of projects.
- A system for project consultancy/management/administrative support.
- Science management (e.g., personnel and financial capacity for R&D&I transfer, personnel and financial capacity of the project acquisition support system, science managers, data analysts, business and innovation advisors, etc.).
- The existence of internal funding schemes.
- Strategy/opportunities for establishing new research teams (including international ones) and supporting them within the HEI (e.g. sharing of R&D&I equipment, laboratory and information facilities, administrative support, etc.).
- Support system for students and early career researchers².
- A system to support excellent science (e.g. support for excellent scientists, research teams, PhD students, collaborations, infrastructure, etc.).
- A system of support for interdisciplinary research and collaboration within the HEIs.
- The concept of providing conditions for the emergence of new, high quality research directions/topics, especially those with application potential.

Maximum 300 words per point.

Self-assessment:

- A system of support for attracting national and international projects of projects.

The Project Center actively supports research and innovation by identifying and promoting national and international funding opportunities. It offers comprehensive services to help researchers prepare, submit, and manage project proposals.

A team of international project consultants provides expertise in programs such as Horizon Europe, Interreg, US grants, and the International Visegrad Fund. Researchers have access to annotated templates, FAQs, a monthly newsletter, and an up-to-date grant calendar. The Project Center also organizes seminars, training sessions, and meetings with funding providers to ensure well-prepared applications.

The Project Center monitors strategic developments at both European and national levels, participating in consultations for future funding periods like FP10. This ensures UWB stays aligned with evolving research priorities.

Each faculty at UWB has its own support structure, with staff experienced in the rules and procedures of Czech and international grant schemes. Applications are overseen by the Vice-Dean for Creative Activities (technical content) and the Faculty Secretary (financial aspects), with final approval by faculty leadership.

To promote collaboration, a network of faculty-based international project representatives works closely with the Project Center, ensuring effective communication and widespread access to support.

UWB researchers are also active in international expert platforms and policy bodies, including the OECD, European Commission, and Photonics21, contributing to research strategy and innovation discussions.

² Student grants, support for PhD students, postdocs and early career scientists.

For selected calls, particularly Horizon Europe, the Project Center provides additional support, including proofreading and financial consultation.

Through this coordinated system, UWB ensures its research community is well-positioned to succeed in today's competitive international funding landscape.

Overview of the basic numbers of projects for the period 2020–2024:

	Applications submitted	Applications accepted
National projects	1,443	671
International projects	347	171
EC projects	106	23
Total	1,790	842

- A system for project consultancy/management/administrative support.

The Project Center provides administrative and methodological support, especially for scientific research and educational projects implemented at UWB. It searches for, publishes and notifies units of opportunities to win projects, organizes thematic information seminars, and manages project records and project documentation. It is also responsible for the preparation of projects of university-wide or strategic significance and ensures their project management.

Under the Department of Project Administration, project opportunities are sought, announced and promoted. The department also analyses subsidy opportunities in the field of national and international cooperation programs, provides administrative and methodological support in the preparation, implementation and completion of projects, mediates communication with donors and specialized departments of the University, coordinates on-site public audits carried out by auditing bodies, manages the records of projects and project documentation, and carries out monitoring and reporting of accepted projects.

The Department of University-wide Project Management searches for and identifies subsidy opportunities for university-wide projects, ensures and coordinates the preparation of projects of university-wide or strategic significance, and is responsible for the project and financial management of university-wide projects, including their possible sustainability, prepares methodological materials for the preparation and implementation of university-wide projects, ensures communication with specialist departments and funding providers in the management of university-wide projects, manages risks related to university-wide projects and keeps the University management informed of them, and maintains documentation of university-wide projects in case it is not stored by the relevant specialist departments.

Some project teams from the units of UWB use the service of the Project Center according to the needs for services by external entities (consulting firms).

- Science management (e.g., personnel and financial capacity for R&D&I transfer, personnel and financial capacity of the project acquisition support system, science managers, data analysts, business and innovation advisors, etc.).

At the level of the central service unit of the Project Center, human resources are allocated within the project acquisition support system to the positions of Project Manager in the total of 4.7 FTE, Financial Manager 4.5 FTE and Administrator 6.4 FTE.

At the level of UWB units, the management of R&D activities is mainly the responsibility of department heads, or research centers and disciplinary departments. Activities across the units are coordinated by the designated person or the Vice-Dean for Creative Activities. In some cases, where the staff of the unit hold important positions and functions at the national level – e.g.

representatives on governmental and academic boards (Commissioner for Quantum Technologies, member of the Expert Group of the Minister of Industry and Trade for the Implementation of the Semiconductor Strategy, Office of the Government of the Czech Republic, member of the Government Council for Research and Development, Vice-Chairman of the Government Council for the Information Society, Vice-Chairman of the Committee on Innovation and Technology – Business at OECD, member of the OECD Expert Team for Quantum Technologies, Chairman of the Higher Education Trade Unions), these activities are coordinated by the Office of the Rector and the Vice-Rector for Creative Activities and Doctoral Studies.

- The existence of internal funding schemes.

Since 2015, the University of West Bohemia (UWB) has operated a comprehensive [Grant System](#) (Directive 3R/2015), composed of three parts:

1. Student Grant Competition (SGS): Supports research projects led by students in accredited Master's and doctoral programs, directly related to their studies.
2. Student Scientific Conferences: Provides funding for organizing conferences where students present research tied to their academic programs.
3. Incentive System:
 - a) RIV: Rewards prestigious R&D results.
 - b) Contract Research (SMV): Supports implementation of contract-based research.
 - c) EC Programs: Aids in preparing projects for direct EU funding.
 - d) ERC: Encourages applications to European Research Council schemes.
 - e) POSTDOC: Supports young PhD graduates with outstanding R&D results.
 - f) TALENT: Promotes involvement of talented Master's and PhD students in R&D and creative activities.

The Grant System is overseen by the Vice-Rector for R&D and the Grant Committee, and is financed through institutional funds (IP).

UWB also centrally manages the Academic Career Fund, used for hiring foreign experts, and the [Grant Support for Student Activities](#) (GRAS fund), which supports student-led educational, cultural, and sports projects. Between 2020–2024, GRAS supported 483 students with CZK 4.5 million (EUR 178,000). Student Grant Competition funded 344 projects and 90 **student scientific conferences**, with a combined total of CZK 184.4 million (EUR 7.3 million).

In the **RIV incentive system**, 1,230 research results were rewarded with CZK 28.6 million (EUR 1.13 million). The **POSTDOC incentive scheme** supported 30 postdocs with CZK 1.7 million (EUR 67,000). The **TALENT support for talented students** backed 304 students with CZK 7.29 million (EUR 288,000). The SMV scheme assisted 484 researchers with CZK 2.6 million (EUR 103,000).

- Strategy/opportunities for establishing new research teams (including international ones) and supporting them within the HEI (e.g. sharing of R&D&I equipment, laboratory and information facilities, administrative support, etc.).

The University of West Bohemia builds its research teams around scientific excellence, interdisciplinarity, and international cooperation. Priority research areas—selected based on societal needs and strategic goals—include quantum and materials technologies, semiconductor chips, power electronics, AI, energy, and transport.

The UWB Project Center promotes international cooperation by helping researchers join major programs like Horizon Europe and ERC. Together with the Division of Research, Development and Knowledge Transfer, it supports mobility in the form of internships, and hosting of international experts. Despite the lack of formal infrastructure sharing, teams collaborate effectively, sharing equipment and data with partners abroad. Plans for joint labs, especially in materials and semiconductor research, are underway for 2025–2030.

Support services include grant consultations, start-up funding for new teams, and events like Open Days and Researchers' Night to attract student talent and encourage involvement in cutting-edge research. Interdisciplinary collaboration is actively encouraged, and regular evaluation ensures continuous improvement.

Examples of new teams:

- At FEE RICE, Prof. Peroutka leads a team on power semiconductors, integrating material and electronics expertise.
- Prof. Šmídl heads a team on machine learning and industrial informatics, while a new robotics lab supports industrial automation.
- Assoc. Prof. Mach's group studies magnetic materials; another team works on applied industrial robotics under CAMAT, project is led by Prof. Peroutka.
- NTC formed teams in quantum materials (Prof. Minár) and biomedical mechatronics (Assoc. Prof. Kovářík).
- Five teams at the Faculty of Health Care Studies focus on public health, midwifery, neuro-rehabilitation, and prosthetics.
- A Laser Chemistry team, led by Assoc. Prof. Křenek, develops advanced materials, including antibacterial coatings and photocatalytic nanoparticles.

- Support system for students and early career researchers³.

During the evaluation period, UWB annually implemented the Student Grant Competition and Student Scientific Conferences, involving Master's and PhD students, with CZK 35–40 million allocated each year. Dozens of projects are supported annually. These competitions are governed by internal legislation. Units also host student scientific events to reward high-quality work.

The university operates the Incentive Scheme, including TALENT for gifted students and POSTDOC for recent PhD graduates, rewarding creative and publication activity. In 2021–2022, the [IDEG](#) project, funded by European Structural Funds, supported 34 PhD students with CZK 14 million.

Additional support comes from faculty-level schemes, student participation in external research, and awards. Until 2023, full-time PhD students received an annual scholarship of CZK 135,000. Bachelor's and Master's students received merit-based scholarships totaling CZK 6–7 million annually, while extraordinary scholarships reached CZK 25–30 million per year. Students from outside Pilsen received accommodation scholarships of approx. CZK 8,000/year, with CZK 35 million distributed in total.

UWB provides dormitory accommodation (3,000 places) and university apartments for researchers. Scholarship policies are defined by the [Scholarship Regulations](#).

To foster international experience, UWB promotes [mobility programs](#) (e.g., Erasmus+, CEEPUS), enhancing student research and career growth. From 2020–2024, there were 1,588 outbound and 1,418 inbound student mobilities, and 986 outbound and 745 inbound academic/researcher mobilities.

The Academic Career Fund, centrally managed, supports foreign expert recruitment. Between 2020–2024, it supported 44 students with CZK 11.5 million (EUR 454,000).

- A system to support excellent science (e.g. support for excellent scientists, research teams, PhD students, collaborations, infrastructure, etc.).

Support for outstanding scientists at UWB includes rewards through the RIV incentive scheme for top publications and prestigious grants (e.g., ERC, GAČR). International mobility is promoted through internships, guest lectures, and hosting of top foreign researchers via the LCDRO Development System. Support is also provided to international collaborators preparing Horizon projects.

³ Student grants, support for PhD students, postdocs and early career scientists.

UWB organizes workshops, conferences, and training for young researchers, offers internal grants for excellence, and mentors PhD students through top experts. Training in scientific writing, grant applications, and presenting research is provided by the Project Center and associated departments. Research infrastructure is accessible across units.

Support tools include grant templates, FAQs, a newsletter, and a grant calendar. UWB's TALENT program supports outstanding Master's and PhD students. The University Library offers access to key electronic resources. UWB also collaborates with industrial partners on research and organizes many international conferences and workshops.

UWB presents awards and honorary degrees for scientific achievements. Between 2020–2024, [honorary doctorates \(dr. h. c.\)](#) were awarded to:

- Michael Arbib (interdisciplinary brain research)
- Miroslav Balda (contribution to Czech science and education)
- Kurt Gebauer (cultural education)
- Hamid R. Ekbib (AI studies)
- Dushan Boroyevich (power electronics)
- Didier Sébilleau (international research cooperation)

UWB hosts major conferences such as Applied Electronics, ESCO, and Diagnostics in Electrical Engineering. Other notable events include Nuclear Days, Mechatronics 2022, and conferences in philosophy, history, Shakespeare studies, and perinatal palliative care.

The NTC co-hosted physics summer schools in collaboration with CNRS, LMU Munich, and Aalto University. Other key events include XB-CON, graph theory workshops, Plasma Surface Engineering, the Hotine-Marussi Symposium, and rotor vibration diagnostics workshops.

- A system of support for interdisciplinary research and collaboration within the HEIs.

Interdisciplinary research is a key tool for addressing complex scientific, technical and societal challenges. The system of support for interdisciplinary research at UWB is designed to effectively connect experts from different faculties and research institutes, to ensure sharing of resources and to support innovative projects.

Significant teams with university-wide involvement are focused on quantum technologies (cooperation between NTC, FAS, FOA) and power semiconductor (chip) and power electronic technologies (cooperation between FEE, FAS, NTC, FME). Within the framework of the established working group at UWB there is extensive cooperation in the field of artificial intelligence, in which key capacities of FAS, FEE and FOA are involved. The importance of the teams and their international reputation is evidenced by project references – Top Research, EU projects (HiPower5.0), NCK (CANUT, NCE, CAMAT, BOVENAC, NAHYC, FEIM).

As an example, the Faculty of Arts supports interdisciplinary cooperation. It cooperates with the Faculty of Applied Sciences in the implementation of the follow-up Master's degree program Philosophy for Artificial Intelligence and other interdisciplinary collaborations in the field of artificial intelligence (curriculum). Together with other units of UWB, the Faculty of Arts also implements other interdisciplinary activities – e.g. interdisciplinary seminars. It is also involved in important research projects of other units (e.g. within the Horizon Europe project Transforming Road Safety in Africa, No. 101069525, associate professor Jan Záhořík from KBS cooperates with NTC).

FAS is essentially an interdisciplinary unit, combining disciplines from the fields of natural and technical sciences. The interdisciplinary teams operate within the faculty's research center NTIS, which serves as an umbrella for R&D activities.

Another example is FEE, which within the framework of the National Centers of Competence of the Technology Agency of the Czech Republic (mainly CANUT, NCE, CAMAT, BOVENAC), closely cooperates with and operates interdisciplinary interfaculty teams, especially with the departments of FAS (cybernetics, mechanics, physics), FME (transport technology, energy, production technologies) and NTC (materials, thermomechanics).

- The concept of providing conditions for the emergence of new, high quality research directions/topics, especially those with application potential.

The University of West Bohemia in Pilsen strives to create conditions for the emergence of new high-quality research directions and topics with high application potential, and thus strengthen its role in the field of science, research and innovation. This concept focuses on several key areas that will enable effective support for interdisciplinary research, cooperation with industrial partners and the development of research infrastructure. To facilitate the emergence of new research directions and topics with high application potential, it is crucial to create an environment that combines scientific excellence, interdisciplinarity and collaboration with industry. Based on an analysis of market needs, there is important collaboration with regional and international industrial partners and public institutions to identify current challenges and technological trends. This enables the practical verification of research results and their subsequent transfer to practice. In terms of the strategic focus of UWB, these are areas that have historically been perceived as a regional advantage – engineering, transport, energy; then the new topics of society – artificial intelligence, chip technologies and power electronics, robotics, materials engineering. This leads to building cutting-edge infrastructure and ensuring access to modern technologies that will support the implementation of new research projects. Experts from different faculties and disciplines are connected within the projects of the UWB research centers. There are projects that connect natural sciences, technical disciplines, humanities and social sciences. The key to all this is the involvement of application partners from industry and establishing long-term cooperation with companies and institutions that can be the recipients of research results. There are a number of joint research projects at UWB that receive funding from national and international sources (e.g. GAČR, TA CR, MIT, Horizon Europe).

4.3 Quality control system for R&D&I environment

The HEI will briefly describe the system of internal and external evaluation of research units, including the following aspects:

- Internal and external evaluation of R&D&I quality: This includes the evaluation of R&D&I by the HEI's authorities, the evaluation of research teams (if such a system exists), and the involvement of international scientific councils or other independent advisory bodies in quality control and of R&D&I management.
- The ethical aspects of research: This includes adherence to ethical principles and good scientific practice, compliance with related legislation (codes of ethics, ombudspersons, ethics committees and ethics hotlines, and systems for reporting whistleblowing and ethical misconduct).

The HEI shall demonstrate the functioning of the quality control systems in the R&D&I environment by examples (e.g., brief information on the evaluations carried out and their results, specific examples of the use of whistleblowing or the handling of ethical violations, etc.).

Maximum 500 words plus 200 words for each example described (max. five).

Self-assessment:

- Internal and external evaluation of R&D&I quality:

The evaluation of R&D&I quality at the University of West Bohemia in Pilsen is anchored in the internal regulation [Rules of the Quality Assurance System](#) and is carried out using two tools.

The first tool is the overall evaluation of the quality of creative activities (i.e. scientific teams), which is carried out by the UWB Scientific Council. The basic aim of this evaluation of the quality of creative activity is to regularly obtain and evaluate information on the fulfillment of the strategic goals of UWB in the field of creative activity defined in the UWB strategy and in national strategies (National

Policy of Research, Development and Innovation of the Czech Republic) and is defined by [Regulation Evaluation of the Quality of Creative Activity](#) (9P/2018). In this quality evaluation, individual departments evaluate the results achieved and plan further results and activities to maintain or increase the scientific performance of the department. This evaluation also takes into account the results achieved in external R&D&I quality evaluations. The evaluation takes place every five years and serves as a basis for the development of strategic documents of the University and individual units for the next period. In the following years, the quality of creative activity is continually monitored and evaluated on an ongoing basis. In case of deviations from the established direction, reaction mechanisms, an action plan, increased supervision by the university management, etc. are put in place. Long-term failure to deliver may, in accordance with the Budget Methodology, have a financial impact on the unit.

The second tool for evaluating the quality of R&D&I is the [Comprehensive Internal Quality Assessment of UWB](#) (21R/2018). The Comprehensive Internal Quality Assessment is supervised by the UWB [Internal Evaluation Board](#). The Comprehensive Internal Quality Assessment is carried out by a team of evaluators appointed by the Rector on the proposal of the UWB Internal Evaluation Council. This evaluation is carried out at least once every 5 years. A team of internal evaluators is appointed to carry out the evaluation, the aim of which is to assess the fulfillment of standards based on the EFQM methodology. The standards define the target level of the internal environment and functioning of the University. The evaluation focusing on R&D&I and doctoral studies seeks answers to questions related to R&D&I stakeholders (relationships, communication), R&D&I project search and proposals, the actual implementation and measurement of R&D&I, and all aspects of study in doctoral programs. Each standard is evaluated by describing the current status, the strengths, suggestions for possible improvements and the risks of not meeting the standard. The selected standards are subjected to evaluation by external evaluators; the final output is a report on the comprehensive internal quality assessment of UWB. On the basis of this report, the University management sets measures to improve the institutional environment.

Both tools are complementary and provide an overall picture of the quality of R&D&I at the University of West Bohemia in Pilsen.

As an example of the representation of international experts and specialists on the boards of the units, the QM4ST project has established an international scientific council, which is composed of renowned scientists (from Germany, France, Sweden, Austria, Israel and Great Britain), including one Nobel Prize winner in physics, Prof. Andre Geim. Another example is the NTC and FEE. The NTC has four international experts, from Switzerland, Israel, the USA and the Netherlands, on its Scientific Board.

Within the framework of the NCK projects (CANUT, CAMAT, NCE II, BOVENAC, FEIM and NAHYC), the FEE always has an international Center Council that participates in the management and evaluation of research activities. The members include, for example, Prof. Mariusz Malinowski, Prof. Czilej, Dr. Safa and many other prominent international experts from, for example, Germany, Austria, the Netherlands, etc.

Examples of evaluation:

1) Overall evaluation of the quality of creative activity – carried out in [2024](#), involving all scientific units (9 units, 2 university institutes), resulting in 29 evaluation reports for 20 scientific disciplines, 43 external assessments and [16 pages of proposals for measure](#) – ones targeted at individual scientific disciplines with the aim of strengthening prestigious publications and experience, involvement in international activities, and enhancing interpersonal, interdisciplinary and inter-organizational national and international cooperation.

2) Comprehensive internal quality evaluation – carried out in 2024, the evaluation team composed of 76 members, 6 guarantors, 73 standards, 5 evaluation groups – of relevance: one group focused on creative activities, another on studies including doctoral studies. External evaluation carried out by two independent evaluators. Based on the evaluation, an Internal Quality Evaluation Report was

drawn up, including remedial actions taken. The measures are aimed at setting up a system in the area of Open Science implementation, doctoral studies and related activities. The Internal Quality Evaluation Report was approved by the Internal Evaluation Council and published on the website.

3) [Evaluation of the quality of the habilitation procedure and the procedure for the appointment of professors](#) – the basic goal of the quality evaluation is to regularly obtain and evaluate information on the intensity and scope of scientific activity in the individual fields of the habilitation procedure and the procedure for the appointment of professors, their staffing and supervision of compliance with the prescribed rules for the implementation of the habilitation procedure and the procedure for the appointment of professors. This evaluation shall be carried out no later than 5 years after the granting of accreditation for the field in question and no later than 1 year before its expiry. The designated person shall prepare a quality evaluation report electronically by the deadline set in the schedule. One or more external evaluators may be appointed by the Rector to review the overall quality evaluation report on the proposal of the UWB Scientific Council. The final quality evaluation of the habilitation procedure and the procedure for the appointment of professors is carried out by the UWB Scientific Council in the form of a discussion. The units of UWB have a total of 11 fields of the habilitation procedure and 9 fields of the procedure for the appointment of professors accredited.

4) Evaluation of the quality of study programs – the evaluation of a study program is carried out by the study program guarantor; the overall evaluation of study programs in the field of education is carried out by the Education Council. Within four years from the date of accreditation, the guarantor shall prepare and submit a report on the overall quality evaluation, and the ongoing quality evaluation shall take place after the end of each academic year and by the end of September of the following academic year. The evaluation of the study program shall be carried out in accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG standards). The report on the overall quality evaluation of the study programs, including the measures identified to remedy deficiencies, is sent by the Education Council to the Internal Evaluation Council for comment.

- The ethical aspects of research:

Ethical aspects in research are, among other matters at UWB, the responsibility of the Ethics Committee, which oversees compliance with the standards of ethical conduct set out in the UWB [Code of Conduct](#). The principles contained in the Code of Conduct apply to all employees and all students of UWB. The Ethics Committee reviews suggestions that may be submitted to it in various ways, including anonymously via the electronic whistleblowing portal. On an annual basis, the Ethics Committee issues a [report on its activity](#), which it publishes on the UWB website. The Ethics Committee is an advisory body to the Rector of the University of West Bohemia. Part of its work is also to address ethical aspects in research, which are crucial for ensuring the integrity, credibility and fairness of scientific research. These include principles such as informed consent of participants, protection of their privacy and dignity, minimizing risks and avoiding any form of deception or manipulation. Researchers must also ensure objectivity, transparency and proper handling of data to avoid distortion of results or plagiarism. The Code of Conduct and the approval by the Ethics Committee help to ensure that research is conducted in accordance with moral and legal standards. The Committee carries out its work independently and impartially, and one of its activities is to give an opinion on the proposal of a research project that for whatever reason requires an assessment of ethical aspects (dignity, freedom, health, quality of life and safety of the persons involved in the project, including work with biological material). The opinion must be issued before the project is started, and in some cases it is already required when the project application is submitted. A proposal for an ethics review of a research project is usually submitted by the person who will be the principal researcher of the project once it has been accepted. The proposal must always include a brief description of the project and the text of the informed consent for the persons involved in

the project. If the project is to be carried out in departments other than that of the person proposing the project, the proposal shall include comments from those departments on the proposal.

Ethics and social safety at UWB are further guaranteed by independent and impartial persons who can be contacted in cases where social safety may have been violated. These persons include the Ombudsman, members of the Ethics Committee and the whistleblowing coordinator. Social safety at UWB is defined in Rector's Directive "[Ombudsman and Social Safety](#)" (36R/2023).

Ombudsman:

The position of University Ombudsman was established at UWB on 1 January 2024. The UWB Ombudsman is an impartial and independent person protecting the rights of students and staff of UWB potentially threatened by discriminatory behavior within the institution. It is possible to contact him/her in the event that some form of violation of social safety may have occurred at the University of West Bohemia in Pilsen, i.e., discrimination, unequal treatment, bullying, aggression or sexualized and gender-based violence. The Ombudsman regularly informs the management of UWB and the Rector's Board about his/her activities and publishes a report once a year on the UWB website.

Whistleblowing:

In order to ensure ethical business standards, the University management has adopted systemic measures to reduce the risk of misconduct. A whistleblower protection program has been implemented, which allows for the submission of notifications of violations of selected Czech legislation in accordance with Act No. 171/2023 Coll. on the protection of whistleblowers and the reporting of violations of European Union law, based on Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report violations of Union law.

In 2024, the UWB Ethics Committee dealt with 13 ethics-related and 18 research-related submissions.

In addition to the Ombudsman and the Ethics Committee, the quality control system for the social safety environment also includes STUD – The Information and Counseling Center, which is mainly involved in the area of prevention. The UWB management is regularly informed about the status of (violations of) social safety.

4.4 Sustainability and resilience of R&D&I

The HEI will describe the arrangements for sustainability and increasing the resilience of R&D&I, if such a system exists, and provide examples of its implementation. These include:

- The sustainable development concept (strategy, objectives, plan and implementation).
- Social responsibility strategy.
- A knowledge transfer system, if it is established at central level.⁴
- The third role, the transfer of R&D&I results to society and interaction with local actors.
- The concept of research data management (data collection, access and sharing of data, use of the information obtained for R&D&I management, responsibility for data files, archiving and backup of data).
- Ethics and personal data protection.
- Intellectual property protection.
- Ensuring institutional resilience (resistance to foreign influence, cyber security, risk prevention, prevention of misuse of R&D&I and knowledge transfer results, a system to prevent or mitigate the negative impacts of R&D&I and knowledge transfer in society).
- Digitisation and the use of smart technologies.
- The institutional strategy for Open Science 2.0/Open Access (if one exists), including information on the operation of the institutional repository or similar tools.
- A system for training undergraduate and postgraduate students as well as staff in the field of intellectual property protection and technology transfer.

The HEI will demonstrate the effectiveness of its procedures by examples (e.g., the number of people trained in intellectual property protection and technology transfer, data on the usage of Open Access repositories, handling of risk incidents, etc.).

Maximum 300 words per point.

Self-assessment:

- The sustainable development concept (strategy, objectives, plan and implementation).

By Strategic Plan is meant the official UWB document "Strategic Intent".

UWB is an organization that respects the principles of sustainable development in its educational, creative and other activities and applies them to the maximum extent possible in its daily operations in all areas of its activities. [Sustainable development](#) is a part of strategic management and decision-making within UWB. The University wants to lead by example in building a friendly and sustainable environment that is respectful of society and the environment, with the ambition that the University will be a leader in the regional context in facilitating the development and dissemination of know-how, social change and changes in thinking in the field of sustainable development. The University promotes interdisciplinary engagement of all fields of study at UWB in pursuit of sustainable development goals, and strives to become an open community for all who want to shape a more sustainable environment and a more hopeful future for our planet. UWB prepared and approved the strategy by the University Senate in October 2024. This general strategy is subsequently complemented by action plans in which the goals are specified and translated into measurable indicators, allowing for subsequent evaluations of the implementation of the strategy, and its further elaboration. UWB is aware of the long-term horizon in the pursuit of all Sustainable Development Goals (SDGs) and is also aware of their interdependence. The priority areas of focus over the next five years are: social responsibility, low-carbon energy, circular economy, sustainable mobility and a harmonious environment. In order to implement the strategic and specific objectives, UWB Sustainability Action Plans are developed. These two-year action plans specify the procedures and methods for implementing the selected strategic and specific objectives on which UWB decides

⁴ If the knowledge transfer system is decentralised to the unit level, the HEI shall describe how the system works.

to focus in the respective period. The action plans define specific planned measures implementing the strategic and specific objectives, including the establishment of indicators for the fulfillment of specific objectives. The objectives and principles contained in the strategy are incorporated into the [UWB Strategic Intent](#) and the UWB Strategic Intent Implementation Plan. The implementation of the strategic objectives is ensured by the UWB management in cooperation with the management of the University's units. Members of the UWB management participate in the implementation together with members of the management of individual units of UWB, thus strengthening the cross-sectional nature of the agenda.

- **Social responsibility strategy.**

Social responsibility, including the principles of sustainable development and environmental justice, is a key perspective in the management and administration of the University of West Bohemia in Pilsen. The University management takes into account the dimension of social responsibility in its decision-making and evaluates the environmental impact of its decisions and designs environmentally friendly measures in the development of the University. UWB aspires to be a leader in applying the principles of social responsibility in its own activities, implements best practices and promotes socially responsible management in its community. This means that:

- a) UWB applies the principles of socially responsible public procurement,
- b) UWB incorporates the aspect of sustainability into the evaluation of its development plans,
- c) UWB supports the development and innovation of courses dedicated to sustainability, social responsibility and other related topics,
- d) UWB evaluates the profiles of graduates of the study programs on offer in terms of social responsibility,
- e) through its educational activities and its third role, UWB disseminates the principles of social responsibility in the business environment,
- f) UWB supports research on social responsibility and actively disseminates the results of basic and applied research on this topic,
- g) UWB is digitizing its agenda and completing the computerization of internal document circulation.

- **A knowledge transfer system, if it is established at central level**

At UWB, the Department of Knowledge Transfer and Contract Research (TSV) deals with this issue. It is a university-wide department that provides advice to UWB employees and students in the area of intellectual property (IP) protection, participates in the preparation of licensing agreements, promotes R&D results and supports activities in the area of business development of UWB employees (development of spin-off companies) and students (development of startups). It also serves as a link between researchers and commercial partners. For companies, TSV acts as a primary point of contact, which significantly facilitates communication and cooperation with researchers. TSV is also responsible for the development of strategies and internal regulations governing the handling of intellectual property, cooperation with application partners or the development of spin-off companies. Last but not least, TSV manages Proof of Concept projects or projects that focus on the development of cross-sectoral cooperation and technology transfer activities.

In order to provide the aforementioned services, TSV must have a sufficient number of experts in the relevant fields. At present, this condition is fully met. TSV staff have a high level of expertise in intellectual property, law and the management of the knowledge transfer itself. Specifically, there are the positions of Knowledge and Technology Transfer Specialist, ODV Specialist, Contract Research Coordinator and Marketing Specialist. As the technology transfer field is rather dynamic, TSV employees receive regular training and attend thematic conferences to help maintain their high level of expertise.

The funding of the commercialization system (TSV) itself consists of several components. Firstly, resources are raised from commercialization revenues. The distribution of these revenues is defined in Rector's Directive [Remuneration of Authors, Creators of Works and Distribution of Profits from](#)

[Knowledge Transfer](#) (20R/2020). Furthermore, the system is funded by contract research, which is regulated by Rector's Directive [Contract Research](#) (22R/2019), and from the University's own resources, which are generated from the University's budget. The funding of TSV is set up in such a way that the commercialization system is financially self-sufficient and stable in the long term.

- The third role, the transfer of R&D&I results to society and interaction with local actors.

UWB fulfills its third mission as a socially responsible and engaged institution, actively contributing to the development of the wider region of West Bohemia. It maintains close cooperation with local governments, their institutions, and the private sector, supported by a developed infrastructure and process framework. UWB also sees great potential in strengthening ties with NGOs and non-profit organizations.

Key partners include the City of Pilsen, the Pilsen Region, and the Karlovy Vary Region. UWB maintains strong relationships with primary and secondary schools, professional associations, and other regional actors, fostering a strong educational and social ecosystem. Programs such as children's universities, universities of the third age, and summer schools make UWB accessible to all generations, encouraging lifelong learning and civic engagement.

The university recognizes the strategic advantage of its geographical location near Germany, especially Bavaria, and actively seeks cross-border cooperation and international partnerships. These efforts create valuable synergies for both educational and research activities.

UWB prioritizes environmental protection, sustainability, and environmental justice in its research strategy. It fosters the development of multidisciplinary research teams, including both junior and senior researchers, and promotes collaboration with regional and international institutions to accelerate impactful solutions.

UWB's public outreach includes participation in major science and industry events such as MSV Brno, AMPER, the Science Fair, and Gaudeamus. Through its Transfer Department, it organizes seminars, workshops, and lectures aimed at translating research results into real-world benefits. These are often co-hosted with partners like the Regional Development Agency of the Pilsen Region, BIC Plzeň, IHK Regensburg, CzechInvest, and others.

Thanks to these partnerships, UWB can effectively communicate scientific results to targeted audiences, support regional innovation, and advance sustainable development throughout the region and beyond.

- The concept of research data management (data collection, access and sharing of data, use of the information obtained for R&D&I management, responsibility for data files, archiving and backup of data).

Cooperation in national and international initiatives is key to UWB's approach to research data administration. We build on long-standing collaboration with e-INFRA.CZ, providing access to extensive computational and storage capacities, including a high-capacity storage facility hosted at UWB. The university's infrastructure includes hardware (e.g. a computational cluster with a 2024 AI/ML-focused upgrade via the PhD infra project), software (e.g. Matlab TAH), and expertise in cluster computing, containerization, and security.

During the review period, UWB has expanded from promoting open data (opendata.zcu.cz) to broader support for open science (openscience.zcu.cz). UWB experts are actively involved in national working groups and contributed to the creation of the EOSC-CZ research data environment. In 2023, they helped prepare a successful project proposal for OP JAK OS I (National Repository Platform). In 2024, UWB became one of 12 partners in OP JAK OS II, focusing on disciplinary repositories, particularly for materials science and sensitive data.

This agenda is coordinated by a university-wide working group led by the Vice-Rector for R&D. Research teams manage their own data collection, access, and sharing. The University Library provides methodological support, including consultations on FAIR principles, Data Management

Plans, and repository selection. It also manages UWB's data repository, piloted in 2024 at <https://data-dspace.zcu.cz/home>, running on Dspace7 with regular backups.

All data are secured through password protection and multi-layered firewalls, meeting the standards of a trusted repository. For researchers needing certified storage, the University Library also supports use of Zenodo or discipline-specific repositories, a frequent topic in consultations.

- Ethics and personal data protection.

Personal data protection is of key importance to UWB and when processing personal data, UWB complies with generally binding legislation, in particular Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation; "GDPR"). At UWB, this is addressed in the following directives: [Statute of the Data Protection Officer](#) (14R/2018), [Rules for the handling of information](#) (16R/2018), [Protection of personal data](#) (17R/2018), [Processing of a request to exercise the right of the data subject under the GDPR](#) (18R/2018).

When processing personal data, UWB abides by the following basic principles:

- It processes personal data in a fair, lawful and transparent manner (principle of lawfulness, fairness and transparency);
- It collects (and processes) personal data only for specific, explicit and legitimate purposes and does not further process them in a way that is incompatible with those purposes (purpose limitation principle);
- It processes personal data only to the extent that is appropriate, relevant and necessary for the purposes of the processing (data minimization principle);
- It processes only accurate personal data and updates the personal data if necessary (accuracy principle);
- It stores personal data in an identifiable form only for as long as is necessary in relation to the purposes of processing the personal data (storage limitation principle); and
- It processes personal data only in a manner that ensures appropriate security of personal data against unauthorized or unlawful processing and against accidental loss, destruction or damage (principle of integrity and confidentiality).

- Intellectual property protection.

The rules for the protection of intellectual property and the ways of using this knowledge are set out in Rector's Directive [Protection of Intellectual Property and Knowledge Transfer](#) (33R/2018). This issue is also related to Rector's Directive [On Public Licensing of Non-public Research and Development Results](#) (32R/2022) and Rector's Decision [Remuneration of Authors, Creators of Works and Distribution of Profits from Knowledge Transfer](#) (20R/2020). These are the three key documents that contain the procedure for the acquisition and use of intellectual property and the distribution of the income derived from its commercialization. The directives are complemented by a strategy for the management of intellectual property, which identifies the specific needs of UWB in this area and helps to eliminate undesirable phenomena that accompany the commercialization process from the creation of the result to its actual transfer into practice.

All of the above documents are continually monitored and updated by TSV to keep them up to date. A new application for the electronic registration of intellectual property is also currently under development, which will make information on results with commercial potential more transparent and will allow all the documents relating to the results to be registered in one place.

- Ensuring institutional resilience (resistance to foreign influence, cyber security, risk prevention, prevention of misuse of R&D&I and knowledge transfer results, a system to prevent or mitigate the negative impacts of R&D&I and knowledge transfer in society).

Cybersecurity has been a strategic priority of UWB throughout the period under review, which has intensively addressed all relevant aspects, from cooperation, through technical measures, to intensive and systematic education of employees and students. The University actively participates in the national technical CPR (now PPROVŠ) projects, where it was responsible for the area of training materials and log management. An important concrete output is the phishingator service, which has been adopted by CESNET and accepted by the community as a standard for practical exercises in defense against phishing attacks. Technical measures are also developed by UWB in the form of projects (NPO, ESF+, ERDF quality) and verified by regular penetration tests. One of the basic processes handled by the Cybersecurity Department is managing security incidents and evaluating suspicious messages or software. The University produces detailed statistics from this process, and generally speaking, hundreds of incidents are dealt with annually. Countermeasures are a standard part of general cybersecurity. The overall alignment of measures and security elements is ensured through an ISO 27001 and ZKB compliant process, engaging in coordination at both the cybersecurity engineer (vulnerabilities and alerts) and cybersecurity manager platform levels. There has been active participation in the drafting process of the new NIS2 legislation within the national group led by CESNET. A concrete outcome of the systemic approach to cybersecurity is also the creation of a new security division, which will include a cybersecurity manager and whose planned objectives include a cybersecurity audit.

- Digitisation and the use of smart technologies.

Digitization is also a conceptual strategic activity covering all aspects of the University's activities. The overarching role is played by the digitization working group, and the issue is regularly discussed by the management of UWB. When preparing the long-term intent for the next period, the area of digitization was chosen as one of the cross-cutting areas, which underlines its role as a common denominator in the modernization and streamlining of processes. The specific priorities are based on a process analysis and are managed on the basis of the respective roles of the processes concerned (information system owner, administrator and supplier). Among the implemented priority activities, we can mention, for example, the electronic admission application, and the e-JIS project (Unified Identification System at UWB – student/employee card). With regard to the common approach to digitization and the management of relations with suppliers, national cooperation is important, and is managed by working groups focused on individual thematic areas (within the framework of CRP/PPROVŠ projects). Through the CIV staff, UWB is actively involved in the activities of EUNIS (membership in the Executive Committee, responsibility for the program of the main conference). The strategic management of IS elements is systematically strengthened also thanks to the ESF+ project. Smart technologies and their use are coordinated by the project group SmartCAMPUS UWB (smartcampus.cz), which brings together representatives of all faculties and aims to connect innovators and teams from different fields of study and promote the idea of the university campus as a living laboratory of technologies and solutions. In 2023, a working group specifically focused on artificial intelligence was also established. Examples of digitized processes are the approval processes for absences, travel orders and the functionality of the HR portal, which are used regularly by all UWB employees (around 2,000 users).

- The institutional strategy for Open Science 2.0/Open Access (if one exists), including information on the operation of the institutional repository or similar tools.

The Institutional Strategy for Open Science is currently in comprehensive draft form and will soon enter a public comment phase. UWB's institutional repository for scientific data is in pilot operation, alongside the national repository for research data (<https://data.narodni-repozitar.cz/>), which enables basic storage and publication of open research data. Open science has been a formal part of UWB's Strategic Intent (2021–2025) and its 2024 Implementation Plan. UWB is also a signatory of the Berlin Declaration.

The institutional publication repository, operated via Dspace (<https://dspace.zcu.cz/home>), was upgraded in 2024 to Dspace7, meeting trusted repository standards and OpenAIRE compatibility. Its goal is to store and provide open access to publications, theses, journals, e-learning materials, and science popularization content. An update is underway to automate the import of records from the OBD publication database (under Vice-Rector's Instruction [7P/2023](#)).

As of December 2024, the repository included 52,152 items. In 2024, UWB published 16 indexed journals, all available in open access. UWB has not established a central Open Access (OA) fund; APCs (Article Processing Charges) are covered by individual units.

The University Library monitors APC fees for CzechElib and manages publishing tokens from transformation agreements. These can be used with Springer Nature, Wiley, Taylor & Francis, Emerald, ACM, and Cambridge University Press, with a 20% discount at Sage. Tokens are distributed on a first come, first served basis.

UWB supports and requires the use of persistent identifiers such as ORCID, ResearcherID, and Scopus Author ID (Directive [31R/2023](#) and [7P/2023](#)). A persistent ROR identifier for UWB has also been established.

- A system for training undergraduate and postgraduate students as well as staff in the field of intellectual property protection and technology transfer.

Students and employees of UWB can contact the Department of Knowledge Transfer and Contract Research (TSV) for issues related to intellectual property (IP) and technology transfer. TSV manages this agenda and provides individual consultations, which are more effective than general training courses, as they offer tailored advice specific to each case. Around 30 consultations are held annually, helping participants better understand IP protection and licensing conditions.

TSV also provides training in communication and presentation of research results, especially towards potential application. Since 2020, 52 employees and 20 students have completed these courses. TSV further supports entrepreneurship through regular business workshops, running from March to April as part of an acceleration program. These guide participants through all stages of preparing a business plan, and are attended annually by about 20 students and 5 employees.

In October and November, TSV organizes guest lectures featuring successful start-up founders, aimed at inspiring UWB students and staff to pursue their own ventures. Since 2024, these lectures have drawn 75 students and 15 employees.

Additionally, since 2024, TSV has organized visits to foreign incubators, providing participants with insights into international entrepreneurship ecosystems, exposure to foreign investors, and practical knowledge of incubation services. One such visit has taken place so far, with the participation of 4 students and 2 employees.

PERSONNEL POLICY

4.5 Structure of human resources

The HEI shall describe the current state, age structure, degree of internationalization and development trends of the staff involved in R&D&I, along with their distribution by a job title and gender for the period of 2020–2024 as detailed in annex tables (Tables 4.5.1 to 4.5.3) (including the provision of technical and economic facilities).

Maximum 1000 words.

Self-assessment:

The University of West Bohemia in Pilsen is a long-term stable employer. In the period under review (2020–2024), the structure of academic, scientific and technical-administrative positions is consistent in terms of the percentage representation of women in the specified categories.

There is a clear strengthening of the internationalization of UWB and a trend of increasing the number of international employees across all categories, especially scientific ones.

As with the gender perspective, the distribution of the different categories of employees in terms of age is also stable. Typically, young scientists are most often in the 30–39 age category, which is a natural development in terms of scientific career paths.

The University is actively dealing with the structure of its employees and is currently preparing its new Strategic Intent 2026+ (Strategic Plan 2026+), which has the ambition to openly reflect the issue of reconciliation of work and family life, employee evaluation, career development of employees, the issue of exit-policy (the process of leaving, career suppression), inbreeding, etc.

4.5.1 Staff involved in R&D&I of the university (FTE) in the period under review

Academic/professional position	Total 2020	Of which women [%]	Of which foreign [%] ⁵	Total 2024	Of which women [%]	Of which foreign [%]
Professor	67.472	9.8 %	3.2 %	65.020	9 %	5 %
Associate Professor	166.511	18.6 %	3.0 %	183.337	20 %	4 %
Assistant Professor	447.975	32.4 %	3.8 %	403.435	37 %	4 %
Assistant	69.012	58.9 %	12.5 %	151.862	45 %	3 %
R&D Personnel ⁶	18.567	42.5 %	0.0 %	22.192	28 %	0 %
Researchers in other categories ⁷	299.771	15.5 %	9.5 %	249.577	12 %	14 %
Technical and economic staff ⁸	883.337	69.5 %	1.9 %	770.428	72 %	2 %
Early career researcher ⁹	38.029	8.6 %	8.6 %	23.648	19 %	15 %
Scientific, research and development staff involved in teaching activities	1.302	0.0 %	0.0 %	10.908	8 %	9 %
Total number of foreign nationals	81.827	32.5 %	100 %	94.145	39 %	100 %

Note: The categories professor, associate professor, assistant professor, assistant, other scientific, research and development staff, scientific staff not falling into other categories and technical and economic staff are mutually exclusive, i.e. one staff member is reported under one category only. Scientific, research and development staff involved in teaching activities, as well as early career researchers are reported collectively for all the above-mentioned categories.

Note: The average number of hours worked is calculated as the ratio of the total number of hours actually worked during the reference period, from 1 January to 31 December, by all staff (including agreement on work activity, excluding agreement on work performance) to the total annual working time pool per full-time employee. The full-time status of the worker in the evaluated unit is always reported. If an employee holds more than one type of full-time job within the evaluated unit, the total sum of the two shall be reported.

4.5.2 Percentage of HEI's staff involved in R&D&I, categorized by age structure, job title, and gender in the year 2020 (number of physical employees and staff)

Academic/professional position	Under 29 years [%]		30-39 years [%]		40-49 years [%]		50-59 years [%]		60-69 years [%]		70 years and over [%]	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0.0 %	0.0 %	0.0 %	0.0 %	11.8 %	9.1 %	11.8 %	18.2 %	25.8 %	27.3 %	50.5 %	45.5 %
Associate Professor	0.0 %	0.0 %	5.0 %	5.3 %	39.0 %	18.4 %	15.0 %	26.3 %	23.5 %	34.2 %	17.5 %	15.8 %
Assistant Professor	1.7 %	2.5 %	28.2 %	24.1 %	40.8 %	39.2 %	16.9 %	23.6 %	10.3 %	8.5 %	2.1 %	2.0 %
Assistant	13.3 %	9.4 %	31.1 %	32.1 %	35.6 %	41.5 %	7.8 %	7.5 %	10.0 %	7.5 %	2.2 %	1.9 %
Early career researcher ¹⁰	0.0 %	0.0 %	97.1 %	93.8 %	1.5 %	6.3 %	0.0 %	0.0 %	1.5 %	0.0 %	0.0 %	0.0 %

⁵ Researchers with Slovak citizenship are not considered foreign.

⁶ The category "Other scientific, research and development personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

⁷ The category "Researchers not falling under other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

⁸ Who participates in the management and support of R&D&I in the institution.

⁹ See Definition of Terms in Methodology HEI2025+.

¹⁰ See Definition of Terms in Methodology HEI2025+.

R&D Personnel ¹¹	26.7 %	18.8 %	20.0 %	18.8 %	26.7 %	25.0 %	16.7 %	25.0 %	6.7 %	6.3 %	3.3 %	6.3 %
Researchers in other categories ¹²	32.3 %	38.5 %	38.1 %	36.9 %	19.5 %	16.9 %	3.8 %	1.5 %	3.8 %	6.2 %	2.5 %	0.0 %
Technical and economic staff ¹³	7.4 %	7.1 %	17.2 %	15.6 %	31.7 %	33.0 %	24.5 %	25.2 %	14.6 %	14.5 %	4.7 %	4.6 %
Scientific, research and development staff involved in teaching activities	50.0 %	100.0 %	0.0 %	0.0 %	0.0 %	0.0 %	50.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Note: The total number of employees/workers as of 31.12. of the calendar year in question is to be given, irrespective of the proportion of full-time equivalents, but only in an employment relationship, i.e. not including persons working part time agreements. Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

4.5.3 Percentage of HEI's staff involved in R&D&I, categorized by age structure, job title, and gender in the year 2024 (number of physical employees and staff)

Academic/professional position	Under 29 years [%]		30-39 years [%]		40-49 years [%]		50-59 years [%]		60-69 years [%]		70 years and over [%]	
	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women	Total	Women
Professor	0.0 %	0.0 %	0.0 %	0.0 %	13.3 %	18.2 %	16.7 %	9.1 %	24.4 %	18.2 %	45.6 %	54.5 %
Associate Professor	0.0 %	0.0 %	5.8 %	6.3 %	39.5 %	27.1 %	22.9 %	25.0 %	14.8 %	18.8 %	17.0 %	22.9 %
Assistant Professor	0.4 %	0.0 %	20.6 %	16.2 %	44.8 %	45.4 %	20.4 %	22.2 %	10.5 %	13.0 %	3.4 %	3.2 %
Assistant	11.8 %	13.5 %	24.5 %	17.3 %	33.5 %	36.5 %	16.5 %	21.2 %	9.4 %	6.7 %	4.2 %	4.8 %
Early career researcher ¹⁴	0.0 %	0.0 %	93.8 %	87.5 %	6.3 %	12.5 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
R&D personnel ¹⁵	21.4 %	0.0 %	10.7 %	0.0 %	32.1 %	62.5 %	21.4 %	12.5 %	3.6 %	0.0 %	10.7 %	25.0 %
Researchers in other categories ¹⁶	28.0 %	40.0 %	35.1 %	24.0 %	27.4 %	32.0 %	4.8 %	2.0 %	2.4 %	0.0 %	2.4 %	2.0 %
Technical and economic staff ¹⁷	4.4 %	3.5 %	16.3 %	16.7 %	31.1 %	31.0 %	26.7 %	27.7 %	16.9 %	15.8 %	4.6 %	5.3 %
Scientific, research and development staff involved in teaching activities	0.0 %	0.0 %	0.0 %	0.0 %	83.3 %	100.0 %	8.3 %	0.0 %	8.3 %	0.0 %	0.0 %	0.0 %

Note: The total number of employees/workers as of 31.12. of the calendar year in question is to be given, irrespective of the proportion of full-time equivalents, but only in an employment relationship, i.e. not including persons working parttime agreements. Other types of contractual relationships under the Civil Code that involve purchase of services are not included.

¹¹ The category "Other scientific, research and development personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹² The category "Researchers not falling under other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹³ Who participates in the management and support of R&D&I in the institution.

¹⁴ See definitions in Methodology HEI2025+.

¹⁵ The category "Other scientific, research and development personnel" includes technical and professional personnel who are not directly involved in R&D&I but are indispensable for the research activity (e.g. operators of research facilities).

¹⁶ The category "Researchers not falling under other categories" includes all other staff who cannot be classified under any of the above categories (e.g. independent researcher/scientist).

¹⁷ Who participates in the management and support of R&D&I in the institution.

4.6 Academic and Research Careers

The HEI will briefly describe the central system for HR recruitment, placing particular emphasis on recruitment from outside the HEI, especially from abroad, as well as system of career development of academic and research staff, if such system exists. Information will be provided on:

- Career development rules and legislation related to the recruitment and career development of domestic and foreign employees (e.g. Career Code, HR Award, OTMR policy, etc.).
- International tenders.
- The process of new employee adaptation and mentoring.
- Transparent distribution of institutional time, attitudes towards chaining of contracts and senior academic positions.
- Rules for filling senior positions in the context of R&D&I.
- The rules and support system of sabbaticals.
- Measures for the return of workers after a stay in an external workplace, including a foreign workplace.
- Arrangements for workers to return after maternity/parental leave or other career breaks (e.g. caring for family members).
- Other relevant information at HEI discretion.

The HEI shall provide a reference to an existing career code or similar document (if one exists). The HEI shall describe the effectiveness of the systems used with examples (e.g. a model example of the adaptation process, a specific anonymised example of an academic's career path, statistics on the return after maternity/parental leave or career breaks before and after the implementation of the measures, etc.).

Maximum 300 words per point.

Self-assessment:

- Career development rules and legislation related to the recruitment and career development of domestic and foreign employees (e.g. Career Code, HR Award, OTMR policy, etc.).

The rules for career development and recruitment of employees are laid down in the UWB [Career Regulations](#), the [Selection Procedure Regulations for UWB Academic Staff Recruitment](#), the [Rules for Recruitment of Specialists in Science, Research and Development at UWB](#), and the [OTMR policy](#), and are governed by the current legislation of the Czech Republic (in particular Act No. 262/2006 Coll., the Labor Code as amended, Act No. 111/1998 Coll., the Higher Education Act and related regulations). Care for employees at UWB is set out in the Collective Agreement, [Equal Opportunities Plan](#), and the [HRS4R Action Plan](#) (HR Award). In connection with the forthcoming Strategic Intent 2026+, the Career Regulations and the approach to employee evaluation will be revised in the coming period, and UWB's approach to work-life balance will be elaborated in order to strengthen a safe working and educational environment.

- International tenders.

UWB also routinely advertises scientific and selected academic positions on the international Euraxess portal and actively provides Welcome Center services (part of the Human Resources Division) to foreign employees and job applicants. International colleagues are provided with the maximum possible support before starting their employment at UWB, upon arrival in the Czech Republic (arrival and residence legislation, support in dealing with the authorities, support in the area of accommodation, care for family members, etc.) and also throughout the duration of their employment.

- The process of new employee adaptation and mentoring.

The adaptation process and its rules are currently being developed as part of the principles for reconciling work and private life and in connection with the forthcoming Strategic Intent 2026+. The anchoring of these rules and principles is considered as a recommendation for the autonomous management of UWB units and for managers and will be prepared in accordance with the above-mentioned HRS4R Action Plan, the Equal Opportunities Plan and other measures at UWB. The University has a standard system of staff training, which is implemented primarily by the Department of Lifelong and Distance Learning, which offers professional and developmental activities in all forms (in-person, electronic, hybrid). For new employees, a comprehensive, specially prepared course (Course for New Employees) is also implemented at regular intervals to introduce new colleagues to important areas and agendas at UWB and to help them orient themselves in the diverse university environment. The Employee Guide is also available for all employees – a simple feature on the University Intranet that helps when dealing with various life and work situations at UWB, directing employees to the relevant departments, documents, contacts, procedures and methodologies available for the various areas. The system of staff training also includes professional internships and conferences in the Czech Republic and abroad, foreign language courses, an international summer language school, outgoing Erasmus+ mobility programs and many other activities.

- Transparent distribution of institutional time, attitudes towards chaining of contracts and senior academic positions.

The approach to successive fixed-term contracts is anchored in the Collective Agreement and implemented in accordance with the current legislation of the Czech Republic. The division of full-time equivalents and the creation and filling of academic management positions is fully within the responsibility of individual units of UWB, which have labor law autonomy according to the current legislation. The rules for recruitment are normally governed by the legislation of the Czech Republic and the internal legislation of UWB (see above). The duties of managers are laid down in the Organizational Regulations of UWB.

- Rules for filling senior positions in the context of R&D&I.

The rules for filling managerial positions are fully under the responsibility of the management of the UWB units and are subject to the aforementioned internal legislation of UWB as well as the labor legislation of the Czech Republic. The duties of managers are then standardly anchored in the Organizational Regulations of UWB and are also regulated in the [Selection Procedure Regulations for UWB Academic Staff Recruitment](#).

- The rules and support system of sabbaticals.

The rules for creative leave (sabbatical leave) are laid down in the [UWB Internal Wage Regulations](#) and in the Statutes of the individual UWB faculties. The University of West Bohemia in Pilsen provides its academic staff with the possibility of taking creative leave, known as sabbatical leave, in accordance with Act No. 111/1998 Coll., on Higher Education. Section 76 of this Act states that an academic staff member is entitled to creative leave of six months once every seven years, unless serious circumstances relating to the fulfillment of the educational tasks of the university prevent this. During this period, the staff member is entitled to a salary. The sabbatical leave is intended for scientific work, self-education, work on publications or mental hygiene. Detailed conditions and rules for taking creative leave may be further specified in the internal regulations of individual faculties or organizational units of UWB. Sabbatical leave falls under the UWB Personnel Department, which provides information and support to employees.

- Measures for the return of workers after a stay in an external workplace, including a foreign workplace.

Measures to ensure the return of staff after their stay in an external workplace, including abroad, include several steps to ensure a smooth transition back to their working environment. Employees are required to complete the necessary documents, such as a travel order, prior to their departure and, in the case of overseas activities, to provide specific documents such as a Mobility Agreement. Upon return, it is necessary to submit a settlement of travel and accommodation costs, provide proof of fulfillment of work obligations and, where applicable, comply with other conditions such as health checks or tests. UWB provides consulting and support through the Personnel Department, which is responsible for the adaptation of employees and the resolution of labor law issues, thus contributing to the smooth reintegration of employees into their work process.

- Arrangements for workers to return after maternity/parental leave or other career breaks (e.g. caring for family members).

In connection with the new Strategic Intent 2026+, a methodology for reconciling work and private life is being prepared, including measures before, during and after the return of employees from maternity/parental leave (MD/RD). The methodology is being prepared as a recommendation, a summary of measures and options available to managers, and will be provided to all UWB units and managers.

Parents returning from MD/RD are provided with support by their managers in relation to the type and specifics of the work they do. In addition to labor law support, a wide range of professional and self-development courses, seminars and trainings are available, just as they are for all employees. A number of departments keep in touch with their employees during their MD/RD and before returning to work, involving them in appropriate activities to maintain continuity as much as possible and to facilitate their return to work.

Additionally, with regard to the possibilities of the work performed, after returning from MD/RD, the employee is offered, for example, part-time work, conclusion of a remote work agreement, etc., with considerations for the needs of the employee to adapt and cope with the new life situation.

- Other relevant information at HEI discretion.

The new Strategic Intent of UWB 2026+ and the subsequent measures aim to cover and link the topics of personnel management, recruitment, care for employees, and reconciliation of work and private life. The interconnectedness of these agendas and the implementation of specific and strategic measures will move the University forward towards becoming a safe, attractive and competitive employer in the Czech Republic in the area of HR.

Two units of UWB (FEE and NTC) are among the first institutions in the Czech Republic to receive the prestigious award of HR Excellence in Research. Between 2017 and 2021, a total of eight units of UWB successfully won and defended the prestigious HR Award. Subsequently, the entire UWB applied for the HR Award and received the prestigious HR Award quality mark at the university-wide level on 12 June 2023. In the second half of 2024, UWB – through the Social Safety Working Group, which includes representatives from all UWB units – began updating the HR Award Action Plan and preparing an interim report.

4.7 Gender equality measures

The HEI will briefly describe the measures relating to the application of gender equality in the areas required for assessment criteria 4.5, 4.6, with an emphasis on:

- Gender equality in recruitment and career development.
- Legislation and documents regulating gender equality (e.g. Gender Equality Plan, Action Plans, strategic documents for equality, including links to overarching strategies, etc.).
- The filling of leadership positions (including gender balance in leadership positions, see Table 4.7.1).
- Nominations to professional bodies.
- Evaluation and remuneration.
- Measures to reconcile the work and family life of researchers (flexible working hours, flexible forms of work, maternity/parental leave management, facilitating child/dependent care, age management in relation to gender).
- Measures to eliminate negative workplace behaviour such as mobbing and sexual harassment.

The HEI shall provide evidence of the examples from practice (e.g. use of flexible working hours, dealing with cases of mobbing or sexual harassment, compliance with the principles of gender equality in HEI professional bodies, etc.).

Maximum 300 words per point.

Self-assessment:

- Gender equality in recruitment and career development.

UWB recruitment is conducted in accordance with the [OTMR policy](#), in a non-discriminatory manner and with regard for the principles of gender equality. All advertising of vacancies is subject to these rules, including the procedures for the selection of academic, scientific, technical-administrative and manual staff of the University.

The criteria specified in the selection procedure are always decisive for filling the post, usually taking into account the qualifications, expertise, previous experience, foreign language competences and other skills and abilities crucial for the specific position.

The positions of academic staff and selected supervisory and management positions at UWB are always filled on the basis of a selection procedure in accordance with the current laws and the internal legislation of UWB. It is recommended to conduct selection procedures also for specialist positions in the areas of science, research and development, and selection procedures are usually also conducted for technical-administrative and manual staff positions. In the future, UWB plans to establish principles for the recruitment and selection of technical-administrative and manual employees.

All these activities are then naturally implemented as transparent and non-discriminatory. An example of a non-discriminatory policy is, for example, the result of the WOS paper, "[Low-temperature precipitation strengthening of maraging steel 1.2709 produced by powder bed fusion](#)", which has an all-female author team.

- Legislation and documents regulating gender equality (e.g. Gender Equality Plan, Action Plans, strategic documents for equality, including links to overarching strategies, etc.).

Equal opportunities and gender equality are reflected at UWB through, among other things, a gender equality plan called the [Equal Opportunities Plan 2022–2024](#).

The Equal Opportunities Plan is based on the conclusions of a gender audit carried out at UWB in 2021. The gender audit covered a wide range of topics related to equal opportunities and gender equality in the workplace, starting with recruitment, career growth, development and training, reconciliation of work and personal life, remuneration, evaluation, gender representation in the horizontal and vertical structure of UWB, diversity of work teams (in terms of age, ethnicity, gender and sexual identity, etc.) and the termination of employment relationships. It also examined the

organizational culture at UWB and negative phenomena in the workplace, including sexual harassment and gender-based violence. Within the framework of its Equal Opportunities Plan, UWB intends to build on and further develop selected recommendations from the gender audit.

The plan is conceived for three years and in it UWB set itself medium- and long-term goals in five areas. The thematic areas of creating a respectful and welcoming environment for people reconciling work and personal life (priority axis I) and creating an environment of social safety, non-discrimination and absence of (sexual) harassment (priority axis V) were chosen as priorities. Furthermore, the UWB plan focuses on promoting gender balance in leadership and decision-making positions (priority axis II) and promoting gender equality in recruitment and career development (priority axis III), and with two measures it also addresses the gender dimension of research and educational content (priority axis IV).

The Equal Opportunities Plan complies with all four mandatory parts in accordance with the requirements of the European Commission, i.e., it is a public document signed by the management of UWB, it defines steps related to education and capacity building, dedicated resources (human and financial) have been allocated for its preparation and implementation, and last but not least, UWB regularly publishes gender monitoring (2022, 2023) as part of this plan. In the last quarter of 2024, the Social Safety Working Group in cooperation with the Quality Division started to prepare a gender re-audit as a basis for the updated [Equal Opportunities Plan 2025–2027](#).

- The filling of leadership positions (including gender balance in leadership positions, see Table 4.7.1).

Table 4.7.1 provides an overview of the gender balance in management positions. While the position of Rector was occupied by a man in both periods under review, there has been a decrease in gender diversity in the Vice-Rector positions, as they are now held exclusively by men. The positions of Bursar and Chancellor (not shown in the table) remain filled by women. The number of men in the position of Dean has also increased by one. However, it is important to emphasize that the filling of these positions is based on election or discussion in academic boards according to the law, which means that decision-making cannot be influenced solely by gender equality considerations. Nevertheless, the University actively seeks to promote equal opportunities, for example through initiatives aimed at strengthening the representation of women in the leadership of, for example, departments. A positive trend is the increase in the number of women in the Academic Senate, which represents a concrete step towards greater gender balance.

The University follows a transparent and non-discriminatory procedure in the selection and recruitment of all its staff, in accordance with its internal regulations and standards, the current legislation of the Czech Republic, as well as the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.

The Regulations of the Selection Procedure for Filling Academic Staff Positions also specify which supervisory and managerial positions at UWB must be filled on the basis of a selection procedure. Equal opportunities in recruitment are addressed in the OTM-R policy, and measures to eliminate undesirable phenomena in the workplace are the responsibility of the Social Safety Coordinator/Ombudsman.

- Nominations to professional bodies.

UWB supports the application of gender equality in the nomination of workers to professional bodies. The main measures include actively seeking and considering qualified candidates of both genders, transparent and fair nomination processes, and ensuring equal access to training and development opportunities that can increase the representation of both women and men on these bodies. In addition, the University regularly evaluates the composition of professional bodies from a gender equality perspective and adopts measures to address any inequalities. These principles are

enshrined in the internal document "[Equal Opportunities Plan 2022–2024](#)" at UWB, ensuring their consistent implementation.

- Evaluation and remuneration.

The evaluation of employees is stipulated in the [UWB Career Regulations](#) (24R/2019). Part of the evaluation (at least once a year) is an individual career development plan of the employee. For recording the evaluation of employees, the platforms IS HAP (evaluation of academic staff and R&D specialists) and IS HOP (evaluation of other employees) are available. These platforms are at their disposal, however, the units may choose their own form of recording staff evaluations, for example, a written one. The evaluation of subordinate employees is one of the obligations of managers, which are laid down in the [Organizational Regulations of UWB](#). To support managers, recommended methodologies for conducting appraisal interviews and making a record of them are available.

In order to improve the services for the units of UWB, there is also an internal regular evaluation of the service units at UWB at an interval of once every 3 years. The aim of this evaluation is to improve the quality of care for employees, improve the quality of service activities for UWB units, eliminate the administrative burden for UWB units, etc. The outputs of these evaluations provide valuable input for the ongoing and continuing trend of digitization of processes, increasing the efficiency of internal processes and improving the service activities of the University.

- Measures to reconcile the work and family life of researchers (flexible working hours, flexible forms of work, maternity/parental leave management, facilitating child/dependent care, age management in relation to gender).

UWB is currently preparing and finalizing the Methodology for Reconciling Family and Work Life as a support for managers to explain a number of measures and their application in the university environment. The methodology will also include a description of the adaptation process of employees, care for parents returning to work after maternity/parental leave, etc. The inspiration for the development of this methodology is the sharing of the topic of reconciliation of work and family life across universities and colleges in the Czech Republic. UWB is thus among the universities for which the topic of care for employees is one of the priorities of the Strategic Intent 2026+.

In accordance with the applicable legislation and according to the possibilities of the specific position, UWB normally allows flexible working hours, part-time work, remote work, etc. All measures are under the responsibility of the respective managers and are implemented with respect for the individual needs of each employee and the possibilities of the specific work performed. Issues related to working hours are addressed in Rector's Directive [Scheduling and Recording of Working Hours at the UWB](#) (36R/2019).

The reconciliation of work and private life is also supported by a number of university-wide events, events for the general public, in which UWB is involved or organizes itself and which are intended for both employees and their family members.

- Measures to eliminate negative workplace behaviour such as mobbing and sexual harassment.

UWB actively addresses issues of a safe and non-discriminatory learning and working environment. Social safety issues are championed by the UWB Ombudsman. The topic is dealt with by the Social Safety Working Group and a number of seminars, workshops, courses and training sessions are available for employees and students. The e-learning course Social Safety in the Academic Environment has recently been implemented at UWB in a version for academic and non-academic staff. UWB has an Ethics Committee, a Whistleblowing hotline, and an Information and Counseling Center for psychological and other necessary assistance in difficult situations.

4.7.1 Gender balance in management positions

Senior staff	2020		2024	
	Men	Women	Men	Women
Rector	1	0	1	0
Vice-Rector	2	2	4	0
Dean ¹⁸	8	2	9	1
Academic Senate	46	19	42	23
Scientific/Artistic/Academic Council	40	2	40	2
Bursar	0	1	0	1
Board of Directors	12	1	10	2

Note: If one person holds more than one of these positions within the HEI, he/she will be counted in each.

4.8 Mobility of academic and research staff (including sectoral and inter-sectoral mobility)

The HEI shall describe in a concise and structured manner its strategies and objectives for the mobility of academic and research staff (including PhD students), with particular emphasis on mobility related to the development of excellent science and interdisciplinary (intersectoral) mobility. The HEI shall identify potential barriers to mobility, including gender-based barriers. The HEI shall provide information on long-term stays abroad by its own academic staff or, conversely, by foreign staff at the HEI being evaluated.¹⁹

The achievement of the set objectives will be demonstrated by the HEI by describing specific examples of mobility or by brief statistics on mobility during the period of 2020–2024.

Maximum 500 words plus 200 words for each example given (max. five examples with a specific description of the relevance of mobility to the stated objectives).

Self-assessment:

The mobility of academic and research staff is one of the strategic priorities of UWB. This is evidenced by their inclusion in the segmental [UWB Internationalization Strategy 2021–2025](#), which sets as one of its goals the development of global competences of academic and research staff. This goal is in accordance with the higher education internationalization strategy for the period from 2021. The acquisition of global competences is a prerequisite for the involvement of employees in the global society. One of the main pillars for the achievement of this goal is the promotion and development of employee mobility at UWB. Natural mobility is the practical experience of academics from our research centers within joint projects, for example, the National Competence Centers and international projects at co-researcher sites, which include major national and international corporations, businesses and research institutions.

In addition, specific measures that implement these priorities include the recognition of increased competence of employees as a result of long-term stays abroad, which is also incorporated into the Career Regulations of UWB. Related to this is the increased promotion of the offer of travel opportunities and related benefits, as well as the systematic support of language training for employees. At the same time, there is significant support for inbound mobility of academics who will be involved in the educational process, as well as scientists who will be involved in scientific and research activities. Within the strategic management of UWB, it is also a priority to apply for new

¹⁸ or other head of a relevant work unit of a higher education institution under Section 22(1) of the Higher Education Act performing R&D&I activities, regardless of the designation.

¹⁹ Long-term mobility means an uninterrupted period of more than three months.

projects together with the UWB Project Center that will support inbound and outbound mobility of researchers and academic staff at all levels.

The selection procedures for the mobility of academic and research staff are within the competence of individual units of UWB and are subject to particular schemes of grant projects. The findings from long-term mobilities are subsequently implemented in the content of individual specialist courses, in the scientific and research activities of individuals, in dissertations, etc.

From the perspective of the current and future strategic plans regarding the mobility of academic staff and researchers, it is important to mention the objectives associated with the membership of UWB in the European University Alliance EUPeace. One of the objectives of this alliance, whose implementation is being led by the UWB team, is the creation of a mobile portal for the Alliance member universities. In addition, measures are being defined to help implement horizontal EU priorities such as inclusion, diversity, digital transformation, etc. The main idea is to create measures that minimize barriers to mobility such as socio-economic barriers, gender-based barriers, as well as individual and personal barriers (e.g. maternity or parental leave), etc.

The first part of the assessment period 2020–2024 was affected by the Covid pandemic, which was reflected in the mobilities undertaken. In terms of the outgoing mobility of students, their numbers have steadily been increasing since then. The number of inbound student mobilities has been relatively stable at around 300–340 students for the last three years.

Student mobility	2020	2021	2022	2023	2024
OUTBOUND	199	238	341	407	403
INBOUND	220	225	301	348	324

The vast majority of student mobilities (approx. 80%) were carried out thanks to the Erasmus+ program. Of the above numbers, approximately 50 each year are PhD students. The remaining 20% of the mobilities were undertaken thanks to internal mobility programs such as INTER-24, which is implemented within the framework of the University's Institutional Plan and supports mobility to countries outside the European Union. At the same time, there is also the "BE&ST" (BE and Study Abroad) scholarship program supporting mobility of outstanding students to two partner institutions in the USA (Southern Utah University and Millikin University). In 2024, 6 students were supported under this program.

About 50–60% of staff mobility is carried out through the Erasmus+ program, and the remaining mobilities use the resources of the individual UWB units. There is demand for mobility among academic and research staff; however, in the last two years there has been a decline. The decline is also noticeable in the number of inbound mobilities of international staff.

Staff mobility	2020	2021	2022	2023	2024
OUTBOUND	125	258	320	283	206
INBOUND	20	108	178	240	199

Examples of long-term internships at UWB in the period 2020–2024:

Inbound mobility

Dr. Aki Ismo Olavi Pulkkinen – a junior researcher who was supported by the Academic Career Mobility in Pilsen 2023 program of the Pilsen Region, designed to increase the number of academics and researchers from abroad and use their previous experience from international scientific and research teams. Subsequently, this was followed by support from DS LCDRO, which supported the junior researcher and is one of the results of the international cooperation between NTC UWB and the Department of Physics at the University of Fribourg in Switzerland under the leadership of Prof. Claude Monney. The researcher was assigned to the research team of Prof. Ján Minár engaged in research on advanced and quantum materials at UWB. His involvement in the team was reflected in the successful acquisition of the project QM4ST from the call OP JAK – Top Research, in which the researcher participated in its preparation and became a young junior leader of a proposal focused

on the quantum-mechanical description and prediction of material properties in real conditions. During his time at NTC, he published 9 papers in D1/Q1, the most important of which is an article in the journal Nature Communications.

In October 2024, the distinguished academic **Prof. Michal Kohout** arrived at the UWB Faculty of Economics (FEC). As a visiting social geographer from California State University, San Bernardino (CSUSB), he is expected to work at the Faculty in the academic year 2024/2025, i.e., from approximately October 2024 to May 2025. He works as a researcher in the Department of Geography and is involved in teaching selected courses, field trips, and lectures. Professor Kohout specializes in regional and socioeconomic development in North America, Mexico, and Europe, and is currently conducting comparative research on suburbanization and the natural environment in U.S. and European cities through a Fulbright-Hays grant. His work will foster collaboration between UWB FEC and CSUSB, supported by a Memorandum of Cooperation.

Dr. Mehdi Eshagh, professor at KTH Stockholm, came to FAS for three months (September to December 2023). During his stay at FAS, Dr. Eshagh, in collaboration with colleagues from the Department of Geomatics, developed a comprehensive theory for the propagation of measurement errors in gravity data, which is used in geodesy to create models of the Earth's gravity field. These results were published in two papers in the Journal of Geodesy, which is the main publication medium in the field of geodesy internationally. These papers significantly extended the capabilities of integral solutions to boundary condition problems in the field of geosciences.

Outbound mobility

In 2023 (from August to October), **doc. Ing. Luděk Hynčík, Ph.D.** from the New Technologies Research Center (NTC) was a visiting researcher at the University of Western Australia in Perth. His main area of expertise is the development of biomechanical models of the human body. In Perth, he focused on the application of computational biomechanics to reduce the risk of injury during childbirth. His long-term mobility was made possible by the prestigious Gledden Visiting Fellowship which he received. Assoc. Prof. Hynčík's is an example of interdisciplinary mobility in excellent research. His knowledge gained from the fellowship and the sharing of the practice itself is applied in other scientific and research activities of NTC as well as in educational activities at the UWB Faculty of Applied Sciences.

Ing. Patrik Kalaj is an example of the mobility of a PhD student at the Faculty of Electrical Engineering (FEE), who is also a researcher at the RICE research center. Since September 2024, he has been undertaking a 3-month international internship at the University of Malaga under the Erasmus+ program. His internship focuses on the design of control algorithms for multiphase electric rotating machines. The injection of higher harmonic components in the control will be considered to increase the efficiency of the machine. The planned outcome of the mobility will be a scientific paper as well as application of the experience to the scientific and research activities of the RICE center.

In 2023, a 3-month research internship was undertaken by a member of the FHCS research team – Neurorehabilitation & cognitive-motor interference – **Mgr. Iva Hereitová** at the Leenaards Center for Memory, Centre Hospitalier Universitaire Vaudois Lausanne, Switzerland.

Ing. Michal Procházka, Ph.D. – a junior employee of NTC who was financially supported on a 6-month mobility visit to the prestigious Advanced Light Source (ALS) at the Lawrence Berkeley National Laboratory in the United States. The outbound mobility focused on a research topic in the area of fuel cells using the oxidation reaction of dimethyl ether (DME) on platinum and its alloys such as PtPdSn. DME has several advantages over other fuels, including high energy density, no refueling, liquefied storage, and low toxicity. The supported mobility has fostered collaboration and joint outputs with Prof. Charles Fadley, one of the most prominent scholars in this area of research, and Dr. Slavomir Nemšák from Lawrence Berkeley National Laboratory. During the mobility, cooperation with international partners in the preparation of project applications focused on "green" energy sources was strengthened.

RESEARCH INFRASTRUCTURE

4.9 Research infrastructure

The HEI will describe the system for acquiring/optimizing expensive instruments and equipment, as well as refurbishing outdated expensive instruments. The HEI will also briefly present the internal organisation of the research infrastructure (including technology, expensive instruments, and instrumentation)²⁰. The HEI will describe the system of sharing (including external research entities) of instruments and instrumentation, including expensive instruments and instrumentation units, referred to as 'core facilities' (if such a system exists). The HEI will demonstrate the effectiveness of the systems with examples (e.g., specific instruments acquired/optimised and their relevance to the achievement of research objectives, examples of sharing of expensive instruments and instrumentation, statistics on sharing of expensive instruments and instrumentation, etc.). The HEI will briefly comment on the data in Table 4.9.1.

The HEI shall also indicate whether it hosts large research infrastructure projects. The name and a brief description will be provided.

Maximum 500 words plus 200 words for each example given (max. five examples).

Self-assessment:

The system of acquisition and renewal of unique instruments, equipment and technologies for R&D&I is coordinated at the level of UWB in order to concentrate resources, including the acquisition of particularly expensive technologies and infrastructure, their efficient use, and sharing of technologies between teams. The implementation, planning, selection and actual investment in the acquisition or renewal of technologies, equipment and infrastructure is then carried out in a targeted manner at the individual units of UWB in accordance with the defined strategic priorities. In particular, the technical units of UWB with a significant technical background and expensive infrastructure have long-term plans for the acquisition and renewal of capital equipment. These plans are updated annually with regard to planned research activities and areas. New investments and reinvestments are or have been made largely from earmarked support under projects such as the operational program Research, Development and Education (OP VVV), the European Regional Development Fund (ERDF), Jan Amos Komenský (OP JAK), and from the University's own funds (including revenues from contract research). Other public and non-public funds (e.g. long-term sponsorship agreements with strategic partners, donations, etc.) are also used to renew capital equipment. Basic tools and infrastructure (e.g. ICT and equipment) are purchased under central support from university-wide projects managed by the Project Center, typically ESF. The purchase of equipment itself is governed by public procurement rules, fully compliant with internal directives reflecting relevant external legislation as supported by the Procurement Division of UWB.

The basic research infrastructure, including expensive instrumentation, is mainly allocated to the technical units of UWB and is related to the research centers. The use of such equipment and instruments is recorded in instrument logs. The exceptional infrastructure of UWB is advertised on the websites of UWB's units for internal use within UWB and also for external use by partners. The internal infrastructure is shared with other parts of the University and used jointly for the implementation of interdisciplinary research programs and projects. External companies and organizations, including partners from abroad, use the infrastructure mainly in the framework of joint R&D projects, contract research, or complementary activities. As this usually means specific equipment and instruments which require trained operators, these instruments are not shared directly, but are offered as services, including operators, to internal and external interested parties.

²⁰ The definition of research infrastructure is set out in the Framework for State Aid for Research, Development and Innovation (2014/C 198/01) and Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in accordance with Articles 107 and 108 of the Treaty.

Examples of websites offering exceptional infrastructure include:

[Research Center of the Faculty of Electrical Engineering \(RICE\)](#)

[Research Infrastructure of the Faculty of Applied Sciences \(NTIS\)](#)

[Research Infrastructure of the Faculty of Mechanical Engineering \(RTI\)](#)

[Research Infrastructure of the New Technologies Research Center \(NTC\)](#)

Examples of sharing exceptional infrastructure:

SARPES: The Spin and Angular Resolution Photoelectron Emission Spectrometer (SARPES) is an instrument purchased for the research infrastructure of the university institute New Technologies – Research Center (NTC) of the University of West Bohemia in Pilsen, which has become an exceptional workplace in the Czech Republic and Europe. The purchase of the instrument was financed from own resources and subsidies within the CEDAMNF project from the OP VVV program in the amount of 44 million CZK (EUR 1.736 million), under the call for support of excellent research teams. SARPES is a very important asset and invaluable equipment in explaining and justifying fundamental phenomena, and in addition to its application in basic research, the method can now also find application in industry for chemical analysis of materials. The purchased device allows scientists to investigate not only the energy and momentum of the electron, but also an exceptional quantum property – so-called spin. The laboratory, which is equipped with this exceptional SARPES instrument, has made it possible to intensify the cooperation between UWB and institutions in the Pilsen region, the Czech-Bavarian region and, above all, the entire international research community dealing with spectroscopy, as evidenced by the results achieved in prestigious journals published by the publishing house NATURE.

FEE/RICE has built one of the most modern R&D infrastructures in the field of power electronic technology. Especially its laboratories for medium-voltage power electronics technology (supported by ERDF in the years 2010–2016), allowing full-power and full-voltage experiments and testing up to 35kV and max power in the range of tens of MWs, are unique in the world. This infrastructure is shared with cooperating research partners as well as with industry all around the world. FEE/RICE allows its research infrastructure to be used by the world's professional community under the "open infrastructure" program, which is significantly funded by the OP JAK and FEE/RICE's own revenues, and supports especially talented researchers in this project. It offers them the opportunity to use the built laboratory infrastructure to experimentally validate their ideas and inventions, which would not be possible otherwise and elsewhere. This program significantly supports the transfer of cutting-edge technologies to the Czech Republic and opens up new opportunities to attract highly qualified personnel from abroad and retain them in the Czech Republic. This program is promoted in cooperation with international organizations such as IEEE PELS and ECPE.

UWB is not a direct host of major significant infrastructure, but in three cases it is an important partner institution – CERN-CZ, ELIXIR-CZ and LINDAT/CLARIAH-CZ.

The CERN-CZ Research Infrastructure organizes the participation of the Czech research community in the international particle physics research laboratory CERN (Conseil Européen pour la Recherche Nucléaire) in Geneva. The UWB Faculty of Electrical Engineering has been cooperating with the organization for a long time. One of the world's largest and most renowned research centers currently operates the world's most powerful accelerator, the Large Hadron Collider – LHC. Experts from the Pilsen faculty have joined the research group on the TOTEM project, which is one of 7 experiments at the LHC.

ELIXIR CZ is dedicated to organizing, storing, sharing and facilitating the interoperability of bioscience data for further processing and analysis. Teams of experts, including staff from the UWB Faculty of Applied Sciences, develop and operate a wide range of tools, maintain specialized databases of biological data from various research areas across the life sciences, and provide e-infrastructure services. All services are available in open access mode to Czech scientists and the international research community. ELIXIR CZ provides cutting-edge services in five strategic areas:

chemical biology, genomics, computational technology and data management, 3D-bioinformatics and precision medicine.

LINDAT/CLARIAH-CZ is a unique major research infrastructure that deals mainly with linguistic as well as other digital resources and tools for their processing, develops them and provides them in relevant fields to the scientific community, to industry for application development and, in specific cases such as language culture, directly to the public. It is made up of 15 leading research organizations in the Czech Republic working in the humanities and arts, as well as in several interdisciplinary fields. The aim of LINDAT/CLARIAH-CZ is to make digitized data resources in these fields openly available to the broader research community and students in the Czech Republic. Experts from the UWB Faculty of Applied Sciences are involved in the development of software facilitating automatic processing and searching of multimedia data, share knowledge and experience in the field of automatic speech and image processing, and spread awareness in academia of the possibilities of using digital technologies in the humanities.

Table 4.9.1 provides an overview of expenditures/costs of research infrastructure and equipment for the assessment period (including related non-capital and personnel costs) from the data of the units of UWB that have the largest research infrastructure – FAS, FEE, FME, NTC.

4.9.1 Summary of expenditure/costs on research infrastructure and equipment for the period under review (including related non-investment and personnel costs).

Costs/expenses in thou. CZK/EUR/year	2020	2021	2022	2023	2024	Total value of assets ²¹
Costs/expenses related to the acquisition of small fixed assets for R&D&I	11,019/ 434,690	10,690/ 421,713	9,280/ 366,068	10,910/ 430,380	8,957/ 353,329	50,857/ 2,006,180
Cost of repairs and maintenance of equipment	6,293/ 248,225	2,255/ 88,961	7,658/ 302,081	2,547/ 100,462	2,542/ 100,293	21,295/ 840,022
Acquisition of tangible (DH) and intangible (DN) assets for R&D&I (investments)						
Of which software	906/ 35,720	6,383/ 251,795	411/ 16,213	-	153/ 6,033	7,852/ 309,761
Of which other intangible fixed assets	-	-	-	-	-	-
Of which land, buildings and structures	214/ 8,447	3,307/ 130,441	727/ 28,679	2,197/ 86,667	117/ 4,624	6,562/ 258,858
Other intangible fixed assets (machinery, apparatus, equipment, etc.)	48,655/ 1,919,321	30,824/ 1,215,942	11,571/ 456,437	7,069/ 278,871	4,802/ 189,436	102,921/ 4,060,006
Total infrastructure spending in years ²²	67,087/ 2,646,403	53,459/ 2,108,852	29,647/ 1,169,478	22,723/ 896,380	16,571/ 653,715	189,487/ 7,474,827

²¹ Enter the sum of the row.

²² Enter the sum of the column.

FINANCES

4.10 Budget and structure of financial resources

The HEI shall provide and comment on an overview of the total R&D&I budget in the period of 2020–2024, broken down by organisational units of the evaluated HEI and by source of funds (Table 4.10.1). The HEI shall also comment on the shares of total costs/outputs covered by public and non-public sources by type of R&D&I for the period under evaluation as shown in Table 4.10.2.

As complementary data, the university will provide an overview of prestigious research projects obtained during the period of 2020–2024 (ERC²³, MSCA²⁴, HHMI²⁵, HFSP²⁶, NSF²⁷, Horizon Europe²⁸, NIH²⁹, Wellcome Trust³⁰, EDF³¹, OP JAK³², OP TAK³³, NPO³⁴, GA CR³⁵, TA CR³⁶ etc.). Include information on the amount of funding received and whether the HEI were principal investigator or co-investigator in Tables 4.10.3, 4.10.4 and 4.10.5.³⁷

In addition, the HEI will describe in more detail up to five of the most important projects from the list of prestigious individual projects abroad (ERC, MSCA, HHMI, HFSP, NSF, etc.), providing basic information at the HEI's discretion and regardless of the funder: title, field of expertise, agency, amount of funding, other project participants, and other relevant information as appropriate.

A maximum of 500 words plus 200 for each example of a prestigious international individual project given.

Self-assessment:

Comments on Table 4.10.1

The total budget for R&D&I in the period 2020–2024 amounted to CZK 3 974 197 thousand (EUR 156.8 million), which makes up 28 % of the total UWB budget for the period 2020–2024. The share

²³ The European Research Council (ERC) is part of the 'Excellent Science' pillar of Horizon Europe. The ERC funds cutting-edge research by supporting individual Principal Investigators and their research teams.

²⁴ Marie Skłodowska-Curie Action (MSCA) is part of the "Excellent Science" pillar of Horizon Europe and is also aimed at supporting young researchers, including PhD students.

²⁵ Howard Hughes Medical Institute - a non-profit organization in the USA significantly supporting international biomedical research.

²⁶ Human Frontier Science Program - an international programme to support research, particularly in the natural sciences and computer science.

²⁷ National Science Foundation (USA).

²⁸ Horizon Europe - the EU's 9th Framework Programme for research and innovation, running from 2021-2027.

²⁹ National Institutes of Health (NIH) - an agency under the United States Department of Health and Human Services. NHI is a major player in project support for biomedical research.

³⁰ major UK private foundation supporting mainly biomedical research.

³¹ European Defence Fund.

³² Operational Programme Jan Ámos Komenský - Priority 1 - Research and Development - multiannual programme under the Ministry of Education, Youth and Sports. Within the framework of the OP JAK it is possible to draw financial resources from the European Structural and Investment Funds (ESIF) in the period 2021-2027.

³³ Operational Programme Technologies and Applications for Competitiveness. The European Regional Development Fund (ERDF) is available in the period 2021-2027 to co-finance business projects in the areas of research, development and innovation, digitalisation and digital infrastructure, business development, smart and sustainable energy and the circular economy.

³⁴ National Recovery Plan - under Pillar 5 - Research, Development and Innovation of the National Recovery Plan, the Recovery and Resilience Facility (RRF) is available for the period 2022-2026.

³⁵ Czech Science Foundation (Grant Agency of the Czech Republic).

³⁶ Technology Agency of the Czech Republic.

³⁷ The military and the police HEIs, as parts of the organisational unit of the state, are treated specifically in terms of the possibility to participate in the projects.

of public funds for R&D&I from the Czech Republic amounted to CZK 2 936 733 thousand (EUR 115.9 million) (74 %), the share of public funds from abroad was CZK 656 307 thousand (EUR 25.9 million) (17 %) and the share of funds from other sources (knowledge transfer) was CZK 381 157 thousand (EUR 15 million). The share of RVO funds in the total R&D&I budget was 50 % (CZK 2 004 912 thousand (EUR 79.1 million)). The Faculty of Applied Sciences had the largest share of R&D&I funds at 32 %, the Faculty of Electrical Engineering at 22 % and the New Technologies – Research Center at 16 %. Data from the Annual Reports 2020–2023, Tables 5b and 5d, were used in the table, and include funds for project co-researchers. On the other hand, the funds in which UWB is a co-researcher are not included in the calculation. Furthermore, data from the Knowledge Transfer 2020–2023 were used.

The data for 2024 were extracted from the accounting system on 10 January 2025, before the closing of the accounts and the settlement with the state budget.

Comments on Table 4.10.3

The table summarizes the list of R&D projects implemented at UWB in the monitored period 2020–2024 with the financial support from foreign entities. It contains key information that provides a comprehensive view of the scope and nature of international cooperation at UWB and illustrates the importance of international partnerships for the development and implementation of selected activities. The table illustrates how a wide range of projects can be implemented thanks to international cooperation and support from reputable foreign funding providers. Participation in these projects not only enables the transfer of cutting-edge technologies and know-how, but also creates space for the emergence of innovative solutions with high added value. An important role is played by the connection between the academic, industrial and public spheres. The projects span strategically important areas such as sustainable technologies, modern industrial processes, healthcare and digital transformation. Involvement in these initiatives strengthens not only scientific capacities, but also the competitiveness and international prestige of UWB. The most important funding providers include:

The European Commission (EC), which supports many diverse key areas of research at UWB through programs such as Horizon Europe and Horizon 2020.

The European Structural and Investment Funds (SFEU), in cooperation with the Ministry for Regional Development of the Czech Republic (MRD), finance a wide range of cross-border projects through the INTERREG program.

The Technology Agency of the Czech Republic (TA CR) through the M-ERA.NET program, focusing on the development of advanced materials.

The Office of Naval Research contributed to a project focused on navigation technology through the NICOP program.

The Elixir Hub supported the transfer and development of genetic data analyses to innovate cancer research.

The British Museum is funding a project to document the building traditions of coral houses on the Swahili coast of Kenya.

Comments on Table 4.10.4

The table provides an overview of R&D projects at UWB supported by funding providers from the Czech Republic in the period 2020–2024, broken down into projects where UWB acts as a beneficiary and as an additional participant. The table reflects the extensive support for research activities across disciplines, from basic research through applied research to innovation in industry and healthcare. The largest share of funding is provided by the Grant Agency of the Czech Republic,

the Technology Agency of the Czech Republic and the Ministry of Education. The financial support is a key tool for ensuring scientific progress and strengthening the competitiveness of UWB research internationally. The number of funding providers and grant programs illustrates the breadth of involvement of research entities in various funding programs. The data presented show that the most important providers are:

The Grant Agency of the Czech Republic (GA CR): funded a total of 87 projects under the Standard Projects, EXPRO, LA, International Projects and Junior Star programs.

The Technology Agency of the Czech Republic (TA CR): focuses on applied research and innovation through programs such as Beta 2, Epsilon, Théta, Sigma, Zéta and others. It funded almost 200 projects.

The Ministry of Education, Youth and Sports (MEYS): the largest share of support is directed to the Operational Program Research, Development and Education (OP RDE) and the Operational Program Jan Amos Komenský (OP JAK).

The Ministry of Industry and Trade (MIT CR): specializes in supporting applied research and innovation projects in industry. The main programs include OP PIK and newly OP TAK. It funded projects focused on new technologies, materials and digitization.

The Ministry of Culture (MC CR): focuses on projects in the field of humanities and cultural heritage, mainly under the NAKI II and III programs. It supported a total of 7 projects in the period under review.

The Ministry of the Interior (MI CR): funds projects in the field of security research.

The Agency for Health Research (AZV ČR): support is focused on applied research in healthcare. It funds projects related to genetic research and applications in the Czech population.

ERC CZ European Research Council – Grant Program of the Ministry of Education, Youth and Sports – 1.1.2024 – 31.12.2025 in cooperation with the New Technologies Research Center (NTC), the University of West Bohemia in Pilsen and Cergy Paris University. The project focuses on quantum technologies and the use of special properties of light that can affect the state of electrons in certain materials. In particular, the Czech-French research team focuses on the study of so-called chiralities, which occur in physical objects that are not identical to their mirror image. Simply put, it can be compared to the difference between the left and right hand. The TWISTNSHINE project was supported under the ERC CZ program in the Starting Grant category for young and talented scientists, regardless of their nationality, who have two to seven years of postdoctoral experience.

EC – Horizon Europe; MSCA-DN 2021, ID 101073486, EUSpecLab European Spectroscopy Laboratory to model the materials of the future (2022–2026); EUR 237,038.40. The aim of this proposal is to train students to develop and use computer codes for modeling high-end spectroscopy. Time- and spin-resolved spectroscopies are at the forefront of basic research in characterizing and designing new materials that will shape the future of our society. In order to provide advanced training, EUSpecLab gathers scientists' expertise in quantum physics/chemistry, theory/modeling and experimental methods in atomic and spin/time versions. This draft version was submitted by a group of scientists working in academic laboratories and material modeling companies.

EC – Horizon Europe; MSCA-SE 2021, ID 101086178, INNMEDSCAN Innovative Photodetector Module for advanced Hybrid "Magnetic Resonance Imaging/Positron Emission Tomography" Scanners for Nuclear Medicine (2023–2027); EUR 248,400.00. The project aims to develop cooperation through knowledge sharing and exchange of experience in the use of advanced semiconductor detectors and advanced electronics for signal processing in medical applications in collaboration with universities and research institutes from Portugal, Azerbaijan and Turkey.

EC – Horizon Europe; MSCA-SE 2022, ID 101129879, DETMED Novel detector concept for medical gamma probe (2023–2027 EUR 280,600). The project aims to develop cooperation through knowledge sharing and exchange of experience in the use of advanced semiconductor detectors and advanced electronics for signal processing in medical gamma probe applications developed in cooperation with universities and research institutes from Portugal, Ukraine, Poland, Germany, Slovenia, Hungary and Azerbaijan.

EC – Horizon Europe; MSCA-CITIZENS 2023, ID 101162282, METAMORPHOSIS (2024–2026); EUR 10,000. The Night of Scientists is one of the most popular science popularization events in the Czech Republic. Since its introduction in 2005, it has been growing steadily in terms of scope, geographical coverage, professionalization and public attendance. The main theme of the European Night of Scientists in 2024 was, as the name suggests, transformation in all its forms. At the same time, the organizers paid tribute to Franz Kafka, the 100th anniversary of whose death we marked last year. The conference for science popularizers provided enthusiastic researchers with the necessary skills and a platform for sharing ideas. Scientists involved in EU-funded projects, including MSCA members and ERC fellows, and Erasmus students helped showcase the benefits of EU support for science and innovation.

EC – MSCA4Ukraine; ID 1233365; Renewable energy sources and digital twin; 166 278,72 EUR; 1 April 2023 – 31 March 2025. The MSCA4Ukraine program allows PhD students and postdocs to continue their work in academic and non-academic host organizations in EU Member States. The aim of the project is to optimize the operation of renewable energy sources, in particular PV systems, in local and community energy networks, the application of OZE to grids operated in emergency mode with respect to stabilization of the ratios in individual nodes, and the modeling of parameters, properties and operation of OZE, in particular PV systems, with respect to the creation of a digital twin.

4.10.1 Total budget of the HEI

Name of the HEI unit	Total budget in thou. CZK/EUR	Percentage of public funding in the Czech Republic	Share of public funding from abroad in %	Percentage of funding from other sources
FAS – Faculty of Applied Science	1,276,380/ 50,350,296	74	18	8
FOA – Faculty of Arts	293,876/ 11,592,742	94	1	5
FEC – Faculty of Economics	83,727/ 3,302,840	97	2	1
FOE – Faculty of Education	87,756/ 3,461,775	99	0	1
FEE – Faculty of Electrical Engineering	888,572/ 35,052,150	81	10	9
FHC – Faculty of Health Care Studies	7,054/ 278,264	98	0	2
FOL – Faculty of Law	59,055/ 2,329,586	99	0	1
FME – Faculty of Mechanical Engineering	481,662/ 19,000,473	65	11	24
FDA – Faculty of Design and Art	8,780/ 346,351	35	0	65
NTC – New Technologies – Research Centre	617,848/ 24,372,702	63	26	11
University-wide workplace	169,487/ 6,685,878	32	68	0

4.10.2 Share [%] of total costs/outputs by type of R&D&I paid from public and non-public sources

	2020	2021	2022	2023	2024	Total
Basic research	44,43 %	37,54 %	36,88 %	32,66 %	33,91 %	37,00 %
Applied Research	39,57 %	44,75 %	44,90 %	48,54 %	47,60 %	45,14 %
Experimental development and innovation	16,00 %	17,71 %	18,22 %	18,81 %	18,49 %	17,86 %
Total	100,00 %	100,00 %	100,00 %	100,00 %	33,91 %	37,00 %

Note: For definitions see Definition of Terms in Methodology HEI2025+.

4.10.3 Projects supported by a foreign provider

In the role of beneficiary							
Provider / Investor	Programme/Grant Scheme	Project name	Support (in thousands CZK/EUR)				
			2020	2021	2022	2023	2024
TA CR	M-ERA.NET 3 Call 2022	Development and Processing of Advanced Metal Hydride Composites with Specific Microstructural Properties for Hydrogen Storage in Mobile Applications (H2MobilHydride) (2023-2026)				1,217/ 48,000	1,749/ 69,000
SFEU + MMR	INTERREG BY-CZ 2021-2027	Cross-Border Knowledge Transfer in the Field of Advanced Dental Materials (Total Budget 2024-2027)					7,453/ 294,000
SFEU + MMR	INTERREG BY-CZ 2021-2027	Innovation Network for Sustainable Energy Based on Hydrogen Technologies for Small and Medium-Sized Enterprises in the Joint CZ-BY Region (Total Budget 2024-2026)					3,777/ 149,000
EC	MSCA4Ukraine	Renewable energy sources and digital twin				1,572/ 62,000	2,104/ 83,000
The British Museum	The Endangered material Knowledge programme	Coral stone house construction on the Swahili coast (Lamu, Kenya)					177/ 7,000
SFEU + MMR	INTERREG BY-CZ 2014-2020	Utilization of Modern Information Technologies for Neurorehabilitation of Patients with Acquired Brain Injury (Total Budget 2019-2022)	11,154/ 440,000				
Office of Naval Research	NICOP	Anticipative Point-Mass Method for High-Performance Estimation and Navigation (APHEN)			1,369/ 54,000		
Elixir Hub	ESEP	Transfer and development of cancer sequencing data analysis to Faculty of medicine in Pilsen, Charles University with focus on single cells (2019–2020)		4,766/ 188,000			
SFEU + MMR	INTERREG BY-CZ 2014-2020	Research Innovations in Prosthetics (Total Budget 2021-2022)		4,817/ 190,000			
TA CR	M-ERA.NET 2 Call 2020	Advanced coating substrate preparation by shifted and ultrafast laser texturing (ADVENTURE) (2021-2024)		11,66/ 46,000	2,003/ 79,000	2,003/ 79,000	837/ 33,000
SFEU + MMR	INTERREG BY-CZ 2014-2020	Virtual Models for Optimization of Medical Education (Total Budget 2021-2022)		2,129/ 84,000			
SFEU + MMR	INTERREG BY-CZ 2021-2027	Quantum Technologies for the Czech-Bavarian Region (Acronym: QuantumNetX) (Total Budget 2024-2027)				6,490/ 256,000	
SFEU + MMR	INTERREG BY-CZ 2014-2020	Research and Development of a Screw Motor (Total Budget 2017-2021)	10,064/ 397,000				
SFEU + MMR	INTERREG BY-CZ 2021-2027	Optimization of the FLM Process Using Thermodiagnosics (Total Budget 2023-2026)				9,075/ 358,000	
SFEU + MMR	INTERREG BY-CZ 2021-2027	Prevention of Pelvic Floor Disorders (Total Budget 2023-2026)				10,115/ 399,000	
SFEU + MMR	INTERREG BY-CZ 2021-2027	Research on E-Textiles for Telemedicine and the Integrated Rescue System (Total Budget 2023-2026)				8,061/ 318,000	
Total			21,218/ 837,000	12,878/ 508,000	3,372/ 133,000	38,532/ 1,520,000	16,097/ 635,000

In the role of another participant							
Provider / Investor	Programme/Grant Scheme	Project name	Support (in thousands CZK/EUR)				
			2020	2021	2022	2023	2024
TA CR	M-ERA.NET 2 Call 2020	Development of "3D Printing-Thermal Spraying" Systems for Dynamically and Cyclically Loaded Applications (2021-2024)		1,039/ 41,000	2,256/ 89,000	2,282/ 90,000	735/ 29,000
EC	Horizont Evropa	Pods4rail_Concept Development of a System for Pods and Pod-Carriers to be used as Moving Infrastructures mainly for Rail, as well as for Road and Ropeways_ (Total Budget 2023–2026)				3,777/ 149,000	
EC	Horizont Evropa	Prospects 5.0_Progress Towards Industry 5-0: A Smart Study on Analysis And Identification of Practices, Drivers, Success Factors and Obstacles of Transitions Towards Industry 5.0. (Total Budget 2024–2026)					2,434/ 96,000
EC	Horizont Evropa	TREASURE_Towards reliable and safe GFR (Total Budget 2024–2028)					4,563/ 180,000
EC	Horizont Evropa	ENEN2plus_Building European Nuclear Competence through continuous Advanced and Structured Education and Training Actions (Total Budget 2022–2026)			1,546/ 61,000		
EC	Horizont Evropa	INNMEDSCAN_Innovative Photodetector Module for advanced Hybrid "Magnetic Resonance Imaging/Positron Emission Tomography" Scanners for Nuclear Medicine (Total Budget 2023–2027)				6,287/ 248,000	
EC	Horizont Evropa	DETMED_Novel detector concept for medical gamma probe (Total Budget 2023–2027)				7,098/ 280,000	
EC	Horizont Evropa	Palimpsest_Creative Drivers for Sustainable Living Heritage Landscapes (Total Budget 2023–2026)				3,118/ 123,000	
EC	Horizont Evropa	Beagle_Blue Oceans Strategy for Value Creation (Total Budget 2024–2026)					2,231/ 88,000
EC	Horizont 2020	TURBO-REFLEX – TURBOmachinery Retrofits enabling FLEXible back-up capacity for the transition of the European standard (Total Budget 2017-2021)	7,149/ 282,000				
EC	Horizont 2020	Switch2save_Lightweight switchable smart solutions for energy saving large windows and glass façades (Total Budget 2019–2023)	7,098/ 280,000				
EC	Horizont 2020	DUET_Building computer replicas of city systems_ (Total Budget 2019–2022)	2,358/ 93,000				
EC	Horizont 2020	S4AllCities_Smart Spaces Safety and Security for All Cities (Total Budget 2020-2022)	1,901/ 75,000				
EC	ELG	Motion-Capture 3D Sign Language Resources		1,800/ 71,000	355/ 14,000		
EC	Horizont 2020, ECSEL	IMOCO4.E_Intelligent Motion Control under Industry 4.E (Total Budget 2021-2024)		8,746/ 345,000			
ESA	EXPRO+	Advanced Algorithms and Techniques for Resilient Time Provision (2022-2024)		887/ 35,000	1,648/ 65,000		
EC	Horizont Evropa	XL_Connect _ Large scale system approach for advanced charging solutions (Total Budget 2023–2026)				4,766/ 188,000	
EC, MEYS	Horizont Evropa, KDT JU	AGRARSENSE_Smart, digitalized components and systems for data-based Agriculture and Forestry (Total Budget 2023–2025)				22,080/ 871,000	
EC, MEYS	Horizont Evropa, KDT JU	OPEVA_Optimization of Electric Vehicle Autonomy (Total Budget 2023–2025)				10,875/ 429,000	
EC	Horizont Evropa	BIPED_Building Intelligent Positive Energy Districts (Total Budget 2024–2026)					6,338/ 250,000
EC	Horizont Evropa	COLOSSE_Central European Platform for Plasma-Enabled Surface Engineering (Total Budget 2024–2027)					8,720/ 344,000

EC	Horizont Evropa	TRIFFID_uTonomous Robotic aid For increasing First responDers efficiency (Total Budget 2024–2027)					10,368/ 409,000
EC	Horizont Evropa	FOCAL_Efficient exploratiOn of Climate dAta Locally (Total Budget 2024-2027)					9,177/ 362,000
EC	Horizont 2020	HIGREEW_Affordable High-Performance Green Redox Flow Batteries (Total Budget 2019–2023)	5,450/ 215,000				
ESA	EXPRO+	NON-CONTACT NDI FOR POLYMERIC COMPOSITE STRUCTURES – EXPRO+ (2020-2023)	431/ 17,000	279/ 11,000			
EC	Horizont Evropa	TRANS-SAFE_Transforming Road Safety in Africa (Total Budget 2022–2026)				1,901/ 75,000	
EC	Horizont Evropa	EUSpecLab_European Spectroscopy Laboratory to model the materials of the future (Total Budget 2022–2026)			6,008/ 237,000		
EC/MEYS	H2020, ECSEL	I-MECH_Intelligent Motion Control Platform for Smart Mechatronic Systems (Total Budget 2017–2020)	18,404/ 726,000				
EC/MEYS	H2020, ECSEL	FITOPTIVIS_From the cloud to the edge – smart IntegraTion and Optimization Technologies for highly efficient Image and Video processing Systems (Total Budget 2018–2021)	5,070/ 200,000				
EC/MEYS	H2020, ECSEL	AfarCloud_Aggregate Farming in the Cloud (Total Budget 2018–2021)	14,957/ 590,000				
EC/MEYS	H2020, ECSEL	COMP4DRONES_Framework of key enabling technologies for safe and autonomous drones’ applications (Total Budget 2019–2023)	11,053/ 436,000				
EC/MEYS	H2020, ECSEL	CHARM – Challenging environments tolerant Smart systems for IoT and AI (Total Budget 2020–2024)	14,221/ 561,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	Industry 4.0 Without Borders (Total Budget 2017-2019)	5,704/ 225,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	Computer-Assisted System Controlled by Brain Waves for People with Limited Mobility (Total Budget 2016-2020)	5,856/ 231,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	Obstetrics 2.0 – Virtual Models for Preventing Injuries During Childbirth (Total Budget 2018-2020)	3,574/ 141,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	MATEGRA: Advanced Bioporous Materials Functionalized with Stem Cells for Improved Osseointegration of Implants (Total Budget 2018-2021)	7,935/ 313,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	Enhanced Treatment of Osteoporotic Bone Tissue with Innovative Metallic Surfaces Enriched with Organic-Inorganic Nanoparticles (Total Budget 2021-2023)		5,070/ 200,000			
SFEU	INTERREG V-B (DTP)	Knowing IPR: Supporting Innovation in the Danube Region Through Knowledge Engineering (Total Budget 2018-2021)	6,033/ 238,000				
SFEU + MMR	INTERREG BY-CZ 2014-2020	FSTORE: Cross-Border Platform for Research on Future Energy Storage and Its Integration (Total Budget 2017-2020)	141,96/ 560,000				
SFEU + MMR	INTERREG BY-CZ 2021-2027	Applied Research on Exoskeletons for Rehabilitation Use (Total Budget 2023-2026)					12,523/ 494,000
Total			131,390/ 5,183,000	17,821/ 703,000	11,813/ 466,000	621,84/ 2,453,000	57,089/ 2,252,000

Note: For co-sponsorship projects, please only indicate the amount of funding for the evaluated HEI.

4.10.4 Projects supported by the Czech provider

In the role of beneficiary							
Provider/ Investor	Programme/Grant Scheme	Project name	Support (in thousands CZK/EUR)				
			2020	2021	2022	2023	2024
GA CR	Stand, LA, Mez, Junior Star	A total of 58 projects	35,677/ 1,407,377	39,832/ 1,571,282	34,733/ 1,370,138	30,011/ 1,183,866	24,923/ 983,156
TA CR	Beta 2, CK, Epsilon, Théta, Doprava 2020+, Éta, Gama 2, NCK2, Prostředí pro život, Sigma, Théta, Zéta	A total of 59 projects	57,016/ 2,249,152	45,363/ 1,789,467	34,135/ 1,346,548	72,640/ 2,865,483	71,799/ 2,832,308
MEYS	NPU I, EIG Concert Japan, JPICH, Inter Excellence, V4+Korea, ERC CZ	A total of 12 projects	76,521/ 3,018,580	3,099/ 122,249	2,173/ 85,720	3,168/ 124,970	9,112/ 359,448
MC CR	NAKI II, NAKI III, Mobilita III	A total of 7 projects	7,916/ 312,268	9,257/ 365,168	7,713/ 304,260	3,543/ 139,763	5,889/ 232,308
MI CR	Bezpečnostní výzkum	A total of 3 projects		5,307/ 209,349	4,550/ 179,487	9,765/ 385,207	10,036/ 395,897
MZV ČR	Posilování kapacit VVŠ	A total of 5 projects		251/ 9,901		1,614/ 63,669	2,016/ 79,527
MEYS	OP VVV	Research on Additive Technologies for Future Applications in Engineering Practice – RTI Plus (Project duration: 1.1.2019 – 30.6.2023)	18,047/ 711,913	16,886/ 666,114	9,389/ 370,375		
MEYS	OP VVV	Electrical Engineering Technologies with a High Share of Embedded Intelligence (Project duration: 1.1.2019 – 30.6.2023)	22,155/ 873,964	23,088/ 910,769	11,124/ 438,817		
MEYS	OP VVV	Doctoral School of Archaeology: New Methods, Technologies, and Research of Historical Heritage (Project duration: 1.10.2017 – 30.9.2022)	3,939/ 155,385				
MEYS	OP VVV	R&D of Intelligent Components for Advanced Technologies in the Pilsen Metropolitan Area (Project duration: 1.1.2018 – 31.12.2022)	21,123/ 833,254	10,319/ 407,061	8,232/ 324,734		
MEYS	OP VVV	Application of Modern Technologies in Medicine and Industry (Project duration: 1.5.2018 – 31.10.2022, total budget)	57,681/ 2,275,385				
MEYS	OP VVV	Research Collaboration for Achieving Higher Efficiency and Reliability of Bladed Machines (Project duration: 1.7.2018 – 31.12.2022)	9,108/ 359,290	4,562/ 179,961	6,633/ 261,657		
MEYS	OP VVV	Computational and Experimental Design of Advanced Materials with New Functionalities (Project duration: 1.1.2017 – 30.4.2023)	16,566/ 653,491	11,308/ 446,075	3,356/ 132,387		
MEYS	OP VVV	LABIR-PAV / Pre-application Research of Infrared Technologies (Project duration: 1.7.2018 – 31.12.2022)	18,226/ 718,974	18,534/ 731,124	9,399/ 370,769		
MEYS	OP VVV	Development of Capacities and Environment to Strengthen International, Intersectoral, and Interdisciplinary Cooperation at UWB (Project duration: 1.3.2020 – 31.12.2022)	9,982/ 393,767	7,533/ 297,160	4,810/ 189,744		
MEYS	OP VVV	HR AWARD (Project duration: 1.10.2017 – 30.9.2021)	37,554/ 1,481,420				
MEYS	OP VVV	Enhancing the Quality of Internal Grant Schemes at UWB	4,057/ 160,039	7,600/ 299,803	8,550/ 337,278	950/ 37,475	
MEYS	OP VVV	Mobility of the University of West Bohemia in Pilsen (Project duration: 1.10.2020 – 31.12.2022)	10,442/ 411,913	2,762/ 108,955	7,680/ 302,959		

MEYS	OP JAK	R&D of Technologies for Advanced Digitalization in the Pilsen Metropolitan Area (DigiTech) (Project duration: 2024-2028, total budget for the entire project duration)					68,818/ 2,714,714
MEYS	OP JAK	MSCA Fellowships CZ – UWB (Project duration: 1.10.2024 – 30.9.2026)					2,090/ 82,446
MEYS	OP JAK	Quantum Materials for Applications in Sustainable Technologies (Project duration: 1.10.2023 – 30.6.2028, total budget for the entire project duration)				278,928/ 11,003,077	
MEYS	OP JAK	PhD Infra UWB (Project duration: 1.10.2023 – 31.3.2026, total budget for the entire project duration)				56,985/ 2,247,929	
MIT CR	OP PIK	Doctoral School of Archaeology: New Methods, Technologies, and Research of Historical Heritage (Project duration: 1.10.2017 – 30.9.2022)		10,611/ 418,580			
Total			406,010/ 16,016,174	216,312/ 8,533,018	152,477/ 6,014,872	457,604/ 18,051,440	194,683/ 7,679,803
In the role of another participant							
Provider Investor	Programme/Grant Scheme	Project name	Support (in thousands CZK/EUR)				
			2020	2021	2022	2023	2024
GA CR	Stand, LA, Mez, EXPRO	A total of 29 projects	7,502/ 295,937	14,416/ 568,679	16,154/ 637,239	11,204/ 441,972	10,077/ 397,515
TA CR	Beta 2, CK, Epsilon, Théta, Doprava 2020+, Éta, Gama 2, NCK1, NCK2, Prostředí pro život, Sigma, théta, Zéta, Delta 2, Doprava 2030+, Gama 2, TREND	A total of 135 projects.	143,652/ 5,666,746	130,837/ 5,161,223	114,178/ 4,504,063	176,594/ 6,966,233	197,191/ 7,778,738
MEYS	NPU II, Inter Excellence, VVI	A total of 14 projects.	113,636/ 4,482,682	7,359/ 290,296	7,664/ 302,327	7,664/ 302,327	257,420/ 10,154,635
MIT CR	TRIO	A total of 16 projects 16.	25,894/ 1,021,460	12,046/ 47,5187	4,996/ 197,081		
MI CR	Security research	A total of 4 projects.	2,492/ 98,304	4,008/ 158,107	4,283/ 168,955	9,528/ 375,858	11,677/ 460,631
AZV ČR	Program to support applied medical research	Rate of polymorphisms in NK receptors and their ligands within the Czech population (2018–2021)	1,000/ 39,448	1,011/ 39,882			
MEYS	OP VVV	Mechanical production technology and precision engineering (solution period 1/1/2019 – 31/12/2022, general budget)	10,395/ 410,059				
MEYS	OP VVV	Engineering applications of the physics of the microworld (solution period 1/9/2017 – 31/10/2022, general budget)	18,001/ 710,099				
MEYS	OP VVV	Carbon allotropes with rationalized nanointerfaces and nanojunctions for environmental and biomedical applications (solution period 1/10/2018 – 31/12/2022, general budget)	10,384/ 409,625				
MEYS	OP VVV	Artificial intelligence and reasoning (solution period 1.6.2017-30.6.2023, general budget)	10,848/ 427,929				
MEYS	OP VVV	Robotics for Industry 4.0 (solution period 1.6.2017-30.6.2023, general budget)	4,755/ 187,574				

MEYS	OP VVV	LINDAT/CLARIAH-CZ – Expansion of the repository, services and computing cluster of the research infrastructure (project solution period 1.1.2020 – 31.12.2022, general budget)	1,366/ 53,886				
MEYS	OP JAK	Development of special wire blanks for welding and 3D printing (combined budget 1/3/2024 – 31/12/2028)					9,500/ 374,753
MEYS	OP JAK	Robotics and advanced industrial production (project solution period 1.6.2023-30.6.2028),				14,250/ 562,130	
MEYS	OP JAK	LINDAT/CLARIAH-CZ Instrumentation (project solution period 2.1.2024 – 31.12.2026)					1,055/ 41,617
MEYS	OP JAK	Mechanical Engineering of Biological and Bioinspired Systems (Project Duration 1.9.2023 – 30.6.2028, overall budget)				79,622/ 3,140,907	
MEYS	OP JAK	Sensors and Detectors for the Information Society of the Future (Project Duration (1.1.2024-30.6.2028, Total Budget)					19,134/ 754,793
MEYS	OP JAK	European Laboratory for Applied Research in Additive Technologies of Thermal Spraying (1.4.2024 – 31.12.2028, Total Budget)					7,122/ 280,947
MIT CR	OP PIK	ATTL and Co. APPLICATION			1,891/ 74,596	2,285/ 90,138	
MIT CR	OP PIK	Virtual and Augmented Reality in Manufacturing – PZT	276/ 10,888	664/ 26,193	387/ 15,266		
MIT CR	OP PIK	Implementation of Advanced CAD-CAM Tools for Product Design and Efficient Production – PZT	230/ 9,073	688/ 27,140			
MIT CR	OP PIK	Software Tool for Employee Training in Virtual Reality – PZT	167/ 6,588	670/ 26,430	703/ 27,732		
MIT CR	OP PIK	Development of a Self-Propelled Cabin with an Innovative Drive, Emphasizing the Elimination of Negative Dynamic Effects on the Operator		2,408/ 94,990	2,408/ 94,990	2,408/ 94,990	
MIT CR	OP PIK	Software Tool for Automating the Analysis of Defect Causes and Their Impact in Product and Manufacturing Process Design – PZT		738/ 29,112	805/ 31,755	67/ 2,643	
MIT CR	OP PIK	Knowledge Transfer for a Software Tool Designed for Occupational Safety Training in Construction via Virtual Reality – PZT		886/ 34,951	911/ 35,937	75/ 2,959	
MIT CR	OP PIK	Interconnection of Time Consumption Calculation and Ergonomic Classification at the Workplace During Production Preparation – PZT		738/ 29,112	805/ 31,755	67/ 2,643	
MIT CR	OP PIK	Knowledge Transfer for a New Software Tool for Data Collection and Evaluation in Virtual Reality – PZT		534/ 21,065	801/ 31,598	267/ 10,533	
MIT CR	OP PIK	Research and Development of a Multifunctional Sports Helmet Using Advanced Materials and Manufacturing Technologies		225/ 8,876	1,486/ 58,619	2,244/ 88,521	
MIT CR	OP PIK	Application of Residual Life Methodology for Thermoplastics in the Gas and Water Supply Industry		1,113/ 43,905	3,531/ 139,290	1,335/ 52,663	
MIT CR	OP PIK	Development and Research of a New Generation of Airport Surface Covers		363/ 14,320	846/ 33,373	1,367/ 53,925	
MIT CR	OP PIK	Development of a High-Performance Tool for Machining Superalloys (HRSA)		381/ 15,030	1,082/ 42,682	496/ 19,566	
MIT CR	OP PIK	Research on the Impact of Reusing Metal Waste Generated During Additive Manufacturing on the Reliability and Functionality of Produced Parts, and the Potential for Reducing Environmental Burden by Minimizing Hazardous Waste Disposal and CO ₂ Emissions		346/ 13,649	616/ 24,300	1,037/ 40,907	
MIT CR	OP PIK	Research and Development of a New Generation of Suspension Hooks for Lifting, Clamping, and Handling Technology with Industry 4.0 Support at ZBIROVIA, a.s.		646/ 25,483	3,222/ 127,101	10,204/ 402,525	

MIT CR	OP PIK	Development of a New Product by AIR POWER – Innovative Light Tower Development		362/ 14,280	362/ 14,280	159/ 6,272	
MIT CR	OP PIK	Development Of Honing Tools And Technologies Using Superhard Cutting Materials			992/ 39,132	527/ 20,789	
MIT CR	OP PIK	Software Solution for Determining the Residual Life of Metal Pipelines		1,803/ 71,124	4,990/ 196,844	1,787/ 70,493	
MIT CR	OP PIK	Research and Development of a New Milling Cutter Series for Chip Machining with Progressive Cooling to Increase Durability			1,202/ 47,416	4,232/ 166,943	
MIT CR	OP PIK	Research And Development Of A Comprehensive Technology For Producing Stable Ammunition Semi-Finished Products			1,418/ 55,937	1,747/ 68,915	
MIT CR	OP PIK	e-Carriage			1,456/ 57,436	707/ 27,890	
MIT CR	OP PIK	3D Printing of Plastic Molds for Injection Molding of Prototypes and Small Series			535/ 21,105	1,389/ 54,793	
MIT CR	OP PIK	Smart Textiles – (2017)	713/ 28,126				
MIT CR	OP PIK	Development of a New Generation of Forgings from Ultra-High-Strength Steels – (2017)	1,049/ 41,381	2,510/ 99,014	4,888/ 192,821	748/ 29,507	1,049/ 41,381
MIT CR	OP PIK	Development of a New Generation of Equipment for Modeling Technological Processes for Industry 4.0 – (2020)	4,274/ 168,600	4,274/ 168,600	4,274/ 168,600		
MIT CR	OP PIK	Smart Photovoltaic Boiler – (2020)	983/ 38,777	1,967/ 77,594	983/ 38,777		
MIT CR	OP PIK	Design of Energy-Efficient Chokes – NEUTlum – (2021)		854/ 33,688	1,242/ 48,994	1,117/ 44,063	
MIT CR	OP PIK	Development of a Reactivity Control System – (2021)		1,906/ 75,187	2,543/ 100,316	2,118/ 83,550	
MIT CR	OP PIK	Research and Development of Heat Treatment in Energy-Efficient Furnaces for Shape Stability of Bearing Components – (2021)		3,900/ 153,846	4,289/ 169,191	2,000/ 78,895	
MIT CR	OP PIK	Systematic Solution for Sustainable Processing of Waste from Healthcare Facilities – (2021)		920/ 36,292	1,840/ 72,584	920/ 36,292	
MIT CR	OP PIK	Research and Development of the Technological Process of Hardening Grinding Wheels in Energy-Efficient Furnaces – (2021)		1,500/ 59,172	3,000/ 118,343	1,500/ 59,172	
MIT CR	OP PIK	Research and Development of an Automated Mobile Welding System for Railway Track Repairs of Small and Medium Scale – (2021)		700/ 27,613	1,441/ 56,844	741/ 29,231	
MIT CR	OP PIK	Research and Development of Tools for Precise Die Forging of Non-Ferrous Metal Alloys – (2021)		1,492/ 58,856	3,000/ 118,343	1,900/ 74,951	
MIT CR	OP PIK	Inductive Flow Meter for Carbonated Beverages – (2022)			1,564/ 61,696	651/ 25,680	
MIT CR	OP PIK	Experimental Development of an Adaptive Training Module – "School with Perspective" – (2021)		609/ 24,024	635/ 25,049	483/ 19,053	
MIT CR	OP PIK	Research and Development of an Intelligent System for Social Care Support Using Assistive Technologies – (2019)	955/ 37,673				
MIT CR	OP PIK	Multimodal Identification, Authorization, and Verification of Individuals – (2018)	1,297/ 51,164				
MIT CR	OP PIK	Research on Neural Networks and Application of Its Results for the Development of Software Solutions for Digitizing Cultural Heritage – (2020)	977/ 38,540	977/ 38,540	977/ 38,540		
MIT CR	OP PIK	Research and Development of an Intelligent PAS System for Workplace Health Protection and Improved Working Conditions – (2020)	379/ 14,951	1,137/ 44,852	1,137/ 44,852		
MIT CR	OP PIK	Advanced Recognition and Extraction of Handwritten Texts Using Neural Networks – (2021)		685/ 27,022	857/ 33,807	943/ 37,199	

MIT CR	OP PIK	Innovation of Technologies, Processes, and Development of a Modular E-Commerce Solution – PZT – (2021)		661/ 26,075	721/ 28,442	60/ 2,367	
MIT CR	OP PIK	Research and Development (R&D) of ICZ a.s. in the Use of Artificial Intelligence (AI) for Processing Medical Documentation – (2021)		833/ 32,860	2,500/ 98,619	1,666/ 65,720	
MIT CR	OP PIK	Next-Generation Document Management System (DMS) – (2021)		849/ 33,491	2,038/ 80,394	849/ 33,491	
MIT CR	OP TAK	Introduction of Modern Parametric Multi-Axis Machining Using Specialized CAD/CAM Software – (2023)					1,020/ 40,237
MIT CR	OP TAK	Integration of External Peripherals into Virtual Reality Applications for Effective First Aid Training					1,061/ 41,854
MIT CR	OP TAK	Use of Digital Technologies for Performing Compensatory Exercises to Prevent Occupational Diseases – (2023)				388/ 15,306	924/ 36,450
MIT CR	OP TAK	New Generations of Modular Cutting Tools with Extended Lifespan, Designed Using Industry 4.0 Principles – (2023)				1,541/ 60,789	2,927/ 115,464
MIT CR	OP TAK	Development of a Hand-Tracking Application for Transforming 2D Layouts and 3D Visualizations into Virtual Reality – (2023)					970/ 38,264
MIT CR	OP TAK	Innovation of Control Valves – (2024)					1,065/ 42,012
MIT CR	OP TAK	Development of a Turbine Blade Produced by Additive Manufacturing (3D Printing) – (2023)					1,745/ 68,836
MIT CR	OP TAK	Prototype – Research and Development of an Innovative Piping System for Energy Waste Utilization Equipment – (2023)					2,004/ 79,053
MIT CR	OP TAK	Autonomous Vacuum Device for Transformer Maintenance – (2023)				462/ 18,225	1,387/ 54,714
MIT CR	OP TAK	HeatProTex – Advanced Technology for Producing Smart Heating Textiles Using Innovative Materials to Reduce Energy Consumption – (2023)				1,548/ 61,065	3,096/ 122,130
MIT CR	OP TAK	Research and Development of the Active Part of a Distribution Transformer – (2023)				959/ 37,830	1,918/ 75,661
MIT CR	OP TAK	DataWise Print Knowledge Transfer Partnership – (2023)				455/ 17,949	910/ 35,897
MIT CR	OP TAK	Intelligent Non-Invasive System for Measuring Liquid Volume in Tanks – (2023)				895/ 35,306	1,791/ 70,651
MIT CR	OP TAK	R&D of a Lossless, Zero-Emission Hybrid Electric Shunting Locomotive – (2023)					1,925/ 75,937
MIT CR	OP TAK	Knowledge Transfer for Product Innovation Focused on Process Analysis and Optimization – (2023)				222/ 8,757	1,334/ 52,623
MIT CR	OP TAK	Artificial Intelligence for Extracting Structured Data from Archival Documents – (2023)				573/ 22,604	1,146/ 45,207
MIT CR	OP TAK	Edge Computing and Deep Learning for Traffic Data Collection and Vehicle Identification – (2023)				419/ 16,529	888/ 35,030
MIT CR	OP TAK	RAVDAl – Real-Time Tool for Describing Audiovisual Data Using Artificial Intelligence – (2023)				668/ 26,351	1,337/ 52,742
MIT CR	OP TAK	Innovation of Control Valves – (2024)					1,065/ 42,012
MIT CR	OP TAK	Development of New Solutions for Smart Shared Care and Quality Development in Social Services				2,300/ 90,730	2,300/ 90,730

MIT CR	OP TAK	Research on an Analytical Computational Method for Precise Registration of Static and Dynamic Interjaw Relationships and Development of Additive Manufacturing of Prototype Registration Tools for Full Digitalization of Complete Removable Denture Production Using 3D Printing – (2023)					533/ 21,026
Total			361,225/ 14,249,510	208,016/ 8,205,760	215,653/ 8,507,021	357,388/ 14,098,147	545,571/ 21,521,540

Note: Please summary list GA CR, TA CR and other departmental projects. For co-sponsor projects, please indicate the financial volumes for the HEI. Projects financed from EU structural funds and focused exclusively on R&D&I (e.g. OP JAK, OP TAK, NPO) and projects financed from regional sources focused exclusively on R&D&I list individually. For co-sponsoring projects, please indicate the financial volumes for the evaluated HEI only.

4.10.5 Projects supported from non-public sources

In the role of beneficiary						
Provider / Investor	Project name	Support (in thousands CZK/EUR)				
		2020	2021	2022	2023	2024
Palaxo Development s.r.o.	License – SW for deep learning; software library for descriptor extraction and for encryption and storage of records	150/ 5,917		1,230/ 48,521		0/0
EXON s.r.o.	License – SW for handwriting recognition; software for cultural content digitization				564/ 22,249	297/ 11,716
CZ LOKO, a.s.	License – algorithm for the control of the main locomotive drive with parallel ASM					750/ 29,586
Attl a spol. s.r.o. Továrna na stroje	License – use of project results – Technological line for high-speed welding of thin-walled stainless steel pipes with a fiber laser				504/ 19,867	
ATMOS Chrást s.r.o.	License for the work “Service units for the collection of diagnostic data named ATDAQ”	200/ 7,890	100/ 3,945	100/ 3,945	100/ 3,945	
Kromek Limited	License for Timepix devices				476/ 18,776	
Thermal Focus BVBA	License – SW LabIR	172/ 6,768	66/ 2,591		66/ 2,587	139/ 5,500
MD ELEKTRONIK spol. s r.o.	License – SW for photo classification and sorting					400/ 15,779
Pinflow energy storage, s.r.o.	License – vanadium batteries		21/ 824	125/ 4,931	125/ 4,931	125/ 4,931
OTHER – LICENSES (less than 300 thousand CZK in total for the years 2020 – 2024)	License – other	413/ 16,298	377/ 14,879	204/ 8,042	398/ 15,699	492/ 19,424
HOFMEISTER s.r.o.	Cutting test, milling, etc.	3,988/ 157,327	4,824/ 190,301	7,657/ 302,054	12,664/ 499,574	11,911/ 469,877
ZF	Vibration tests, CFD simulations, etc.	2,811/ 110,873	5,374/ 212,006	6,978/ 275,268	9,314/ 367,428	9,176/ 361,988
ŠKODA	Possibilities for measurement automation, vibration and shock analysis, measurement of speaker sets, etc.	3,631/ 143,235	2,648/ 104,477	3,743/ 147,634	4,783/ 188,695	4,034/ 159,132
EnergyCloud, a.s.	Research into battery regeneration processes, etc.				13,613/ 537,010	1,000/ 39,448
ČEZ, a.s.	Measurement and evaluation of vibrations in the rotor and rubbing of the Temelín nuclear power plant, etc.	2,642/ 104,226	3,119/ 123,051	3,273/ 129,105	2,657/ 104,802	2,480/ 97,820
Doosan Škoda Power s.r.o.	Diagnostic measurements, development of new modules, etc.	1,210/ 47,717	2,532/ 99,862	3,180/ 125,448	2,043/ 80,587	2,494/ 98,378
Speech Tech, s.r.o.	Development and application of machine learning methods, creation of live subtitles, etc.	2,249/ 88,702	2,420/ 95,448	2,359/ 93,045	1,919/ 75,680	2,249/ 88,734
Ústav archeologické památkové péče	Rescue archaeological research at the Libkovic site	1,779/ 70,182	1,476/ 58,231	1,904/ 75,091	1,953/ 77,049	1,898/ 74,872
Český národní registr dárců	DMS support for specific needs in quality register management, etc.	1,112/ 43,882	1,494/ 58,935	1,499/ 59,112	2,084/ 82,189	2,334/ 92,071
Mitsubishi Electric Corporation	Testing of current distribution phenomena, etc.	2,922/ 115,266	1,799/ 70,951	3,787/ 149,396		
PROFESS spol. s r.o.	Monitoring of blade vibrations, etc.	836/ 32,967	3,854/ 152,024	789/ 31,120	700/ 27,627	1,157/ 45,629
ČEPS, a.s.	Baseline determination on NN levels, analysis of observability determination, etc.	200/ 7,890	1,324/ 52,229	3,208/ 126,537	1,114/ 43,925	713/ 28,107
CLUTEX – Klastř Technické textilie, z.s.	Connecting technology for smart textiles based on ultrasonic welding, etc.	1,050/ 41,420	2,100/ 82,840	1,050/ 41,420		2,197/ 86,667
CIE	Virtual rehabilitation clinic, database for measurement recording, etc.	1,684/ 66,419	484/ 19,093	1,821/ 71,821		959/ 37,826

CZ LOKO a.s., Česká Třebová	Testing of traction motors, traction converters, and complete traction systems			4,453/ 175,650		
Siemens	Noise and vibration measurements, measurement equipment for data collection and transmission, etc.		539/ 21,282	1,180/ 46,547	1,417/ 55,898	1,215/ 47,918
Centrum výzkumu Řež s.r.o.	Machining and production of components, 3D printing of metals and plastics, etc.	326/ 12,870	100/ 3,945	571/ 22,525	1,375/ 54,241	909/ 35,852
AŽD PRAHA s.r.o.	Ensuring cybersecurity on railways – development of code weighting calculations, etc.	1,103/ 43,511	1,836/ 72,426	250/ 9,862		
Eaton Elektrotechnika s.r.o.	Development of traction motor, experimental measurements, etc.	588/ 23,188	1,480/ 58,375	770/ 30,375		105/ 4,147
VEM Sachsenwerk GmbH	Procurement, development of test generators, analysis of additional losses, etc.		43/ 1,692	1,008/ 39,768	1,764/ 69,575	
COMTES FHT a.s.	Research on position sensing, CFD analysis of burners, flow analysis in nozzles, etc.	520/ 20,502	257/ 10,138	829/ 32,719	821/ 32,372	267/ 10,531
Unicorn Systems a.s.	Module modifications, functional components, etc.	210/ 8,284	699/ 27,574		1,512/ 59,637	
GREEN ENERGY CONSULTING, s.r.o.	Technical feasibility analysis		2,350/ 92,702			
UNO PRAHA, spol. s r.o.	Analysis of material properties, measurements, etc.	2,220/ 87,575				
NIMETAL, spol. s r.o.	Design and assembly of experimental lines, etc.			500/ 19,724		1,650/ 65,089
COMDES CZ s.r.o.	Development of filters for heavy metal capture, optical-thermal property analysis, etc.	1,220/ 48,126	120/ 4,734	300/ 11,834	500/ 19,724	
ÚJV Řež a.s.	Calculation of motor winding heating time, modeling of reactor mixed active zones, etc.	440/ 17,357	538/ 21,223	328/ 12,939	514/ 20,276	319/ 12,580
ZAT a.s.	Development and delivery of testing system components, evaluation of programming capability, etc.	948/ 37,390	180/ 7,101		942/ 37,160	
GTW BEARINGS s.r.o.	Design documentation, measurement of supplied parts, macro development and validation, etc.	1,200/ 47,351				807/ 31,824
ABRASIV, akciová společnost	Research of electromagnetic accelerators, etc.		475/ 18,738	1,290/ 50,888		230/ 9,063
Huld s.r.o.	Development of ground segments as a service for operating small satellites	634/ 24,996	914/ 36,052	424/ 16,735		
Statutární město Plzeň	Homelessness study preparation	440/ 17,357	1,040/ 41,013			480/ 18,935
Kermi, s.r.o.	Development and realization of production tools, knife sharpening, etc.	436/ 17,179	587/ 23,173	448/ 17,666	135/ 5,338	238/ 9,405
Novibra Boskovice s.r.o.	Module for file loading, software extension, etc.	728/ 28,726	771/ 30,414	251/ 9,882		
AM-CME s.r.o.	Innovation in pipe production, TEM steel analysis, etc.	670/ 26,430		587/ 23,136		455/ 17,949
Element Materials Technology Pilsen s.r.o.	Verification of printability, etc.			197/ 7,771	692/ 27,287	821/ 32,394
Římskokatolická farnost	Cultural heritage digitization, church restoration, etc.	372/ 14,667	1,127/ 44,462		160/ 6,312	21/ 844
Bratři Horákové s.r.o.	Roll assembly		496/ 19,566			1,180/ 46,548
Precision Castparts CZ s.r.o.	Tool testing, calibration device sharpening, etc.				670/ 26,448	997/ 39,319
ZKL Brno, a.s.	Identification of temperature instabilities, measurement of electromagnetic compatibility, etc.		345/ 13,609	990/ 39,053	330/ 13,018	
Chropýňská strojírna, a.s.	IRNDT welds	700/ 27,613	950/ 37,466			
AGRA GROUP a.s.	Quantitative verification of separations			494/ 19,491	1,153/ 45,479	
STRABAG a. s.	Archaeological research at Bloves				117/ 4,633	1,473/ 58,089
Elektroline a.s.	Prototype creation	1,525/ 60,158				
UNIOSO s.r.o.	Testability analysis, design of new algorithms, etc.		277/ 10,929	612/ 24,141	546/ 21,536	
LaserTherm spol. s r.o.	Weld joint analysis, development of automatic navigation systems, development of robotic systems, etc.	489/ 19,274	414/ 16,321	259/ 10,208	116/ 4,564	153/ 6,036
Obec Chotěšov	Cultural heritage digitization	1,401/ 55,266				
VALEO	Prototype device manufacturing, LCA analysis, etc.	250/ 9,862		735/ 28,994		300/ 11,834

HEACO XM s.r.o.	Construction development, etc.	775/ 30,572	440/ 17,357			
ATEGA s.r.o.	Electromagnetic compatibility measurements, modernization kinematic optimization, etc.	650/ 25,641	96/ 3,787	108/ 4,260	342/ 13,491	
MDS Engineering k.s.	Part printability verification, technology verification, etc.	160/ 6,303	196/ 7,728	154/ 6,081	402/ 15,851	272/ 10,749
VendPRO s.r.o.	Prototype design for the control unit of strain gauge scales, etc.	399/ 15,740		399/ 15,740		385/ 15,187
Starkstrom-Gerätebau GmbH	Computational analyses, loss simulations, etc.				164/ 6,458	997/ 39,316
ILC FACTORY a.s.	Analysis of integrated 3D joints, ecological turbine solutions via 3D printing, etc.	267/ 10,533	577/ 22,761	300/ 11,834		
OKULA Nýrsko a.s.	Evaluation of climate control components, metrological analysis, etc.	224/ 8,818	207/ 8,162	143/ 5,621	284/ 11,187	263/ 10,369
Pojer s.r.o.	Development of prototypes for automated measuring workplaces, etc.		429/ 16,903	674/ 26,588		
Amitia s.r.o.	Creation of software tools	399/ 15,740		700/ 27,613		
Daikin Industries Czech republic s.r.o.	Detector software modification, printability verification, etc.	165/ 6,509	104/ 4,083	432/ 17,022	154/ 6,075	235/ 9,270
UJP Praha a.s.	Evaluation and determination of tetragonal phases, Raman spectroscopy, etc.	200/ 7,890	310/ 12,229	150/ 5,917	230/ 9,067	194/ 7,637
Innomotics GmbH	Evaluation of potential for switched reluctance motors					1,077/ 42,503
VÚB a.s.	Collaboration in research on detection textiles, optimization of breathing monitoring systems, etc.	200/ 7,890	525/ 20,710	350/ 13,807		
ORLEN Unipetrol RPA s.r.o.	Technical collaboration					1,070/ 42,209
OTHER – CONTRACT RESEARCH (less than 1 million CZK in total for the years 2020 – 2024)	License – SW for deep learning; software library for descriptor extraction and for encryption and storage of records	17,907/ 706,406	15,021/ 592,530	17,424/ 687,350	15,420/ 608,290	17 411/ 686 842
Total		64 815/ 2 556 700	67,455/ 2,660,870	80,217/ 3,164,232	84,837/ 3,346,539	78,329/ 3,089,922
In the role of another participant						
Provider / Investor	Project name	Support (in thousands CZK/EUR)				
		2020	2021	2022	2023	2024
Total						

Note: Indicate, for example, sponsorship donations, resources generated from other own economic activities, foreign subsidy programmes of private entities.

4.11 Rules for the use of institutional support for the LCDRO

The HEI will describe the strategy and rules for the use of institutional support for the LCDRO in the management of institutionally supported research activities (e.g., prioritisation of research topics by the HEI according to individual needs, internal grant agencies, incentive tools, support for excellent science) and the method for distribution of institutional support to individual departments/research teams for the period of 2020–2024. The impact on the management of institutionally supported research activities will be described by the HEI using specific examples (e.g. distribution of institutional support in the period of 2020–2024 depending on the evaluation results, examples of supported excellent science projects, etc.).

Maximum 500 words plus 200 words for each example given (max. five examples).

Self-assessment:

UWB uses the LCDRO in accordance with the MEYS Decision to promote independent basic and applied research and to disseminate results to the public in a non-exclusive and non-discriminatory manner.

The rules for the use and distribution of institutional support for LCDRO are in general terms regulated internally by Rector's Directive [Budget Methodology](#) (15R/2024), and [each year the](#)

[Budgetary Rules](#) (e.g. 36R/2024) specify allocations for individual parts of the subsidy. Responsibility for the allocation of the LCDRO subsidy rests with the Vice-Rector responsible for R&D.

Part of the total subsidy (up to 4 %) is allocated to centralized R&D-related activities of UWB (funds for incentive instruments to support personnel policy and R&D stimulation – link to M4 and M5 according to M17+, as well as contribution to PC and VVT activities).

The remaining part of the subsidy is distributed among the units in the form of a stabilization and performance component. The stabilization component is intended to cushion undesirable year-to-year fluctuations in the allocation of funds (so far 95 %). The performance component reflects the research performance of the unit with due regard to its quality. It is distributed on the basis of the unit's share of the aggregated 3-year assessment of selected results and other criteria. The proportion of the performance component will gradually increase.

Six categories are currently being evaluated:

- "Articles" – the share of individual units in the number of publications of type Article, Review in D1, Q1, Q2, Q3 and Q4 in the given field. The data are taken from the WoS and Scopus databases.
- "Monographs and chapters" – the share of individual units in the total number of specialist books published abroad.
- "Projects" – the share of individual units in the total amount of funds of the entire UWB for R&D projects selected according to the activity codebook in use at UWB.
- "Contract research" – the share of individual units in the amount of funding paid out for contract research projects.
- "The quality of the selected results" – the evaluation of the selected results obtained under Module M1 of Methodology 17+ will be used. Only grades that are better than or equal to the national average in the given field of science in the given year are counted.
- "Evaluation of the unit" – the evaluation of the units carried out under Module M3 of Methodology 17+ will be primarily used.

In the future, "Licenses and patents" is another possible category in the performance component, which would express the amount of funds raised through the sale of licenses and patents to third parties.

The funds for centralized activities mainly finance the Incentive System of UWB – part of RIV (Rector's Directive [Grant System](#) - 3R/2015) and the LCDRO Development System ([DS LCDRO](#)). The UWB Incentive System – part of RIV operates without applications from authors and within its framework selected publication results are awarded (*see more in section 4.2 – Internal funding schemes*).

The DS LCDRO development system was designed to support units that were rated worse than "A" in MEP1. The support is targeted at the arrival and stay of excellent personnel from abroad at UWB units with the vision of subsequent development of international cooperation of research teams, submission of joint projects with international institutions and joint publications in prestigious journals. The aim of this support is to boost international cooperation and to gradually increase the international element at the units, which should lead primarily to their overall improvement and additionally to a better evaluation under MEP2. The DS LCDRO has been operating at UWB since 2022, and a total of CZK 17.7 million (EUR 700 thousand) has been used from the LCDRO subsidy. In the period 2022–2024, 85 excellent international experts have been supported at UWB, some of whom are already permanently working at UWB units.

A change in the approach to this incentive tool is being prepared for the upcoming period. We expect to start supporting ERC/ERC-CZ project leaders from the Rector's reserve. The objective of this activity is to support outstanding researchers who demonstrate their scientific excellence and professional level not only on the basis of their achievements in research and development (R&D&I),

but also because they have the potential to compete with international trends in R&D&I. The support is intended for researchers and their teams who have decided to implement their projects at the University of West Bohemia in Pilsen (UWB).

Examples of personnel supported by the LCDRO DS:

Nodzyńska-Moroń Małgorzata – is an asset in the field of chemistry at the Faculty of Education, where she has utilized her experience, increased publication activity and the quality of the department, while sharing experience from other departments and helping to strengthen the potential for the formation of disciplinary and interdisciplinary teams. She began her fellowship in 2022, gaining full-time employment at the Faculty and becoming a permanent member of the FOE team. She was supported by a total of CZK 2.17 million (EUR 85,600) from the DS LCDRO from 2022–2024. She has participated in 13 international conferences and workshops, and contributed to 6 book chapters, two other books and two peer-reviewed articles.

Zabini Carolina – a specialist with a narrow research focus on the Paleozoic branchipods of the Discinoidea group. Prof. M. Mergl at the Biology Department of the Center for Biology, Geosciences and Envigogy of the FOE has been working on the same issues for a long time. At present, no more than five scientists in the world (Wales, Japan, Scotland, Czech Republic, Brazil) are demonstrably studying this issue. Therefore, the joint study of Czech and South American material, consultation and testing of various methodologies on the research topic leads to the development of this unique specialization.

Marinescu Ioan – the result of Prof. Marinescu's stay at UWB is the preparation of a declaration of mutual cooperation in research between FME UWB and UNI Toledo in 2025, the exchange of PhD students and the search for and creation of a concept of joint projects for 2025+ in the field of 3D printing. In addition, the department has acquired a number of teaching materials and, thanks to this collaboration, the concept of a joint publication has also been prepared.

Majdan Marek – the result of his stay are two joint projects: "Assessment of long-term health consequences of COVID-19 in Slovakia and the Czech Republic" and "Specification of high-risk HPV types in women in Slovakia after self-administered test and analysis of barriers and supporting factors for women's participation in cervical cancer screening through HPV self-administered test".

NATIONAL AND INTERNATIONAL COOPERATION

4.12 Important collaborations in R&D&I

The HEI will describe specific cases of R&D&I collaboration at the national level (maximum five examples) and the international level (maximum five examples), including examples of concrete results and impacts in the field of R&D&I beneficial for the HEI during the period of 2020–2024.

Maximum 300 words per example.

Self-assessment:

Examples at the national level:

National Centers of Competence Technology Agency of the Czech Republic (TACR): The Faculty of Electrical Engineering at the University of West Bohemia plays a significant role in the following centers: the Center of Advanced Nuclear Technology II (CANUT II, ID – TN02000012), the Center for

advanced machines and manufacturing technology (CAMAT, ID- TN02000028), the National Center for Energy II, (NCE II, ID-TN02000025), the Božek Vehicle Engineering National Center of Competence (BOVENAC, ID- TN02000054), the National Hydrogen Mobility Center (NAHYC, ID-TN02000007) and Future Electronics for Industry 4.0 and Medical 4.0 (FEIM, ID- TN02000067). The UWB is a leading research institution in the power engineering technology in Czechia. UWB has important activities and achievements proved by successful industrial application in both nuclear (CANUT) as well as non-nuclear (NCE) power. A very important field is the power grid, comprising both the transmission as well as the distribution grids. The major results are used, e.g. by ČEPS (Czech TSO), national DSOs (ČEZ Distribuce, E.GD.), ČEZ and many others (e.g. ŠKODA JS, DOOSAN ŠKODA POWER, ZAT, BRUSH). UWB also holds a leading position in Czechia in the area of e-mobility (BOVENAC) comprising technology (mainly drive, power electronics and electronics technology, and ICT) for road, rail, marine and airspace businesses. The major R&D results are successfully applied by market leaders such as Mitsubishi Electric, Siemens, ŠKODA Group (mainly ŠKODA ELECTRIC), Volkswagen Group, ZF, Valeo and many other national as well as foreign/global application partners, for example, Pilsen Urban City Transportation Company, CZ LOKO, VEM, Hennlich. These activities are supported by hydrogen technology R&D (NAHYC). UWB also has important results in the field of advanced manufacturing technology, and factory automation including robotics (CAMAT). Mainly the results in the field of advanced mechatronic technology are successfully applied by partners in different industry sectors (e.g. ŠMT, VUTS, ZURI). Advanced electronics technology is successfully introduced and applied in industry by our partners, for example, in FEIM.

Czech Technology Platform for Engineering: FME has joined the Czech Technology Platform for Engineering, which aims to increase the competitiveness of Czech industry through innovation and technological progress. The Faculty has made a contribution through research in the field of materials engineering and industrial automation. The result of the cooperation is the development of advanced technologies for additive manufacturing, which have been successfully applied in industrial practice.

The National Heritage Institute – FOL has long-term cooperation with some of their regional offices. Among other things, it participates in specialist publications published by the National Heritage Institute or in the preparation of exhibitions or permanent exhibits (for example, the study for Velhartice Castle, which was used to prepare the Šumava Treasury tour). Mutual cooperation offers FOL both the opportunity to contribute to interesting research topics and publish the results in specialist publications as well as to reach the wider public with their results.

Antisemitism – Mapping Holocaust Memorials: these two follow-up projects brought together about 10 experts from leading universities, the Academy of Sciences and the National Heritage Institute to form 2 major projects supported by the Ministry of Culture under the NAKI II and NAKI III programs. The first project, [Images of Hate: Visual Manifestations of Antisemitism in the Czech Lands from the Middle Ages to the Present \(NAKI II DG18P02OVV039\)](#), implemented in 2018–2021, focused on mapping visual manifestations of anti-Judaism and antisemitism. The ongoing project [Preserving Memory \(DH23P03OVV014\)](#), scheduled for 2023–2027, expertly evaluates the topic of Holocaust memorials and monuments in Bohemia, Moravia and Silesia and post-war reflection on the Holocaust in the visual arts. The outputs of the project will also be used at the international level, as they will be included in the database managed by the Israeli Yad Vashem Institute.

The principal researcher of both projects is Eva Janáčková from the Institute of Art History of the Academy of Sciences, while Dr. Zbyněk Tarant from the Department of Middle Eastern Studies at the UWB Faculty of Arts was invited to join the project on the basis of his expertise in the area of antisemitism research and his extensive publications on the researched topic.

Both projects have resulted in jointly edited publications, separate articles, conferences and exhibitions for the public. Thus, the research has a comprehensive impact that goes beyond the academic environment and contributes to the popularization of scientific knowledge and the spread of awareness of the given topics.

Examples at the international level:

The Swiss Federal Institute of Technology in Lausanne (EPFL) is one of two federal technology universities in Switzerland, and the Swiss Paul Scherrer Institute (PSI) is a multidisciplinary research institute for natural and technical sciences. Collaborations are ongoing with these institutes on prestigious publications that are published in top journals focused on physical sciences. Several breakthrough and surprising discoveries were made as part of this collaboration. One of the first discoveries was the identification and characterization of a material in which rare particles, called three-point fermions, are formed, which have only been observed in certain crystals and only under specific circumstances. Fermions can exist as single particles, i.e., as electrons, protons and neutrons, or as so-called quasiparticles. These are composed of many components but behave as a single fermion particle. This finding was published in the renowned journal *Physical Review Letters*. For example, a surprising magnetic property of an exotic material was discovered that could lead to an era of energy-efficient computers that require less than one millionth of the energy to switch 1 bit. This fascinating property was detected on multiferroic germanium telluride (GeTe) doped with manganese. The project was led by Professors Hugo Dil from EPFL, Gunther Springholz from Johannes Kepler University in Linz, Juraj Krempaský from PSI in Switzerland and Professor Ján Minár from the NTC Research Center of the University of West Bohemia in Pilsen. The result of this project was published in the prestigious journal *Nature Communications*. The latest discovery based on the collaboration of the centers of excellence EPFL (Hugo Dil) and PSI (Juraj Krempaský) is so-called altermagnetism, which was published in the prestigious journal *NATURE* with the contribution of research from the Academy of Sciences of the Czech Republic led by Prof. Tomas Jungwirth. Altermagnets combine the advantages of ferromagnets and antiferromagnets and open the way to innovations in IT. NTC researchers were involved in the experimental confirmation of so-called altermagnetism using a photoelectron emission spectrometer, which allows scientists to investigate the spin and angular resolution of materials. And it was spin symmetry that helped identify the unconventional magnetic phase, referred to as altermagnetic.

HiPower 5.0: The Faculty of Electrical Engineering is a co-investigator of the project entitled "Leading edge Semiconductor, Integration, and robust control Technologies for Highly integrated smart eDrive components towards more sustainable Power Electronics 5.0" (HiPower 5.0) from the HORIZON-JU-Chips-2024-2-RIA-T1 call. Inspired by the challenges and ambitions of the Green Deal and the Chips Act, the project aims to develop new power electronics solutions to achieve the Green Deal objectives and support a resilient and cutting-edge pan-European Value Chain for future mobility solutions. HiPower 5.0 therefore aims to develop highly integrated powertrain components (eDrive) for the automotive and marine sectors, using leading edge wide bandgap semiconductors and power electronics integration technologies. This includes the development of new GaN (gallium-nitride) wafer materials with superior performance, the first-ever 850V monolithically integrated bidirectional GaN switches, enabling new topologies and unprecedented efficiency levels of 99%, as well as 1200V GaN switches matching the requirements of 800V battery electric vehicles. The development of these solutions takes into account resource efficiency and reliable design in order to minimize the carbon footprint and extend the lifetime of power electronics components. To achieve the project's objectives, the HiPower 5.0 consortium encompasses the entire value chain, from GaN wafer and chip development to Tier1 suppliers/OEM in the automotive and marine industries. The project is also supported by leading European universities and research organizations, which ensures a significant economic and scientific impact of the proposed work. The project is coordinated by AVL List GmbH and its co-investigators include the following companies and research institutes: Aalborg Universitet, Infineon Technologies, Mercedes-Benz, Siemens, TDK Electronics, Valeo eAutomotive, Vrije Universiteit Brussel, University of Stuttgart, Technische Universität Dortmund, Eindhoven, Stuttgart, Soitec, Fraunhofer Gesellschaft zur Förderung der angewandten Forschung EV, and Infineon.

Horn of Africa Studies

The study of the Horn of Africa region has become a key focus of international research and academic institutions in recent decades. The region is known not only for its strategic geopolitical location, but also for the complex issues and crises that transcend the region's borders and affect the world globally. The international cooperation led by the Department of Middle Eastern Studies at the UWB Faculty of Arts focuses on the following key issues:

- 1) migration, its causes and consequences, including ethnic and political conflicts,
- 2) nationalism, which is inseparably linked to conflict, regime change and human rights challenges,
- 3) development requiring constant attention in connection with poverty, education and health care in this region,
- 4) religion (i.e., especially Islam), which has a key influence on social structures and political dynamics.

International cooperation between the Department of Middle Eastern Studies, the UWB Faculty of Arts, universities in Africa (especially Jimma University and the US International University in Nairobi, etc.) and others in Europe and the USA is manifested in several forms: from exchange programs for academics and students (especially Erasmus credit mobility – Ethiopia, Kenya), through educational initiatives (Assoc. Prof. Záhorský and his long-term engagement at universities in Ethiopia, particularly at Jimma University) to major joint research projects leading to the organization of workshops and publications:

- BACH, J., ABBINK, N., FANTINI, J., ZÁHOŘÍK, J. et al. (eds.): *Routledge Handbook on the Horn of Africa*. New York: Routledge, 2022.
- Záhorský, J.; Omondi, R.; Ylönen, A. (eds.) (2023): *Multiple Layers of Migration and the Horn of Africa*. Nairobi: The Horn Institute.
- Workshop *Contemporary Horn of Africa*. Pilsen, 28.4.2022 – The workshop was attended by Jason Mosley from Oxford, who is editor-in-chief of the prestigious Journal of Eastern African Studies, Wolbert Smidt, who has worked for many years at Ethiopia's Mekelle University, and Benedikt Kamski from the Arnold-Bergstraesser-Institut in Freiburg, Germany.

Fraunhofer Institute for Electron Beam and Plasma Technology FEP, Germany – transfer of developed laboratory technology of thermochromic coatings to semi-industrial equipment. An international cooperation within the EU-funded Switch2save project (H2020) was focused on development of new materials that reduced energy demands in buildings with large glass areas. The method involves the integration of transparent energy-smart materials with switchable total energy transmission values to control the entrance of solar radiation. The method developed within the international consortium of the Switch2save project offers unique performance while reducing manufacturing costs and increasing opportunities for shading solutions. Two prototypes were assessed in two buildings with large glass façade areas, a hospital building in Greece and an office building in Sweden. Continuous monitoring of energy demand at thermal comfort levels inside the buildings for one year before and after implementation of the new windows verified a reduced energy transfer through their envelopes. Smart glass production targets the global building glass market with 4.7 billion square meters produced annually.

Cooperation of the CBG Department (Center for Biology and Geosciences) of FOE with a team mainly from Charles University, which dealt with the unique discovery of the digestive system of the trilobite *Bohemolichas incola*. Using a unique technical facility at CERN, the research has definitively resolved the more than 200-year-old unsolved question of trilobite diet and the physiology of the digestive system of this group. The results were published in the prestigious journal **Nature** in the fall of 2023: KRAFT, P., VAŠKANINOVÁ, V., MERGL, M., BUDIL, P., FATKA, O., AHLBERG, P. Uniquely preserved gut contents illuminate trilobite palaeophysiology. *Nature*, vol. 622 (2023), pp. 545-551. (Jimp, Q1). Additionally, CBG is collaborating on research on the Brachiopod fauna of the unique Fezouata locality in Morocco with a research team in the UK (Y. Candela, National Museum of Scotland, Edinburgh, UK and D.A.T. Harper, Durham University, Durham, UK).

This multi-year collaboration has resulted in a monograph on this unique and world-renowned locality. The research and results of this study were significantly influenced by the author's 2002 monograph published in the Proceedings of the National Museum in Prague. The article was published in the prestigious journal Papers in Palaeontology:

CANDELA, Y., HARPER, D.A.T., MERGL, M. The brachiopod faunas from the Fezouata Shale (Lower Ordovician; Tremadocian–Floian) of the Zagora area, Anti-Atlas, Morocco: evidence for a biodiversity hub in Gondwana. Papers in Paleontology, vol. 10 (2024), e1592 (Q1)

STUDIES

4.13 Doctoral studies

The HEI will briefly describe the organisation of the doctoral studies (if there are any doctoral study programmes³⁸). HEI will comment on:

- Structure and organization of studies.
- A system of cooperation between PhD students and their supervisors.
- Basic statistics (including drop-out rate, student workload, etc.).
- Information on promotion and recruitment schemes.
- Cooperation within doctoral studies (e.g., Czech Academy of Sciences, application sphere, building open study programmes for foreign nationals and creating international networks of study programmes, “joint degree”, “cotutelle”, etc.).
- Student care system (e.g. counselling, wellbeing care, career guidance).
- A system for tracking the future careers of graduates³⁹.
- Other relevant data, such as the existence of a doctoral school, basic soft skills courses, etc. at the discretion of the HEI.

The HEI shall support this with appropriate examples (e.g. a model example of doctoral student cooperation with their supervisor, statistics on collaboration within doctoral studies, specific examples within doctoral studies, statistics on the use of student care systems, etc.).

Maximum 300 words per point.

Self-assessment:

- Structure and organization of studies.

The rights and obligations of doctoral students at UWB are defined by the [Study and Examination Regulations](#). All doctoral study programs are accredited at faculty level (FAS, FDA, FEC, FEE, FOA, FOE, FOL, FME) and offered in both full-time and combined forms, typically with a standard duration of four years. Some programs are also available in English.

Doctoral studies aim to prepare students for scientific research and promote collaboration with industry and research institutions. Full-time students often gain teaching experience by leading lab classes or specialized courses. Each student follows an individual study plan (ISP) under the supervision of a supervisor and the Doctoral Study Board. The Dean may approve doctoral study programs under a credit system, currently used by the Faculties of Economics, Education, and Arts. The ISP includes at least three specialized courses, a foreign language exam, and may include any UWB or external university course approved by the supervisor and the Doctoral Study board. A foreign internship is a mandatory component. The ISP is finalized by the end of October in the year of enrollment and approved by the Dean following board discussion.

Students are subject to annual evaluation by their supervisor. The Doctoral Study Board reviews progress and recommends continuation, changes, or termination. After completing coursework,

³⁸ If the HEI does not organise any doctoral programme, it will explicitly state this information in the self-evaluation report.

³⁹ The HEI will list the top five highest ranked graduates in academia, the private sector, and public administration over the past five years.

students take the state doctoral exam (to become a qualifying exam after legislative updates), followed by the dissertation defense, which includes external reviewers.

Some programs are run in cooperation with institutions such as the Institute of Philosophy (CAS), the Institute of Mathematics (CAS), and VÚGTK. UWB supports international mobility through Erasmus+, Freemovers, and other funding, and promotes collaboration with international universities and companies. Interest from foreign doctoral students—particularly from neighboring countries—is growing, supported by summer schools and outreach initiatives.

- A system of cooperation between PhD students and their supervisors.

Cooperation between PhD students and supervisors is a key element of successful doctoral studies. This system entails various aspects that ensure the effective supervision of PhD students, their professional development and the achievement of their research goals. Each PhD student has a supervisor, sometimes also a specialist consultant. The cooperation between the supervisor and the student is carried out on an individual basis. At the beginning of the study program, the goals and expectations of both the student and the supervisor/trainer are defined. It is clearly stated what work and what results are expected of the PhD student. The supervisor motivates the student to actively participate in the scientific community, possibly jointly preparing publications or presentations of professional work and grant results, recommending relevant literature, conferences, workshops and courses. He/she individually adapts his/her mentoring style to the needs and abilities of the PhD student, supporting him/her in professional development and in resolving personal or organizational problems. Regular meetings are held between the supervisor and the student to discuss matters pertaining to research progress, problems and forward planning, including feedback on research findings, writing articles and other activities of the student. The study results are regularly reviewed and evaluated once a year by the Doctoral Study Board. The students in turn have the opportunity to provide feedback on their studies and their development.

- Basic statistics (including drop-out rate, student workload, etc.).

In 2019–2023, a total of 258 students successfully completed their doctoral studies at UWB. The number of enrolled students was less than 140 per year in the respective cohort, namely 676 students were enrolled in 2014–2018 and 681 students in 2015–2019. The success rate of studies is thus less than 40%, with a drop-out rate of over 60%, which corresponds to the average in the Czech Republic as a whole. The drop-out rate does not differ substantially between faculties. The problem is the timely completion of studies (within the standard period of study plus a maximum of one extra year), where in the graduation rate criterion monitored by the Ministry of Education, UWB currently reaches a value of 11.4% for doctoral studies.

In terms of the teaching workload of students, it must be said that this is not centralized and depends on the arrangement at individual faculties. In the period under review, the teaching obligation was introduced as part of the individual study plan of PhD students at some units, with a maximum of four hours of teaching per week for six semesters. This also applies to non-educational fields of study. In most cases, however, PhD students teach to a lesser extent or do not teach at all and are fully engaged in their research and project work.

- Information on promotion and recruitment schemes.

At UWB, a multidisciplinary university, doctoral recruitment and promotion are managed individually by faculties due to diverse disciplinary needs. Units utilize Open Days, Researchers' Night, the Technologies Contest, social media, and participation in conferences, lectures, and doctoral seminars at other institutions. Doctoral study opportunities are promoted via faculty websites, platforms like Euraxess and ResearchGate, and through fairs and exhibitions.

[Doctoral studies are presented](#) as a valuable opportunity for professional and personal growth, offering research experience, access to renowned experts, participation in international internships and conferences, and development of key skills such as critical thinking and data literacy. Students

are often supported by scholarships and performance-based awards, with further opportunities through project involvement.

Recruitment strategies emphasize targeted, personalized communication, inspirational stories from successful [alumni](#), and engagement via social media. Faculty websites highlight benefits like working on innovative projects, foreign internships, and skill development. Prospective students can participate in discussions, attend meetings with doctoral students and supervisors, and receive individual consultations to tailor research topics to their interests.

The involvement of current students in promotional efforts enhances authenticity. Emphasis is placed on time flexibility, cutting-edge technologies, and the practical impact of research, including business potential. Financial support options are also clearly communicated to address potential concerns.

Some UWB units recruit both domestic and international students, especially from EU countries and Ukraine. International recruitment includes paid social media and Google campaigns, and participation in fairs in India, Turkey, and Germany. UWB also expands its partner network with recruitment agencies and is developing double-degree PhD programs with select international universities. Campaigns like "[StudujTech.zcu.cz](#)" specifically target Slovak students with tailored materials and visuals.

- Cooperation within doctoral studies (e.g., Czech Academy of Sciences, application sphere, building open study programmes for foreign nationals and creating international networks of study programmes, "joint degree", "cotutelle", etc.).

Specific information about current partner universities and available programs is provided by the UWB International Office, which coordinates international cooperation and advises on EU educational projects and other international initiatives.

PhD students at the Faculty of Mechanical Engineering (FME) are actively involved in research with industry partners such as ŠKODA JS and Doosan ŠKODA Power, and participate in international mobilities funded by scholarships. The faculty supports their research through internal SGS projects and aligns dissertation topics with current industry and academic needs, ensuring strong career preparation.

At the Faculty of Arts, three doctoral programs are conducted in cooperation with CAS institutes (Archaeology, Ethnology and Cultural Studies, and Philosophy and History of Science and Technology). Three programs are also accredited in English (Archaeology, Philosophy and History of Science and Technology, and Modern History).

All FAS doctoral programs are offered in English. Some are implemented jointly with CAS (e.g. Applied Mathematics with the Institute of Mathematics, and Geomatics with VÚGTK). FAS is also seeking MSCA program support to create an international network of PhD programs and promote intersectoral mobility.

The Faculty of Electrical Engineering (FEE) actively collaborates with research institutions and industry partners, enhancing the applied relevance of doctoral research. It offers English-taught PhD programs, including Electrical Engineering and Information Technology, allowing international students to engage in research and contribute to a global academic environment.

FEE also supports joint degree and cotutelle schemes, enabling students to earn recognised diplomas across multiple countries and gain valuable international experience.

- Student care system (e.g. counselling, wellbeing care, career guidance).

Care for UWB students is provided centrally through the Information and Counselling Center (IPC), which offers comprehensive services in academic, legal, social, psychological, psychosocial, and career support. More information is available at <https://studentskeotazniky.zcu.cz/en/>. UWB recognizes that university study is a demanding time of intensive learning, projects, and exams, often accompanied by stress. By offering motivational, adaptive, and educational activities, IPC significantly contributes to student well-being, which is essential for academic and personal success.

IPC also plays a key role in promoting student social safety by providing a safe [space where students can express their needs and seek support](#). It raises awareness of university policies, existing support systems, and emphasizes prevention and university ethics.

The Center helps students navigate challenges, understand their situations, and create short-term support plans. It offers a space for open conversation without pressure to pursue formal action and informs students about available solutions.

IPC services are grounded in transparent communication and clear service standards. All services are free of charge, and every effort is made to keep them accessible and low-threshold, including the option for anonymous consultations. IPC is attentive to the protection of vulnerable individuals and promotes its services via its website and social media (Facebook and Instagram).

The IPC team consists of trained professionals—psychologists, psychotherapists, coaches, crisis interventionists, and lawyers—with long-term experience, who continue to engage in ongoing professional development.

IPC also expands its reach through various projects funded by Erasmus+, EEA, ESF, and others.

Key Activities Include:

- Educational events (seminars, workshops, round tables, “ZČUch”)
- Tailored support for students with special needs (SN)
- Adaptation activities for first-year students
- Prevention and crisis intervention to support students in distress or at risk
- A system for tracking the future careers of graduates⁴⁰.

UWB is an organization that emphasizes the principles of long-term sustainable development in its educational, creative and other activities. One of the key components in this strategic approach is working with graduates, including doctoral studies. The University wants to lead by example in building a welcoming and sustainable environment that is respectful of all those employed. UWB has the ambition to be a leader not only in the regional context, facilitating the development and dissemination of know-how, effecting societal changes and changes in thinking, which is not possible without successfully incorporating work with PhD students and graduates. That is why UWB evaluates the profiles of graduates of the study programs it offers, including doctoral programs. Currently, UWB regularly evaluates students at the moment of their graduation in all types of education programs it provides in the form of a questionnaire survey. At the same time, UWB has prepared an innovated evaluation model for monitoring the further career of graduates. This is a follow-up questionnaire survey, which is planned to be carried out at intervals of 1, 3 and 5 years after the completion of the respective degree program (Bc., Mgr./Ing., Ph.D.). The launch of this evaluation format is planned for 2025.

- Other relevant data, such as the existence of a doctoral school, basic soft skills courses, etc. at the discretion of the HEI.

In 2024, a pilot year of the Doctoral School took place, involving three units – FAS, FEE and FOA – where the modules were aimed at improving individual competences and skills (so-called “transferable skills”) for one’s own career development within research institutions and successful participation in international research. The topics addressed were “Career”, e.g., career planning, self-presentation, best practice examples, “Science”, e.g., publishing, conference presentations, databases, “Project”, e.g., subsidy opportunities, project management, effective project design, etc., and also “Data”, e.g., digital literacy, open access, citation management.

Based on the experience gained, a university-wide system will be set up for all doctoral programs in 2025.

⁴⁰ The HEI will list the top five highest ranked graduates in academia, the private sector, and public administration over the past five years.

IMPLEMENTATION OF RECOMMENDATIONS

4.14 Implementation of the recommendations in Module 4

The HEI will briefly describe how it has implemented the recommendations for Module 4 from the previous evaluation period, if applicable.

Maximum 1000 words.

Self-assessment:

- **Create development and incentive programs to support, for example, young researchers.**

UWB has implemented a [grant system](#) composed of several parts: the Student Grant Competition, student scientific conferences, and a UWB incentive system supporting publication activities (RIV), contract research (SMV), submission of EC and ERC projects, support for POSTDOC program graduates, and TALENT programs for gifted students.

An additional incentive tool is the LCDRO Development Scheme (DS LCDRO), part of institutional support aimed at UWB units that received a grade worse than "A" in the previous MEP evaluation. This support focuses on hosting excellent international researchers, with the goal of developing international cooperation, submitting joint projects, and publishing in prestigious journals (see Section 4.2). Further support is managed at the university level, including the Academic Career Fund (for foreign expert recruitment) and Grant Support for Student Activities (GRAS), which funds educational, cultural, and sports projects. From 2020 to 2024, UWB allocated nearly CZK 247 million (EUR 9.74 million) to these incentive and development programs.

- ***There is perhaps an opportunity to create an Institute with the combined strength of some centers. This Institute could become a large research infrastructure and should be able to have greater visibility and also should be granted the management of its IP and the possibility to recruit research professors (non tenure tracks) but they could be reservoirs for faculties enrollment. In the long run, the Government would eventually become a 50% partner in the overall funding of the institute.***

The topic of establishing a joint research institute was discussed at UWB in 2021–2022 with units that have research centers. Based on a conducted study, it was concluded that the current model, in which all centers are fully operational, competitive, and achieve significant results, will be maintained. Activities associated with a joint institute can be implemented within the existing structure, as results are produced under UWB's R&D division, overseen by the Vice-Rector for R&D (PR-V). The existing system already supports interdisciplinary collaboration, shared use of instruments, and access to expensive research infrastructure, as shown by numerous joint research projects and emerging topics involving researchers from across UWB. These include areas such as quantum materials, semiconductor technologies, artificial intelligence, energy, and transport, often linked to major global challenges like climate change, social impacts, and energy issues. Furthermore, there was no evidence that a merger would increase funding for the proposed joint institute.

- ***Some non-technical faculties with the largest number of students believe that the way funds are reallocated favors technical faculties.***

A new university-wide budget methodology was adopted in 2024, primarily to respond to changes in national funding for public higher education and to address perceived disadvantages, particularly among non-technical faculties. The main change was the introduction of contractual funding, whereby a fixed part of the budget is allocated through five-year contracts with individual faculties. This supports strategic management and medium-term planning.

The revised methodology also allows faculties with lower average salaries to access greater funding in future years—provided they meet performance expectations and implement staff

rationalization. This is supported by lower levies for university-wide services and improved access to institutional support for long-term conceptual development. Initial results show that the new system is effective, with non-technical faculties now receiving more resources for their continued development.

- ***The salaries of some professors at UWB are among the lowest in the Czech Republic and the internal rules for the allocation of funds have been questioned, which should probably be addressed by the Rector's Office.***

In 2024, a completely new internal wage regulation was adopted, which introduced unified internally linked pay grades, including in the AP4 Professor category. The aim of the amendment of the regulation was to help alleviate the disproportionality of the pay system so that the internal remuneration rules lead to improved conditions for the remuneration of academic staff across the entire UWB. The analysis shows that the new pay grades correspond to the current wage situation in public higher education institutions in the Czech Republic. Regular increases in the pay rates are expected. The newly adopted budget methodology, which allows units with lower average salaries to have higher financial resources if they achieve adequate performance and carry out appropriate staff rationalization, also contributes significantly to the increase in salaries through adequate personal allowances.

- ***Some administrative processes are still paper-based, support for digitization***

The digitization of university processes is a strategic priority at UWB and is referred to as digital transformation in official documents. Examples include digitized approval processes for leaves of absence, travel orders, procurement, and the HR portal, used by around 2,000 employees. Electronic study application submissions have been launched, and more services, including a new information system, are in development. In previous years, UWB introduced electronic document circulation for ordering, procurement, leave records, and business trips. Since 2024, quality assessment has been unified using the Equal application, covering creative activities, habilitation and professorship procedures, and study program evaluations. Digitization is supported by specialized departments such as the Quality Division and Information Technology Center, along with university-wide groups like the IT group and AI group. Over 300 processes have been modeled and visualized for greater efficiency, with selected ones digitized. Business Intelligence tools support decision-making, and Robotic Process Automation (RPA) tools have been piloted as a complement to the university's financial system. In 2024, UWB also explored the application of AI tools, including a pilot chatbot to assist with project proposal writing.

- ***As far as the International Exchange Program (IEP) is concerned, the panel did not notice any particular problems in this area (during the discussion with the students). In some cases, UWB does not provide sufficient information about the existence of some of the services provided.***

The International Office promotion clerk provides information about services for incoming exchange students. Basic details are available on the [International Office](#) website and social media (Facebook, Instagram). English-language videos about Pilsen, UWB, and student housing are shared on [the YouTube channel](#) to help students prepare before arrival.

UWB also helped establish the Erasmus Student Network (ESN), which includes a buddy system for new students. Regular information meetings are held for outgoing students in cooperation with ESN. Major events include Erasmus Night, Year One, and International Days at faculties, where the Office and ESN have a presence. Activities are also promoted during Open Days and Job Fairs, and through a [University Library](#) section dedicated to partner institutions. Students who have participated in Erasmus+ share their experiences, mainly via YouTube.

- **Some students have a dual status: they have a different doctoral studies supervisor and a different research supervisor.**

This case is probably a misunderstanding; it is certainly not a double status, and the information is probably misrepresented. UWB has valid [Study and Examination Regulations](#), according to which a student may be provided with a specialist consultant in addition to a supervisor. The responsibility for the guidance of the PhD student still lies with the supervisor, while the specialist consultant provides the student with guidance in special professional matters related to his/her research. The same may be the case if a unit of UWB has an accredited doctoral program and has contracted an external supervisor to provide the student with expert guidance.

- **For the sake of protection of UWB, the MEP panel recommends that all patents be filed through a private firm. The HEI would thus be protected in the event of legal disputes regarding patent protection. The Faculty of Law could assist in this matter.**

UWB uses external patent agents to protect its intellectual property, selecting them based on the technology's focus and scientific field. This ensures expert review and precise patent descriptions. The choice of agent is made by the relevant department where the technology was developed, in consultation with the Department of Knowledge Transfer and Contract Research (see Section 4.4). An added benefit of this approach is the delegation of responsibility for managing granted patents, reducing UWB's administrative burden. External agents handle tasks such as monitoring patent validity and communication with authorities.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 4

Document name	No. criteria	Location (link in HTML)
Organizational Regulations of the University of West Bohemia (UWB)	4.1	https://drive.google.com/file/d/1jbaWVHbsGUruB41lvPC2dGUS1VFjm6XW/view
Statute of UWB	4.1	https://drive.google.com/file/d/12LmNw2VrtyYUbZaveKKF20kzul4y2IzU/view
Organizational regulation of UWB	4.1.	https://drive.google.com/file/d/1dOONfM8Up4_1EGbyKdMdU1YWticQft-o/view
Internal Regulation, Strategic Documents ...	4.1	https://www.zcu.cz/en/University/Important-documents/index.html
Rules of Procedure of the UWB Scientific Board	4.1	https://drive.google.com/file/d/1zMLe50xQ9pyhRwVhX8UzaoSS52BuTMlc/view
3R/2015 – Grant System	4.2, 4.11, 4.14	https://drive.google.com/file/d/1T6LYfOcOHHDy3kqBI6C-RSdFgqrDyza/view
1R/2019 Grant Support for Student Activities	4.2	https://drive.google.com/file/d/1gMqrMDnSTbM9SMs5_2DMfQFI5A4ZD3UQ/view
IDEG internal grant programme	4.2.	https://drive.google.com/file/d/1eY4yTK8I2y7cvtDW83I1JRd-Z-vP9y3V/view
Scholarship Regulations of UWB	4.2	https://drive.google.com/file/d/1z1pHbXmqmpoQm-1tekBiii-0FPFBtBZB/view
4P/2016 – Mobility Instruction	4.2	https://drive.google.com/file/d/1ZBLPd8wtz-4nnZ5HgVIE0Rzxa-i3ub2/view
24R/2019 – Career Development Regulations UWB	4.2, 4.6, 4.7	https://drive.google.com/file/d/16li7e4jrEoeXesaXb3U-5qledqjWXZdk/view
44R/2011 – Rules and Regulations for Awarding the Doctor Honoris Causa Honorary Degree	4.2	https://drive.google.com/file/d/1W0c1tjosUSTKnTAQJfsy8gdo9Ih1QZli/view
Rules of the Quality Assurance System	4.3	https://drive.google.com/file/d/1BEJHHSctqwNyBE_mTWKCUhAftdOQYoRS/view
9P/2018 – Quality assessment of creative activities	4.3	https://drive.google.com/file/d/1jDARSVNz-Lz1MnsP0gvgEUDTzhe6VvYq/view
21R/2018 – Comprehensive internal Quality assessment	4.3	https://drive.google.com/file/d/1zv77hYg0h4Plz1aCnOubeFtk8Z7wRT/view
Rules of Procedure of the Board for Internal Evaluation of the UWB	4.3	https://drive.google.com/file/d/1MIhTMVPwpQGT_9sZdcIQKf0vLEaOpJMn/view
Final report on assessment within the overall quality assessment of creative activities 2024	4.3	https://drive.google.com/file/d/1oDLbqroAduU73yxMGR3tJc3tHUsjh898/view

A set of measures suggested as part of the Quality Assessment of Creative Activities for 2024	4.3	https://drive.google.com/file/d/1bt1B6u-DYfMWd8LBeT667A2kAfBVlgEn/view
8P/2018 – Evaluation of the quality of the associate professorship and prof. app. Proc.	4.3	https://drive.google.com/file/d/1qNYVrnRYGC_R2yOdf4gyjfvHususHaMc/view
Code of Conduct of the University of West Bohemia	4.3	https://drive.google.com/file/d/14bBBNreQggRL1QVv8ekmEIQSYM18sJlf/view
Report on the activities of the UWB Ethics Committee in 2023	4.3	https://drive.google.com/file/d/1eqkEs8jTp5N_EN1YX22oHvRMKJERd1vB/view
36R/2023 Ombudsman and Social Safety	4.3	https://drive.google.com/file/d/1k3LdSzowLFQhx3glGfykchttHbWsqw/view
Sustainable Development Strategy of the UWB	4.4	https://drive.google.com/file/d/1GFLS8SdbYx7iU-SW-F2pdhOn_0D1sTwu/view
24R/2024 Strategy development and evaluation	4.4	https://drive.google.com/file/d/17FK1ZstZ8jCM1FSu0RbxJL8nBJ9UcKJv/view
The University of West Bohemia Strategic Intent for the Period 2021–2025	4.4	https://drive.google.com/file/d/1xoZxPxENQFy_IKkFiRpwApb1OeS1IIXj/view
20R/2020 Remuneration of Authors, Creators of Works and Distribution of Profits from Knowledge Transfer	4.4	https://drive.google.com/file/d/1EE2dTRJ8F7gH6PBHPxRpm102HulhutDj/view
22R/2019 Contract Research	4.4	https://drive.google.com/file/d/1X9jANaDkJAZ2X1JrOq0HVm7l1PzX-39N/view
5P/2016 Council for Development of Transfer of Knowledge,	4.4	https://drive.google.com/file/d/1tU6gSDsB6o0vr4itOCtAA-yREkibpdK7/view
www Open Access.cz	4.4	http://openaccess.cz/en
www Open Access at UWB	4.4	https://www.knihovna.zcu.cz/en/Science/Open_access/OA_publishing
ICT Development Strategy at UWB for 2016-2020	4.4	https://drive.google.com/file/d/113XJaNm-Sc2jYqVng9tuTozwONiYGI_X/view
Strategic and Implementing Regulations on GDPR and Data Protection	4.4	https://www.zcu.cz/en/University/GDPR/index.html
12R/2024 – Procedures for Risk Identification and Assessment	4.4	https://drive.google.com/file/d/103JNGLrIck_fJfcMB0QfGxjfiPi-dTMM/view
14R/2018 – Statute of the data protection officer	4.4	https://drive.google.com/file/d/1_vmjLq2zG0XT3CW0tpRySMqLrjXFOto/view
16R/2018 – Information Processing Rules	4.4	https://drive.google.com/file/d/1Q-RtflipdtUpQthqyM2-h_GbJ7e5LMPT/view
17R/2018 – Personal data protection	4.4	https://drive.google.com/file/d/1ZCcO1UsXxWL2mY82lZDgw9KEo0tRg_ja/view
18R/2018 – Processing the applications of data subjects for the exercise of their rights	4.4	https://drive.google.com/file/d/1y4mY23PK2551ad4zKn8mqQhbaKN7E206/view
33R/2018 - Protection of intellectual property and transfer of knowledge	4.4	https://drive.google.com/file/d/1FygJCeZW1Y8aevV7z1P6bhmi72h0GF4/view
32R/2022 - On Public Licensing of Non-public Research and Development Results	4.4	https://drive.google.com/file/d/1qWbjiqbD1nk8xZluwFPCHeVMbLz_qgChs/view
20R/2020 - Remuneration of Authors, Creators of Works and Distribution of Profits from Knowledge Transfer	4.4	https://drive.google.com/file/d/1EE2dTRJ8F7gH6PBHPxRpm102HulhutDj/view
National repository for research data	4.4	https://data.narodni-repozitar.cz/
The institutional repository mapping the publishing activities of UWB	4.4	https://dspace.zcu.cz/home
31R/2023 – Registration of the Results of Creative Activities	4.4	https://drive.google.com/file/d/1cY16sM7bFmSfiXoPNZ0-dadWFLcx1xz/view
7P/2023 - Instruction of the Vice-rector on the Registration of the Results of Creative activities	4.4	https://drive.google.com/file/d/1zPvXVA9daCzt2pvoilkVgPMppyyvKz7o/view
Methodology for the Evaluation of UWB Academic Staff	4.6	https://drive.google.com/file/d/1WWR2pCRE8iNXu4VqZPQakySjdlivgcRQ/view
Selection Procedure Regulations for UWB Academic Staff Recruitment	4.6	https://drive.google.com/file/d/1eSxkO_f7jlkWsljVEyF7VH2Kvb24_GTh/view

4R/2021 - Rules for the Recruitment of Specialists at the UWB	4.6	https://drive.google.com/file/d/12jVx5n9h52_aa4bInKBQRYzoRSBFCpHD/view
Principles of Open and Transparent Recruitment	4.6, 4.7	https://drive.google.com/file/d/1OpBVd0sml-95hDDIsA3In86kk-Wq4A4D/view
Equal Opportunities Plan 2022-2024	4.6, 4.7	https://drive.google.com/file/d/1FF54XFL9Q7AKe7VGsQHnXpkCGdNarpDE/view
HRS4R Action Plan (HR Award)	4.6	https://drive.google.com/file/d/1Z0BFEPbf954uZBzW2ImN88G5t4viB80/view
Internal Wage Regulations of the UWB	4.6	https://drive.google.com/file/d/1MABwJP0mFbLIdESA2R3wU-BxVT10pEZg/view
Gender monitoring 2022	4.7	https://drive.google.com/file/d/1blxdeAl9COXvlf0B3I3V3ArnpwRgl1W/view
Gender monitoring 2023	4.7	https://drive.google.com/file/d/1h3MoKxbWaZVV35MbJvdWNZcvOGaiw3yo/view
Equal Opportunities Plan 2025-2027	4.7	https://drive.google.com/file/d/16UE1TjDVOeLRsCc_6dH4w4DTObK7uzw/view
36R/2019 - Scheduling And Registration of Working Hours at the University of West Bohemia	4.7	https://drive.google.com/file/d/1l65tuwb6o_nqJJARM4_M97Njbefavug/view
UWB OTM-R check list	4.7	https://drive.google.com/file/d/1Xebaz4jMyHFhlyFgkbuRP5_0l8_GVPYw/view
UWB Internationalization Strategy 2021–2025	4.8	https://drive.google.com/file/d/15UQ1C8brsA4kRvnMZacnfeBrm8qFyQTL/view
33R/2019 Translation of Documents Into a Foreign Language	4.8	https://drive.google.com/file/d/1JLi7-z6DY6aFdoclEA37rCYfFI4RZih0/view
Research Center of the Faculty of Electrical Engineering (RICE)	4.9	https://www.rice.zcu.cz/en/Offers/
Research Infrastructure of the Faculty of Applied Sciences (NTIS)	4.9	https://www.ntis.zcu.cz/en/Offers/
Research Infrastructure of the Faculty of Mechanical Engineering (RTI)	4.9	https://www.rti.zcu.cz/en/Research/
Research Infrastructure of the New Technologies Research Center (NTC)	4.9	https://www.ntc.zcu.cz/en/Research/Offer/index.html
15R/2024 - Budget Methodology	4.11	https://drive.google.com/file/d/1trdwLx6LRMnW2l6heBsk269mSxxMGXDd/view
36R/2024 – Budget Rules for 2025	4.11	https://drive.google.com/file/d/1ZkcRfGWtVqDsP9aTvr_CDfWuBhw638d/view
DS LCDRO 2022-2024 calls	4.11	https://drive.google.com/file/d/17zkE42h1tUXvCwvUlk5bMqrKqyJ6iCoO/view
Study and Examination Regulations	4.13	https://drive.google.com/file/d/1FDITH5Osy3M5Weh_hzhfQRRlha3lz-kU/view
Alumni club	4.13	https://www.zcu.cz/en/Alumni/index.html
Student care system	4.13	https://studentskeotazniky.zcu.cz/en/
13P/2018 - GEN. STANDARDS OF SUPPORT PROVIDED TO PERSONS WITH SPECIFIC NEEDS	4.13	https://drive.google.com/file/d/1mliY7CeKis_KdZqSzKg-2Dzd-VzrJel/view
Lifelong Learning Regulations	4.13	https://drive.google.com/file/d/1-uN4Zto8gol2BbmLdCYh9D7GAaexPK4Q/view
25R/2019 - Conditions of Study for Foreign Nationals on Study Programmes at UWB Accredited in a Foreign Language	4.13	https://drive.google.com/file/d/1_SrIK3NDVwKFvZDE72IfP3iISK4XB7o2/view
Disciplinary Regulations For Students of UWB	4.13	https://drive.google.com/file/d/1tgajO_BqssITo48LAfnPmDubDRTC9uB7/view
International Office	4.14	https://www.international.zcu.cz/cs/index.html
International Office YouTube channel	4.14	https://www.youtube.com/@IO_ZCU
University Library – Science Support	4.14	https://www.knihovna.zcu.cz/en/Science/index.html

MODULE 5:
STRATEGY AND POLICIES

MODULE 5 - STRATEGY AND POLICIES

5.1 Mission and vision of the evaluated institution in R&D&I

The HEI will briefly describe its mission and vision with emphasis on R&D&I in general and its R&D&I capacities in the implemented R&D&I fields¹ (Tables 5.1.1 and 5.1.2). In particular, the HEI's vision covers the following five-year period and must relate to the strategic objectives of the Provider, the National Policy on Research, Development, and Innovation of the Czech Republic 2021+, the Gender Equality Strategy 2021-2030, and other higher national and supranational strategic documents in the field of R&D&I (Table 5.1.3). The HEI shall complement the description with active references to its Strategic plan for the teaching, scholarly, scientific, research, development, artistic, and other creative activities of the higher education institution (regarding the results and recommendations from the previous evaluation period, if the evaluated HEI participated in it). The HEI shall describe how the vision and mission were implemented during the period of 2020–2024.

Maximum 2000 words.

Self-assessment:

The University of West Bohemia in Pilsen (UWB) is a public university with a multidisciplinary focus. The University is dedicated to research and development in a wide range of areas. Its field capacities offer a wide range of study programmes in the areas of technology, humanities, economics, law, education, natural sciences, social sciences, health and arts. Table 5.1.1 lists the field capacities, from which it is evident that the FORD 2 science field prevails, followed by FORD 5, FORD 1, FORD 6 and FORD 3. This breadth of disciplines allows the University to implement interdisciplinary projects and contribute to the development of science and research at both the national and international levels.

UWB adheres to the tradition of a quality higher education institution with a strong foothold in higher education in the Czech Republic and in the European area. The University fulfills the role of a professional and socially relevant institution with an emphasis on excellence in the areas of scientific research, technological development and innovation. It has long strived to be a recognized, prosperous and multidisciplinary University that responsibly fulfills its role as a professional and socially relevant entity and strives to achieve excellence in the areas of education, scientific research, technological development and innovation. It focuses on interdisciplinary cooperation, support for sustainable development and involvement in international projects and partnerships. UWB has a unique identity and emphasizes stability and balance, while purposefully implementing its long-term strategy.

UWB has long been developing in accordance with its Strategic Intent, which is prepared for every five years. The newly prepared Strategic Intent of UWB for the period 2026-2030 follows on from [the Strategic Intent 2021–2025](#), prepared at UWB for the previous period 2021-2025. This Strategic Intent is subsequently reflected in the Annual Plans for the Implementation of the Strategic Intent (PRSZ) of the University and in the Strategic Intents and PRSZ of Individual Units of the University. The Strategic Intent represents the basic framework and direction of the University's development, which is specified annually in terms of the scope and depth of the preparation, discussion and approval of the Plan for the Implementation of the Strategic Intent for a given year. Another key link of the UWB Strategic Intent is the link to the already mentioned Strategic Intents and Plans for the Implementation of the Strategic Intents of the University Units. These strategic documents of the University Units are linked to relevant University documents in terms of content within key areas, strategic objectives, measures and indicators, as well as in the timeliness of their creation, implementation and evaluation. Within the framework of UWB, follow-up documents, so-called segment strategies, have been created; they regulate sub-areas and are not further elaborated in the Strategic Intent. These include, in particular, the UWB Sustainable Development Strategy, the UWB Intellectual Property Management Strategy, the UWB Strategy of

¹ For so-called R&D&I capacities, see Definition of Terms in Strategie internacionalizace Methodology HEI2025+.

Cooperation with the Application Sphere, the Digitalization Strategy, the Security Strategy, the Marketing Strategy and the Personnel Development Strategy.

The Strategic Intent formulates the mission and vision of the University.

The mission of UWB is to operate in higher education, research and innovation with an emphasis on the quality and potential of its graduates, and research outputs in practice. It builds on the rich tradition of European university education, and actively addresses complex challenges of the contemporary world. The University relies on international cooperation, with an emphasis on using the potential of UWB's membership in the Association of European Universities – currently in the European University Alliance EUPeace, while integrating its outputs into the development of the region and technology transfer.

The vision of UWB aims to be a recognized centre of education, creativity and innovation, with effective development of excellence in research, strengthening international competitiveness and improving connections with industry. The University responsibly invests in the development of talents, technologies and cooperation in order to bring new knowledge, support sustainable development and, at the same time, preserve and strengthen the values that it itself recognizes and on which our society is built. It can be stated that UWB is gradually fulfilling and developing this mission and vision.

The vision of UWB for the upcoming five-year period reflects the provider's strategic goals and priority areas set out in the [National Research, Development and Innovation Policy of the Czech Republic 2021+](#), [Gender Equality Strategy 2021–2030](#) and other national and international strategic documents in the areas of R&D&I. UWB strives to further strengthen its position as a prosperous, interdisciplinary and socially responsible University that effectively connects educational and research activities. The goal is to deepen strategic partnerships with the private and public sectors, apply scientific knowledge into practice, and expand the internationalization of research activities. The University's vision includes and respects three key strategic documents in the area of research, development and innovation in the Czech Republic.

The overarching document for the development of all components of research, development and innovation at the national level is the document [National Research, Development and Innovation Policy of the Czech Republic 2021+](#), which defines five strategic objectives and 28 measures for their implementation. These objectives and measures are focused on areas such as management and financing of the R&D&I system, motivation for a research career, quality and international excellence in research, cooperation between the research and application spheres, and development of the innovation potential of the Czech Republic.

Another document respected by UWB is the [Innovation Strategy of the Czech Republic 2019–2030](#), which was approved in 2019. The strategy aims to move the Czech Republic to a place among the most innovative countries in Europe by 2030. It consists of nine pillars, which include financing and evaluation of research and development, innovation and research centres, support for startups and spin-offs, polytechnic education, digitalization, mobility and the construction environment, intellectual property protection, smart investments and smart marketing.

The third document is the National RIS3 Strategy [The National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021-2027](#), which ensures a well-thought-out and effective targeting of European, national and regional funds to support oriented and applied research and innovation. It directs support to selected priority areas with high potential for creating long-term competitive advantages of the Czech Republic, based on the use of knowledge and innovation. Together, these documents create a framework for strategic planning and implementation of activities in the areas of research, development and innovation not only at the level of the Czech Republic, but also at the level of the Pilsen Region.

In addition to national documents, UWB strives to respect and implement the European Union's goals in science and research until 2030. The European Union has set ambitious goals in the areas of research, development and innovation for the period until 2030 in order to strengthen its global competitiveness and respond to key societal challenges. The main instrument for achieving these goals is the Horizon Europe framework programme, which follows on from the previous Horizon 2020 programme. The new Horizon Europe programme focuses on the area of scientific excellence, which means supporting top-level research through the European Research Council (ERC) and developing skills of researchers. Another area is global challenges and industrial competitiveness, where the search for solutions to societal challenges such as climate change, healthcare and digitalization, and supporting the technological development of European industry is the focus. The third area is Innovative Europe, which means strengthening the EU's innovation capacity through the European Innovation Council (EIC) and supporting cooperation between research institutions and businesses.

It is crucial for the University of West Bohemia in Pilsen to actively participate in these European and national programmes and initiatives in order to support its own research and innovation ecosystem, and contribute to the achievement of common goals in the areas of science, research and technology.

From the perspective of the strategic focus of UWB, these are areas that reflect national documents and are historically understood as a regional advantage – mechanical engineering, transport and energy. Moreover, there are new topics for society – artificial intelligence, chip technologies and power electronics, robotics and materials engineering. This leads to the building of top-notch infrastructure. It is in the areas of R&D that UWB has a modern scientific and research infrastructure and strong research teams across various fields. The key capacities include: The European Centre of Excellence for New Technologies for the Information Society ([NTIS](#)), which is a research centre of the Faculty of Applied Sciences; it focuses on research in the areas of cybernetics, informatics, physics, mechanics, mathematics and geomatics. The Research and Innovation Centre for Electrical Engineering ([RICE](#)) is the research branch of the Faculty of Electrical Engineering. The centre is focused on research in transport, energy and industrial applications. The Regional Technological Institute ([RTI](#)), which is part of the Faculty of Mechanical Engineering, is focused on industrial engineering and applied research in the area of mechanical engineering. The New Technologies Centre ([NTC](#)) is a research centre dedicated to research and solutions for green technologies, advanced quantum materials in the areas of ecological energy sources, smart vehicles and the quality of human life and health.

During the period 2020–2024, the University of West Bohemia in Pilsen implemented several key measures to support its scientific and research strategy, which focused on:

- increasing the number of projects financed from European sources and national grants,
- improving conditions for doctoral students, including international mobility,
- increasing the share of applied research and cooperation with the private sector,
- implementing measures to support equal access in scientific and academic careers,
- strengthening synergy between individual Faculties and research centres.

These measures laid the foundations for the further development of the University in line with national and European strategic priorities in the areas of R&D&I.

In the past period, the research centres NTIS, NTC, RICE and RTI have become a key part of the industrial potential of the Greater Pilsen area; they had completed their sustainability period and have fully transitioned to normal operation. Their research activities significantly contribute to the technological development of the region and go beyond its borders. These centres have established close cooperation with relevant industrial partners, both in the Czech Republic and abroad, thereby creating a significant knowledge base for future scientific and creative activities of UWB. The University has established itself as the most important partner of the Pilsen Region, the Karlovy Vary Region and the city of Pilsen within the ITI and RIS 3 strategies. A significant element of multidisciplinary research is also a project in the area

of biomedicine, implemented in close cooperation with the Faculty of Medicine of Charles University in Pilsen. UWB continues to be intensively involved in the international university environment through the Erasmus+, CEEPUS, Aktion and Visegrad Fund programmes, and strengthens the mobility of its students and employees. At the same time, the University uses its other capacities, such as the multifunctional building FDULS (the Faculty of Design and Arts) and the University Library on the Bory campus, thereby significantly influencing the cultural and social life in the region (e.g., exhibitions, concerts, public meetings and seminars).

In the following period, UWB will strive to:

- Improving research excellence and competitiveness in priority areas of R&D&I (e.g., industrial engineering, artificial intelligence, energy, humanities and social sciences, health technologies etc.).
- Expanding international cooperation within the framework of Horizon Europe, Erasmus+ and other European initiatives.
- Promoting gender equality and equal opportunities in science and research.
- Strengthening research capacities through investments in infrastructure, human resources and digital transformation.
- Increasing the connection between research and practice through applied research, spin-off companies and technology transfers.
- Effective use of the university's strategic intent in accordance with the previous evaluation and recommendations from the previous evaluation.

The University of West Bohemia in Pilsen plans to systematically develop its research and innovation potential in line with national and European strategic priorities in the period 2026–2030. The University aims to become a key player in the areas of science, research and innovation at the regional and international levels. To this end, it will use modern infrastructure, top-notch research teams and strategic partnerships with industrial, public and academic institutions. With this approach, the University of West Bohemia is fulfilling its mission to be a dynamic, interdisciplinary and innovative University of the 21st century.

When creating the Strategic Intent, one of the tasks was to take into account the results and recommendations of the previous MEP 2020 evaluation. The panel's recommendations within the MEP 2020 evaluation were in the nature of partial recommendations; a number of things were transferred into the newly created Strategic Intent, e.g., the topic of sustainability, the topic of equality, diversity and inclusion (EDI), and the development and support of the students and employees involved in the development of spin-off companies and startups at UWB.

5.1.1 R&D&I capacities of HEI in the year 2025

Field of Research	FORD	FORD share [%]	Predominant type of research	Total share of field of reaserch [%]
1. Natural Sciences	1.1 Mathematics	4	Basic research	19
	1.2 Computer and information sciences	5	Balanced basic and applied research	
	1.3 Physical sciences	5	Balanced basic and applied research	
	1.4 Chemical sciences	2	Basic research	
	1.5 Earth and related environmental sciences	2	Balanced basic and applied research	
	1.6 Biological sciences	1	Basic research	
	1.7 Other natural sciences	0	Zvolte položku.	

2. Engineering and Technology	2.1 Civil engineering	1	Balanced basic and applied research	44
	2.2 Electrical engineering, Electronic engineering, Information engineering	21	Balanced basic and applied research	
	2.3 Mechanical engineering	12	Balanced basic and applied research	
	2.4 Chemical engineering	1	Balanced basic and applied research	
	2.5 Materials engineering	5	Balanced basic and applied research	
	2.6 Medical engineering	0	Zvolte položku.	
	2.7 Environmental engineering	1	Applied research	
	2.8 Environmental biotechnology	0	Zvolte položku.	
	2.9 Industrial biotechnology	0	Zvolte položku.	
	2.10 Nanotechnology	1	Balanced basic and applied research	
	2.11 Other engineering and technologies	2	Balanced basic and applied research	
3. Medical and Health Sciences	3.1 Basic medicine	0	Zvolte položku.	3
	3.2 Clinical medicine	1	Applied research	
	3.3 Health sciences	2	Applied research	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries	0	Zvolte položku.	0
	4.2 Animal and Dairy science	0	Zvolte položku.	
	4.3 Veterinary science	0	Zvolte položku.	
	4.4 Other agricultural sciences	0	Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences	1	Balanced basic and applied research	24
	5.2 Economics and Business	3	Balanced basic and applied research	
	5.3 Education	7	Balanced basic and applied research	
	5.4 Sociology	2	Basic research	
	5.5 Law	7	Basic research	
	5.6 Political science	1	Basic research	
	5.7 Social and economic geography	2	Applied research	
	5.8 Media and communications	0	Zvolte položku.	
	5.9 Other social sciences	1	Basic research	
6. Humanities and the Arts	6.1 History and Archaeology	3	Basic research	10
	6.2 Languages and Literature	2	Balanced basic and applied research	
	6.3 Philosophy, Ethics and Religion	2	Basic research	
	6.4 Arts (arts, history of arts, performing arts, music)	2	Applied research	
	6.5 Other Humanities and the Arts	1	Applied research	
Total		100 %	-	100 %

5.1.2 Target R&D&I capacities of HEI for the next five-year period

Field of Research	FORD	FORD share [%]	Predominant type of research	Total share of field of reaserch [%]
1. Natural Sciences	1.1 Mathematics	4	Basic research	18
	1.2 Computer and information sciences	6	Balanced basic and applied research	
	1.3 Physical sciences	3	Balanced basic and applied research	
	1.4 Chemical sciences	2	Basic research	
	1.5 Earth and related environmental sciences	2	Balanced basic and applied research	
	1.6 Biological sciences	1	Basic research	
	1.7 Other natural sciences	0	Zvolte položku.	
2. Engineering and Technology	2.1 Civil engineering	1	Balanced basic and applied research	45
	2.2 Electrical engineering, Electronic engineering, Information engineering	22	Balanced basic and applied research	
	2.3 Mechanical engineering	11	Balanced basic and applied research	
	2.4 Chemical engineering	1	Balanced basic and applied research	
	2.5 Materials engineering	7	Balanced basic and applied research	
	2.6 Medical engineering	0	Zvolte položku.	
	2.7 Environmental engineering	1	Applied research	
	2.8 Environmental biotechnology	0	Zvolte položku.	
	2.9 Industrial biotechnology	0	Zvolte položku.	
	2.10 Nanotechnology	1	Balanced basic and applied research	
	2.11 Other engineering and technologies	1	Balanced basic and applied research	
3. Medical and Health Sciences	3.1 Basic medicine	0	Zvolte položku.	3
	3.2 Clinical medicine	1	Applied research	
	3.3 Health sciences	2	Applied research	
4. Agricultural and veterinary sciences	4.1 Agriculture, Forestry, and Fisheries	0	Zvolte položku.	0
	4.2 Animal and Dairy science	0	Zvolte položku.	
	4.3 Veterinary science	0	Zvolte položku.	
	4.4 Other agricultural sciences	0	Zvolte položku.	
5. Social Sciences	5.1 Psychology and cognitive sciences	1	Balanced basic and applied research	24
	5.2 Economics and Business	3	Balanced basic and applied research	
	5.3 Education	8	Balanced basic and applied research	
	5.4 Sociology	2	Basic research	
	5.5 Law	6	Basic research	
	5.6 Political science	2	Basic research	
	5.7 Social and economic geography	1	Applied research	
	5.8 Media and communications	0	Zvolte položku.	
	5.9 Other social sciences	1	Basic research	

6. Humanities and the Arts	6.1 History and Archaeology	3	Basic research	10
	6.2 Languages and Literature	2	Balanced basic and applied research	
	6.3 Philosophy, Ethics and Religion	2	Basic research	
	6.4 Arts (arts, history of arts, performing arts, music)	2	Applied research	
	6.5 Other Humanities and the Arts	1	Applied research	
Total		100 %	-	100 %

5.1.3 Relation to the strategic objectives of the provider and strategic documents in the field of R&D&I

Strategic document	Follow-up
Strategic plan of the ministry for higher education for the period from 2021	Strategic Intent for the Period 2021–2025 The upcoming Strategic Plan of UWB 2026–2030
Strategy for the internationalisation of higher education for the period from 2021	Strategic Intent for the Period 2021–2025 The upcoming Strategic Plan of UWB 2026–2030
A Competitiveness Compass for the EU	The upcoming Strategic Plan of UWB 2026–2030
National Research, Development and Innovation Policy of the Czech Republic 2021+	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
National priorities of oriented research, experimental development and innovation The Government, by its resolution No. 552 dated 19 July 2012, approved the National Priorities for Targeted Research, Experimental Development, and Innovation. The VaVal priorities are valid for the period until 2030 with gradual implementation.	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
Innovation Strategy of the CR 2019–2030. The Country for the Future	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
The Country for R&D	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
The Country for Technology	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
The Country for Startups	Strategic Intent for the Period 2021–2025 Establishing spin-off companies in the UWB environment Directive No. 22R/2019 Contract research
The Country for Digitalisation	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 ICT Development Strategy at UWB 2016–2020 The upcoming Strategic Plan of UWB 2026–2030
The Country for Excellence	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030

The Country for Patents	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030 Directive No. 33R/2018 Protection of Intellectual Property and Transfer of Knowledge of the Czech Republic Directive No. 32R/2022 Granting of Public Licenses to Non-Published Results of Research and Development Directive No. 20R/2020 Remuneration of Authors and Distribution of Profits from the Transfer of Knowledge
Research and Innovation Strategy for Smart Specialisation CR 2021–2027 - RIS3	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
3rd update of the RIS3 strategy of the Pilsen Region approved (only in Czech language)	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
Policy Statement of the Government	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
Research & innovation valorisation channels and tools Boosting the transformation of knowledge into new sustainable solutions	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030
Framework programme for research and innovation (R&I) for 2021-2027	Strategic Intent for the Period 2021–2025 Long Term Plan UWB 2016–2020 Long Term Plan Development 2020 – Annex 3 The upcoming Strategic Plan of UWB 2026–2030

5.2 Research and development objectives

The HEI will describe its intentions and goals for the next five-year period. The objectives in the field of research development, innovation, and knowledge transfer as well as the objectives in the field of cooperation with public administration, entrepreneurs, and non-profit organisations will be described in relation to the mission, vision and disciplinary capacities of the HEI. Furthermore, the objectives for the development of the HEI as a research organisation will be described, in the areas of human potential development, institutional resilience, the implementation of open science and adherence to the principles of ethics, scientific integrity, and good practice, and their interrelationship with R&D&I objectives. The objectives described must be consistent with the Strategic plan for the teaching, scholarly, scientific, research, development, artistic and other creative activities of the higher education institution.

Maximum 2000 words.

Self-assessment:

The main goal for 2026–2030 is to strengthen UWB's international standing as a top research institution offering high-quality doctoral studies based on excellent creative work. It will be achieved by supporting top-performing, globally competitive UWB Units and teams, and active engagement in national and international strategic initiatives. UWB will continue to connect technical, scientific, humanities, and artistic disciplines to tackle complex challenges. Success will rely on strategic partnerships with leading institutions, industry, the public sector, and effective knowledge transfer. Special focus will be given to university incubators as hubs of innovation, creativity, and entrepreneurship. Key goals for 2026–2030 cover research, development, innovation, knowledge transfer, and collaboration with public, private and non-profit organizations:

Increasing the quality of research and creative activities, and the volume and excellence of scientific research.

- Development of cooperation in research activities between UWB workplaces, external institutes and partner universities.
- Strengthening the link between the quality of research and funding; improving financial support for high-performance and excellent research teams with an emphasis on interdisciplinary and innovative projects and national strategic priorities; supporting workplaces that strive for excellence.
- Creating suitable conditions for increasing the competitiveness and success of the University and its Units and individual scientific fields in obtaining subsidized degrees with the aim of increasing the volume of financial resources.
- Implementation of internal competitions and awards for excellence in research, e.g., in the form of internal grants and awards for top research results.
- Investment in the modernization and expansion of research infrastructures, which are necessary for the implementation of top-notch research at the international level; creation of an investment strategy for the renewal and development of research centres.
- In connection with the upcoming Open Science Strategy of UWB, supporting the comprehensive development of Open Science, research data management and digital literacy.
- Ensuring high-quality electronic information resources in accordance with the needs of creative activities and scientific research.
- Setting up a field-specific system for evaluating research activities at UWB based on international standards, so that it leads to both an improvement in UWB's position in international rankings and an improvement in evaluation within the M17+ modules.

Ensuring the quality of doctoral studies, conditions for postdoctoral students and education in ethics in creative activities, and developing Associate Professorship Appointment procedures and Professorship Appointment procedures.

- Implementation of changes and principles of financing doctoral study programmes in connection with legislative changes.
- Development of a University-wide doctoral school, linking research and teaching, supporting international mobility and dual leadership, involving doctoral students in excellent Teams and emphasizing ethical standards in research.
- Adjustment of admission procedures so that they can better verify the motivation of applicants and better address talents; increasing activities focused on promising foreign applicants.
- Implementation of joint doctoral study programmes with excellent domestic and foreign universities.
- Introduction of innovative standardized criteria for evaluating the quality of doctoral studies, especially doctoral theses; strengthening the active role of individual field boards.
- Creation, search and update of grant schemes and motivation systems aimed at supporting young (postdoctoral) researchers and doctoral students, which include mentoring, appropriate support for starting research and opportunities for international internships. Presentation of possible career paths.
- Strengthening and developing fields of Associate Professorship Appointment procedures and Professorship Appointment procedures by supporting professional excellence, interdisciplinarity and international cooperation, thereby ensuring their quality, prestige and social impact.

Increasing excellence in strategic research areas and strengthening international cooperation in creative activities

- Development of topics and areas of priority strategic research of UWB: semiconductor/chip technologies for power electronics, quantum materials and technologies, energy, transport and artificial intelligence.
- Regular review and update of other key research areas of the University with the aim of identifying those with the greatest potential for excellence and international recognition, including the subsequent provision of increased support to these areas.
- Development of international cooperation and involvement in prestigious research projects, active involvement of researchers in international consortia with the aim of increasing the quality and prestige of their research outputs, especially within the framework of strategic partnerships.
- Actively developing cooperation with prestigious foreign universities and research institutions through joint projects, exchange programmes for researchers and doctoral students, and participation in international consortia.
- Creating multidisciplinary international research teams composed of University researchers and top experts from abroad.
- Organizing international conferences and workshops in key strategic research areas.

Supporting and strengthening innovation and transfer of knowledge and technology.

- Introduction of tools for increasing the application of results and support for the transfer of technology knowledge.
- Expanding cooperation with industrial partners and cross-sectoral cooperation through joint research projects, consultations and custom research; greater involvement of partners in projects with potential for commercialization.
- Creating conditions for the emergence of University startups and spin-off companies through incubation and acceleration programmes that will provide budding entrepreneurs with space, advice and access to financing for the development of innovative projects, emphasizing the creation of University incubators.
- Organization of regular workshops and sessions to support innovative thinking and entrepreneurial skills in order to accelerate the transfer of results into practice.

Digitalization will play an important role in creative activities, providing the required computing power and storage space. Data support and data analytics will be further deepened, including ensuring the protection of data obtained and processed in research and artistic activities and through building an institutional framework for the development of digital competencies for the 21st century.

That is why the aim will be to:

Systematically build a flexible, accessible, sustainable and secure ICT infrastructure.

- Actively seeking to apply the possibilities of ICT infrastructure to achieve the strategic goals of UWB.
- Strategic management and building of ICT capacities and flexibility; regular assessment of risks and opportunities with an emphasis on the application of innovations in infrastructure.
- Implementation of principles of service provision management, especially in the area of strategic information systems; system support for digitalization. Modernization of library information systems and development of a support system for order management and contractual research.
- Full use of the possibilities of artificial intelligence (AI) tools and principles.

- Development of the ICT ecosystem for study support; strengthening the benefits of the IS/STAG study affairs system.
- Sustainability of ICT operations and support for the sustainable development of UWB.
- Multi-source financing based on conceptual development plans; connection with measures in the areas of energy plans, digitalization, smart campus, open science and others.
- Personnel sustainability of ICT at UWB; work with students (University incubator, graduation theses, campus as a testbed); support of creativity and innovation.
- Strategic cooperation within national ICT infrastructures and platforms (CESNET, e-INFRA.CZ, EUNIS).
- Creating conditions for linking ICT infrastructure, library and information services and academic creative activities for the comprehensive development of Open Science, research data management and digital literacy.

For 2026–2030, UWB aims to strengthen its media presence and highlight its social impact as a strategic priority. In the digital era, effective use of modern tools and communication strategies is essential to build a strong brand, produce quality content, and engage in national and international discussions. UWB will actively promote topics in education, research, and societal impact through transparent, authentic, and targeted communication to boost its reputation. Strong public recognition is key to advancing university interests and improving international rankings. Enhancing UWB's representation on national and global platforms will further increase its visibility and influence. Key goals for this period focus on communication and social impact:

Opening a space for the presentation of outputs of University Departments, strengthening and deepening skills and abilities in reporting on UWB successes in education, both at the level of individual teachers and at the level of University Units, both towards domestic and foreign audiences.

- Targeted support for employees in acquiring competencies for popularizing results and activities related to teaching activity, and developing skills for effective pedagogical communication.
- Providing comprehensive methodological support, including practical training, with a focus on effective media communication and with an emphasis on professional presentation of pedagogical and methodological achievements.
- Re-evaluation and modification or, possibly, expansion of indicators of pedagogical and methodological results, with a focus on how these results are presented to the public and the academic community.

Expanding and deepening skills and abilities in reporting on UWB scientific and creative achievements both at the level of individual researchers and at the level of University Units, towards both domestic and foreign audiences.

- Providing methodological support in working with the media, including individual consultations and specialized courses on effective communication with the media, and establishing partnerships with key domestic and foreign media.
- Organizing workshops and training sessions focused on the development of skills useful for popularizing creative results, such as working with social media and creating visual content.
- Revising and expanding indicators of scientific communication outputs, including specific indicators measuring the success of communication towards domestic and foreign audiences, at both individual and institutional levels.

Strengthening the reporting on UWB impacts on the city of Pilsen, the Pilsen and the Karlovy Vary regions, the Czech Republic, the EU and other selected areas of the world.

- Establishing and expanding cooperation with key regional, national and international media, public institutions and cultural organizations; creating platforms and campaigns that will highlight UWB's specific contributions in the area of social responsibility and UWB's role as a trigger for regional and global development.
- Providing UWB teachers, researchers and employees with targeted training and other tools for effective communication of the impacts of their work on society, which clearly document UWB's significant contribution in the social, economic and cultural areas.
- Conducting a systematic review of existing indicators used to assess UWB's social, economic and cultural impacts which reflect UWB's wider influence at the regional, national and international levels, including benefits for local communities, businesses and organisations.

Developing coordinated forms of UWB's policies for the fulfillment of its social role.

- Setting thematic priorities in the area of social responsibility with the aim of strengthening the impact of UWB's implemented projects on society.
- Strengthening mutual cooperation between University Departments through the coordination of activities aimed at various target groups across the University.
- Developing forms of awards for University students and employees for activities leading to general social benefit.
- More proactive work with UWB graduates.
- Setting up a process for selecting priority topics resulting from social needs and addressing them in cooperation with individual University Units.

For 2026–2030, a key priority is creating a supportive work environment that fosters personal growth, long-term motivation, and satisfaction for employees and students. Since university work goes beyond a standard job, UWB emphasizes flexibility and work-life balance. Inspired by international standards and workplace trends, UWB aims to be a safe, welcoming place with real opportunities for development. Personnel policy will focus on attracting younger talent and experts with international experience to strengthen global impact. The goal is to make UWB an appealing choice for both employees and students in Pilsen and the Karlovy Vary Region. Key goals for this period focus on human potential development and employee care:

Implementing an effective career system covering the entire professional life cycle, from open and transparent recruitment through career growth and development up to the retirement process, as the basis for increasing the prestige of UWB as a sought-after employer.

- Revising the rules for transparent career progression of UWB employees, while supporting their professional development (both horizontal and vertical).
- Implementing tools to strengthen equal opportunities for UWB employees in all positions, such as the HR Award and the Equal Opportunities Plan, with an extension to the area of inclusion.
- Creating return grant schemes for doctoral and postdoc students who are on career breaks.
- Providing comprehensive educational programmes to improve professional and other competencies with an emphasis on the needs of the University and individual career development plans.
- Introducing appropriate tools for a managed employment termination of employees.

Using an effective and transparent employee evaluation system that supports individual growth, takes into account the University's strategic goals, and offers targeted activities and forms of training based on the evaluation results.

- Linking staff evaluations and self-assessments with individualized professional development and targeted learning plans that meet their needs and the University's strategic priorities.
- Providing individualized support and mentoring to UWB staff based on their evaluation results in order to develop their potential and enhance their contribution to the University.

Implementing tools for work-life balance and for fostering a safe, inclusive and supportive working environment.

- Effective use of flexible forms of work with an emphasis on supporting employees caring for family members, with regard to age management principles.
- Providing programmes to support a healthy lifestyle and overall wellbeing of UWB employees, including a wide portfolio of employee benefits.
- Providing regular safety training focused on physical, psychological and social safety in the workplace.
- Conducting regular audits of the working environment and improving overall safety in individual UWB workplaces.

5.3 Institutional tools and measures for the implementation of the research and development strategy

The HEI will describe its institutional and strategic tools (e.g., strategic management tools, tools created to support the implementation of research objectives, legal and organisational norms in relation to R&D&I support, etc.) that are designed to fulfil the research and development objectives for the next five-year period (Table 5.3.1), with an emphasis on:

- Supporting quality R&D&I.
- Excellent science.
- Innovative environment and increasing the international or disciplinary competitiveness of the HEI's research activities.
- Development of human potential.
- Institutional resilience.
- Adherence to ethical principles, scientific integrity and good practice in R&D&I.

Maximum 2000 words.

Self-assessment:

The University of West Bohemia in Pilsen uses a wide range of institutional and strategic tools that enable it to systematically and effectively fulfill its research and development goals. The key areas include:

Strategic management and planning of UWB

By Strategic Plan is meant the official UWB document "Strategic Intent".

The University sets long-term visions and goals, which are regularly revised and updated. These are described in Strategic Intent of UWB prepared for every five-year period and updated and specified every year. The Strategic Intent serves as a long-term plan for the development of the University and ensures its competitiveness in the academic and research environments. The latest long-term

valid document is [The University of West Bohemia Strategic Intent for the period 2021–2025](#); this year, a new Strategic Intent is being prepared for the period 2026-2030. The creation of the UWB Strategic Intent is a systematic process based on an analysis of the current state, where the aim is to assess the current state of the University and identify key areas for its strategic development (the process is legislatively codified in an internal standard [Strategy Creation and Evaluation](#) (24R/2024). This section describes the mission and vision and includes a SWOT analysis, an evaluation of the previous strategic intent and its implementation, a comparison with other universities and other research institutions (benchmarking) and, last but not least, an analysis of the external environment (legislation, financing, trends in education and research).

Based on the analysis, UWB identifies key focus areas: education, creative activities, communication and social impact, university environment transformation, employee care, infrastructure and services, and cross-cutting themes such as internationalization, digitalization, sustainability, and security. Each area includes measurable goals to be achieved within five years. The strategic intent undergoes multiple approval stages—from the initial draft by University Management, through consultation with UWB Units and the academic community, to final approval by the Scientific Board, Academic Senate, and Board of Trustees—before submission to the Ministry of Education, Youth and Sports.

The strategic intent is a dynamic document, regularly updated to reflect legislative changes, developments in higher education, and UWB's evolving needs. Annual strategic development plans assess goal progress and adjust the strategy if needed. Each UWB Unit creates its own plan, aligning with university-wide goals and indicators while also setting specific targets based on its internal strategy. This approach enables effective monitoring, evaluation, and maintains competitiveness in academia and research.

Financial management for implementing the research and development strategy of UWB

The rules for the use and distribution of institutional support for LCDRO are generally internally regulated by the Rector's Directive [Budget Methodology](#) (15R/2024); each year, the subsidy allocations to individual University Units are specified in the Budget Rules (e.g., [36R/2024](#)). The rules for the use of support for research, experimental development and innovation are governed primarily by the rules of relevant providers and the Rector's Directives regarding the project management and administration ([26R/2023](#)) and the grant system ([03R/2015](#)). The R&D quality parameter plays a significant role, which is part of the comprehensive model of financing higher education institutions in the Czech Republic; together with other parameters, this affects the total amount of funding that the University receives to support research activities. Within UWB, the quality of R&D uses parameters related to doctoral studies. Financial management must not miss the implementation of additional activities, which are governed by the Rector's Directives on Additional Activities ([23R/2019](#)) and Contract Research ([22R/2019](#)). The Vice-Rector who is responsible for R&D is responsible for distributing the subsidy to the LCDRO.

Part of the total subsidy (up to 4 %) is allocated to centralized UWB activities related to R&D (funds for motivational tools to support personnel policy and stimulate R&D – linked to M4 and M5 according to M17+; a contribution is also allocated to the activities of the Project Centre and the Department of Research, Development and Knowledge Transfer (VVT).

The remaining subsidy is distributed to University Units as stabilization and performance components. The stabilization component (currently 95 % of the previous year's allocation) limits year-on-year funding fluctuations. The performance component reflects research output and quality, based on a three-year evaluation and other criteria. Its share will gradually increase.

Six categories are currently being evaluated:

- “Articles” – the share of individual UWB Units in the number of publications of types: Article, Review in D1, Q1, Q2, Q3 and Q4 in a given field. The basis is data from the WoS and Scopus databases.
- “Monographs and chapters” – the share of individual UWB Units in the total number of professional books published abroad.
- “Projects” – the share of individual UWB Units in the total funds of the entire UWB for R&D projects.
- “Contract research” – the share of individual UWB Units in the volume of funds paid for contract research projects.
- “Quality of selected results” – the evaluation of selected results obtained within the M1 module of the 17+ Methodology will be used. Only grades that are better than or equal to the national average in a given scientific area in a given year will be counted.
- “Component evaluation” – the evaluation of UWB Units carried out within the M3 module of the 17+ Methodology will be used primarily.

In the future, “Licenses and patents” are another possible category of the performance component, which would express the volume of funds obtained by selling licenses and patents to a third party.

Incentive financial instruments for R&D&I management at UWB

The funds for centralized activities mainly finance the UWB Motivation System – part of the RIV (Rector's Directive [03R/2015 – Grant System](#)) and the LCDRO Development System ([DS LCDRO](#)). The UWB Motivation System – part of the RIV – operates automatically without the submission of applications by authors; selected publication results are awarded within its framework.

Funds for centralized activities mainly support the UWB Motivation System – part of RIV – and the DS LCDRO Development System. The Motivation System awards selected publication results automatically, without the submission of applications by authors. DS LCDRO, launched in 2022, supports UWB Units rated below “A” in MEP1, focusing on attracting international experts to boost collaboration, joint projects, and high-impact publications. The goal is to enhance internationalization and improve MEP2 evaluations. A new approach is planned, including support from the Rector's Reserve for ERC/ERC-CZ project holders. This aims to back top researchers with strong R&D&I achievements and international potential who choose to implement their projects at UWB.

Project management and transfer

Project management at UWB involves using available resources to deliver projects on time, within budget, and according to set goals. Grant calls are actively monitored to support research, innovation, and interdisciplinary projects, enabling timely engagement. Internal calls funded at the university level motivate staff. University-wide projects are coordinated by the Project Centre, which handles project and financial management, while UWB Units are responsible for professional outputs. For limited-submission calls, researchers must promptly notify the relevant administrator. The Rector or relevant Vice-Rector then decides on the proposal selection for submission. In case of strategic research calls, an expert panel may evaluate submissions under the leadership of the Rector or Vice-Rector. To support collaboration and commercialization, UWB emphasizes technology transfer, including spin-off company development. The TSV Department advises employees on spin-off creation, licensing, and legal ties to UWB. This has led to several successful

spin-offs, offering a simpler path than licensing. Students are also supported through the BoostUp business club, where they can develop startups.

Quality assurance and assessment in the areas of R&D&I; analytical activities

In order to ensure a high level of research and innovation, the University implements regular evaluations and ongoing monitoring. The evaluations are based on the Environmental, Social, and Governance (ESG) framework, which is a set of standards and guidelines designed to ensure quality in higher education in Europe. The standards serve as a reference framework for internal and external quality assurance systems at UWB. These tools allow for monitoring key performance indicators, obtaining feedback from the academic community and partners, and identifying areas where further intervention or strategy adjustment is needed in a timely manner. This includes “Internal Quality Assurance”, which focuses on processes and procedures within UWB to maintain and improve quality, and “External Quality Assurance”, for which UWB uses external evaluators. The implementation of ESG standards helps UWB align its quality assurance systems with European standards, and supports the mutual recognition of qualifications and the mobility of students and academic staff. The assessment of the fulfillment of the UWB strategic goals in the area of creative activity in the UWB strategy is defined by regulation [Quality Assessment of Creative Activities](#) (9P/2018). Another tool for assessing the quality of R&D&I is [Comprehensive Internal Quality Assessment of UWB](#) (21R/2018), which is focused on assessing the state of the institutional environment. The comprehensive internal quality assessment of UWB is based on the general principles of the EFQM model for organizational evaluation, which is further developed for the specifics of the University environment. The course of the comprehensive internal quality assessment is supervised by the UWB [Internal Evaluation Board](#). For regular acquisition and evaluation of information regarding the intensity and scope of scientific activity in individual fields, UWB uses the [Quality Assessment of Procedures for Appointing Associate Professors and Procedures for Appointing Professors](#). A completely new comprehensive Rector's Quality Assessment Directive is currently being prepared, which will combine all previous partial assessments into one parametric process applicable in all areas of quality assessment.

In accordance with the [Rules of the Quality Assurance System](#) for Educational, Creative and Related Activities and Internal Quality Assessment of Educational, Creative and Related Activities of the University of West Bohemia in Pilsen (internal regulation completely revised in 2024), rules for conducting analytical activities at UWB are further set out in Directive [Analytical Activity](#) (33R/2024). The purpose of analytical activities is mainly to support the creation and evaluation of UWB strategic documents and segment strategies and the evaluation of core and service activities, through the processing of individual analyses. These are procedures for obtaining, processing and interpreting quantitative and qualitative data from internal and external sources in order to support decision-making at all levels of management and for assessing the quality of all activities, including evaluating feedback from stakeholders.

At UWB, one of the key components of the University's quality assurance and effective management system is process mapping. This approach enables the visualization of repetitive procedures and improves orientation in individual activities. Process mapping is divided into three areas. The main processes, which include basic activities of the University, such as educational and research activities; management processes, which concern strategic planning, decision-making and control mechanisms; and support processes, such as administrative and technical services, which underpin the main and management processes. The guidelines for mapping and evaluating processes are set out in the [Process Mapping and Evaluation](#) (27R/2024).

Development of human potential and human resource management in the areas of R&D&I

In the areas of research, development and innovation, UWB focuses on effective development of human potential and human resource management through several key tools. This includes, in particular, the implementation of the principles of the European Charter for Researchers (HRS4R – HR Award ([HRS4R](#))). UWB is guided by the principles of this charter, which sets a framework for the working conditions and career development of researchers, thereby supporting the attractiveness of a scientific career and ensuring a high level of research. The European Commission supports the implementation of the principles of the Charter through the HRS4R strategy. UWB as a whole has been certified "HR Excellence in Research" since 2023. Some University Units were the first to receive this certification separately as early as in 2017. An integral part of human resources management is the establishment of rules for career development and recruitment of employees. At UWB, they are anchored in the [Career Development Regulations](#), the [Rules of Selection Procedure for Filling Academic Staff Positions](#), the [Rules for Recruiting Specialists in the Area of Science, Research and Development at UWB](#) and the [OTMR policy](#), and are governed by the valid legislation of the Czech Republic (in particular Act No. 262/2006 Coll., the Labour Code, as amended; 111/1998 Coll., the Higher Education Act; and related regulations). At UWB, care for employees is anchored in the Collective Agreement, the [Equal Opportunities Plan](#), and the [HRS4R Action Plan](#). Another important strategic document is the [Gender Equality Plan](#) (GEP), which aims to promote equality between women and men at UWB. The GEP is a key tool for fulfilling the principles of equal opportunities in the area of research, development and innovation (R&D&I). Furthermore, ethics and social security at UWB are guaranteed by independent and impartial persons who can be contacted in cases where social security may have been violated. These persons include the Ombudsman, members of the [Ethics Committee](#) and the investigation coordinator (whistleblowing). Social security at UWB is defined by Rector's Directive [Ombudsman and Social Security](#) (36R/2023).

In connection with the prepared Strategic Intent 2026+, the Career Regulations and the approach to employee evaluation will be revised in the coming period; the UWB approach to balancing work and private life will be developed, among other things, with the additional goal of strengthening a safe working and study environment at the University.

In the coming period, UWB aims to expand institutional tools to support its R&D strategy, focusing on innovation and future technologies like AI, materials, semiconductors, quantum tech, energy, transport, biotech, and clean tech. Closer ties with industry will boost technology transfer and practical application of research. Digital tools will streamline administration and improve research efficiency, supported by updated internal procedures. Human capital development will include modern education, staff and student training, and international mobility. UWB will strengthen participation in European research networks and consortia, sharing best practices. Strategic investments will target diverse funding sources—EU grants, private investment, and industry partnerships—while ensuring efficient use of resources. These efforts aim to boost UWB's role in the European research area.

5.3.1 Institutional tools and measures for the implementation of the research and development strategy

Name of instrument/measure	Description of the tool/measure	Implementation status	Year
Strategic intent of UWB, Mission, Vision, SWOT analysis, Annual update, Indicator evaluation	The UWB action plan is based on strategic goals including annual monitoring of the achievement of goals using established indicators.	Implemented	1991

Budget methodology, parametres: number of DSP students, number of DSP graduates	Budget methodology; each year, the Budget Rules specify the allocations to individual parts of the subsidy. Parameter in budgeting "quality of R&D"	Implemented	1991
Distribution of LCDRO funds according to the performance of UWB Units in the area of R&D	Division into stabilization and performance components. The stabilization component is intended to dampen unwanted year-to-year fluctuations, and the performance component reflects the current performance and quality of a UWB Unit's research.	Implemented	2024
Incentive financial instruments for R&D&I at UWB	UWB Motivation System – part of RIV and LCDRO Development System / Number and quality of selected R&D results	Implemented	2015/2022
Project management/funding volume	Method of planning and implementing project calls in strategic research areas	Implemented	2023
DR/ata analytics support, including the use of AI	Analysis of intra-University and extra-University data with the aim of assessing the status, trends and benchmarks Monitoring and timely alerting of trends for the needs of the research strategy	Implemented partially	2020
Additional activity, Contract research and transfer	Directive on supplementary activities, contract research and transfer/Volume of funds	Implemented	2015/2019
System of evaluation and quality control of creative activity	Monitoring key performance indicators, obtaining feedback from academia and partners	Implemented	2018
Analytical activities in the area of R&D	Procedures for obtaining, processing and interpreting quantitative and qualitative data from internal and external sources in order to support decision-making at all levels of management and in quality assessment (33R/2024)	Implemented partially	2024
Process mapping and evaluation	Monitoring processes at UWB at three levels: Main processes, Control processes, Support processes	Implemented	2024
HR Excellence in Research	UWB as an institution has HRS4R certification	Implemented	2023
OTMR policy	Recruitment of specialists in the areas of science, research and development	Implemented	2020
Gender Equality Plan	Promoting gender equality in scientific institutions and research organizations	Implemented	2022
Digitalization of support processes, including deployment of AI-based tools	Digitization, or digital transformation, of research and development support processes. The goal is to reduce the administrative burden and increase the overall efficiency of the main research processes implementing the research strategy.	Implemented partially	2023

Training and coaching of researchers	Training and coaching of researchers/academics. The aim is to support the transformation process of the University and research environment, increasing adaptability and resilience to an innovative research and development environment.	Not implemented	
Transformation of the University career environment	Updating the Career Rules and adjusting the evaluation system for academic and research staff with regard to the objectives, measures and indicators of the research strategy	Implemented partially	2023
Conceptual approach to initialization activities	Support for strategic talent management and doctoral education Targeted support for start-ups and spin-offs	Not implemented	
Integration of research strategy, University strategy and sub-segment strategies (IT, security, sustainability)	Integration of all strategies in unifying measures and organizing their objectives according to the BSC (Balanced Scorecard) method	Not-implemented	

5.4 Implementation of the recommendations in Module 5

The HEI will briefly describe how it has implemented the recommendations for Module 5 from the previous evaluation period, if applicable.

Maximum 1000 words

Self-assessment:

- In order to ensure sustainability, the creation of an incubator for some original technologies developed in collaboration with students or employees could bring an important contribution. Specific actions in this area would ensure UWB's high visibility. The establishment of a school factory for students would also be useful for the development of incubator prototypes.***

UWB provides its students and employees with the opportunity to develop their projects within the University incubator, the main part of which is a comprehensive acceleration programme; it provides participants with important knowledge and skills in the area of product development and its launch on the market through workshops. The incubator also offers individual consultations, organizes inspiring lectures, and ensures contact with external mentors and investors. Every year, the developers of the best projects participate in a competition, in which they can win financial resources for further development, consulting services in selected areas, publicity for their project and, possibly, an investor. The aim of all these activities is to create a sustainable innovation ecosystem at UWB that will motivate and support students and employees to develop spin-off companies and startups at UWB.

- It would be good to add some evaluation tools, such as anonymous evaluation of various services by employees or students, to ensure obtaining anonymous feedback.***

In connection with the EDI policy, we carry out analyses, organize focus groups and conduct individual interviews as part of the preparation, implementation and evaluation of the HR Award action plan and the Equal Opportunities Plan (GEP). In 2021, an extensive gender audit was carried out at UWB, on the basis of which the GEP was prepared; its outputs also influenced some of the measures of the HR Award action plan. From Q3/2024 to the end of Q1/2025, a gender re-audit was carried out at UWB, which will become the basis for both the Equal Opportunities Plan 2025-2027 and the updated HR Award action plan. In 2020, in the framework of the recommendations of MEP 2020, UWB participated in a questionnaire

survey as part of the international UniSAFE project. Moreover, UWB provision of services has been evaluated annually by employees: all service departments are gradually evaluated over three years, including their manner of behaviour, understanding of competencies, politeness of behaviour and personnel orientation. In 2024, students evaluated the services: accommodation and catering services, the provision of study counseling, library services and comprehensive support for international mobility. Among other interesting analyses, we have selected a survey of the public's attitude towards the revitalization of green areas on the UWB campus carried out in 2022.

- ***UWB will need to address the Equality, Diversity and Inclusion (EDI) issues addressed by MEP2020 – M4, Section 4.18, and accompanying recommendations to demonstrate its progress towards EFFPRDI. UWB is encouraged to join programmes such as “Athena Swan” and the “SAGE Charter of Principles in Gender Equity”.***

UWB addresses this issue in the following way: In 2021, an extensive University-wide gender audit was conducted at UWB. Its outputs and recommendations became the basis for the Equal Opportunities Plan 2022-2024 and the HR Award action plan. In 2022, the position of social safety coordinator was created. In 2023, the position of student ombudsman was created at UWB Faculty of Education. In January 2024, the position of university-wide ombudsman was created; it focuses on students and employees. Through the activities of the social safety coordinator and ombudsman, UWB implements training, workshops, seminars and an information campaign on the topic of equal opportunities, (non)discrimination, bullying, gender-based violence etc. The social security coordinator/ombudsman of UWB has been and is actively involved in local, national and European activities related to equal opportunities. Through him/her, UWB is involved in the People in Science working group – an advisory body of the RVVI, the CASPER Project, the UniSAFE Project, the GenderSAFE Project (P. Šimon, ombudsman, is a member of the working groups within the Community of Practice), the ŠOP network (School Ombuds Platforms), the ENOHE network (European Network of Ombuds in Higher Education).

- ***In order to boost institutional pride, UWB could pursue carbon neutrality, i.e., reducing its carbon footprint through various energy-saving technologies or the use of renewable solar or geothermal energy. UWB could also prioritize electric vehicles with on-campus charging, the use of solar panels, or the use of bicycles. These ideas make UWB a “clean partner” with a strong sense of social responsibility, which can play an important role for international competitiveness in the research ecosystem.***

The panel's recommendations in the MEP 2020 evaluation were partial. In response, the newly elected UWB Management in 2023 prioritized sustainability. As a result, the Academic Senate adopted the [Sustainable Development Strategy of UWB in 2024](#).

UWB recognizes the long-term and interconnected nature of the Sustainable Development Goals (SDGs). While supporting all SDGs, it will focus on five priority areas from 2025 to 2030: social responsibility, low-carbon energy, circular economy, sustainable mobility, and harmonious environment, each with a defined strategic and specific goal.

Since many recommendations focused on carbon footprint, UWB emphasizes low-carbon energy (Strategic Objective 2). It aims to reduce climate impact in line with international policies, highlighting the importance of energy management in mitigating climate change and saving costs.

- Objective 2.1: UWB supports research and development in climate-friendly energy, promoting carbon neutrality through innovation, expert consulting, and integration of scientific results into practice.

- Objective 2.2: UWB applies innovative energy solutions within its own operations. An Energy Plan will guide infrastructure and system transformation, increase renewable energy use, and ensure transparent energy monitoring to support efficiency and research.
- Objective 2.3: UWB develops interdisciplinary education on climate change causes and solutions, linking technological and societal shifts. Student involvement in research fosters a socially responsible and motivated academic community.

• Paid parking should be introduced on campus, with public transportation being free for both students and employees. The panel also recommends that UWB create a foundation to collect parking fees.

Introducing paid parking at the University would duplicate the nearby city-operated P+R parking lot, located just 800 meters away. This facility, integrated into Pilsen's parking system, includes a public transport day pass and is conveniently located near bus and tram stops. A University parking fee would thus compete unnecessarily with the city system.

The University parking lot is reserved for employees, students, and visitors as a benefit. Charging for parking could lead to overflow in nearby free parking areas at shopping centers, and would likely provoke opposition from the Student Board, as seen during past discussions on student parking restrictions.

Between 2017–2022, a project offering free public transport to first-year students aimed to reduce car use. Despite a cost of 10 million CZK (395,000 EUR), the number of parked cars did not decline. Some students misused the benefit, and the project failed to increase public transport use meaningfully.

Moreover, the costs of providing free transit would outweigh potential parking revenues. It's also unclear if those now parking on campus would switch to public transport. Lastly, legal constraints prohibit the University from creating a foundation solely for profit-making purposes, which a parking fee would represent.

A LIST OF SUPPORTING DOCUMENTS/LINKS FOR MODULE 5

Document name	No. criteria	Location (link in HTML)
Strategic Intent for the Period 2021–2025	5.1, 5.2, 5.3	https://drive.google.com/file/d/1xoZxPXeNQFy_IKkFiRpwApb1OeS1IIXj/view
Annex 3 to Long Term Plan Development UWB 2020	5.1, 5.2	https://drive.google.com/file/d/1a9k5mbwvIK-1UsGeFEq7wgr_hV-3qjE9/view
Long Term Plan UWB 2016–2020	5.1, 5.2	https://drive.google.com/file/d/105RsVJN1sT4CXTCF0bCXjpYxCHjBSHwq/view
National Research, Development and Innovation Policy of the Czech Republic 2021+	5.1	https://vyzkum.gov.cz/FrontClanek.aspx?idsekce=932081&ad=1&attid=932087
Gender Equality Strategy for 2021 - 2030 - Office of the Government of the Czech Republic	5.1	https://drive.google.com/file/d/1U5z3wtQtfqwFBjHRgIKbdCgaTLeZHJ0Q/view
National Research, Development and Innovation Policy of the Czech Republic 2021+	5.1	https://vyzkum.gov.cz/FrontClanek.aspx?idsekce=932081&ad=1&attid=932087
Innovation Strategy of the Czech Republic 2019–2030	5.1	https://vyzkum.gov.cz/FrontClanek.aspx?idsekce=867922
The National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027	5.1	https://mpo.gov.cz/en/business/ris3-strategy/ris3-strategy--265275/
Internationalization Strategy 2021–2025	5.1, 5.2	https://drive.google.com/file/d/1s717c9kL2CVZqsrJ35_57lvL7fhEFLHf/view
ICT Development Strategy at UWB 2016–2020	5.1.	https://drive.google.com/file/d/113XJaNm-Sc2jYqVng9tuTozwONiYGI_X/view

Methodology for the Evaluation of UWB Academic Staff	5.1, 5.2	https://drive.google.com/file/d/1WWR2pCRE8iNXu4VqZPQakySJdlivgcRQ/view
Equal Opportunities Plan 2022–2024	5.1, 5.2	https://drive.google.com/file/d/1FF54XFL9Q7Ake7VGsQHNXpkCGdNarpDE/view
Code of Conduct of the University of West Bohemia	5.1, 5.2	https://drive.google.com/file/d/14bBBNreQggRL1QVv8ekmElQSYM18sJlf/view
Procedures for Risk Identification and Assessment	5.1	https://drive.google.com/file/d/103JNGLrICk_fJfcMB0QfGxiPi-dTMM/view
Strategy Creation and Evaluation	5.3	https://drive.google.com/file/d/17FK1ZstZ8jCM1FSu0RbxJL8nBJ9UcKJv/view
Budget Methodology	5.3	https://drive.google.com/file/d/1trdwLx6LRMnW2I6heBsk269mSXXMGXdd/view
Budget Rules	5.3	https://drive.google.com/file/d/17kcRfGWtVqDsP9aTvr_CdfWuBhw638d/view
Grant System	5.3	https://drive.google.com/file/d/1T6LYfOcOHHDy3kqBI6C-RSdFggrpDyza/view
Additional Activities	5.3	https://drive.google.com/file/d/1u-7fcqo-ZPLjYReZwfSGHQQIYcwDBAOo/view
Contract Research	5.3	https://drive.google.com/file/d/1X9jANaDkJAZ2X1JrOq0HVm7l1PzX-39N/view
DS LCDRO 2022-2024 calls	5.3	https://drive.google.com/file/d/17zkE42htUXvCwwUik5bMqrKqyJ6iCoO/view
Quality Assessment of Creative Activities	5.3	https://drive.google.com/file/d/1jDARSVNz-Lz1MnsP0gvgEUDTZhe6VvYq/view
Comprehensive Internal Quality Assessment	5.3	https://drive.google.com/file/d/1zvj77hYg0h4Plz1aCnOubeFtk8Z7wRT/view
Rules of Procedure of the Board for Internal Evaluation of the UWB	5.3	https://drive.google.com/file/d/1MIhTMVPwpQGt_9sZdcIQKf0vLEaOpJMn/view
Evaluation of the quality of the habilitation procedure and the procedure for the appointment of professors	5.3	https://drive.google.com/file/d/1qNYVrnRYGC_R2yOdf4gyjfvHususHaMc/view
Rules of the Quality Assurance System	5.3	https://drive.google.com/file/d/1BEJHHSctqwNyBE_mTWKCUhAftdOQYorS/view
Analytical Activity	5.3	https://drive.google.com/file/d/12TwD63YxtKaubT3aiPv5pmHG0IE8yslv/view
Project Management and Administration	5.3	https://drive.google.com/file/d/1gQ94k1zOpBSuP7sntx1kHvfoMsf-SNK/view
Process Mapping and Evaluation	5.3	https://drive.google.com/file/d/1KPoSa9OaoUIreawAp7VH-I-9MS0RjVQE/view
UWB HRS4R Action Plan 2023	5.3	https://drive.google.com/file/d/1Z0BFEPb954uZBzW2ImN88G5t4viB80/view
Career Development Regulations	5.3	https://drive.google.com/file/d/16li7e4jrEoeXesaXb3U-5qledqJWXzDk/view
Rules of Selection Procedure for Filling Academic Staff Positions	5.3	https://drive.google.com/file/d/1eSxkO_f7jIkWsljVEyF7VH2Kvb24_GTh/view
Rules for Recruitment of Specialists in Science, Research and Development at UWB	5.3	https://drive.google.com/file/d/12jVx5n9h52_aa4blnKBQRYzoRSBFCpHD/view
OTMR policy	5.3	https://drive.google.com/file/d/1OpBVd0sml-95hDDIsA3In86kk-Wq4A4D/view
Equal Opportunities Plan	5.3	https://drive.google.com/file/d/1FF54XFL9Q7Ake7VGsQHNXpkCGdNarpDE/view
HRS4R Action Plan	5.3	https://drive.google.com/file/d/1Z0BFEPb954uZBzW2ImN88G5t4viB80/view
Gender Equality Plan	5.3	https://drive.google.com/file/d/16UE1TjDVOeLRsCc_6dH4w4DT0BK7uzw/view
Ombudsman and Social Safety	5.3	https://drive.google.com/file/d/1k3LldSzwLFQhx3glGfykchttHbWsqw/view
Report on the activities of the UWB Ethics Committee in 2023	5.3	https://drive.google.com/file/d/1eqkEs8jTp5N_EN1YX22oHvRMKJERd1vB/view
Sustainable Development Strategy of the University of West Bohemia in Pilsen	5.4	https://drive.google.com/file/d/1GFLS8SdbYx7iU-SW-F2pdhOn_0D1sTwu/view
Times Higher Education (THE)		https://www.timeshighereducation.com/world-university-rankings/university-west-bohemia