MINISTRY OF EDUCATION, YOUTH AND SPORTS

EVALUATION REPORT FOR EVALUATION OF RESEARCH ORGANIZATION IN THE SEGMENT OF HIGHER EDUCATION INSTITUTIONS IN YEAR 2025

HIGHER EDUCATION INSTITUTION NAME: TECHNICAL UNIVERSITY OF LIBEREC

COMPANY REGISTRATION NUMBER (CRN): 46747885

THE LIST OF EVALUATION UNITS IN MODULE 3:

Faculty of Mechanical Engineering

Faculty of Textile Engineering

Faculty of Science, Humanities and Education

Faculty of Economics

Faculty of Arts and Architecture

Faculty of Mechatronics, Informatics and Interdisciplinary Studies

Faculty of Health Studies

Institute for Nanomaterials, Advanced Technologies and Innovations

CHAIRPERSON OF INTERNATIONAL EVALUATION PANEL

Name and surname: Prof. Dr.-Ing. habil. Yordan Kyosev

Phone number: [redacted]

E-mail: [redacted]

LIST OF INTERNATIONAL EVALUATION PANEL MEMBERS		
Name and surname	**Position in IEP**	**Current position**
Yordan Kyosev	Chair	TU Dresden
Markus Westner	Member	OTH Regensburg
Hana Bunzen	Member	Otto-von-Guericke-University Magdeburg, Magdeburg, Germany
Beáta Gavurová	Member	Technical University in Košice
Sanna Lehtinen	Member	Aalto University School of Arts, Design and Architecture
Daniela Plachá	Member	Technical University of Ostrava
Ivo Hlavatý	Member	Technická univerzita Ostrava
Zoltán Kovács	Member	Eszternhazy Karoly catholic University

PROVIDERS METHODOLOGIST

Name and surname:

Mgr. Tomáš Kůst

Phone number:

[redacted]

E-mail:

[redacted]

Date of on-site visit of higher education institution: 3. – 4. 6. 2025

In Dresden date 31. 10. 2025

Signature _____
(HEP chairperson)

NAME OF EVALUATED UNIT: Faculty of Mechanical Engineering (FME)

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.

Commentary:

The Faculty of Mechanical Engineering (FME) was founded in 1953. FME is a university faculty that combines education with scientific and research activities. In the field of education, FME covers the entire area of education 27 - Engineering, Technologies and Materials in the entire spectrum of study programs, which are based on the tradition of training mechanical engineers in the region and cooperation with industry. More than eleven thousand graduates have graduated from FME so far. The development of FME is focused on the following areas: Materials, Nanomaterials and Composites, Advanced Technologies and Nanotechnologies, Sustainable Transport and Mobility, Machine and Equipment Design, Production Systems, Automation and Robotics, and Energy and Renewable Resources. Strategic areas in R&D&I include: Polymer Systems, Metallic Materials and Functional Surfaces, Lightweight Parts and Metamaterials, Machining of Conventional Metallic and Composite Materials, 3D Additive Technologies, Artificial Intelligence - Machine Learning and Automation and Design. In the areas of Construction, these are: Innovation of Technical Systems, Safe and Ecological Means of Transport, Machines for the Production of Fiber and Nanofiber Structures, Single-Purpose Machines and Equipment, Robotization and Automation in Industry and Service Robotics and Glass Machines for the 21st Century. In the areas of Mechanics and Power Engineering, these are: Mechanics of Intelligent Materials and Their Thermomechanical Reactions, Vibration Isolation and Energy Processes. The organizational structure of R&D&I FME is divided according to the type of research into departments: Applied Mechanics, Engineering Technology, Materials Science, Engineering Technology, Machine Parts and Mechanisms, Machining and Assembly, Department of Vehicles and Engines, Department of Glass Machines and Robotics, Department of Textile Machine Design and Department of Production Systems and Automation.

The size and staffing indicators reflect a compact unit with broad pedagogical responsibilities. In 2023, FME reported about 115 (of which 30.07 women) full-time employees. Academic degrees included 9.77 (1.93) professors, 22.59 (6.10) associate professors and 44.24 (5.8) assistant professors, 84.59 (14.85) FTEs were researchers/researchers engaged in teaching, and 17.64 (1.20) were classified as early career researchers (Table 3.1.1). The current age structure – characterised by many assistant professors over 40 and a relatively small number of professors under 60 – suggests a potential risk (Table 3.1.2), suggesting that institutions need to pay more attention to career management.

The number of students in 2023 was 637 (425 bachelor's, 157 master's and 55 doctoral) (Table 3.1.4). In 2023, the faculty offered 17 study programmes, 15 of which were in English (Table 3.1.5).

R&D&I capacities are implemented in teaching and research. FME connects basic research with applied research and envisages strengthening and developing study programmes with the aim of obtaining institutional accreditation.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).

Rating [1–5]:	**4 - Very good**

Qualitative assessment:[1]

FME is a crucial workplace in the field of science and research, both nationally and internationally. Its results and benefits are evident in basic and applied research, in teaching with the support of the development of the scientific community. His key achievements include the prestigious R&D&I award, participation in editorial boards of scientific journals, invited lectures at foreign institutions and involvement in the evaluation of research projects.

Participation in editorial boards demonstrates the multidisciplinary reach of journals and journals. These are the journals Mathematical Models in Engineering, European Mechanical Science, ACC Journal The MM Science Journal and Corrosion Science. FME staff are included as editorial board members and reviewers. Journals are included in lower categories, i.e. Q3, Q4.

Faculty members have received national recognition in various areas, including the Gold Medal for the fight against COVID-19 of the Czech Red Cross (Jaroslav Beran) and the Josef Hlávka Award for Scientific Literature of the Czech Literary Fund Foundation and the J., M. and Z. Hlávka Foundation (Jan Valenta, a multidisciplinary team of authors led by Professor Lukáš).

The most important lectures of foreign scientists and other guests relevant to R&D&I at FME are shown in Table 3.2.4, which includes lecturers from universities, e.g. Afeka Academic College of Engineering Tel Aviv, REE Automotive, Israel, University of Rome, INSA of Rennes, France, Yamanashi University, Japan, University of Waterloo, and others.

Table 3.2.5 shows the involvement of employees in the work of evaluators and emphasizes their long-term role in the INTER-EXCELLENCE / INTERA(CTION) programmes of the Ministry of Education, Youth and Sports, P101 – Mechanical Engineering GAČR, Operational Programme Research, Development and Education, CZ.02.2.69/0.0/0.0/19_073/0016944/, etc.

Recommendations:

Expansion of FME staff's participation in the editorial boards of highly renowned journals (D1, D2, Q1), which is closely related to the increase in quality scientific publications and the expansion of a higher position in the international academic and scientific community.

From the point of view of the quality and topics of the lectures of foreign guests, it is recommended that they move towards the expertise associated with FME activities. Cooperation with foreign guests can be reflected in R&D international projects and contacts.

[1] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

RESEARCH PROJECTS

3.3 Research projects	
Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: FME focuses on joint research conducted with industrial partners within R&D and contract research projects or within institutional support. In the evaluated period, FME academic staff implemented a total of 48 projects, five of which were international. The largest number of R&D projects are projects focused on applications: Six projects for the TRIO programme of the Ministry of Industry and Trade, 13 for the Operational Programme Enterprise and Innovation for Competitiveness of the Ministry of Industry and Trade, 26 for the Technology Agency of the Czech Republic (NCC, EPSILON, M.ERA.Net, Theta programmes) and one for the Ministry of Education, Youth and Sports of the Czech Republic (EUREKA programme). In these cases, the main investigators were industrial partners. FME was the principal investigator of two projects for the Ministry of the Interior of the Czech Republic. The list of projects shows their interdisciplinarity, which brings wide cooperation between TUL workplaces and other institutions. In the period under review, collaborative research accounted for 38% of the funds, institutional support for 29% (with a slight increasing tendency) and specific research for 4.5-5%. An important item in the evaluated period was funds from the Operational Programme Research, Development and Education, the share of which was 14%. Contract research accounts for almost 10% of FME's budget (with an increasing tendency) with a total volume of CZK 65 million. It can be stated that cooperation within the projects is at a very high level.	
Recommendations: To continue the high level of cooperation between faculties, universities and companies.	

3.4 Research results with existing or prospective impact on society	
Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: FME is characterized by a quantitative and qualitative increase in the results of creative activities with application potential and prospective impact on society. Out of a total of 322 non-bibliometric results, 44 patents, 47 utility models, 26 prototypes, 25 verified technologies and two pilot devices were created. In addition, 143 functional samples were created (Table 3.4.1). Most of the results	

are implemented in practice, where problems are solved in the areas of equipment, applications of new technologies and materials, in the power industry, in the quality of production of parts, etc. One of the main goals is economic savings of the proposed measures and sustainability. The area of gender is reflected in the involvement of women in research teams and individual projects.
Recommendations: To continue the established trend and outputs in solving projects applied in practice.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice	
Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: The transfer of technology, know-how and services is FME's strength. Within the framework of education, these are key profile courses, professional courses, semester and qualification theses, seminars, excursions to companies and a number of other activities (75 professional trainings with 701 participants, CZK 2.41 million). A significant part of the application-oriented results was created in the implementation of R&D&I projects and contract research carried out with industrial partners and is thus directly used in practice. In contract research, projects worth CZK 15.18 million were solved. Table 3.5.1 shows revenues from non-public sources divided by branch specialization in the total amount of approximately CZK 30,594 million.	
Recommendations: The evaluation in this area is excellent, so it is recommended to continue with all steps.	

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public	
Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: FME demonstrates strong public engagement and science communication. Activities include schools, cultural institutions, public services and the media. Evidence of the use of practice is present in selected programs, e.g. T-Forum: Job Fair organized by FME in cooperation with IAEST, FME Open Days, ITMA International Textile Machinery Fair, Professional lectures and seminars of partners from the industrial sphere at FME, ScienceFest at TUL and many other activities. The popularization also includes the projects "Formula Student", Motoring and Internal Combustion Engines, Electromobility and Development of Autonomous Vehicles.	

An integral part of the popularization process are short videos on YouTube and other social networks.
Recommendations: FME offers a wide range of popularization activities. It would be appropriate to assess the impact on students' interest in studying at FME for the purpose of feedback.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3 Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: The scope and taxonomy of the previous assessment cycle is slightly different from the current Module 3 framework. FME addressed the relevant recommendations of the previous review and listed implementation measures with demonstrable results in the self-assessment report. FME defines its strengths, which it wants to continue in the coming years, these are: improving the personnel situation, especially in the number of associate professors and professors, guaranteeing study programs and R&D research, focusing on interdisciplinary projects, maintaining a leading position in the region in the field of technology, expanding the research focus of the faculty and strengthening the international dimension of the faculty.	
Recommendations: No new corrective actions are required in respect of the previous period. It is recommended to continue to support the policy and development of FME with a focus on interconnection with the European and global research area.	

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 - Very good**
3.3 Research projects	**4 - Very good**
3.4 Research results with existing or prospective impact on society	**5 - Outstanding**
3.5 Transfer of results into practice	**5 - Outstanding**

3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**4 - Very good**
3.7 Implementation of the recommendations in Module	**4 - Very good**
Average rating [1–5]:	**4 - Very good**
Grade [A–D]:	**B**

Summary assessment:

FME is historically a very well-established faculty with a good reputation in the Czech Republic and abroad. The performance of the faculty is overall very good, according to the criteria of module 3, with a few elements close to excellent. An important area for the further development of FME will be the strengthening of the system of career advancement of employees, which is necessary in the areas of education and accreditation processes, as well as for solving and leading projects. The outputs are proportional to the available R&D&I capacities, which are compact but perform a wide range of educational and research tasks. FME's policy towards the transfer of results into practice is important, where cooperation with industrial companies leading to the application of the results created within this cooperation is obvious. The quality of the work is also evidenced by the number of 322 non-bibliometric results. Most of the results are implemented in practice, where problems are solved in the areas of equipment, applications of new technologies and materials, in the power industry, in the quality of production of parts, and others. FME's presentation activities are applied in schools, cultural institutions, public services and the media. Evidence of the use of practice is present in selected programs, e.g. T-Forum: Job Fair organized by FME in cooperation with IAEST, FME Open Days, ITMA International Textile Machinery Fair, Professional lectures and seminars of partners from the industrial sphere at FME, ScienceFest at TUL and many other activities.

Summary recommendations:

Recommendations for further development:

1. Maintain the current ever-growing trend of FME
2. Increase the number of publications in Q1, D1, D2
3. Introduce an individual career planning and succession system to increase the proportion of associate professors and professors with regard to gender balance
4. Support young researchers on editorial boards, support invited lectures, etc.
5. Develop international cooperation

1 EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Textile Engineering

FORD: 2 - Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation
Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.
Commentary: The Faculty of Textile Engineering (FT) is unique in the country and one of the largest faculties of its kind in the EU. It consists of six departments - Design, Textile Evaluation, Nonwovens and Nanofibrous Materials, Material Engineering , Clothing Technology, Technologies and Structures which maintain nine very well equipped labs. The vision of the faculty is to become a recognised international centre of excellence in textile engineering and innovation. The mission is to provide high level of education, to conduct research and development with a direct social impact, and to support ecological and technological innovations in the textile industry. Principally, the faculty follow well this vision and mission - educate people for the complete textile chain from fibers up to clothing and technical products and it is the only one place in the country, educating people for the textile industry.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community	
Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**4 – Very good**
Qualitative assessment:[2] The faculty has few word recognized researchers, which are active in journals and boards. It is member of the leading organisations in this area (Autex) and organizer of international events such as conferences, and workshops with large international participation. With 1 Editor in Chief, 2 Associated Editors and 7 Editorial Board memberships in peer review journals, 4 Persons often invited lectures, 4 persons are actively participating in national and international evaluations has good recognition by the research community. The faculty was host of several invited lecturer of international colleagues. Multiple Awards of the students confirms the good education.	

[2] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

Recommendations:
Provide possibility for the young generation scientists for more participation of events and motivate them to be more active by journals and conferences.

RESEARCH PROJECTS

3.3 Research projects	
Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.	
Rating [1–5]:	**4 – Very good**
Qualitative assessment: The faculty implements mostly applied research projects of different country providers, such as Ministry of Industry and Trade, Technology Agency, Ministry of Health. Etc.). Topics such as hybrid materials, functional textiles for children with dermatological troubles, eco friendly collection were implemented, where the faculty was the main beneficiary. On several more projects the faculty participate as project members. There are as well good number of the contract research directly by companies. The degree of interdisciplinarity is very high, the faculty demonstrate good collaboration between the departments and with other faculties. In the area of international projects currently the faculty do not show enough activity, this is understandable by the very low acceptance quote of the EU projects, but still it seems, that somehow the international activities of the faculty during the last evaluation period got lower than in the past.	
Recommendations: Reactivate the international cooperations and activities for better visibility worldwide.	

3.4 Research results with existing or prospective impact on society	
Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.	
Rating [1–5]:	**5 – Excellent**
Qualitative assessment: The faculty has long-term focus on research with a practical overlap, which brings positive impacts for society, industry, and the environment. With 30 patents, 40 utility models and 43 functional samples the faculty shows good proof for its impact. Leading applications are in the area of	

composite based materials, biomass barrier, flat textile with thermal protection, clothing for children suffering from dermatological troubles, clothing for active and passive light signalling for unprotected road users. More basic-related research with long term horizon of application potential such as methods, devices, nanofibers demonstrates the sustainability and consistency of the research in long term.
Recommendations: No corrective actions are required.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice	
Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.	
Rating [1–5]:	**4 – Very good**
Qualitative assessment: The faculty uses the University Spinoff “The University Company TUL” for commercialisation of the results and cooperates with industrial enterprises and non-profit organisations. New users are used on industrial trade fairs (ITMA; ISPO); inter. Conferences (Strutex) and all kind of other events. It applies standard procedures for cooperation, including co-ownership of intellectual property or support of spin-off and start-up companies. The total amount of non-public revenue between 100 and 86 000 Euro per year might looks not so high for other industries, but considering the specific situation of the textile industry, which is very human intensive, this is one very good volume of activities.	
Recommendations:	

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public	
Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: The faculty is very active and successful in the field of popularisation of R&D&I and and communication with the public. It is participating actively on international trade ITMA. During the crisis situation with Covid-19, FT produced textiles for masks. Publication in periodical “Technicky	

tudenik" and TV broadcast and organisation of and participation in exhibitions such as Mercedes Benz Fashion Week and Paris Design Week demonstrate very high activity of the faculty.
Recommendations: Keep the activities runing at this level and try to reach more school children and motivate them to study.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3 Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable.If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**4 – Very good**
Qualitative assessment: The faculty supports the travel of all employees as part of Erasmus+ project. The editorial activities of the younger employees becomes more visible - 9 employes are journal editors (not of retirement age), special editors or associated editors in international recognized journals.	
Recommendations:	

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 - Very good**
3.3 Research projects	**4 - Very good**
3.4 Research results with existing or prospective impact on society	**5 – Excellent**
3.5 Transfer of results into practice	**4 - Very good**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**4 - Very good**
3.7 Implementation of the recommendations in Module	**4 - Very good**
Average rating [1–5]:	**4 - Very good**
Grade [A–D]:	**B**
Summary assessment: The Faculty of textiles has very good equipment and was active player in international conference and associations during the evaluation period. Its members are recognized experts worldwide, they perform possible transfer actions and pupulariations activities at very good level.	

Summary recommendations:

Keep the international activities (cooperation projects, conferences, board participation) at high level.

EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Faculty of Science, Humanities and Education

FORD: 5 - Social sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.

Commentary:

The Faculty of Science, Humanities, and Education (FSHE) is a higher education unit that provides education to future teachers and staff for kindergartens, primary and secondary schools, as well as extracurricular educational, leisure, and other facilities. Its mission is to expand knowledge, cultivate Czech society, and contribute to social balance and sustainable development through scientific and artistic activity, quality education of students, and social action.

The faculty's vision is to inspire students to develop knowledge, foster critical thinking, promote social responsibility, adhere to ethical principles, and cultivate creativity. They focus on the training of qualified teachers and other teaching staff, as well as professional training of experts in the fields developed at FSHE. FSHE aims to contribute to the expansion of knowledge and the practical application of new knowledge in the development of society through scientific research, artistic endeavours, and other activities.

FSHE primarily focuses on activities related to its mission and objectives, including research in pedagogical disciplines and the didactics of fields in which FSHE provides teacher qualifications. This diverse breadth of natural sciences, social sciences, and humanities provides a strong theoretical foundation for preparing future teachers.

The organisational structure of FSHE is based on the coexistence of workplaces typical for science and humanities-oriented faculties. It consists of sixteen branch-oriented departments (Pedagogy and Psychology orientation, Science orientation, and Humanity orientation), including two divisions (specialised in Psychology and Bioengineering), and two centres (the Centre for Pedagogical Practice and the Centre for Lifelong Learning). The organisational structure excellently reflects the training profile; additionally, interdisciplinary collaboration in both teaching and research is ensured.

Size and staffing indicators reflect a compact unit with broad teaching responsibilities. In 2023, FSHE reported roughly 200 FTE staff, half of whom are women. Academic ranks included 7.36 professors, 31.47 associate professors, and 103.17 assistant professors; 168.15 FTE were scientific/research staff involved in teaching, and 26.13 were classified as early-career researchers (Table 3.1.1). The current age structure—characterised by many assistant professors over 40 and relatively few professors under 60—indicates a potential risk, suggesting that the institution needs to pay greater attention to career management.

Student headcount in 2023 totalled 1,535 (890 undergraduate, 421 master's, 30 doctoral, 194 lifelong learning; Table 3.1.4). The faculty offered 45 study programmes in 2023, including two in English (Table 3.1.5).

The role of FSHE is vital for the Liberec region, as it ensures a sufficient number of qualified teaching staff in various types of schools and other educational institutions within the area. Since TUL is one of the smallest Czech universities and FSHE is among the smallest faculties of education in terms of

student numbers, it makes long-term sense for FSHE to have a broader focus than just an education orientation.

R&D&I capacities are anchored in pedagogy and didactics while extending into the natural sciences and the humanities. FSHE combines basic research with applied research and envisages strengthening social-science research (especially pedagogy and psychology), developing a doctoral programme in pedagogy, and pursuing institutional accreditation.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**4 - Very good**

Qualitative assessment:[3]

The FSHE is a decisive actor in the field of science and research, both nationally and internationally. Its contributions include basic and applied research, educational studies, and support for the development of the scientific community. Key achievements include prestigious R&D&I awards, participation in editorial boards of scientific journals, invited lectures at foreign institutions, and involvement in the evaluation of research projects.

Editorial board participation demonstrates FSHE's multidisciplinary reach, with half of the listed journals indexed in Scopus. Moreover, four of them are in the Q2 category, and one is in the Q3 category, according to the current Scimago ranking. These journals: Historia Scholastica, Paedagogica Historica, Express Polymer Letters, Acta Gymnica and Bulletin of Geoscience. While their inclusion confirms credible international visibility, most roles involve advisory/board memberships (with one exception), and there is currently no presence in the Q1 category. The other journals also align with the faculty's research profile, and some of them represent Polish regional connections; however, their international recognition is more limited.

The faculty members have gained national recognition in various fields, including the Presidential Medal of Merit (David Lukáš, 2023), the Minister of Education Award (Ondřej Havelka, 2023), and honorary doctorates (Miroslav Brzezina, 2023 in Thailand). In addition, they have earned significant scientific awards in the fields of education, history of education and literary translation. Invitations to foreign institutions and guest lectures (including Nobel Prize winner Jean-Marie Lehn) show a well-diversified geographical and scientific distribution.

Table 3.2.5 accurately presents the work carried out by the evaluators, highlighting their long-standing roles in the Horizon Europe/H2020 programme and in international programmes such as NCN (Poland) and FNR (Luxembourg), all of which demonstrate the trust placed in faculty members by the international research community.

Recommendations:

Being on the editorial boards of highly reputable journals (D1, Q1) closely correlates with an increase in high-quality scientific publications. Therefore, supporting publication activities may also result in faculty members achieving a higher status in the international academic community.

[3] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

The qualitative self-assessment does not address how the various guest lectures contributed to scientific cooperation or what further consequences they have for the promotion of R&D. Future efforts should prioritise closely monitoring these aspects of international relations.

It may be important to increase presence at key international educational research forums (e.g., EARLI) in line with FSHE's core mission.

Efforts should be made to extend these activities to more people. There are recurring names in the tables; sharing experiences and possibly targeted internal training, representing the key research areas, could improve results.

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.

Rating [1–5]:	**4 - Very good**

Qualitative assessment:

The ten priority research projects cover several scientific fields. Due to the structure and profile of the faculty, various FORD areas appear in the self-assessment, including FORD 1 and FORD 6. However, FORD 3 also has a strong representation, and the interdisciplinary context aligns with the faculty's specific characteristics.

The first two projects listed in the self-evaluation report are particularly consistent with the faculty's vision and mission, as well as with teacher training as its main profile. A systemic model of diagnostics and interventions for relationships between teaching staff and leadership quality for a network of Czech primary and secondary schools in the Liberec Region is the goal of the project "Quality of the Social Climate of Czech Basic and Secondary Schools and Possible Interventions". Supporting schools and teachers' relationships was the goal. The relationship between theory and practice in educational research is a priority area in international educational research, which is why the Didactic Incubator project is so promising. This project is a contractual research initiative aimed at transferring modern didactic methods into ordinary schools. This program clearly demonstrates the faculty's high level of involvement in the region's public education system, which goes beyond training. The self-evaluation report and on-site visit indicated that the faculty has yet to process the program's results at a scientific level.

Although the financing structure underwent some changes during the period under review, the total amount of grant funding seems sufficient to ensure a high level of research activity. Given FSHE’s compact staffing (200 FTE), the overall portfolio is proportionate. Contract research remains modest but rose sharply in 2022–2023, largely due to an industrial nanofiber project (CZK 5.6m and 8.3m, respectively). Meanwhile, school-facing Incubator contracts are small in terms of revenue but high in relevance.

During the on-site visit, the IEP was satisfied that cooperation between faculties in the field of research was functioning smoothly.

Recommendations:

Externally funded projects must be systematically integrated into the faculty's R&D&I strategy and publication plan, ensuring that the research conducted is consistently publishable and produces results that are consistent with the mission of FSHE.

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

The self-assessment clearly documents the actual use of the research. Two results have proven large-scale application: IS EpiGIS-COVID & Mobile EpiGIS have been installed at regional health authorities; software for searching for missing persons is being "actively used" by six regional police departments – both high-risk public sector applications.

The research has a wide social impact. The results encompass health security (EpiGIS), public safety (search software), flexibility in elderly care (approved methodology), sustainable urban development (geotourism), and education/school practice (psychomotor test package and software)—all part of a 100-year-old trend in physical fitness among youth projects.

The portfolio is characterised by interdisciplinarity. The ten "selected results" cover the social sciences, humanities, and natural sciences (including a nanofiber patent and a nanoethics expert system), in line with FSHE's multidisciplinary profile.

The proportionality of capacities is excellent. With a compact teaching staff (~200 FTE), the combination of public sector software, approved methodologies, maps/atlases, patents, and practice-oriented tools offers a significant return on capacity.

Many of the results directly serve schools, social services, regional public administration, and state institutions—precisely in line with FSHE's social mission.

Sustainability appears in various contexts (e.g., urban geotourism as a form of sustainable tourism; crisis-management methodology), but in other areas, it is not consistently documented.

Considering demonstrable public-sector deployments, breadth of applied outputs, and alignment with the mission, FSHE’s practice-applied results are outstanding. Providing auditable evidence on gender dimension, explicit sustainability framing, and intra-university collaboration would strengthen the rating.

Recommendations:

Developing a concept with a gender dimension, explicit sustainability framing, and establishing an intra-university cooperation mechanism would strengthen the rating.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and

vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.

Rating [1–5]:	**4 - Very good**

Qualitative assessment:

FSHE has established a clear way to share resources, which includes teaching materials, methods, and specialised software, as well as working together on projects at both regional and international levels. The system is used by schools, educational institutions, social services, cultural institutions, regional administrations, public and state institutions, as well as the Police of the Czech Republic. The institution seeks new users through active involvement in school-based pilots, public spaces, calls, projects, participation in professional events and workshops, and the publication of outputs in professional media. Transfer is primarily formalised through contract-research agreements. Examples of the effectiveness of the transfer include the Didactic Incubator, IS EpiGIS-COVID, and search management software. FSHE obtains funding through contracts, licensing of technological solutions, publication and sale of specialist materials, and donations. Given the unit's compact R&D&I capacity, the scale of deployments and support loads appear proportionate, with a defined maintenance roadmap.

Recommendations:

The ranking is at the edge of very good and outstanding. In the future, efforts should be made to ensure that research outputs are utilised on a long-term basis and generate recurring non-public revenues, underpinned by a clear support plan that spans a longer period.

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

The unit demonstrates strong public engagement and science communication. Activities span schools, cultural institutions, public services, and media. Evidence of practice uptake is present in selected programmes (e.g., teacher-facing resources and public-service tools), aligning with the mission. In addition to standard initiatives (e.g., Researchers' Night), the faculty presents several special programmes in detail, some of which the evaluation panel experienced during the site visit. Students' involvement in the implementation of the "Stolperstein Project" is a highlight.

Recommendations:

The faculty offers a wide range of programmes, but their impact (or success) is insufficiently evidenced. In the future, a quality assurance framework is suggested to provide feedback on the impact of the programmes.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: The scope and taxonomy of the previous evaluation cycle differ slightly from those of the current Module 3 framework; furthermore. Nevertheless, FSHE has addressed all relevant recommendations from the previous review and reported implementing actions with demonstrable results in the self-evaluation report, and these were described in an informative manner. For example, FSHE improved its staffing situation, consolidated cooperation between the natural sciences and humanities, and strengthened social science research. Faculty strengths include regional and cross-border cooperation. However, despite certain positive initiatives, there appear to be no systemic interventions in the issues examined.	
Recommendations: No new corrective action is required concerning the previous cycle.	

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 - Very good**
3.3 Research projects	**4 - Very good**
3.4 Research results with existing or prospective impact on society	**5 - Outstanding**
3.5 Transfer of results into practice	**4 - Very good**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**5 - Outstanding**
3.7 Implementation of the recommendations in Module	**4 - Very good**
Average rating [1–5]:	**4 - Very good**
Grade [A–D]:	**B**
Summary assessment: The FSHE operates within a unique structure, where the main teacher's training profile is supported by sections specialising in science, humanities, and educational studies, including psychology. All three main areas achieve independent research and grant results, while cooperation between the different divisions is evident, as also confirmed by the on-site visit. Considering the university's size, this structure is well-suited for providing a high level of training. To keep the trend, strengthening the career advancement system should be treated as a priority.	

The faculty's performance is very good overall, according to the criteria of Module 3, with several elements close to outstanding. There is a strong alignment between the mission/vision and actual activities: the teacher training profile provides a stable core, while the inclusion of natural sciences and humanities results in genuine interdisciplinarity. The outputs are proportionate to the available R&D&I capacities, which are compact yet perform a wide range of educational and R&D tasks. The portfolio of results put into practice deserves special mention: public health IT solutions (e.g., epidemic data management system and its mobile version), public safety applications (support for missing persons searches), social care methodology (elderly care crisis management), developments related to urban geotourism, and diagnostic tools to support school practice. The knowledge transfer routes for these are clearly identifiable (contract research, licence/usage agreements, methodological products, and training), and regional embeddedness—municipal, health, and education partners—ensures direct social relevance. Revenues from non-public funds and non-grant sources have also emerged, indicating sustainable utilisation.

Science communication and public presence are also impressive. The faculty's activities extend to schools, cultural and public service institutions, and the media; in addition to "sector-standard" initiatives (e.g., Researchers' Night), there are several unique programmes, some of which were observed by the review committee during the visit. For instance, student participation in the "Stolperstein Project" showcases experiential learning and social engagement through collaboratively created content with the public. Regular guest lectures and editorial board memberships, among other achievements, demonstrate the faculty's international visibility. However, prioritising the quality of this dimension and expanding the affected staff in the near future are crucial. The faculty's embeddedness in the university ecosystem (cross-links with engineering units, for example) supports interdisciplinary projects in a resource-efficient manner. Sustainability considerations are featured in several developments (e.g., urban geotourism), while research on well-being and organisational climate aligns well with the focus on educational studies and training.

Overall, the portfolio is broad, social engagement is strong, and knowledge transfer is measurable across multiple channels.

Verdict: The faculty's performance is very good, approaching "outstanding" in several areas; based on current trends, the "outstanding" rating is realistically achievable in the next evaluation cycle in relation to the Module 3 framework.

Summary recommendations:

3.1. Establish an individual career planning and succession system to increase the share of associate professors and professors.

3.2. Increase presence at key international educational research fora in line with FSHE's core mission. Efforts should be made to extend these activities to more people.

3.3. Systematically embed externally funded projects in the R&D&I strategy and publication pipeline.

3.4. Develop a concept with a gender dimension and explicit sustainability framing.

3.5. Ensure long-term utilisation and recurring non-public revenue from applied outputs.

3.6. Embed a quality assurance framework to provide feedback on the impact of the popularisation programmes.

EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Faculty of Economics

FORD: 5 - Social sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.
Commentary: The Faculty of Economics is a standard faculty under the Technical University of Liberec. Its division consists of the seven departments, which KCJ – the Department of Foreign Languages (9 female internal and 4 male internal employees, 3 female external and 1 internal male employees), KEK – the Department of Economics (1 master's degree study programme, 6 female and 6 male internal employees and 2 male internal and 2 male combined doctoral students), KFU – the Department of Finance and Accounting (7 female and 1 male internal, 2 female external employees, 3 female internal and 1 male internal doctoral student, and 1 male combined doctoral students), KIN – the Department of Informatics (1 master's degree study programme, 1 bachelor's degree study programme, 1 doctoral degree study programme, 4 female and 6 male internal employees, 1 female combined doctoral student), KMG – the Department of Marketing and Trade (1 bachelor's degree study programme, 7 female and 2 male internal employees, 2 female internal and 1 male internal doctoral student and 1 male combined doctoral student), KPE – the Department of Business Administration and Management (2 bachelor's degree study programmes, 1 master's degree study programme, 1 doctoral degree study programme, 15 female and 6 male internal employees, 1 female external employee, 2 female and 1 male internal doctoral student, and 3 male combined doctoral students), KSY – the Department of Economic Statistics (3 female and 3 male internal employees, 1 female internal doctoral student, and 1 female combined doctoral student) belong among. From a gender perspective, female employees and doctoral students prevail in the entire staff with only a sole department, where male employees prevail among the internal staff. Altogether, females play an important role in the faculty staff. The Faculty of Economics runs the three units that contribute to its development, that is, EconLab – the Laboratory for Experimental Economics and Big Data Processing, MultiLab – the Multimedia Laboratory, and the Student Business Club.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment:[4] The Faculty of Economics keeps its steady position within the research community not only at a national scale, but also at an international scale. During the observed period within the years 2019	

[4] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

to 2023, the recognition within the research community is kept through the international certificate European Foundation for Quality Management, the National Quality Award of the Czech Republic via the Star Plus programme, and HREA Excellence Award obtained in the year 2020.

Its position within the research community is performed also via its memberships in various organisations, which the Czech Economic Society, the Association of Social Responsibility, the University platform at the Association of Small and Medium-Sized Enterprises and Crafts of the Czech Republic, the Czech Society for System Integration, the Platform for the Bioeconomy of the Czech Republic, the People Management Forum belong among.

The Faculty of Economics has issued the international impacted journal E & M Economics and Management since the year 1998.

The current research portfolio consists of several significant projects:

- TL01000303 Certified Methodology (doc. Ing. Aleš Kocourek Ph.D.);
- TD03000035 Project – Family Business Quality: Methodology (Ing. Eliška Valentová, Ph.D.);
- TJ02000206 Digital skills for e-commerce and creative industries (Mgr. Tereza Semerádová, Ph.D.);
- Virtual Reality and Eye Tracking Laboratory (Ing. Jitka Vávrová, Ph.D.; Ing. Pavel Pelech);
- TL03000236 School age children and their perception of online marketing communication
- (Ing. Jitka Burešová, Ph.D.).

Besides these projects, the Faculty of Economics collaborates with many private enterprises – for instance, Preciosa a.s., Detesk s.r.o., Lasvit a.s., Elmarco s.r.o., VÚTS a.s., TRW Automotive Czech s.r.o., and so on.

Within the current staff of the Faculty of Economics, the academic staff is distributed among the individual departments as follows: 1 female and 2 male associate professors at the Department of Economics, 1 male associate professor at the Department of Finance and Accounting, 1 female associate professor at the Department of Informatics, 2 female and 1 male associate professor at the Department of Marketing and Trade, 2 male professors with 1 female and 2 male associate professors at the Department of Business Administration and Management, and 1 female associate professor at the Department of Economic Statistics.

Recommendations:

The Faculty of Economics keeps its appropriate steady position within the research community. Nevertheless, it is recommended to strengthen ties within the private and public spheres as well as intradepartmental collaboration that can contribute to synergistic effects, although the structure of the employees within the individual departments. Significant opportunities can arise from these synergistic outcomes.

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit.

Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.	
Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

The Faculty of Economics has kept more than 20 contract research activities between in the period from the year 2019 to the year 2023. Public funding is assigned through more than a half of the whole contracted amount, based on all the obtained projects. Public sources create a sum of 45,400 EUR, while the private sources are at a level of 38,600 EUR. The highest sources from the private sphere at a level of 20,900 EUR were brought by the Škoda Auto company, while the Liberec Region governing body contributed with a sum of 33,100 EUR in the last observed year 2023.

The Faculty of Economics has managed the following nine selected significant projects:

- GA18-01144S: An empirical study of the effects of the existence of clusters on the performance of member enterprises (2018–2021) – implemented solely by TUL (100%), without co-recipient;
- TL01000303: Use of Big Data to evaluate the socio-economic position of residents in various types of territories defined by the Regional Development Strategy 2021+ (2018–2021) – resulted in the creation of the unique certified methodology NmetS 2021;
- TJ02000206: Development of skills necessary for the digital transformation of business (2019–2021) – evaluated as a project with excellent results;
- GA16-08786S: The impact of lobbying transparency on democratisation and its consequences (2016–2020);
- TL03000236: School-age children and their perception of online marketing communication (2020–2023);
- 2016-1-CZ01-KA203-023916: SMEs Human Resource Attraction, Retention and Performance Enhancement Network (SHARPEN) (2016–2019);
- Global University Entrepreneurial Spirit Students' Survey (GUESSS): Lead partner: University of St. Gallen (2016–present);
- Ministry of Industry and Trade: Study of the effects of the conclusion of the trade part of the Association Agreement between the EU and the Mercosur bloc on the Czech economy (2021);
- Association of Small and Medium-Sized Enterprises and Crafts of the Czech Republic: Survey on the quality of family businesses (2022).

Altogether, the Faculty of Economics has managed tens of various projects at the different levels of their focus both at national and international scales.

Recommendations:

Whereas the coverage of the topics by the Faculty of Economics is very broad, it should cover all the research fields with an intention to include all the economics fields, there is a strong innovation potential, as it can interconnect various multidisciplinary projects. Nowadays, no present project, whose significant dimension is economic evaluation is able to exist without the fields that the Faculty of Economics covers with its expertise. Though, economic evaluation is either primary or secondary goal of almost each project in the present time. Hence it is recommended to create a strong communication strategy, whose goal would be to reveal opportunities and to create collaborative ties to join multidisciplinary both national and international projects. The Faculty of Economics

should apply this benefit and therefore, to support development of these multidisciplinary projects and teams along the development of explicit standard economic direction.

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

There are the main four projects that are covered by the Faculty of Economics:

- Study on the economic impacts of the EU–Mercosur Association Agreement (trade part) on the Czech Republic (2021) by the governing body Ministry of Industry and Trade of the Czech Republic;
- Survey on the quality of family businesses (2022) by the Association of Small and Medium-Sized Enterprises and Crafts CZ;
- Alternative fuels for road and freight transport in the automotive sector (2022) by the Škoda Auto company;
- Liberec Region Mapping of cultural and creative industries in the Liberec Region (2023) by the governing body the Liberec Region.

The Faculty of Economics performs both basic and applied research projects funded by the Technology Agency of the Czech Republic and the Czech Science Foundation, ministries, and international collaborations, mostly with enterprises. In the last observed year 2023, the international projects contributed by a sum of 60,600 EUR, while the project co-beneficiary was at a level of 70,300 EUR. In the period of the years 2019 to 2023, the projects supervised by the Technology Agency of the Czech Republic and the Czech Science Foundation brought 469,900 EUR in total. On the other hand, the ministerial projects contributed up to 434,300 EUR. Altogether, the Faculty of Economics gained sources 1,035,100 EUR in total.

Recommendations:

The international projects have brought many sources and funding, so it is recommended to enhance and to strengthen focus on project opportunities. Moreover, it is important to continue in construction of collaborative networks that will enable mutual sharing of international research and development knowledge and interconnection of top international research teams and thus, enabling to create a platform for successful projects in the future.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as

attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: The Faculty of Economics has many collaborative activities with the other organisations. The primary contractors from the field of public administration are the Czech Statistical Office, the Ministry of Industry and Trade of the Czech Republic, the Ministry for Regional Development of the Czech Republic, the Liberec Region, and the City of Liberec. On the other hand, there are also significant organisations from the private sphere in form of small and medium enterprises or large enterprises, which very closely collaborate. These are Škoda Auto, Schenker, MFP Paper, and Damedis.	
Recommendations: It is recommended to continue in the set trend of existing collaboration with practice and to loo for new possibilities of collaboration with business sphere as well as private sector. Also, it is required to create a strategy of effective transfer of research knowledge to practice, which opens up new possibilities of financing university research also out of government grant schemes.	

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: In the observed period from the year 2019 to the year 2023, the Faculty of Economics has recoded 186 papers published in mainly international scientific and professional journals including 89 papers in the journals indexed in the Web of Science with a non-zero impact factor, 26 scientific monographs, 36 books and book chapters, 182 conference papers, 1 utility model, and 1 functional sample, 1 verified methodology, 5 other outcomes, 7 research reports, and 1 workshop. Regarding commercialisation of the research outcomes, the Faculty of Economics performed the search for new industrial and academic partners via the following activities: – operation of the Office of Analysis and Studies, supporting the identification and outreach of potential users; – participation in professional events, including personal presentations and networking within the Liberec Economic Forum and international roundtables; – development of specialised centres – such as the Property Valuation Centre and the Information Centre of the Czech Society for Quality – to support applied research and knowledge transfer; – engagement in institutional platforms, including SBC TUL, TUC TUL, and LiPo.Ink, enhancing entrepreneurial and innovation capacity; – collaboration, focusing on inter-faculty and interdisciplinary projects (for instance, the EDIH project) aimed at digital transformation and innovation support.	

Besides these actions related to the communication of the research and development outcomes, there are also the non-grant revenue sources that contribute also many benefits to the Faculty of Economics. For instance, the financial contributions from the Jablotron Alarms, Preciosa, and Škoda Auto Startup foundations, which support professional student competitions and academic initiatives, bring also many positive aspects in the field of research and development.

The E & M Economics and Management journal represents a scientific journal published at the Faculty of Economics in collaboration with the other economics faculties in the Czech Republic and the Slovak Republic. The impact factor according to the Web of Science database by Clarivate has been increased in the observed period from a level of 1.195 in the year 2019 to a level of 1.500 in the year 2022, while there was a little decrease to a value of 1.400 in the last observed year 2023. Regarding the Scimago Journal Rank, the E & M Economics and Management journal keeps its steady position firmly as its value oscillates in a very little way around 0.320, standing at this level in the last observed year 2023.

Recommendations:

It is suggested to create a strategy of popularisation of research and development focused on the public, professional and lay as well, public and private infrastructure too, to seek for new possibilities of mutual collaboration that enable to highlight considerably a region, where the TUL is located. Thus, it will have a further positive effect, that is, an elimination of brain drain to other regions or countries, hereby stopping deepening regional, national, and international disparities in the economic field.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable.

If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

There are many industrial partnerships in several fields of collaboration and exposition to the public that are managed by the Faculty of Economics. Firstly, it uses a so-called partnership model for its industrial partners as well as supervised internships. Secondly, lectures with industry experts are applied in order to offer many interesting speakers for students and entire audience. Thirdly, there are many courses created in collaboration with industrial partners, mostly within industry-oriented professional study programmes. Fourthly, bachelor, master, and doctoral theses under industrial supervision are performed too.

For the public, many activities happen, which not only projects, but also courses belong among. The Faculty of Economics runs the Project NAKAP II – Thematic project days for secondary school aimed at early engagement in higher education, bringing early experience of the tertiary education level to and for students, who would like to study at the university level. Followingly, the Faculty of Economics runs language courses and lifelong learning courses with certification at the Property Valuation Centre. Along all the scientific and educational activities, collaboration with the Descartes agency and the Czech Economic Society bring many benefits, which the Experts for Schools programme belong among.

Recommendations:
Based on the above-listed evaluations, it is recommended not only to continue, but also to support very firmly creation of innovative educational strategies, interconnection of tertiary education with practice, systematic construction of collaborative networks in the innovation ecosystem – the Technical University of Liberec plus innovative technological enterprises and last but not least, creation of strategies for transfer of knowledge and research activities of the Technical University of Liberec aimed at foreign university departments and research centres.

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**5 - Outstanding**
3.3 Research projects	**5 - Outstanding**
3.4 Research results with existing or prospective impact on society	**5 - Outstanding**
3.5 Transfer of results into practice	**5 - Outstanding**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**5 - Outstanding**
3.7 Implementation of the recommendations in Module	**5 - Outstanding**
Average rating [1–5]:	**5 - Outstanding**
Grade [A–D]:	**A**
Summary assessment: The Faculty of Economics is a standard faculty with incorporated processes and procedures and it meets the highest levels of quality. Based on the comprehensive evaluation, further development potential was identified in the research as well as pedagogical spheres, which TUL all the prerequisites that are strong possess for. From a perspective of gender equality, the Faculty of Economics reflects also on this criterium and hence, it adapts to the European tendencies and requirements based on the gender equality plan and standards.	
Summary recommendations: According to the above-listed partial detailed evaluations, it can be stated that the Faculty of Economics is in the outstanding state, it has clearly stated focus, source potential, identified risks, created comprehensive and effective strategies for their elimination. It systematically follows and explores international tendencies and based on them, it will set ambitious goals for further periods. The Faculty of Economics makes all efforts in order to assert itself not only in the national environment, but also in the international environment. It continuously searches for ways to increase its attractivity and adapts and reflects flexibly on all alteration of the strategies in the university education both at global and national scales.	

2 EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Faculty of Arts and Architecture

FORD: 6. Humanities and the Arts

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.

Commentary: The Faculty of Arts and Architecture (FAA) of the Technical University of Liberec (TUL) provides a general overview of their activities in their self-evaluation report. The faculty consists of altogether six Departments: Architecture, Urban Planning, Arts, Theory and History of Fine Arts and Architecture, Civil Engineering , and Load-BEaring Structures. The faculty management is organized under the Dean and three Vice-Deans: for Pedagogical Activities, Science and Research, and External and International Relations. An additional Administrator has been hired specifically for Doctoral Studies.

In their presentation, the FAA describes its mission to be "small – open – dynamic". The mission of FAA is provided in the faculty's self-evaluation report in a longer format and with focus on education, research, and an actorship in more practical terms as in architectural projects and realisations, exhibitions and artistic realisations, as well as popularisation. Staff includes 42 employees of which 33% are women. The ratio of "teaching academics" is high, they refer mostly to practising architects who are not tenured at TUL.

The FAA identifies 5 distinct research areas, which range from innovation in materials to art in public space. There is both more practical as well as theoretical aspects present.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community

Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).

Rating [1–5]:	**4 – very good**

Qualitative assessment:[5]

It is clear that the FAA is widely recognized in Czechia as an ambitious school in the field of architecture. Its recognition in R&D&I follows from this reputation. Internationally, many scholars of the faculty are recognized for their publications in peer-reviewed publications, for presenting their work in academic conferences, and for participating in competitive architecture and design

[5] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

competitions. The close link between education, practice, and research is typical to the fields that form the faculty. The additional focus on art adds another interesting layer to this.

The self-evaluation report presents research activity through publication and non-publication results. The results imply academic output in the form of publishing in journals and other academic publications, monographs, and published papers in conference proceedings. Among these publications, it is not clearly specified what is the language of the publications and only 5 of them are marked as peer-reviewed. The total number of outputs is a bit unclear since many might belong to several categories listed in the self-evaluation report.

The non-publication results are reported to include exhibitions, and curatorial as well as architectural projects. The main strands of research besides theoretical are identified as design-driven and artistic research as well as research by design, which all fall under the umbrella term of practice-based research. Invited international lectures are listed in the report, although it is unclear whether regular academic conference presentations are also listed in this category. Listed visits by the international research and architectural community proves international relations in academic activities.

The merits listed in the self-evaluation report show important academic awards ranging from picture books to computer-aided design in architecture. These are mainly accomplishments of individual members of the faculty but collaborations have also received recognition of the research community. The presence of faculty members in positions of trust consists of one membership of the editorial board of an academic journal in the field of architecture.

Recommendations:

1. In order to comply with the TUL vision for 2020–2030 "to be an independent, internationally anchored educational and research centre of European significance and a partner in finding and solving societal challenges" FAA would need to increase its international, at least European-level research visibility and collaborations.
2. It is clear that the main focus of the faculty is in offering high-quality education in the fields of arts and architecture, but with its recent investments in doctoral education both call for and enable more international focus in research. The language for both doctoral schools of the faculty is Czech, this limits incoming applications from other parts of Europe or the rest of the world, which is reflected in the ensuing research as well.
3. Encouraging scholars to engage in e.g. editorial work and active memberships in academic associations which might lead to more positions of trust in the academic context (i.e. board memberships, involvement in the evaluation processes in R&D&I).

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.

Rating [1–5]:	**4 – very good**

Qualitative assessment: The research projects of FAA give an idea of an ambitious and innovative combination of theoretical and practical research agenda. The list of provided research themes is

extensive with broad titles to more specific topics. It is stated that the themes are based on already successfully implemented research projects. This type of organic development can amplify the impact of the strengths of the research staff but it can also be taken as strategically weak planning. Spinning previous projects into full research strands should thus be made with caution, taking into consideration the developments of different funding mechanisms and emphasis areas of teaching etc.

The listed research projects give proof of vibrant and interesting scope to research in the fields of architecture and the arts. The reporting gives sufficient insight into how the faculty manages projects on different scales. In addition to the presented nine research projects, the faculty is involved also in one contractual research project.

Recommendations:

1. For a faculty of this size, it would be advisable to determine clearer, more strategically aligned focus areas that guide its research projects. This can be done in a way that does not decrease diversity and flexibility in the search of external research funding or international collaborations.
2. FAA would benefit from increasing research collaboration between its different departments, this can be done thematically, following the determined focus areas.
3. For better strategic alignment, individual research projects would need to be more clearly related to the overall mission and vision of the FAA (e.g. internationalization).
4. Investing in developing Research Support Services to support all faculty members would be beneficial for the long-term prosperity of FAA's research activity and societal relations.
5. Based on the provided staffing information in comparison with research project listing and outcomes it can be deduced that investment in supporting the career development (e.g. habilitation, tenure, long-term contracts) would be important support in developing viable research projects of scientific and artistic recognition.

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	**4 – very good**

Qualitative assessment: The faculty at FAA is very active in bridging the academic competence and practical knowhow to the society. This is partly due to the role that architecture and architectural research play in society. More specifically, many of the faculty members are well-recognized and appreciated professionals in their respective fields. Architectural products, exhibition activities, and professional publications are listed among the main results that have societal impact. In this sense, the listing does not differ much from the research results presented as areas that impact recognition of the research community in 3.2. This is not a problem as such, just a matter of articulating the impact for different audiences.

Recommendations:

The FAA could work on expressing and communicating the societal impact and outreach of its research efforts better, since the impact is clearly already a part of how the projects are planned and executed. This is typical to a field such as architecture and urban planning, which are deeply intertwined with societal factors.

Efforts on disseminating the research results to the broader public could be a way to increase societal impact. In this, media training and cultivated connections to local/national/international media could be developed with a concerted effort from the Research Support Services.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.

Rating [1–5]:	**5 – outstanding**

Qualitative assessment: It comes from the self-evaluation report and the materials provided by the faculty that one of the main avenues for the transfer or research results into practice is through FAAs pedagogical activities. These are rooted in collaboration with cities, municipalities, companies, and cultural institutions and crosscut undergraduate, graduate, as well as doctoral study phases. Cooperation with external partners creates a fruitful loop in which knowledge transfer from research takes place in connection to professional and academic education.

Regional Contact Centre (RCC) is also an important link between the FAA and the regional ecosystem, providing contractual services and facilitating cooperation.

Recommendations:

1. Cultivation of the already established networks and partnerships.
2. Broadening and strengthening the international connections in knowledge transfer.

POPULARIZATION OF VAVAI

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

Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.

Rating [1–5]:	**4 - very good**

Qualitative assessment: FAA faculty members engage in lively exhibition activity, in which the students are also involved in different parts of production. Doctoral students are also encouraged and active in competitions and exhibitions organized by external partners, this type of activity is regarded as potential for leading into research projects.

Recommendations:
1. It is advisable to continue encouraging and enabling lively exhibition activity to support both research initiatives and the distribution of the research results into the general public. 2. Collaboration between different faculties could become an even bigger strength when efforts and resources are shared.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3	
Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**Choose an option**
Qualitative assessment: The previous evaluation of the IEP from 2020 consisted of an overall positive evaluation and the recommendations reflected this positive tone. The recommendations focused on personnel development both structurally as well as on the level of individual faculty members. This was referred to as investing in long-term career planning and enabling fair and lucrative tenure processes. Since 2019, FAA has increased the ratio of women in top tier academic positions.	
Recommendations:	

EVALUATED UNIT RATING

Evaluation of unit	
Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 – very good**
3.3 Research projects	**4 – very good**
3.4 Research results with existing or prospective impact on society	**4 – very good**
3.5 Transfer of results into practice	**4 – very good**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**5 – outstanding**
3.7 Implementation of the recommendations in Module	**4 – very good**
Average rating [1–5]:	**4 - very good**
Grade [A–D]:	**B**
Summary assessment: FAA is a relatively young and small faculty and in that capacity, it shows signs of promising focus in solidifying its relevance R&D&I. FAA has a strong pedagogical emphasis that	

combines technical and more arts-based, conceptual approaches. This uniqueness on the educational profile is not yet fully recognised as an asset to building a strong research profile for the faculty.

Ensuring gender balance and the main tenets of sustainability are taken adequately into consideration in the research activities. However, the faculty personnel structure especially on the higher academic positions does not reflect the gender balance accordingly.

Summary recommendations:

1. Clearer focus areas in research would allow for more concerted efforts in supporting researchers.
2. Developing research support services to support individual researchers would allow them to build their research profiles more systematically towards both national as well as international recognition (e.g. when applying for competitive EU funding).
3. Investing in the development of the doctoral programme is advisable in order to solidify the research profile of the faculty.
4. Increasing the international mobility of the faculty would grow the visibility of FAA's research activity.

EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Faculty of Mechatronics, Informatics and Interdisciplinary Studies (FM)

FORD: Engineering and technology

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.
Commentary: The self-evaluation report of the Faculty of Mechatronics, Informatics and Interdisciplinary Studies (FM) provides the necessary introductory material in full detail: The mission is to "create, disseminate and apply knowledge in the area of mechatronics, informatics and applied sciences", and the vision is to be "[a] respected research workplace, an attractive educational centre, a trustworthy partner in technology and a pioneer of new ideas and technologies". Both the mission and vision are clearly expressed and fit to the research profile of the faculty. The self-reflection about contribution to society emphasizes FM's part in mechatronics, IT and applied sciences and draws links to regional development and knowledge transfer into practical application in industry. The breakdown of the research activities by FORD codes (Engineering & Technology at 51.5% and Natural Sciences at 44.5%) supports the interdisciplinary claim. The report goes on to detail this into sub-fields; many of the sub-fields where FM was "balanced basic and applied research". Further sections on projects and results should provide a clear position on balance. FM is 'one of TUL's smaller faculties with a very strong research focus', which is supported by the high employees-to-student ratio of 120 employees, to 578 students in 2023 , and 'unusually high number of doctoral students, given the size of the faculty'. In 2023, FM had 82 doctoral students for 102.94 FTE referring staff (approx. 0.8 PhD/FTE), which is much larger than TUL average (approx. 0.2 PhD/FTE, using 2023 student population and 2024 staff population) – which adds strength to this point. The organizational structure is made up of the three departments and flexible research teams. The detailed staffing tables (3.1.1-3.1.3) and student tables (3.1.4-3.1.5) provide the essential and necessary quantitative data.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**4 - very good**
Qualitative assessment:[6]	

[6] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

FM clearly has a very good profile in the research community, and this is demonstrated in a number of significant ways.

Individual awards are of significant prestige. For example, doc .Yalcinkaya has often appeared on Stanford's top 2% most cited scientists list and prof. Nouza has also received a regional honour for a lifetime as an established scholar. The report mentions a number of awards received by students, but for this criterion, recognition of awards by staff is, of course, the most relevant.

With regard to participation in scientific debate the staff clearly participate on the editorial boards of international scientific journals (Table 3.2.2), and would have further strengthened the claims if they were to include journal impact factors/quartiles here. The faculty report, they participate in international exchange (Table 3.2.3 and 3.2.4), via invited lectures by FM staff to overseas and foreign scientists presenting at FM.

Concerning peer review and evaluation there are data in regard to evaluations of national and European project calls (Table 3.2.5) and continuing to be reviewers for high-impact (Q1/D1) journals. While this is fairly commonly experienced by academics, to be a part of this level of journals does reflect a pattern in the quality of peer reviewers.

The report has noted "members and chairpersons of several scientific societies and associations", but does not give specific examples here to evidence leadership and activity in the wider scientific community.

In summary, the self-reflection provided by faculty about being a recognised research institution in their core fields is mostly supported with the evidence provided.

Recommendations:

1. The following reports should include a detailed list of professional societies that FM staff members belong to through membership and leadership roles (e.g., board member, committee chair) for better clarity.
2. The memberships on editorial boards should include Impact Factor or Quartile information when available to help assess the quality of the journals.
3. The report should include awards or recognitions that faculty members or their departments or research groups have received as well as individual and student awards.

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

FM presents an outstanding strategically varied collection of research endeavors that demonstrate its commitment to research excellence and ability to drive innovation and development.

Regarding research funding and scope the significant impact of research initiatives on FM’s resources is evident as they contribute 35% of the budget supplemented by another 3% derived

from contractual research endeavors. This highlights the pivotal role of research within FM. Diverse funding sources fortify the project portfolio comprising contributions from entities such as GA Ćr and TA Ćr alongside collaborations with ministries and esteemed international entities like the EU (Horizon Europe and EURATOM) as well as the US Office of Naval Research Global. The attainment of an ONRD Global project represents a commendable milestone.

The chosen 10 flagship projects align closely with FMs defined mission and primary research areas such as signal processing technology and AI advancement in mechatronics and robotics fields along with materials and environmental technologies. Numerous projects exhibit outcomes with promising applications and substantial societal impact.

The creation of the "DeepSpot'' initiative has resulted in the development of a multilingual technology platform.

Collaborative efforts, with Duke University concerning blade oscillation and partnership, with asphericon s.r.o regarding CNC components showcase global and industrial collaborations yielding concrete results.

Projects such as TOMOCON (Horizon 2020 MSC Actions) and EECONE (Horizon KDT Joint Undertakings) highlight the importance of cooperation and doctoral education while tackling issues like industrial process management and eco-friendly electronics.

The EURAD project's involvement highlights FM’s dedication to addressing long-term societal concerns, such as the management of radioactive waste.

Regarding interdisciplinary teamwork numerous projects naturally involve disciplines (for instance the CNC optical parts project that brings together expertise from optics, mechatronics, materials science and engineering). Additionally various instances highlight the importance of collaborating with departments or research units within TUL (like the effort in the textile yarn quality project, between FT and FME) as well as engaging with a diverse network of local and global partners.

The ongoing participation of students in these research endeavors serves as an element that underscores the faculty’s dedication to integrating research into teaching and nurturing talent.

Recommendations:

1. For strategic coherence consider to show for each highlighted project how its project objectives and outcomes are specifically connected with FM's specific mission and vision .
2. The documentation of internal collaborations could provide additional details about the specific contributions made by FM departments and TUL faculties and institutes for each relevant project to show the collaborative ecosystem.
3. The ONR Global grant achievements could be explained to external reviewers through brief contextual information or comparative evidence when available (e.g., typical funding patterns, number of such grants in the region/country) to justify the claim of "relatively rare success".

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	5 - Outstanding

Qualitative assessment:

The faculty produces outstanding results through a broad range of research achievements that deliver substantial documented effects on society along with economics and science.

The research environment demonstrates high productivity because researchers produced 664 results that included 190 impactful articles and six patents as well as eleven utility models and twenty prototypes and fifty-three functional samples during the evaluation period. The 10 selected examples effectively showcase this diversity.

Demonstrated Impact:

The "Multilingual software technology" (DeepSpot) together with the "Method of evaluating impurities in fibrous material" (with Rieter) and the "Interferometric device for measuring deviations" (with asphericon) and the "Modular platform ANTETUL" demonstrate industrial deployment alongside user adoption and commercial applications with documented economic benefits (such as increased revenue and job creation at asphericon). Multiple results achieved RegioStars finalist status while obtaining high M1 module ratings which demonstrates external recognition.

The research of Koldovský & Tichavský through their "Gradient Algorithms for ICA" papers and Kautský et al. through their "Cramér-Rao Bounds for ICA" publications generated substantial scientific impact by earning high citations and field recognition that M1 ratings supported.

The rehabilitation ergometer patent alongside the UV robotic system prototype for healthcare and the Software Endorse 1.0 for radioactive waste safety focus on crucial societal health and safety and environmental challenges.

The results match the faculty's research and development capabilities while directly fulfilling its mission to transform knowledge into societal advantages.

The research results of FM during 2019-2023 claim to meet gender neutrality and sustainability principles according to the report and FM supports environmentally responsible methods. The evaluation template, however, requests specific commentary about gender dimension inclusion and sustainability impacts in these results. A detailed discussion should explain how gender principles apply to individual results while avoiding generic policy statements.

Recommendations:

1. The gender and sustainable areas need to be visible and included in every highlighted outcome of future reports. The report should contain detailed information about gender areas at design, application, and user groups. It should also consider impact areas in sustainability, such as resource efficiency and environmental footprint reduction, and leveraging the SDGs. For example, for the ANTETUL system consideration could be given to the evaluation of varied processors, and the implications for sustainable logistics. For the rehabilitation ergometer consideration could be made to how it could be modified for different sized human bodies.
2. The area of "prospective impact" needs to become more explicit. For anticipated future outcomes that include the "prospective impact" areas of a study, e.g. the UV, robotic system, the report could document potential future development, what end-users or user groups were identified, or paths toward commercialization. The current statement, "The device is being further developed" is vague.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

FM exhibits outstanding and productive transfer processes for its research findings into practice, and strong linkages with industry and demonstrable impacts upon regulatory action.

Regarding its transfer processes FM has several different areas for transferring their research processes to practice, including direct engagement with companies (usually through several levels, both from innovation vouchers into larger applied projects), contracted research and licensing. Moreover, partnering efforts with public authorities such as SÚRAO extend the application area for FM. The launch of university-level TUC TUL (2022) is the logical next step in the development of aggressively commercializing FM's research; moreover, engagement was reported.

With regard to key users five ordinary users (Newton Technologies, Rieter a.s., SÚRAO, ČEZ a.s., K M B Systems s.r.o.) are acknowledged in the report that represents durable and meaningful applications for collaboration, aligned with the direction that FM is opting for its research. The long, durable, user relationships are a significant plus. Partnership programme was also mentioned, but could be articulated more in detail regarding what means for FM.

When it comes to examples of commercialization five concrete examples are specifically noted which demonstrate applicability commercial value (e.g., sharing with Newton Technologies for software, Net4Gas for risk pathway, one-of-a-kind AFR111 ferroresonance protection unique).

Acceptable standard techniques of conference attendance, networking, and trade fairs to find business partners are used to “attract new users”.

Regarding financial outcomes FM reports significant non-public funding for new partnerships, averaging of 6.4 million CZK/year from (1) licences and (2) donations, and an average of 5.5 million CZK/year (2022 report) for specific contract research and (3) specific contract research with (tables 3.2, 3.5). Indicative of a successful engagement with application.

Finally, regarding FM’s mission and vision, the transfer activities offered by FM definitely fulfil the mission of being linked to applied work, domestically and internationally, for society and industrial purposes.

Recommendations:

1. Describe FM-specific proactive strategies to identify new commercialization opportunities and partners outside of relying on central TUL initiatives like TUC TUL or broad employee contacts. Is there a specific faculty liaison, or informal liaison to do this job?
2. Please provide more detailed explanations describing the structure, activities and measurable outcomes from the “Partnership Programme”.
3. Try to link commercialisation to core IP, e.g., by conceptually tracing back all "Examples of Commercialisation of Results," to specific, underlying research results associated with the intellectual property developed by FM (as reported in section 3.4).

4. In the future, specifically report on the tangible outcomes and support that FM received as a result of participating with TUC TUL when it goes to evaluation.

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: FM actively promotes R&D&I and public communication through multiple activities which target different audience groups. FM implements specific outreach programs that target three main audience groups: the general public through Researchers' Night and "5400 seconds" lectures and hackathon mentoring and primary and secondary school students through CyberRobot and Children's University and IT summer school for girls and NAKAP II workshops. Finally, the professional public through conferences and seminars and AMPER Brno trade fair. The organization maintains its commitment through long-running events including Researchers' Night and CyberRobot and Children's University. The IT summer school for girls which collaborates with Czechitas z.s. represents a notable initiative that works to enhance gender equality in STEM fields. The participation in industrial trade fairs such as AMPER Brno enables R&D&I to directly reach potential industry partners. The report needs to improve its distinction between STEM promotion activities and those that specifically promote FM research outputs and innovations. The assessment of these activities' success would benefit from quantitative data about their reach.	
Recommendations: 1. For future reports, more clearly delineate how specific popularization activities showcase FM's own research projects, results, and innovations, beyond general STEM promotion. 2. Where feasible, consistently (and not just selectively) include metrics on the reach and impact of key popularization activities (e.g., number of participants, schools involved, media mentions, website traffic to popularization pages). 3. Briefly explain how popularization activities might contribute to attracting future students to FM programs or fostering new research collaborations. 4. Detail any significant online popularization efforts (e.g., faculty blogs, videos explaining research, targeted social media campaigns).	

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

FM has efficiently and adeptly responded to the IEP 2020 evaluation recommendations through specific actions and strategic improvements in relation to each recommendation.

Research Strategy (Rec 1): This is addressed through the development of a new "Science, Research and Innovation Strategy until 2025 (for 2030)" with implications of defining research teams and main/secondary areas for its R&D. It also ties in with future thematic areas like modern energy and AI.

Quantitative Reporting (Rec 2): FM mentions the need for clear reporting and its recent through end of 2023 university acceptance of a publications/outputs database. FM's development and use of the CASSANDRA application to aggregate data from multiple institutional technologies (GaP, STAG, MOBILITY) is an excellent, proactive strategy.

Industry Interaction/Tech Transfer (Rec 3): FM's partnership program, including engagement with the new TUC TUL demonstrates effort towards more structured technology transfer, in conjunction directly with industry cooperation.

Contract Research Alignment (Rec 4): The new R&D&I Strategy recognises and mentions the alignment of contract research with FM's strategic plan scientific directions for contract research, where FM focuses on high value projects.

Spin-off Strategy (Rec 5, TUL level): FM mentions a TUL-level response with the start of TUC TUL to provide support for establishing and creating spin-offs.

Wider Picture Presentation (Rec 6): The new strategic direction towards presenting research through smaller, thematically-driven research teams, new presentation materials, and planned updates of presenting materials online seeks to address wider picture presentation.

The faculty has clearly shown their commitment towards continuous improvement through extending external advice and feedback.

Recommendations:

Within the current strategy for R&D&I, please elaborate on what criteria and processes exist for "secondary fields" to possibly transition to "main fields", or if certain secondary fields remain, how efforts and resources may be strategically moved elsewhere.

For the next instance of assessment, outline tangible examples of instances where the CASSANDRA system has been utilized to advance reporting capabilities of a more quantifiable nature, or in examples where the system has contributed to better strategic decisions on behalf of FM.

Describe FM-specific proactive efforts with ideas discussed and expectations regarding TUC TUL subsidiary regarding increasing technology transfer and increasing collaborative efforts that will leverage new opportunities beyond those "given" contacts.

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 - Very good**
3.3 Research projects	**5 - Outstanding**
3.4 Research results with existing or prospective impact on society	**5 - Outstanding**
3.5 Transfer of results into practice	**5 - Outstanding**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**4 - Very good**
3.7 Implementation of the recommendations in Module	**5 - Outstanding**
Average rating [1–5]:	**5 - Outstanding**
Grade [A–D]:	**A**

Summary assessment:

FM provides a strong self-evaluation report that demonstrates its research dynamic and productive evolution.

Strengths:

FM demonstrates a powerful research portfolio which includes meaningful national and international partnerships with institutions such as Duke University and ONR Global and EU Horizon resulting in meaningful outcomes. The research portfolio showcases multiple projects with practical applications because several have been successfully brought to market or implemented in industrial operations and societal frameworks.

The faculty has built strong technology transfer systems that allow knowledge and technology implementation through its extensive industrial partnerships with Newton Technologies, Rieter, SÚRAO and ČEZ as well as its non-public funding and its achievement of commercialization successes. The newly established TUC TUL shows promising potential for future engagement.

FM demonstrates strong societal engagement through its diverse outreach activities which reach from schoolchildren to professionals and includes outstanding initiatives such as the IT summer school for girls.

The faculty implemented both recommendations from the 2020 IEP evaluation through new R&D&I strategy development and CASSANDRA data management tool creation and improved external presentation and industry engagement structures.

The scientific community recognizes both the expertise of individual faculty members who appear on Stanford's Top 2% cited scientists list and the faculty's contributions to scientific advancements through scholarly publications and editorial work as well as grant assessment participation.

Weaknesses:

While a new strategy is in place, the articulation of how "secondary fields" will be developed or prioritized, and how "European significance" will be measured, could be sharper. Claims of unusual performance (e.g., high number of doctoral students) would benefit from more explicit national/international benchmarking.

The report fails to provide specific details about gender equality and sustainability outcomes for each research output despite general statements about these dimensions as required by evaluation guidelines.

Human Capital Challenges: The TUL-level data shows decreasing foreign-national staff numbers while the FM staffing tables indicate no female full professors among their 7.15 FTE total in 2023. FM enrolled fewer students in its Czech-language doctoral programs throughout recent years.

Summary recommendations:

1. Turn the goals of the new R&D&I Strategy into measurable Key Performance Indicators (KPIs) for research output, international funding targets, gender balance at senior levels, and doctoral program success. The monitoring of these indicators could/should be done through the CASSANDRA tool?
2. FM should create an action plan to tackle the zero female full professor ratio through targeted recruitment and mentorship programs and to attract international researchers while supporting TUL-level initiatives.
3. For all major research results analyze, evaluate and report their sustainability impacts and gender-related considerations in their design or application beyond basic policy statements.
4. The Doctoral Program needs to be revitalized and it needs a tracking system to handle the decreasing number of Czech-language PhD students and maintain stable completion rates. The implementation of a strong tracking system for FM doctoral graduates' career development will help enhance program quality and show program effectiveness.
5. The faculty should consider deepening its commitment to Open Science and data management practices by actively adopting and promoting FAIR data principles and Open Access publishing according to TUL's Open Science directive and through the use of the developing DDR.
6. The IP pipeline monitoring process needs enhancement through collaboration with TUC TUL to establish specific metrics for IP pipeline stages from FM research.

3 EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Faculty of Health Studies

FORD: Zvolte položku.

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.

Commentary:

The Faculty of Health Studies (FHS) is the youngest faculty at TUL, established in August 2016. Its main activity is currently the education of nurses as well as bachelor's (in total: 4) and master's (in total: 1) programmes in auxiliary medical disciplines. The study programmes are offered in Czech only. There is no doctoral programme currently available.

The mission of the faculty is to provide high-quality education for non-medical health professionals. Its research activities focus on infection prevention, the development of contrast agents, robotics, and education in non-medical healthcare fields.

The vision of the faculty is to become a renowned provider of education in healthcare and non-physician medical disciplines, with an emphasis on high-quality teaching supported by modern technologies and state-of-the-art equipment. The faculty's research vision is to advance knowledge in patient care by improving service quality and healthcare environments, with a particular focus on simulation technology and the development of innovative samples and materials at the intersection of healthcare and technology.

Organizational structure: The faculty is organizationally divided into two institutes and two departments:
- Institute of Nursing and Urgent Care
- Institute of Clinical Fields and Biomedicine
- Department of Science and Research in the Field of Biomedical Applications
- Department of Prevention and Education

With the two last departments being renamed during the evaluation period to better reflect the current and future key research orientation.

Size and staffing: During the period under evaluation, the faculty expanded in terms of study programmes (the study programme Radiological Assistance was added in 2020), student enrollment, academic staff, and access to specialised laboratories. While this growth reflects positive institutional development, it also brings some challenges. The increase in scientific and academic staff has supported both teaching quality and R&D activity; however, the faculty continues to face a shortage of experts in medical and non-medical health fields with academic qualifications employed on a full-time basis. This represents a critical bottleneck for further development and strengthening research capacity.

R&D&I capacities: The faculty remains relatively small and young, still in the process of developing a coherent profile in R&D&I. During the evaluation period, research teams were stabilised and basic

research was the primary focus, while applied research continued to represent only a minor share of outputs.

The developmental stage of the faculty partly explains why outcomes in terms of external project success, financial returns, and international visibility remain below the level of other TUL faculties. Although structural initiatives were launched during the evaluation period — including efforts to attract international projects, strengthen the quality of research outputs, and increase the number of staff producing R&D&I results under the faculty's affiliation — their effectiveness cannot yet be demonstrated, as tangible results are expected only in the subsequent evaluation cycle.

Staffing remains a critical structural weakness. A significant proportion of experts engaged at the faculty are simultaneously active in research projects at other institutions, where they also publish their results. This reduces the faculty's own research visibility and recognition.

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**4 - Very good**

Qualitative assessment:[7]

In the self-evaluation report, the following contributions are listed for the evaluation period:

Awards: Doc. MUDr. David Astapenko received two national awards (Table 3.2.1). No faculty member received an international award during the evaluation period.

Editorial boards: A maximum of ten examples is provided, including cases of participation on the editorial boards of international scientific journals (Table 3.2.2).

Elected membership: A maximum of ten examples is provided, involving the activities of eight different faculty members. This demonstrates that the faculty's visibility in the research community is not concentrated in only a few individuals. The memberships include reputable Czech professional societies as well as two European societies (European Society for Molecular Imaging, and European Society of Gynaecology and Obstetrics).

Invited lectures: A maximum of ten examples is provided; the lectures were delivered by nine different faculty members (Table 3.2.3). This again indicates that the faculty's visibility is not limited to just a few representatives.

Hosted lectures: A maximum of ten examples is provided; these examples include ten speakers from abroad (Table 3.2.4). However, most of these were from neighbouring countries, with six speakers from Slovakia and two from Poland. This limited diversity may have been influenced by the travel restrictions imposed during the COVID-19 pandemic in the evaluation period.

Participation in the evaluation of national or European programmes: Four examples are provided, though these are limited to national programmes only (Table 3.2.5).

Based on the provided data, it can be concluded that the faculty, through its academic staff members, has relevant international recognition. This recognition is not limited to a few individuals,

[7] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

such as the dean and vice-deans; other faculty members have also been actively involved in the listed activities, which is a very positive sign.

Recommendations:

One of the most effective ways to strengthen relationships with similarly focused faculties is to host their members for invited talks. During the evaluation period, this activity was mostly limited to neighbouring countries, particularly Slovakia. This is understandable given the pandemic and the linguistic proximity, for example in nursing, where English proficiency among the audience might be limited. However, it is recommended to increase the diversity of invited speakers. Hosting speakers from a wider range of countries would not only enhance international recognition but also help establish new potential collaborations with international partners, which remains underdeveloped at the faculty at present.

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.

Rating [1–5]:	**3 - Average**

Qualitative assessment:

It should be noted that the Faculty of Health Studies is the youngest faculty at TUL and is still in its development phase. Consequently, the current research output is constrained by the size of its scientific teams and the limited focus on applied research. For example, no doctoral programme has been established yet, which limits the manpower available for research. Nevertheless, the faculty demonstrates strong potential in R&D&I, particularly in areas relevant to contemporary healthcare.

The faculty's scientific and research activities span general nursing, medical rescue, biomedical technology, biomedical engineering, and radiological assistance, which is well aligned with the faculty's mission and vision. To illustrate research activities, the self-evaluation report lists seven elected research projects, five supported by the Ministry of Education, Youth and Sports of the Czech Republic, and two by the Technology Agency of the Czech Republic (Table 3.3.1). Additionally, nine projects were mentioned in which faculty members participate as collaborators, including one EU-funded project.

Moreover, during the evaluation period, the faculty has made significant efforts to foster creative research through collaboration with other TUL faculties, healthcare providers, and external research organisations. While the full impact of some projects is not yet visible, several initiatives implemented during the period show promising results.

Based on data shown in the self-evaluation report, the faculty faces challenges in securing research grants, including both national and international projects, as well as contract research. Revenue from third-party sources is currently low, and contract work is essentially absent. Both areas are suboptimal. However, during the on-site visit, it was reported that action steps have already been taken to address this situation, including the establishment of a new project manager position responsible for identifying funding opportunities and supporting grant applications. The appointed individual has a strong background in project management, innovation, and international

experience. This represents a positive step toward increasing the competitiveness of future grant applications.

Recommendations:

The R&D&I growth at the faculty has been relatively slow, which is understandable given the faculty's recent establishment and the initial priority on developing efficient study programmes.

To support the research growth, it is recommended to establish a doctoral programme. Based on the on-site visit, initial steps have already been taken, including support and approval from the rector. This represents an important measure to enhance research productivity in the coming years.

Expanding scientific teams, including the recruitment of young, talented researchers, should be a priority.

While the faculty has made efforts to systematically develop creative activity in collaboration with other TUL faculties, healthcare providers, and external research organisations, the tangible outcomes of these initiatives remain limited. Considering the faculty's research expertise, available equipment, and the broader research directions at TUL, it is advisable to continue and strengthen collaborations with other faculties. Faculty members should be encouraged to lead projects rather than only contribute technical support. Such an approach would help to raise the faculty's research profile and visibility.

It is also recommended to broaden the faculty's research network by actively seeking collaborations, including with international colleagues. Inviting (international) researchers for invited talks, and for discussions on potential research projects and grant applications would further enhance the faculty's research capacity and visibility.

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	**3 - Average**

Qualitative assessment:

Generally, since the faculty operates at the intersection of medicine and technology, it can be expected that many of its outcomes have a positive impact on society. Although the faculty focuses primarily on basic research, several applied research results were also achieved during the evaluation period. These include two prototypes and three functional samples.

Moreover, during the COVID-19 pandemic, the faculty focused on deploying its students to help in the fight against this pandemic in health care facilities. Moreover, also the research interest was directed on preventing the transmission of infectious diseases.

Considering that the faculty is still in its development phase and that research input is relatively limited, these results are satisfactory for the evaluation period.

Recommendations:

To enhance research output and innovation, the faculty should continue expanding its scientific teams, including recruiting researchers with expertise in applied and interdisciplinary areas.

Given the faculty's position at the intersection of medicine and technology, it is advisable to continue strengthening collaborations with other TUL faculties, healthcare providers, and external research organisations.

The faculty should develop (or strengthen) a system to track and communicate the societal and clinical impact of research outcomes. Highlighting successful applications of research can strengthen visibility, attract funding, and support further collaborations.

The aspect of sustainability was not addressed in the self-evaluation report.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice

Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.

Rating [1–5]:	**2 - Below average**

Qualitative assessment:

It should be noted that the main focus of the faculty is not commercially oriented. Its primary missions are to provide high-quality education for non-medical health workers and to conduct research.

However, given that the faculty operates at the intersection of medicine and technology, some of its research outcomes have strong potential for practical application. In these cases, the faculty actively establishes contacts and collaborations with application partners, including healthcare institutions and industrial companies. It considers their requirements for development and innovation aimed at improving quality of life, which is an important step toward transferring results into practice.

During the evaluation period, the faculty did not generate any non-public revenues. Nevertheless, it produced three functional samples and two patents, which may be of interest to healthcare providers. FHS anticipates a greater transfer of its research results into practice in the next evaluation period.

Recommendations:

It is advisable to continue strengthening existing contacts and establishing new partnerships with non-academic partners, including healthcare providers, industry partners, and technology companies.

It is also recommended to engage in discussions and collaborations with representatives of other TUL faculties on the topic of research results transfer. The Faculty of Health Studies has significant potential in this area, and collaboration with experienced colleagues from other faculties could help translate research outcomes into practical applications, products, or services in the near future.

POPULARIZATION OF VAVAI

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

Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

The faculty is very active in the popularization of R&D&I and in communication with the public. It organizes a wide range of events, including those for professionals (e.g., first aid courses for TUL employees, annual conferences for non-medical fields), publicly oriented events (e.g., Researcher's Night, activities for preschool children, education on the use of defibrillators), student-focused events (project days within the framework of the NAKAP II project, courses at the TUL Children's University), and events for graduates.

Moreover, the faculty has organized activities to promote the nursing profession and highlight the role of nurses in the healthcare system. The faculty has hosted several interactive events, such as World AIDS Day, Stroke Day, Nurses' Day, Hypertension Day, first aid courses for the general public, and the Trends in BME conference for biomedical engineers in 2021. In some activities, the faculty collaborates with local institutions, including the Regional Hospital Liberec.

The faculty communicates through various channels, including popular social networks such as Instagram and Facebook.

The number and diversity of these events are impressive.

Recommendations:

It would be advisable to align public engagement activities also with ongoing research and innovation projects. This would not only increase societal awareness of the faculty's research but also create opportunities for knowledge and technology transfer.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3

Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable.

If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.

Rating [1–5]:	**4 - Very good**

Qualitative assessment:

Recommendation 1: Increasing the Number of Research Results in Relation to Other Faculties
In the period under the evaluation 2019–2023, a total of 112 results were created at the faculty (most were impactful articles). By providing detailed data on each year, the faculty demonstrated a substantial increase in output from 2019 to 2023. However, it is unclear whether any specific measures were actively implemented to boost research productivity or if the observed increase is related to the general decrease in research output during the pandemic followed by an increase in the following years.

Recommendation 2: Cooperation on international projects

During the evaluation period, FHS submitted applications for projects; however, these were not supported due to the large number of applications received. Details are missing regarding these submissions. It is unclear whether new collaborations were established or if the projects were prepared with already existing partners. **Recommendation 3:** Cooperation on inter-faculty projects, especially in the field of nursing and health sciences Several examples of cooperation on inter-faculty projects have been provided, demonstrating a successful implementation of the recommendation. **Recommendation 4:** In the R&D strategy, include procedures for the use of research results within the health care system The procedure is included within the legislative and organisational framework of the revision of Rector's Directive No. 2/2015 on the protection of intellectual property at the Technical University of Liberec and on the commercialisation of scientific and research results.
Recommendations: **To Recommendation 1:** The faculty should provide more detailed information on the factors contributing to the observed increase in research output. Specifically, it is recommended to document any measures or strategies implemented to enhance research productivity, including initiatives targeting staff, resources, or collaborations. **To Recommendation 2:** The faculty should provide detailed information on project submissions, including the number of applications, the partners involved, and whether new collaborations were established.

EVALUATED UNIT RATING

Evaluation of unit Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**4 - Very good**
3.3 Research projects	**3 - Average**
3.4 Research results with existing or prospective impact on society	**3 - Average**
3.5 Transfer of results into practice	**2 - Below average**
3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**5 - Outstanding**
3.7 Implementation of the recommendations in Module	**4 - Very good**
Average rating [1–5]:	**3.5**
Grade [A–D]:	**B**
Summary assessment: The Faculty of Health Studies is the youngest faculty of the Technical University of Liberec. Its primary mission is to provide high-quality education for non-medical health professionals while	

gradually strengthening its research and innovation activities. The faculty's research spans a wide range of healthcare-related fields, including general nursing, medical rescue, biomedical technology, biomedical engineering, and radiological assistance.

Strengths

1. While still in the growth phase, many of the faculty's activities go in the right direction.
2. The faculty is a provider of high-quality education for non-medical health workers.
3. The faculty demonstrates strong research potential; the research covers a broad range of healthcare-related fields, it has a high impact and is relevant.
4. The faculty is well equipped with various laboratories featuring modern instruments and technologies.

Improvement potential

Staffing Shortage: The faculty faces a lack of full-time experts with academic qualifications in medical and non-medical health fields, creating a significant bottleneck for research growth and development. A significant proportion of experts engaged at the faculty are simultaneously active in research projects at other institutions, where they also publish their results. This reduces the faculty's own research visibility and recognition.

Limited International Engagement: The faculty's activities in hosting international experts, diversifying invited speakers, and establishing global collaborations are limited, which restricts its visibility and international impact.

Low External Funding: Revenues from third-party and competitive grants remain low.

Underdeveloped Applied Research and Knowledge Transfer: The faculty's engagement in technology transfer and industry collaboration is limited, resulting in research outputs with unrealized practical applications.

Summary recommendations:

Strengthen Staffing Capacity: The faculty continues to face a shortage of experts with academic qualifications employed on a full-time basis. This represents a critical bottleneck for further development and strengthening of research capacity. Establishing the planned doctoral study programme may partially address this issue; however, experienced researchers who can supervise these students locally will be needed as well. Therefore, increasing the number of faculty members working on a full-time basis is advisable.

1. **Enhance International Collaborations and Visibility:** The faculty should broaden its network of international partnerships by hosting a more diverse range of invited speakers, engaging in international consortia, and fostering long-term collaborations. This will enhance the faculty's visibility and global standing.
2. **Improve Outputs of Scientific Research Activities, Funding and Grant Acquisition:** The faculty should actively support academic staff in applying for national and international grants, with institutional backing for grant-writing and project management. Faculty members should also be encouraged to take leadership roles as principal investigators in collaborative projects.
3. **Boost Applied Research and Knowledge Transfer:** The faculty should develop a systematic strategy for technology transfer and industry partnerships, proactively pursuing opportunities for applied research to ensure that research outcomes are translated into practical solutions. It could be also helpful to engage in discussions and collaborations with representatives of other TUL faculties who have greater experience and success in transferring research results.

1 EVALUATION REPORT IN MODULE 3

NAME OF EVALUATED UNIT: Institute for Nanomaterials, Advanced Technology and Innovation (CXI)

FORD: 1 - Natural sciences

SOCIAL CONTRIBUTION OF THE EVALUATED UNIT

3.1 Introductory information about the unit under evaluation

Indicator 3.1 is a non-evaluated indicator that provides basic information about the evaluated unit such as its mission and vision, organizational structure, size and staffing, or R&D&I capacities.

Commentary:

Institute for Nanomaterials, Advanced Technologies and Innovations (CXI), which is located in building L, was founded in 2009 as part of the ESF project "Centre for Nanomaterials, Advanced Technologies and Innovations". Over the years, it has developed mainly with the help of a number of projects that have been and are being solved here. The CXI mission is focused on quality research and development, transfer innovations to real life. They are focused on applications in the field of public health, the environment, technological progress and the economic development of enterprises. They also contribute to the education programmes of the TUL. The CXI vision is to be an internationally respected workplace in the natural and technical sciences – focused on water and environmental protection, additive technologies, application of modern IT methods, including AI. They cooperate with partners in the CR and EU and worldwide.

CXI was included in FORD 1, although it carries out a range of activities that extend from basic research to technological applications. As part of their research activities, they use knowledge from natural sciences (primarily chemistry, biology, and physics), which is subsequently transferred into technological practice. In the coming period, they want to support this direction even more, i.e. focus on using knowledge from basic research in the above areas and their application in the field of environmental issues and sustainability using IT and artificial intelligence.

The changes and developments in CXI since IEP 2020:

- Since 2021 the new director Prof. Dr. Ing. Miroslav Černík, CSc. was inaugurated.
- The organizational structure was reorganised – also regarding to the recommendation of IEP 2020. They defined newly profiles of two existing departments and they developed new research direction "System integration" – focusing on IT expertise and cooperating with other units of TUL.
- A new model of central handling of overhead funds was applied to support cooperation and limit competition between CXI departments.
- The strategic research directions are now under the direct management – according to IEP recommendation.
- CXI received the HR Excellence in Research.
- The department for international cooperation in R&D and the Department of Information Support and Analysis were established.

They obtained several important projects (LIFEPOPWAT, NCC for Industrial 3D printing) as a principal investigator in the evaluated period. They are involved in other international projects ("International Research Laboratories" and SURRI).

The organizational structure:

At the end of the evaluation period, 164 employees worked here, 51% of whom were women. About 25 PhD students work here from TUL or other universities.

The directorate has 6 departments (D. for Research, D. for the Development of Human Resources, D. for Industry, D. of Information Support and Analysis, D. for Grant Support and D. of International Cooperation in R&D). The activities of director are supported by College of the Director, Scientific Board, Operational Board and Secretary. There are three research departments which are divided to several departments: RD1 contains 4 departments – D. of Nanochemistry, D. of Environmental chemistry, D. of Environmental Technology, D. of Applied Biology, together with one accredited laboratory and Nanofiber preparation Laboratory, RD2 contains 5 departments – D. of 3D Technologies, D. of Vehicles, D. of Machinery Construction, D. of Advanced Technologies and D. of Advanced Materials including Laboratory of Microscopy, RD3 contains 4 departments – D. of SW Architecture and Development, D. of Mechatronic Systems and Robotics, D. of Process Modeling and Artificial Intelligence and D. of Physical Measurements. The gender representation in the directorate's departments is 67% women (4) and 33% men (2), in the research departments 7,7 % of women (1) and 92,3 % men (12).

Staffing per FTE : in all the positions listed there was a decrease in total FTE compared to 2019 and 2023. The FTE for the position of professor has changed from 2.78 to 1.4 since 2019, and no women have worked in this position for the entire monitoring period 2019-2023. In the case of FTE for the position of associate professor, it has changed from 9.25 to 6.09 since 2019, the representation of women in this position was low, from 1.93 to the current 1.3 FTE. In the case of Assistant professor, it has changed from 40.80 to 33.49, this group is formed by approx. 1/3 of women. The other research supporting workers form two large groups in which women are already represented by almost half. Among technical and economic personnel, women are in absolute predominance. A relatively small group consists of early career researchers, approximately 13.22%, of which a third are women. In terms of age, the most numerous groups are 30-39, 40-49, followed by 50-59, under 29 and 60-69. 2 workers are over 70 years old. From this perspective, the CXI is well balanced. In the case of positions, it would be appropriate to support further growth in staff to increase the number of associate professors and professors, which has an impact not only on the overall reputation of the institute, but also on the performance of the staff itself.

No students are registered under CXI, similar to study programs, but this is due to the focus of the institute. Students who work at CXI are registered at faculties, as is common in the Czech Republic.

R&D&I capacities are divided among 4 FORD fields 1-4 in this way: 36 % in 1. Natural Sciences (mostly applied research), 61 % in 2. Engineering and Technology (balanced basic and applied research), 2 % in 3. Medical and Health Sciences (applied research) and 1 % in 4. Agricultural and Veterinary Sciences (applied research).

RECOGNITION BY THE RESEARCH COMMUNITY

3.2 Recognition by the research community Evaluate the position of the evaluated unit in the R&D&I research community based on the facts presented in indicator 3.2 and its annexed tables (3.2.1 to 3.2.5).	
Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:[8]

The CXI developed strongly scientifically during the period 2019-2023, the number of publications reached 471, of which 8% were published in D1 journals and 32% in Q1 journals. 77% of publications were prepared in cooperation with foreign partners. 4 CXI researchers are among the 10 most cited employees of TUL, according to WoS. In the evaluated period, they received 2 MEYS awards, 9 researchers in total were members of the editorial boards of the international journals (4x Guest editors for special issues, journals ranged in Q2-Q4, 1 Q1 Chemical Engineering Journal), 4 of them are members of the editorial board of the journal Ecological Chemistry and Engineering S (Q4), 1 researcher is a member of the program committee of the international conference NANOCON, 1 researcher is a member of the Board of Directors of the Czech Membrane Platforms. 3 researchers were members of the evaluation panels of the GA ČR (P504, P108, P101), 1 researcher is a member of the expert committee of the EC (Horizon projects), 3 researchers cooperated with MEYS and TACR.

3 researchers were ranked in the top 2% of the most cited scientists in the world in 2021-2023 (according to Elsevier, PLoS Biology and Stanford University).

CXI team cooperates with ASCR in the field of Open Science data.

1 project was successfully awarded by European Commission in “Regiostars 2023”. A significant evaluation is the award for the LIFEPOPWAT project, which received a prestigious award for excellent results in the LIFE AWARDS 2025 competition, announced by the European Commission. The award was awarded in 2025, the project was implemented in 2020–2023.

8 employees presented 10 invited lectures, 6 of them in 2023. At least 10 lectures were presented in CXI (presenters from EU, USA, India. 6 of them in 2022).

The CXI has well established policy, mission and vision as well as well-designed activities lead to their fulfilment.

Recommendations:

In this indicator, CXI has shown efforts to increase the recognition of CXI by the scientific community at the national and international levels. It is actively approaching the fulfilment of some criteria, for example, it was the only one at TUL to receive the HR award, they received two significant EC awards and they increased presentations of invited talks. These results showed that there is potential for further development in all evaluated areas. The results are at a nationally competitive level, the institute has significant regional significance and has also achieved some significant international results. These results show a high potential for further development, which should be more courageous and should aim for higher goals in all evaluated areas.

In terms of scientific performance, it is necessary to increase the share of publications in D1, D2 journals with the corresponding AIS. Especially if the stated goal is to increase involvement in basic research. It is also possible to increase activity in the editorial offices of more prestigious journals than before. It is also necessary to support the involvement of other employees in both evaluation

[8] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

activities and membership in professional organizations with the aim of obtaining positions in these boards, etc. Strong support should be focused on invited lectures and information exchange at the international level involving the young generation of scientists.

RESEARCH PROJECTS

3.3 Research projects

Evaluate the most important research projects of the evaluated unit, especially regarding the results achieved and the application potential of the project, the proportionality with respect to the R&D&I capacities of the evaluated unit, the degree of interdisciplinarity and collaboration with other parts of the evaluated HEI, and the consistency with the declared mission and vision of the evaluated unit. Use the data from the full list of research projects and contract research activities in Tables 3.3.1 and 3.3.2 to supplement the evaluation.

Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

In the evaluated period, CXI solved as a beneficiary: 28 projects of the Technical Research Council of the Czech Republic (TAČR), 15 projects of the Ministry of Education, Youth and Sports, 10 projects of the Liberec Regional Authority, 2 projects of the Grant Agency of the Czech Republic (GAČR), 4 EU projects, 4 other foreign projects and 2 CESNET projects in the total amount of EUR 534,362,000 CZK/21,085,000 EUR. As co-investigators, they solved: 51 projects of the Technical Research Council of the Czech Republic (TAČR), 8 projects of the Ministry of Education, Youth and Sports, 33 projects of the Ministry of Industry and Trade, 1 project of the Ministry of the Interior, 1 project of the Ministry of Agriculture, 2 projects of the Grant Agency of the Czech Republic (GAČR), 6 EU projects and 4 other foreign projects in the total amount of 348,716,000 CZK/13,751,000 EU. About 82 companies (Czech or foreign) are listed as contractual research cooperation in the total amount of 190,529,000 CZK/7,520,000EUR.

10 selected projects are selected as the most important CXI projects. The first of them, LIFEPOPWAT, is an international project for which CXI received a significant international award. It concerns the application of environmental technologies for the removal of pesticides and other POPs from water. It was an international cooperation of universities and companies, CXI was the main investigator. Water management is also addressed by the 2nd international LIFE project, which is still ongoing, CXI is the project coordinator. An interesting area is addressed by the ongoing international project SURRI, focused on the impact and use of uranium mines. CXI is the coordinator. In project no. 4 (MSMT), CXI cooperates with other faculties of TUL and is responsible for one of the research programs. Project No. 5 is a significant research infrastructure on which CXI cooperates with a number of excellent research institutes in the Czech Republic. The 6th mentioned project is the National Competence Center for Industrial 3D Printing. CXI is the coordinator of this ongoing project, connecting 30 different institutes from academia and industry. The 7th project (MSMT) led to the development of CXI in 2020-2023. The 8th i-FACES project was implemented within the framework of Norwegian funds, CXI is the coordinator. 4 other TUL faculties were involved in the project. The 9th project describes contractual research between CXI and ÚJV Řež, a.s. The last-mentioned project is the GA ČR project focused on the disposal of organochlorine substances.

The list of projects solved is exhaustive and the amount of funds that CXI has obtained in the past period is outstanding. The projects that are presented as the most significant are focused mainly on environmental issues. No important outputs are mentioned in this part. However, CXI has great potential in this area and has fully responded to the IEP recommendation from the last evaluation

period, where it focused mainly on obtaining projects in the role of the main investigator, which it is successfully doing.

Recommendations:

Although the project activity is respectable, there are still many opportunities to open up other possibilities. It is recommended to focus even more on international cooperation, obtaining European or other types of projects, using the possibilities of GA CR, ERA-NET, MSCA, ERA Chair, etc. Which will enable, for example, the exchange of scientific workers, or the acquisition of foreign postdocs or even experts. The next important comment is that CXI should concentrate on developing two other research directions (now the main focus is on environmental science and technology.

3.4 Research results with existing or prospective impact on society

Evaluate the research results already applied in practice or intended to be applied in practice. When evaluating, consider whether the results are proportionate to the R&D&I capacities of the evaluated unit, how they contribute to the fulfilment of the mission and vision of the evaluated unit and, if stated in the self-evaluation, how the results take into account the gender dimension and sustainability. Use the data from the full results summary in Table 3.4.1 to supplement the evaluation.

Rating [1–5]:	**4 - Very good**

Qualitative assessment:

The number of applied research results is relatively high with a possible strong positive impact on society. The results fall into the areas of FORD1 and FORD2. Out of the 10 presented results, 9 were related to environmental sciences and technologies, only 1 presented result was from the field of informatics. 3 utility models, 1 patent, 4 verified technologies and 2 functional samples were presented. The presented products were tested in real conditions in cooperation with major companies operating in the field of environmental technologies or in the automotive industry. The results correspond to CXI's capacities in the field of research, development and innovation and also fit well with their mission and vision. From the point of view of the gender dimension, the presented results are neutral in all cases. The presented results are used by at least 1 company: a combined filter element in the amount of 500 pieces was manufactured and launched on the market, the use of zero-valence iron nanoparticles with a biodegradable coating for in situ groundwater treatment was applied in the Czech Republic and abroad (AQUATEST and Photon Water Technology), a device for remote monitoring and management of remediation was applied in several places in the Czech Republic and abroad, the company EKOHYDROGEO Žitný, s.r.o. implemented an early warning system for soil buoyancy near a watercourse, the company ENVI-PUR, s.r.o. uses innovative cleaning protocols suitable for membrane regeneration and a variable membrane unit for the treatment of difficult-to-biologically treatable wastewater, and the company ŠKODA AUTO uses a functional sample of the adaptive IoT platform and corresponding technical equipment for AUE management and control.

Recommendations:

The number of applied results is impressive. However, 9 of them relate to RD1 and these results have high potential for practical application. However, CXI has 3 research departments. Therefore, it is strongly recommended to support research in the other two research departments, 2nd and 3rd, which should strengthen their performance, which will reach at least the RD1 level. There is great potential for improvement here.

TRANSFER OF RESULTS INTO PRACTICE

3.5 Transfer of results into practice	
Evaluate the effectiveness of the transfer of results into practice by the unit being evaluated. Pay attention to whether the composition of the stated users of the results or the way the R&D&I results are commercialised (if stated) is consistent with the R&D&I results produced and the mission and vision of the evaluated unit and how successful the evaluated unit is in its activities, such as attracting new users of the results, commercialising the R&D&I results and obtaining funding from non-public, non-grant sources.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: CXI uses the created TUL system to transfer results. The department of Industry is responsible for CXI. CXI has its own policy on how to establish new cooperation with companies. 5 companies that cooperate with CXI and are users of their results are presented: ŠKODA AUTO, a.s., DEKONTA, a.s., Dřevoplast Ludvík, s.r.o., Nanoprogress cluster, SÚRAO. However, licenses and donations do not constitute a significant item of their budget. They rather use innovation vouchers and rental payments	
Recommendations: There is great potential for improvement in this area. For example, more foreign patent applications and licenses could be further confirmation of the quality of CXI research. Here it is clear that patents are not the main goal of CXI policy, but rather close cooperation with a specific sponsor.	

POPULARIZATION OF VAVAI

3.6 The most important activities in the field of popularization of R&D&I and communication with the public	
Evaluate how active and successful the evaluated unit is in the field of popularisation of R&D&I and communication with the public.	
Rating [1–5]:	**5 - Outstanding**
Qualitative assessment: Since CXI is mainly focused on science, research and innovation, its popularization activities mainly focus on promoting science. Their goal is to present scientific activities to the public, establish new contacts and attract new employees - especially graduates. They also focus on the youngest generation - children, for whom they create events. Since 2020, they have developed a Strategy for Popularization, Communication and Marketing. The activity is managed by the CXI Information Support and Analysis Department, which cooperates with the TUL Promotion and Advertising Department. They offer activities: open days, Scientists' Night, educational materials for the public, presentation of results through the media, exhibitions and fairs, discussions and commented visits. In the report, they presented selected events according to the above list.	
Recommendations: The list of activities is long. There is obvious participation in a number of popularization events, including in cooperation with TUL. Given the developed cooperation with partners, it is clear that	

CXI has a very good response within the corporate environment and within other research organizations. Given the general lack of students at Czech universities, it would be appropriate to expand awareness of CXI to neighbouring countries (Germany, Poland) or other destinations, with the aim of attracting more young scientists not only from the Czech Republic, but also from abroad.

IMPLEMENTATION OF RECOMMENDATIONS

3.7 Implementation of the recommendations in Module 3	
Evaluate how the evaluated unit has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the evaluated unit has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: The report compares 11 recommendations they received in the previous evaluation. One of the recommendations is to increase the number of projects where CXI will act as a leader. According to the report, they were successful in this regard, now they are leaders in more than a third of the projects solved, including foreign projects. They lead 1 National Competence Centre. They were invited to establish spin-off companies, which did not happen, but the report logically justifies it. They increased the number of young scientists involved in CXI research activities, supported staff exchanges with academic and industrial partners, increased cooperation with original equipment manufacturers (OEMs), expanded cooperation with faculties (FMIIS, FSHE, FE, FAA), expanded cooperation with research organizations in the Czech Republic and abroad, defined and established three research directions, introduced the HR Award Excellence in Research and set a long-term mission.	
Recommendations: It is recommended to continue supporting the set policy and development of CXI, to support the other two directions more, since the results so far have mainly concerned environmental sciences and technologies. To focus more on connections with the European and global research space.	

EVALUATED UNIT RATING

Evaluation of unit	
Having evaluated the individual criteria of module M3, please summarise your evaluation in the context of the module, describing and justifying the strengths and weaknesses of the unit being evaluated.	
3.1 Introductory information about the unit under evaluation	**NOT RATED**
3.2 Recognition by the research community	**5 - Outstanding**
3.3 Research projects	**5 - Outstanding**
3.4 Research results with existing or prospective impact on society	**4 - Very good**
3.5 Transfer of results into practice	**5 - Outstanding**

3.6 The most important activities in the field of popularization of R&D&I and communication with the public	**5 - Outstanding**
3.7 Implementation of the recommendations in Module	**4 - Very good**
Average rating [1–5]:	**4 - Very good**
Grade [A–D]:	**A**

Summary assessment:

CXI is a very well-established research centre with a very good reputation in the Czech Republic and abroad. It has set up 3 areas of science and research (Nanomaterials in natural sciences, Competitive engineering, System integration), which it intends to continue. They focused on the research not only in the field of applications, but they plan to focus more on basic support for research in the chosen directions. Comparing the past 5 years with the previous ones, there is a significant shift. The ability to secure funding for CXI activities is enormous, and the shift to projects that CXI leads is great, including international projects, of which LIFEPOPWAT has received significant international awards. This testifies to the excellent managerial and scientific qualities of the CXI team. They received the HR Award in personnel policy. CXI's policy towards transferring results into practice is significant, where there is obvious cooperation with industrial enterprises leading to the application of results created within the framework of this cooperation. The quality of the work is also evidenced by the number of bibliometric and non-bibliometric results and the fact that 4 of the 10 most cited authors in 2019-2023 worked at CXI.

Summary recommendations:

Recommendations for further development are:

i) maintain the ever-increasing trend,

ii) support the development of two additional research directions RD2 and RD3,

iii) increase the number of publications in D1 and D2,

iv) increase the number of licenses of applied results,

v) improve gender balance at the level of scientific workers, not only in administrative and technical staff,

vi) increase qualifications - new associate professors and professors with regard to gender balance,

vii) support young researchers to be in editorial boards, present invited talks etc.,

viii) develop international cooperation.

1 SUMMARY RATING IN MODULE 3

MODULE 3 – SUMMARY RATING

After evaluating the individual units, please provide a summary evaluation of social relevance in Module 3 for the HEI as a whole. Please assess the balance of the evaluated units, how they contribute to the mission and vision of the HEI and describe the strengths and weaknesses of the HEI assessed in Module 3.

The summary rating is determined in accordance with the rules of the Methodology HEI2025+ as the average of the grades of the individual units, weighted by their size in terms of FTE staff.

EVALUATED UNIT	Grade [A–D]
Mechanical Engineering	**B**
Textile Engineering	**B**
Faculty of Science, Humanities and Education	**B**
Arts and Architecture	**B**
Mechatronics, Informatics and Interdisciplinary Studies (FM)	**A**
Economics	**A**
Faculty of Health Studies (FHS)	**B**
CXI	**A**
Summary grade	**A**

Summary quality assessment:

TUL has actively working faculties and CXI institue in very good up to excellent states. The equipment is modern, the scientific pubilcations and results are internationally well visible. The university follows its mission to provide appliced education, regional development and transfer of technology to society. TUL operates reserach and technology transfer structure (CXI) and participates in recognized associations. It has strong regional engagement and industry links, where the infrastructure is applied. Most of the faculties have strong international cooperation.

Summary recommendation:

2 EVALUATION REPORT FOR MODULES 4 & 5

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HIGHER EDUCATION INSTITUTION NAME: TECHNICAL UNIVERSITY OF LIBEREC

COMPANY REGISTRATION NUMBER (CRN): 46747885

MODULE 4 – VIABILITY

ORGANISATION AND MANAGEMENT OF R&D&I

4.1 Organisation and management of R&D&I	
Evaluate the organizational structure and setup of the R&D&I management system in relation to the size and type of the university and its mission and vision. Also consider comparisons with foreign universities of similar size and focus.	
Rating [1–5]:	**4 - very good**
Qualitative assessment:[9] TUL is a medium size public university, placed in one of the most industrial regions of the Czech republic. The shorter distance to the industry is recognized and very well used from the researchers, as demonstrated from the large number of industrial cooperations. The relatively small size of the university allows as well good cooperation between the disciplines and faculties, based on direct connection between the people or the labs. There is a university-wide grant competitions to support young talented academic and scientific staff in strategic, promising and emerging areas of basic research. A central strategy about the getting high quality human resources and keeping them at the university is not directly recognizable. The most activities depends on the faculties, deans and responsible persons there. They have support from the university regarding European calls and patents, but impression remains that the main activities are faculty dependent. It has clear defined and public available mission to disseminate knowledge and push its boundaries, cultivate Czech society, and contribute to social balance, well-being, and sustainable development through all its activities.	
Recommendations: The management system or its influence is currently not enough visible for the evaluators. It remains more the impression, that everything – publication costs, habilitations, conferences - depends on the faculties and their deans.	

[9] Provide verbal assessment of the indicator and briefly comment on the reasons for awarding the specific rating. Follow a similar procedure for the other indicators.

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 Evaluate the systems/measures/tools described to stimulate high-quality science at the HEI being evaluated. In your evaluation, consider the documented effectiveness of the measures described, their impact on achieving the mission and vision of the HEI being evaluated, the realization of excellent science and the possible absence of key systems/measures/tools.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: TUL demonstrates a well-structured and multi-layered approach to supporting high-quality R&D&I, with clearly defined coordination across university, faculty, and departmental levels. Its internal grant schemes—PURE, RISING-STARS, ENAGO, and SGS—effectively address different stages of academic careers, from students to established researchers, while the performance and excellence-oriented DKRVO Methodology ensures that support is merit-based and strategically aligned with research quality. The university emphasizes internationalization through participation in Horizon Europe, MSCA, and Visegrad Fund projects, as well as researcher mobility programs, enhancing both visibility and competitiveness of its teams. Strategic planning at both unit and institutional levels aligns funding allocation with national priorities and emerging research fields, particularly those with application potential. Interdisciplinary collaboration and applied research are actively promoted, with strong connections to industry, clusters, and associations, creating a pathway for innovation and commercialization. Comprehensive support for students and early-career researchers—including mentoring, scholarships, mobility opportunities, and administrative guidance—fosters professional growth and high-quality research outputs. TUL also implements evidence-based monitoring and evaluation through dedicated databases and councils, ensuring systematic oversight of research activities. Potential improvements: While the number of projects supported is impressive, more explicit outcome metrics, such as high-impact publications, patents, or commercialized technologies, would further strengthen the assessment of effectiveness. Additionally, current evaluation methodologies may not fully capture interdisciplinary outputs.	
Recommendations: **Documentation of Success Factors** The university could systematically report not only the number of research outputs but also the strategies, measures, and structural changes that led to their increase. This will make it possible to identify best practices and replicate them across faculties. **Strengthen knowledge transfer and commercialization pathways** While TUL engages with industry and clusters, formalizing structured pathways for	

commercialization of applied research could further enhance societal impact and attract additional funding.

Expand international collaboration and visibility

The university should continue to strengthen international research networks and mobility programs, targeting strategic partnerships with top global institutions to increase the success rate in competitive international funding calls.

4.3 Quality control system for R&D&I environment

Evaluate the described internal and external evaluation system in terms of its quality, effectiveness and suitability for the HEI.

Rating [1–5]:	**5- Excellent**

Qualitative assessment:

To ensure R&D excellence, TUL has established a comprehensive evaluation system that assesses its research units both internally and externally. This system is designed to be both motivational and performance-driven. The evaluation metrics are broad, including:

- research output: bibliometric and applied research results;
- project success: quality of submitted and ongoing projects;
- ethical standards: adherence to research and development ethics, supported by the ethics committee and ombudsman;
- the results of this assessment directly inform funding decisions; funds are allocated based on performance, and individual TUL components then manage their internal allocation systems.

To ensure high quality, the Technical University of Liberec implemented the Rules of the Quality Assurance System and Internal Quality Assessment. These rules mandate that each organisational unit create a tailored quality assessment system reflecting its unique needs and characteristics, which has to evaluate both research and other activities. The primary goal is to use the evaluation results to give feedback, to refine the departments' research and development strategies, and to foster excellent research and development enhancement.

Beyond its foundational quality guidelines, the Technical University of Liberec maintains a regular and multifaceted system for assessing the quality of its research, development, and innovation. This continuous assessment integrates internal controls, external reviews, and performance metrics to ensure excellence across the university.

Internal Evaluation is a core component, involving several established processes:

- ongoing evaluations of research teams and programmes, along with their research and development outcomes, are conducted by individual zniversity department through internal methodologies;
- the university systematically assesses all research units through a distinct internal methodology;
- university authorities like the Scientific Council and the scientific councils of individual departments play an important role in evaluating research, development, and innovation quality;
- internal information technology systems, such as Publikace.tul and GAP.tul, are applied to evaluate research and development quality metrics;

- career regulations and the methodology for the distribution of long-term concept development of research organisation standards are key internal mechanisms that influence and reflect research and development performance;
- external and strategic benchmarking ensures the university departments meet national and international standards:
- the university departments undergo evaluation through the M17+ Methodology (specifically the modules M1, M2, and M3);
- the International Council provides an external quality evaluation of research, development, and Innovation;
- university performance is monitored through international rankings;
- the quality of research and development is also secondarily evaluated when evaluating accreditation applications are submitted to the National Accreditation Bureau for Higher Education, as it involves the creative activities of programmes guarantors.

Performance and outcome metrics focus on practical success and engagement in the following ways:

- annual reports detail the activities of the Technical University of Liberec and its units;
- success in project calls and competitions is a crucial measure;
- projects are evaluated by providers, expert evaluators, and opponents based on indicator fulfilment, quality, and the economic benefits of the results;
- employee satisfaction surveys and input from Industry Councils also contribute to the overall quality assessment;
- the Technical University of Liberec maintains a robust multi-layered system to ensure ethical conduct and protect the rights of its community members.

Besides the above-listed research, development, and Innovation standard and principles, the Technical University of Liberec keeps its ethical framework. The university ethical foundation is set by The Ethics Code for the Technical University of Liberec Employees and Students. This code establishes the moral principles considered essential for academic and research roles, while the whole organisation with its departments insist on their strict observance. In the terms of research, development, and Innovation, the code specifically addresses critical issues such as:

- integrity: preventing plagiarism, duplicating research, and fragmenting results;
- fairness: ensuring fair recognition of colleagues' contributions, protecting intellectual property, and handling conflicts of interest;
- transparency: complying with publication ethics and managing published errors.

Violations are formally handled by the Technical University of Liberec Ethics Committee, which reviews individual complaints. In its resolutions, the committee explicitly determines if a violation of general moral principles or the Ethics Code occurred, specifies the violated rule, and assesses the seriousness of the breach.

Specialized ethics in research is applied as in addition to the main committee, TUL established the Research Ethics Committee (governed by the Rector’s Directive 3/2022). This specialised body focuses on the ethical aspects of research, particularly that involving human subjects (including human biological material) and other activities requiring ethical review. The committee provides formal opinions and recommendations on proposed or existing research projects.

Rights protection and mediation plays also a crucial role in this field. Technical University of Liberec also ensures the rights of its employees and students through the ombudsman (present at the university level and in some units). The ombudsman acts as an independent observer and guardian of rights, offering support to employees and students who have concerns about procedures or the observance of their rights. The key areas addressed include equal access, discrimination, sexual harassment, bullying, and burnout. The ombudsman can also mediate disputes and communication disagreements. Further supporting these mechanisms is the university’s whistleblowing system,

which allows for anonymous reporting of ethical violations, ensuring they can be investigated and addressed according to regulation.

Finally, the university commitment to high standards is externally recognised as its Centre for Advanced Materials, Substances and Energy has been awarded by the HR Award, a recognition that includes monitoring ethical and professional standards.

Recommendations:

Based on the above-listed information, it is possible to declare that the Technical University of Liberec has developed well implemented mechanisms in order to achieve excellence in research, development, and innovation. These mechanisms function besides the already incorporated system of support and development of research both at national and international levels. Multiple monitoring and evaluation subsystems, which motivational, ethical, performance, quality-keeping subsystems belong among, are assigned to this system. It is followed by the effective dynamic processes of university management that are a guarantee of achieving high quality and effectiveness of university education as well as research, development, and innovation at the Technical University of Liberec. All the listed aspects clearly declare strong strategic focus of the institution and at the same time, they reveal potential in the multiple fields, which can be strategically applied within the Technical University of Liberec according to its expectations.

4.4 Sustainability and resilience of R&D&I

Evaluate the described system of measures for sustainability and resilience of R&D&I in terms of their quality, effectiveness or possible absence of key measures.

Rating [1–5]:	**4 – very good**

Qualitative assessment:

The three main pillars of sustainability to consider in the context of R&D&I include environmental, economic, and social sustainability. Regarding the overall quality and effectiveness of TUL's R&D&I these offer an idea of the resilience and long-term viability of TUL's functions. In the self-evaluation report, sustainability is directly discussed in the terms of research results and their impacts. In this, environmental sustainability is clearly a key goal that has been in consideration since planning of many of the research projects conducted in the time range of the evaluation.

Environmental sustainability is most clearly linked to how the research agendas and goals are set and whether they comply with widely accepted guidelines for sustainability such as the SDGs. In the self-evaluation report this aspect of sustainability is covered sufficiently.

Economic sustainability of the R&D&I functions includes the strategic planning of funding and the allocation of resources between different internal stakeholders, such as between the faculties, or even between research groups on the faculty level. Economic sustainability is boosted by encouragement and investments in research collaborations that stem outside TUL, in both national and international level.

Social sustainability takes into consideration the human resource planning and execution, e.g. that career planning such as tenure processes are transparent and that the criteria for recruitment are based on equal practices.

Recommendations:

In order to continue the concerted efforts in the support of sustainability in TUL's R&D&I, sustainability needs to be addressed directly in the strategies of the departments. This refers to sustainability in its three different pillars, with focus on environmental, economic as well as social sustainability. In practice this means 1) aligning research goals and methods with SDG's, 2) engaging in long-term strategic planning for acquiring external funding, and 3) investments in careers and career planning as well as research community building among the academic staff.

PERSONEL POLICY

4.5 Structure of human resources

Evaluate the described structure of human resources at the evaluated HEI in terms of age composition, degree of internationalization, distribution by job classification, and gender balance. For the assessment, use the data from the annexed tables 4.5.1 and 4.5.2; it is also possible to draw on the more detailed staffing data presented in indicator 3.1 of the self-evaluation reports for the evaluated units.

Rating [1–5]:	**3 - good**

Qualitative assessment:

The policy of human resources is described in the document "The Human Resources Strategy of the Technical University of Liberec for the period 2022 to 2025, with a view to 2030". TUL (as of December 31, 2024) has 1281 employees, of which 778 are academic and scientific staff, which is 1071 FTE. Compared to 2020, there were only minor changes in the number of employees.

During the period under review, the number of professors decreased by 10%, the number of researchers by 20%, and the number of support staff by 20%. The number of associate professors (15.6%), assistant professors (4.3%), and other researchers (5.5%) increased. The number of women in academic and researcher positions increased by 10 women (3%) in 2024 compared to 2020. The share of women in leadership and management positions changed from 1.5% in 2020 to 25.5% in December 2024. Thus, women form 23.73 % of employees at the TUL.

The average age of employees is 48 years (in 2024). The average age of assistant professors and researchers is now 47 and 41 years, respectively. The average age of professors, associate professors, assistant professors and lecturers is 64, 55, 36 and 49 years, respectively. There is a discrepancy in the text of the Evaluation Report (SER) in the case of assistant professors (section 4.5) – it is not clear if they are 47 or 36 years old.

TUL currently employs 62 foreign staff (58 FTE), which represents 4.8%. Their nationalities are Slovak, Ukrainian, Polish, Pakistani and Vietnamese.

TUL currently has 35.86 professors, of which 6.57% are women (2.35 in total). No foreign professors are involved. The number of associate professors has increased, there are 103.52 of them, women make up 30.52 %, which represents 31.6 people. There are 4 foreign associate professors. The number of assistant professors is 282.48, women make up 132.4 (46.87%). There are 11.6 foreign assistant professors. Other researchers together constitute (Table 4.5.1, rows 6 and 7) 252.17 persons, of whom 109.5 are women and 29 are foreign employees. Technical and economic staff constitute 299.37 persons, of whom 244.7 are women and 2.3 are foreigners. Early career researchers constitute 102.66 persons, of whom 42.6 are women and 8.6 are foreigners. Teaching

is provided by 526.69 employees, of whom 217.7 are women and 21.5 are foreigners. In total, there are 50.09 foreigners, of whom 21.6 are women.

In terms of age and category distribution, the most represented group in the age category 70 years and over is professors (28.57%), associate professors (21.43%) and technical and economic staff (21.43%). Women are also well represented in these categories. In the category 60–69 years, the most represented group is technical and economic staff (28.06%), associate professors (17.99%) and assistant professors (17.27%), followed by researchers (16.55%). In the age category 50-59 years, technical and economic staff (32.01%), assistant professors (27.70%), associate professors and researchers (both groups 13.31%) predominate. In the age category 40-49 years, the most represented are assistant professors (38.04%) and technical and economic staff (27.11%) and researchers (16.63%). In the age category 30-39 years, the most numerous are early career researchers, researchers, assistant professors and technical and economic staff (30.61%, 29.80%, below 29.39%, above 29.39%, respectively). 2 groups of researchers (33.33 and 31.67%), assistants (18.33%) are predominant in the category under 29 years.

Women generally form a minority in individual age and job categories. Their significant representation is particularly in technical and economic positions and, given their low numbers, they are also relatively well represented in education (from 15 to 56.92%). The age categories clearly show the majority of professors in the 60+ category. There is also a very low representation of women in these categories - only the Faculty of Mechanical Engineering has 3 women and 8 men in this category. In the younger categories, they have no female professors and only 3 male professors. The other faculties and CXI have no female professors, neither younger nor older.

Recommendations:

Regarding the structure of human resources, there are several key recommendations.

1) TUL generally has few professors and associate professors in all its departments, and the representation of women in these positions is minimal. Professorial positions are held mainly by experts in older age categories. Women hold mainly technical and administrative positions. Similar results were already found in 2020. Only minimal improvement can be observed in this regard. The question is to what extent this is influenced by technical fields, but in some departments the fields are very interesting for both men and women. Efforts need to be increased here. It is interesting that the initial SWOT analysis does not assess this at all in a single point (weaknesses, threats, opportunities).
2) It is possible that the number of professors is sufficient for accreditation, but for the dynamic development of the university it would be appropriate to give an opportunity to younger, promising professors, since the age structure shows, for example, a significant group of assistant professors in the category 40-49 years. At this age, they should already be thinking about the position of associate professor, etc.
3) The representation of foreign scientists is relatively low. Another point should be greater involvement of foreign workers of all ages and professional categories, as well as support for mutual exchanges of workers, etc. The results of the university show that it has great potential for this step, which will significantly advance it towards further development.

4.6 Academic and Research Careers	
Evaluate the described system for the recruitment and career development of academic and research staff. Evaluate the system in terms of its quality and effectiveness, as well as the potential absence of key elements.	
Rating [1–5]:	**5 - Excellent**

Qualitative assessment:

The Technical University of Liberec has developed processes in the area of career development and employee evaluation, recruitment or support for employee well-being, which have been incorporated into the internal legislation of TUL.

TUL's human resource management is addressed by several strategic documents, including the Resource Strategy of the Technical University of Liberec for the period 2022 to 2025 with a human resource outlook until 2030, the Work Regulations and the Career Regulations of the Technical University of Liberec. These are in accordance with the requirements of the National Research Council, the Ministry of Education, Youth and Sports, the strategic objectives of TUL, and the Gender Equality Plan (GEP). Another document is the "Selection Procedures for Academic and Other Employees" and the "Internal Wage Regulations of TUL".

The Career Regulations of the Technical University of Liberec, valid from 1 January 2023, apply to all employees and set out the rules for career management, define the profiles and expectations for academic and research positions. It supports various career paths - advancement, development, or internal job rotation - aimed at increasing motivation, retaining talent and utilizing institutional experience. It also deals with gender equality in evaluation and remuneration processes, which is regulated by the Employee Development and Evaluation Directive and the internal wage regulation. The document "Selection Procedures" describes updated procedures for hiring and attesting academic and other TUL staff.

Selection procedures, international selection procedures, rules for filling academic positions are filled on the basis of transparent selection procedures. Candidates are selected on the basis of fulfilled qualification requirements and achieved results and are evaluated by a professional selection committee. Researchers are selected on the basis of fulfilled qualifications and performance, either by the head of the department or on the basis of a selection procedure including an evaluation by a selection committee. Positions of managers in departments and research units are filled on the basis of selection procedures, where the decisive criterion is not only appropriate qualifications, but also managerial skills and personal prerequisites for performing such a function.

There are rules for appointing members of selection committees for the selection procedure processes. Selection procedures for positions of scientific or academic staff from abroad are advertised on the TUL career pages, as well as on the portals, job portals Jobs.cz, ResearchJobs, Euraxess and others as needed. Interviews with applicants from abroad are conducted online in English. Other necessary processes are handled with the successful applicant by the staff of the TUL Welcome Center.

Transparent distribution of institutional time, chaining of contracts and leading academic positions.

Until the end of 2023, TUL used fixed-term employment contracts for academic and scientific staff, and from 2024, permanent contracts are concluded. Only positions tied to specific projects or contractual research can continue to use renewable fixed-term contracts. Heads of academic and

scientific positions are usually appointed for a fixed term of four years. The job description of academic staff is based on the Higher Education Act, which defines their duties in the field of teaching and creative (research) activities. These duties are further specified in the above-mentioned internal regulations of TUL. The proportion of time spent on teaching, research and other duties is negotiated individually and monitored internally (in connection with the personal development goals of the staff member), especially in the case of project registration and contractual research, to avoid overlap or excessive time burden.

The rules and support systems for leave are based on the Act on Higher Education Institutions and are further regulated by the Internal Wage Regulations of TUL and are addressed in the Agreement on Creative Leave.

The process of adaptation of new employees, mentoring, will be fully implemented by 2025 as part of the human resources management strategy 2024-2025. Now employees have at their disposal the "Adaptation Guide for employee", which provides information on the organizational structure of TUL, internal systems, benefits, rights and obligations of employees, occupational health and safety, working hours and teaching duties. Employees who have interrupted their careers can continue to participate in training. Since 2022, monthly "Coffees" have been held for parents on parental leave, offering development meetings and updates on legislation and news at TUL. The sessions are held in a children's corner, where childcare is provided.

Measures for the return of employees after a stay at an external workplace, i.e. for employees who, after gaining experience, work in international project teams or establish long-term contacts within the framework of international mobility and who have not worked at the TUL workplace for at least one month, are as follows:

• If the employee's employment relationship has already been concluded and the subject of professional activity in another organization is relevant for the employee's continued employment at TUL, an agreement on paid study leave beyond the obligations arising from the Labor Code is concluded and the employee receives from TUL compensation of wages for the period of performance of the activity in another organization.

• If the stay is indirectly or not at all related to the employment relationship, unpaid leave or a combination of unpaid leave and vacation is agreed with the employee for the period of the stay.

• Another option is to agree on a part-time job for the period of the stay and use remote work or use the so-called compressed week, when the employee, for example, works half a month at TUL and half a month in another organization.

Measures for the return of workers after maternity/parental leave or other career breaks (e.g. care for family members). The method of solution is consulted with the workers at personnel department and with the payroll office. Employees who wished to work part-time during their leave were generally allowed to do so and managers generally supported this measure.

TUL offers options for a gradual return, such as part-time work or short-term contracts. Flexible working hours and teleworking are available, in particular for academic and research staff. A handbook for parents and carers has been created, which addresses the most common questions regarding motherhood, fatherhood, childcare and care responsibilities.

Employees on leave have unlimited access to training, benefits and university events. Childcare support includes the TUL Children’s Corner and the ŠkaTULka Kindergarten. Scientific staff are

entitled to 6 weeks of leave and administrative staff to 5 weeks - in both cases 2 weeks more than the legal minimum. Documents for the above rules and measures are processed on the TUL website.
Recommendations: The Technical University of Liberec has detailed processes in TUL documents. It is recommended to follow them. Individual situations should be resolved in connection with a specific case.

4.7 Gender equality measures	
Evaluate the gender equality measures described in self-evaluation. Evaluate the measures in terms of their quality and effectiveness, as well as the potential absence of key measures.	
Rating [1–5]:	**3 - Average**

Qualitative assessment:

University-level regulations establish a robust framework for gender equality at TUL. The Gender Equality Plan (GEP) and the rector's directive titled "Code for Gender-Sensitive Communication at the Technical University of Liberec" encompass all aspects of the university's operations, including education, research, and student services. The basic principle of the GEP is to increase awareness of gender equality issues, align with European and national legal frameworks, enhance employee welfare, and eliminate barriers to equal opportunities for all parties involved, including applicants, students, researchers, and other staff. The plan provides for continuous evaluation and updating as necessary. The GEP defines measures in five priority areas, all structured based on the following rubrics: measures, activity, objectives (including target groups), expected impact, stakeholders, and deadlines. The priority areas are: (1) work-life balance and organisational culture; (2) gender balance in management and decision-making; (3) equal opportunities in recruitment and career development; (4) integrating the gender dimension into research and educational content; and (5) preventing gender-based violence and sexual harassment. Those responsible for implementation are identified in each chapter (university management, faculties, HR and Payroll Department, Legal Department, and Media and Communications Unit, among others), with deadlines partly fixed and partly ongoing. Overall, GEP represents an institutionalised, process- and data-driven approach that aims to achieve lasting organisational change through cultural change (training and communication), regulatory compliance (internal standards), monitoring, and feedback (regular reporting and surveys).

The self-assessment report presents a number of forward-looking actions, such as actions aimed at reconciling the family and working lives of researchers (flexible working hours, flexible working arrangements, maternity/parental leave, and facilitating childcare/care for individuals). However, it does not provide gender-disaggregated evidence to verify implementation. The self-evaluation and the site visit indicate a primary emphasis on “gender-neutral” framing within institutional culture and practice, with limited gender-disaggregated evidence to verify equality outcomes. The principles existing at the regulatory level (GEP, Code) are strong, but various parts of the self-assessment, such as the less detailed section on wages, recruitment and selection, or the integration of the gender dimension into research and education, do not make it possible to verify whether the gender dimension is implemented in practice. For example, the GEP stipulates the need for training in this area and the self-evaluation reports on an e-learning course that has been launched, but it does not provide data on its effectiveness. From 2023, there will be uniform performance evaluations and individual development plans, but the gender impact of the evaluation outcomes is not presented, and based on Table 4.7.1, no progress can be reported in this area. The presentation of the results of the "university-wide satisfaction survey" also excludes this dimension.

Recommendations:

The regulatory basis is strong, but evidence of implementation remains at an early stage. Substantive progress must be a priority in the near future. We recommend a shift to outcome-based management and undertaking a more proactive stance. This proactive, data-driven approach can lead to progress without resorting to preferential treatment.

4.8 Mobility of academic and research staff (including sectoral and inter-sectoral mobility)

Evaluate the described mobility of academic and researcher staff. Pay attention to whether the evaluated HEI achieves the set objectives, whether the mobility objectives are appropriately set for the HEI and whether the strategies in place lead to their achievement or help remove existing barriers to mobility.

Rating [1–5]:	**3 - Average**

Qualitative assessment:

TUL backs travel for teachers, researchers, and PhD candidates through projects funded by the EU and by national bodies, Erasmus+, CEEPUS, the Visegrad Fund, bilateral deals, Indicator D, required PhD placements, and targeted unit budgets; this movement clearly raises the quality of research work.

Trips are coordinated both centrally, by the International and Erasmus offices, and locally, by faculty mobility officers; all procedures follow European norms and are woven into key strategic texts such as the Strategic Plan, Career Regulations and the International Cooperation Strategy.

Mobility is tracked in the Publikace TUL and Mobility TUL databases.

- Strategy priorities: Foreign project participation, sharing of infrastructure, joint publications, priority countries/disciplines targeting, interdisciplinary/intersectoral teaming, financing, modifying working conditions for long-term mobility, administrative support, global promotion of TUL.
- Mobility aims: Target researchers/postdocs, establish shared labs, increase long-term mobilities, improve research excellence, support career establishment, reduce inbreeding, improve usage of infrastructure, and improve international standing. These are appropriate goals for an internationalizing university.
- Barriers to mobility: Barriers are numerous and range from workload, language, not wishing to travel, family obligations, financial/logistical barriers. Notably also recognized are gender-specific barriers (women's increased family care responsibilities).

Five examples of long-term stays are provided:

- PhD student mobility to Uni Milan (Erasmus+) focusing on knowledge management.
- Guest studio leader from San Francisco at FAA (urban design).
- Postdoc at FM (MSCA project).
- Researcher at CXI (MSCA4Ukraine project).
- PhD student mobility to Brooklyn Grange, USA (sustainable development, rooftop agriculture).

These examples showcase different types of mobility (student, incoming expert, postdoc) and funding sources, demonstrating activity.

However, the SER lacks overall statistics on mobility (e.g., number of outgoing/incoming staff/PhD students per year, average duration, popular destinations/origins, sectoral mobility instances). This makes it hard to assess if objectives like "increase long-term mobilities" are being met.

The acknowledgement of gender-specific barriers is good, but the SER does not detail specific measures being taken to address these particular barriers to female mobility beyond general work-life balance provisions.
Recommendations: ● Provide summary statistics on staff and PhD student mobility (incoming/outgoing, short-term/long-term, geographical and sectors covered) from 2020-2024. This usually is important to show scale and trends of mobility activities and evaluate progress against targets. The "Mobility TUL" system can maybe used for this purpose. ● Explain specific actions that may be taken to address the identified gender specific barriers to mobility. This may include things like targeted grants for researchers with family responsibilities, childcare support during mobility, or providing different flexible forms of mobility. ● For any barrier (and it should not be restricted to only gender-based ones), describe specific actions TUL is currently taking, and/or will take in future, to mitigate barriers to mobility and change. ● While this is already acknowledged as a priority, consider giving it more emphasis and specific examples of sectoral mobility targets (e.g., public sector, private sector) since this is important in a technical university applying research. ● Beyond individual works, describe how TUL measures aggregate impacts on research quality, educational career advancement, and internationalization goals.

RESEARCH INFRASTRUCTURE

4.9 Research infrastructure	
Evaluate the system described for the acquisition/optimisation of core facilities and other equipment and their renewal. Evaluate the system in terms of its effectiveness and suitability for the HEI. Also consider the system for sharing instruments and equipment, including core facilities and equipment of evaluated units. Use the data in Annex Table 4.9.1 to support your evaluation.	
Rating [1–5]:	**5 - Excellent**
Qualitative assessment: The university uses broad set of different founds: structural funds, European projects, research projects, or by pooling the resources of departments and units from the Fixed Asset Development Fund (FRIM) for acquisition or renewal od equipment and investments. The infrastructure is centrally owned by the university and has good established sharing system for both staff and students or other organisations. As examples are shown Flow cytometer (FS) and electron microscope (CXI). Additionally, TUL is involved in large research infrastructure projcts as a partner, for instance with CERN (CERN_CZ) and NanoEnviCZ in the area of nanomaterials and nanotechnologies. The “maker space” is common for the students, well organized and very well equipped, the Faculty of architecture has very good working space, as well. The equipment is shared without problem between the faculties, the faculty member have quick way to their colleagues and collaborate effectively in projects and publications.	
Recommendations: Keep all good practices until now and try to support initiatives for large equipment centrally.	

FINANCES

4.10 Budget and structure of financial resources	
Evaluate the budget and financial resource structure of the evaluated HEI in terms of its suitability for the HEI, i.e. whether the financial resource structure is appropriate for the size and type of the evaluated HEI. You should also pay attention to the ability of the evaluated HEI to attract prestigious research projects. Use the data in the annexed tables 4.10.1 to 4.10.5 to support your evaluation.	
Rating [1–5]:	**4 - very good**

Qualitative assessment:

Total budget structure (Table 4.10.1). The estimated total budget for TUL is 6.95 billion CZK over the period. The structure of the funding is approximately 65 percent from public sources from CZ, 5 percent from public sources foreign, and 30 percent from other sources. There is a significant public investment from the national government, as is the norm for public universities in the Czech Republic; however, TUL also gets a surprising amount of "other" money (likely from contractual research etc.).

CXI has the highest percentage with public from abroad (total of 8.92) while units like FME, FT, FM, CXI have a much larger portion from "other sources" (32.58%, 13.09%, 28.69%, 42.22%, respectively) which is indicative of their links to industry partners. Other units (FE, FSHE, FAA, FHS), appear much more dependent on national public funding. The Rectorate (REK) also has a high percentage in "other sources" (53.76%) which likely includes central services or overhead.

Type share of R&D&I (Table 4.10.2). Expenditure structure for 2020-2024 (Total) Basic research 34.65%, Applied research 48.22%, Experimental development/innovation 17.13%. This is consistent with TUL's traditional strength in applied research and partnerships in industry. TUL appears to consistently refer to their numerous patent and number of citations as being evidence of their impact in applied research.Prestigious Research Projects (Tables 4.10.3, 4.10.4, 4.10.5):

- International Projects (Table 4.10.3): TUL dealt with ~30 international projects, mostly Horizon programme; TUL was beneficiary in >40%. Budget of international projects was ~25% of all projects. TUL submitted >100 international proposals. Examples from European Commission (LIFE, Horizon 2020, Horizon Europe, MSCA, Interreg), Office of Naval Research Global, Visegrad Fund, Norwegian Funds are listed. Funding amounts are provided. This demonstrates activity in securing international funding. The five detailed examples of important international projects are good illustrations of significant collaborations (LIFE4ZOO, EURAD, NetZeroCities, R2P2, Skills2Scale).
- National Projects (Table 4.10.4): Significant representation from TACR (applied research) and large multidisciplinary grants from MEYS OPs. GACR supports basic research. Details on providers (CESNET, GACR, Regional Authority, MEYS, Ministry of Environment, TACR, Ministry of Interior, Ministry of Health, Ministry of Agriculture, Ministry of Industry and Trade) and project types are given, with funding amounts. This shows a diversified national funding portfolio.
- Non-Public Sources (Table 4.10.5): Significant income from contractual research and complementary activities, reflecting strong industry links. Donations and licensing agreements also contribute. Key industrial partners are listed (Skoda Auto, etc.).

The financial model appears appropriate for a technical university - with TUL's support for applied research and the size of the university. It is clear that TUL has had success in attracting a number of national grants and has an active international project acquisition, it would be helpful to see a

further breakdown of how many of TUL's >100 international submissions were successful. The reliance on "other sources" for some faculties is strong, as it indicates some diversification.
Recommendations: ● TUL has a lot of activity going on, but it would be helpful to have a more explicit strategy for increasing share and impact for prestigious international projects (particularly ERC, MSCA individual fellowships beyond cofunds/networks) to think through. What supports are there for applying for the more highly competitive individual grants? ● For the faculties that rely on "other sources" for funding, it would be helpful to be able to look at the sustainability and diversification of this income. Is it concentrated in only a few partners, or is it more broadly based? ● There are aggregate figures provided here, but it would be helpful to briefly outline how the overall central R&D&I budget (besides DKRVO, see 4.11) is allocated to faculties/institutes and how it supports their strategic R&D&I goals. ● It may be worth considering how to benchmark R&D expenditures per FTE researcher, or, success rates in receiving competitive funding, against national peers and relevant international peers.

4.11 Rules for the use of institutional support for the LCDRO	
Evaluate the strategy described and the rules for the use of institutional support for the LCDRO. In your evaluation, consider the effectiveness of the implemented strategy and policies and whether they contribute to the mission and vision of the HEI.	
Rating [1–5]:	**4 - Very good**
Qualitative assessment: The university uses a transparent, performance and incentive-based methodology for allocating institutional support (DKRVO), combining bibliometric, applied, and internationally relevant research outcomes. Funding decisions are closely tied to internal grant schemes (PURE, RISING-STARS, ENAGO, SGS), reinforcing both high-quality outputs and career development for researchers at different stages. The system can quickly respond to emerging research priorities, support stable teams during funding gaps, and enable projects that might otherwise lack external funding to progress. Faculties and departments manage funds according to local priorities while maintaining alignment with the overall university strategy, supporting effective research management. Examples demonstrate that institutional support facilitates publication outputs, development of new research teams, and infrastructure enhancement, contributing to the competitiveness of TUL and its units. Distribution reflects research productivity and team size, rewarding faculties with strong R&D outputs and promoting high-impact research. Potential improvements: Smaller faculties and those in arts, humanities, and social sciences receive a lower share of funding; targeted incentives could encourage high-quality outputs in these areas. While financial allocation and number of projects are documented, more detailed reporting on	

scientific impact, commercialization, or societal contributions would strengthen the assessment of effectiveness.

Recommendations:

Support smaller or humanities-focused units: The university should consider introducing targeted incentives or cross-disciplinary funding mechanisms to ensure that smaller faculties and socially oriented research areas are also encouraged to pursue high-quality outputs.

Track and report outcomes: It would be useful to complement numerical funding data with impact metrics such as publications in top journals, patents, commercialization, or societal contributions to demonstrate the effectiveness of institutional support.

Strengthen integration with external funding: The university should develop/expand mechanisms to help internal projects transition into externally funded research, further enhancing the leverage and strategic value of DKRVO support.

NATIONAL AND INTERNATIONAL COOPERATION

4.12 Significant collaborations in R&D

Evaluate listed examples of significant R&D&I collaborations with respect to the effectiveness of the collaborations established, their proportionality and appropriateness to the type of HEI and its mission and vision.

Rating [1–5]:	**5 - Excellent**

Qualitative assessment:

The Technical University of Liberec represents a renowned tertiary education institution that is also focused on performing research and development activities both at a national as well as an international level. There is a high number of research partnerships and projects that this university has joint or participated in within the observed period of the years 2019 to 2023. There are the six research sectors with the 36 subsections distinguished within the university, while each one is assigned to the particular faculties.

The first section is represented by natural sciences. Mathematics is assigned to the three faculties, com, computer and information sciences to the four faculties and the institute, physical sciences to the five faculties and the institute, chemical sciences to the five faculties and the institute, earth and related environmental sciences to the four faculties and the institute, biological sciences to the four faculties and the institute, and other natural sciences to the two faculties and the institute. Engineering and technology is the second section. Its division is as follows – civil engineering is assigned to the two faculties and the institute, electrical engineering, electronic engineering, information engineering to the four faculties and the institute, mechanical engineering to the two faculties and the institute, chemical engineering to the two faculties and the institute, materials engineering to the three faculties and the institute, medical engineering to the three faculties, environmental engineering to the three faculties and the institute, environmental biotechnology to the three faculties and the institute, industrial biotechnology to the sole faculty and the institute, nano-technology to the five faculties and the institute, other engineering and technologies to the two faculties and the institute. The third section is represented by medical and health sciences, where the following fields belong. Basic medicine is assigned to the three faculties, clinical medicine to the two faculties, health sciences to the four faculties, medical biotechnology to the sole faculties and the institute. The fourth section is demonstrated by social sciences. Psychology and cognitive

sciences are assigned to the sole faculty, economics and business to the two faculties, education to the two faculties, sociology to the two faculties, political science to the sole faculty, social and economic geography to the two faculties, other social sciences to the sole faculty. The fifth section is represented by humanities and the arts. The first four subsections history and archaeology, languages and literature, philosophy, ethics and religion, other humanities and the arts are assigned to the sole faculty, while arts (arts, history of arts, performing arts, music) to the two faculties.

It is actively engaged in both basic and applied research types and works very closely with key partners in the Czech Republic and from abroad.

Collaboration within basic research has the following features:

- extensive mutual activities with numerous universities and institutes of the Czech Academy of Sciences;
- mutual work with the 12 institutes of the Czech Academy of Sciences on the 14 basic research projects and 7 applied research projects;
- four research infrastructure projects have been completed successfully within these activities;
- the total joint funding for these activities reached several million euro during the observed period.

Regarding applied research and industry engagement, many research activities are declared. Applied research and experimental development represents from the Technical University of Liberec an important part of mutual activities with its partners within several important clusters and governmental authorities.

Through its Centre for Nanomaterials, Advanced Technologies and Innovation, the Technical University of Liberec research contracts with the Nanoprogress cluster, which was recognised as one of the best clusters. The university is highly involved in applied research and experimental development projects focused on the automotive industry.

Governmental collaboration: Technical University of Liberec has participated in the Ministry of Regional Development of the Czech Republic and the Czech Statistical Office on a Technology Agency of the Czech Republic project. This collaboration resulted in the methodology for estimating regional price levels, which was then applied in preparing the Regional Development Strategy 2021+.

Textile and industry clusters: Technical University of Liberec maintains fruitful collaboration with industrial partners through organisations like the Association of Textile-Clothing-Leather Industry Czech Technology Platform and the Cluster of Technical Textiles.

These diverse collaborations with various scientific and research, development, and innovation institutions and industry not only provide strong evidence of its engagement, but also stimulate creativity and motivation, opening up new themes and topics for future research.

The Technical University of Liberec international collaborations represent a significant accomplishment for its scientific and research efforts. The university has achieved success across a range of high-tech fields, including nanomaterials, nuclear industry, geology, and meteorology. While some faculties at have a long-standing tradition of international collaboration, newer faculties are also encouraged to increase their participation in these projects and thus, to further expand the university's global reach.

There are several key pillars of the international research collaboration of the Technical University of Liberec:

- aiming its international engagement in science and research through a focused set of activities designed to deepen global partnerships;
- joint project implementation: preparing and executing international research projects;

- knowledge exchange: organising international conferences and supporting the exchange of both academic and scientific staff;
- collaborative workshops: conducting joint workshops with partner institutions abroad;
- student mobility and training: arranging internships for doctoral students at foreign research centres;
- dissemination of research outcomes: creating and publishing joint scientific publications.

The most powerful research section is represented by the Institute for Nanomaterials, Advanced Technologies and Innovation that has gained a significant position in the Czech Republic and partly in the European Union research community:

- high scientific contribution: 932 RIV results (471 Jimp, 151 in D1 decile);
- intensive collaboration: in total, 654 partners in the private sector, which 16 % come from foreign countries and 75 % from the public sector of;
- high ethical standard and gender issues: HR Award Excellence obtained in the year 2020;
- employees S. Waclawek, V. Padil, and F. Yalcinkaya were featured in 2 % of the world´s most cited scientists in the period of the years 2021 to 2023.

Recommendations:

According to the above-listed points, the following facts are followed: Technical University of Liberec is well renowned institution, which significant research, development, and innovation activities are performed within both at the national and international levels. The diversity of the research sectors is interesting along with its multiple subsections that browse through the individual faculties. It represents a strong research potential for intradepartmental collaboration and its foreign collaborative ties. I evaluate at a very high positive level the collaboration within basic as well as applied research and intensive engagement of the industries too. The governmental collaborations are specifically attractive as well as collaboration in the industrial clusters. The Technical University of Liberec is strongly internationally engaged, whose evidence is represented by the global partnerships. A number of partners, which the university collaborates with, in the private sphere is highly positive quantitative parameter. The Technical University of Liberec keeps the high ethical standard of the gender issue and at the same time, it gained the HR award. Also, some of the employees belong to the most highly cited researchers.

STUDIES

4.13 Doctoral studies	
Evaluate the described organisation of doctoral studies. Pay attention to the setup and quality of the processes, as well as their effectiveness through basic statistics, such as drop-out rate or data on the future career of graduates.	
Rating [1–5]:	**4 – very good**

Qualitative assessment:

In the TUL's self-evaluation report, the organisation and management of doctoral studies is reviewed in detail. As doctoral studies are an important part and path to R&D&I, having a Vice-Dean specifically with a focus on Doctoral Studies and Development shows an important investment from the institutions' side. As many of the research teams are interdisciplinary, help in crossing departmental and faculty boundaries is provided from early on to early-career researchers. Support for doctoral students is well covered, e.g. in mobility, integration to the academic community through national and international networks, and enabling cooperation.

The accredited doctoral study programs (DSP) of TUL provide a supportive framework for the doctoral study phase. The standard 4 year length of the doctoral study phase is monitored and includes pedagogical duties, engagement in research projects, as well as a 3 month study internship abroad (with some exceptions). TUL's Doctoral Board (DB) oversees the functioning of DSP, paying attention to both individual (ISP) as well as annual study plans (ASP). The goal of the doctoral study phase is well-articulated in the self-evaluation report with all steps in place to guarantee producing original research and growing towards scientific independence.

The cooperation between doctoral students and supervisors is well thought through and documented. The "Supervisor Metric" introduced in 2024 is a sign of long-term investment in the quality of doctoral supervision. The provided examples of successful student–supervisor collaboration are impressive. The provided statistics charting success rate provide an image of a relatively healthy environment for advanced academic studies. Possible risk factors for the completion of doctoral studies are recognized broadly and student care mechanisms are in place. One cause for dropping out at the doctoral study stage is recruitment to the industry, which follows naturally from the close ties with the industry that many of the TUL's faculties have. In these cases dropping-out is not necessarily a problem, although it has to be seen also from the HEI's side as an investment.

Future careers and wellbeing of the TUL's doctoral students are among the main concerns of the comprehensive support system in place. The students can turn to the Academic Counselling Centre for support in various matters and there is a named Ombudsman to cover for difficult situations of conflict or wrongful treatment. A more systematic graduate career tracking system is being discussed, now the progression after the completion of studies is not systematically monitored. It is noteworthy that c. 30% of the doctoral graduates continue their careers at TUL.

Recommendations:

- Recommendable efforts to increase the competitiveness of doctoral positions at TUL would require focus and investment in English language in the DSPs. There are differences between the faculties due to various reasons: learning from the best practices of other DSPs would be helpful in aligning the practices, still respecting the differences between disciplinary traditions.
- It is advisable to ensure that informing doctoral students of their rights, e.g. about the TUL Ombudsman is a solid part of the launch of their doctoral study path.

IMPLEMENTATION OF RECOMMENDATIONS

4.14 Implementation of recommendations in Module 4	
Evaluate how the HEI has reflected the recommendations from the previous evaluation of the IEP, if applicable. If the HEI has not been evaluated before, the indicator will be marked as N/A – Not Applicable.	
Rating [1–5]:	**3-4**

Qualitative assessment:

In the evaluation report, TUL reviewed 6 recommendations that resulted from the previous evaluation.

- The recommendation **"Different standards for publishing results"** was resolved by creating the output recording system "publikace.tul.cz" according to the rules of M2017+ (Methodology for evaluating research institutions).The recommendation "Different standards for publishing results", was solved by creating the system of output evidence "publikace.tul.cz", according to the rules M2017+ (The methodology of evaluation of research institutions). The system stores results that can be searched by author, faculty or institute or department. It includes statistics for the TUL as a whole and for individual faculties or institutes and by fields according to the Frascati Manual since 2017, for all types of results defined by RIV. The database evaluates results according to M1 and M2 since 2017.

  The output report allows you to find the outputs of each author, including the required attributes (funding source, quartile, WoS, specialization according to the Frascati Manual, etc.). The database is an effective tool for evaluating the performance of the university, individual departments and employees. https://publikace.tul.cz/?lang=en

- The recommendation **"Gender imbalanced composition of professors"** was not met. Changes in gender balance were not fully implemented. However, efforts to improve were made. The numbers and percentages of women did not differ much when comparing 2020 and 2024. The personnel structure shows that women make up part of the administration and part of the technical staff. The TUL management is aware of this situation and has prepared documents on how to support women in their development. One of the reasons is undoubtedly technical fields, where women are generally less common. The position of a professor is still unbalanced. It is necessary to find appropriate motivational means that would encourage women to achieve higher professional advancement.

  They prepared some documents to solve this problem:

  https://doc.tul.cz/14427, The Human Resources Strategy of the Technical University of Liberec for the period 2022 to 2025, with a view to 2030

  https://doc.tul.cz/14414 Career Development Regulations of the Technical University of Liberec

  https://doc.tul.cz/10596 Gender Equality Plan (GEP) for the period 1. 1. 2022 – 31. 12. 2025

https://doc.tul.cz/14415 Code for Gender-Sensitive communication at the Technical University of Liberec

https://doc.tul.cz/en/10746 CXI Human Resource Development Strategy

https://www.tul.cz/en/university/equal-opportunities-and-diversity/ Equal opportunities and diversity Etc.

- The recommendation **„Implementation of applied research projects with low research value“** was probably fulfilled. The TUL units focused on the projects with companies where company is the main solver. The problem of the partners are solved in this projects. The applied projects form a majority of the projects, even if it is 48.22 % in total in period of 2020 -2024.
- The recommendation **“More funding for basic research“**has been monitored and improved. Both project funds and internal funds from grant agencies are used for basic research.
- The recommendation **“Unclear web pages”** was evidently taken into account and changes were made. https://www.tul.cz/
- The recommendation “**Each part of TUL should define its main research directions”** – it was clearly performed.

Recommendations from the last evaluation also concerned doctoral studies, the use of university funds and equipment, ethical rules for experimental work and research, publish more in open access journals, implementation a data management strategy. All of these areas have been addressed at TUL and are sufficiently described in the corresponding sections.

Recommendations:

The recommendation that TUL received in the previous evaluation within Module 4 was given due attention. In the given model of all processes, it is necessary to continue and achieve them as needed. The greatest attention in this part clearly needs to be paid to the gender issue and the education of new professors and professors.

MODULE 4 RATING

MODULE 4 – SUMMARY EVALUATION	
After evaluating each indicator, please provide an overall evaluation of Module 4. Assess the overall state of the research and institutional environment and the quality of the internal processes of the HEI. Consider whether and how the set processes contribute to the fulfilment of the HEI's mission and vision. The aggregate grade is determined in accordance with the rules of the Methodology HEI2025+ as a simple average of the scores for each indicator.	
INDICATOR	**RATING [1–5]**
4.1 Organisation and management of R&D&I	**4 - Very good**
4.2 System of support for a quality R&D&I environment and incentive measures for quality science	**4 - Very good**
4.3 Quality control system for R&D&I environment	**5- Excellent**
4.4 Sustainability and resilience of R&D&I	**4 - Very good**
4.5 Structure of human resources	**3 - good**
4.6 Academic and Research Careers	**5 - Excellent**
4.7 Gender equality measures	**3 - Average**
4.8 Mobility of academic and research staff (including sectoral and inter-sectoral mobility)	**3 - Average**
4.9 Research infrastructure	**5 - Excellent**
4.10 Budget and structure of financial resources	**4 - very good**
4.11 Rules for the use of institutional support for the LCDRO	**4 - Very good**
4.12 Important collaborations in R&D&I	**5 - Excellent**
4.13 Doctoral studies	**4- Very good**
4.14 Implementation of recommendations in Module 4	**3-4 good- very good**
AVERAGE RATING	**4 - Very good**
GRADE [A–D]	**B**
Summary assessment: TUL has average results in the area of the structure of the human resources, gender equility meaures and mobility of the academic staff, but it provides excellent environment and infrastructure for academic research . At all the university's financial and academic viability ensures it can maintain quality teaching and research in the future.	
Summary recommendations: Active steps has to be done urgently in the human resources area. Professorial positions are held mainly by experts in older age categories. Women hold mainly technical and administrative positions. Similar results were already found in 2020. Efforts need to be increased here. It is possible that the number of professors is sufficient for accreditation, but for the dynamic development of the university it would be appropriate to give an opportunity to younger,	

promising professors, since the age structure shows, for example, a significant group of assistant professors in the category 40-49 years. At this age, they should already be thinking about the position of associate professor, etc.

The representation of foreign scientists is relatively low.

MODULE 5 – STRATEGY AND POLICIES

5.1 Mission and vision of the evaluated institution in R&D&I

Evaluate the described vision and general mission of the university emphasizing R&D&I (in context of its educational function and the educational policy strategy of the state or the relevant ministry for higher education. Compare the defined mission with reality. The evaluation should consider how the mission and vision of the HEI has been fulfilled in the past five-year period and whether the vision for the next five-year period is adequately set and realistically achievable.

Rating [1–5]:	**5 - Excellent**

Qualitative assessment:

The mission and vision of the Technical University of Liberec (TUL) in the field of R&D are elaborated in the strategic document Mission | Vision | Strategy in the field of science and research of TUL in the years 2020 to 2030. TUL has set itself the goal of being an independent, internationally anchored educational and research center of European importance and a partner in finding and solving social challenges.

The mission and vision of TUL in the field of R&D are further connected with the documents Strategic Plan for Educational and Creative Activities and Internationalization Strategy of the Technical University of Liberec for the period 2021-2025 with a view to 2030, Strategic TUL Development Plan for 2020 with a view to 2030; Human Resources Development Strategy of the Technical University of Liberec for the period 2022 to 2025 with a view to 2030; TUL Development Strategy until 2030 Sustainable) and other documents National Research, Development and Innovation Policy of the Czech Republic 2021+, Gender Equality Strategy for the period 2021-2030, National RIS3 Strategy 2021+, RIS3 Strategy for the Liberec Region for the period 2023-2027; etc.

The TUL science and research strategy for the years 2020 to 2030 is based on the research tradition of European universities, i.e. it systematically connects the mission of the educational institution with scientific, research, development, innovation and artistic activities, cooperates with renowned foreign partners and strives for a strong international dimension of its activities. In the field of science, research and innovation, TUL has a strong tradition in materials, mechanical, textile, electrical, information and environmental engineering and nanotechnologies. It also focuses on research in the fields of natural, social, humanities, economics and health sciences with its interdisciplinarity and ability to create research teams across disciplines.

The mission of TUL in scientific, research, development and innovation, artistic and other creative activities for the period 2020-2030 is to contribute to the expansion of knowledge through creative activities and to strive for the practical use of new knowledge and its use for the development of society.

TUL's vision in the field of science, R&D, art and other creative activities for the period 2020-2030 defines the goals of being an independent, internationally anchored research, development and innovation institution of European importance, which actively seeks key societal challenges and research tasks and brings their comprehensive solutions.

Comparison in individual R&D areas in the past period. TUL covers 5 of the 6 FORDs: Natural sciences, engineering and technology, medical and health sciences, social sciences, humanities and arts. According to FORD groups, in 2024, TUL had the highest representation in FORD 2 Engineering and technology (almost 50%), followed by FORD 1 Natural sciences with 25%, then FORD 5 Social sciences with 14% and FORD 3 Medical and health sciences and FORD 6 Humanities and arts with 6%. FORD 4 Agricultural and veterinary sciences is not represented at TUL. The highest share in

terms of the volume of creative activity within dFORD at TUL is dFORD 2.5 Materials Engineering (20%), followed by dFORD 2.3 Mechanical Engineering (11%), and then three dFORDs with approximately 7% (2.10 Nanotechnology, 1.4 Chemical Sciences, 5.2 Economics and Business). Another significant share in dFORD is, according to the specific focus, in TUL's components: Faculty of Mechatronics, Informatics and Interdisciplinary Studies in dFORD 1.2 Computer and Information Sciences and 2.2 Electrical Engineering, Electronics, Information Engineering; Faculty of Health Studies in dFORD 3.3 Health Sciences; Faculty of Natural Sciences, Humanities and Education in dFORD 1.1 Mathematics and 5.3 Pedagogy; Faculty of Arts and Architecture in dFORD 6.4 Arts; and Institute for Nanomaterials, Advanced Technologies and Innovation in dFORD 1.5 Earth Sciences and Related Environmental Sciences. TUL expects that in the next five years it will have a reduced representation in FORD 2 Engineering and Technology and, conversely, an increase in FORD 1 Natural Sciences. Other FORDs should remain approximately the same. FORD 4 Agricultural and Veterinary Sciences will not be covered as in this period. In the next five years, TUL expects an increase in the subject focus in dFORD 1.1 Mathematics, 1.3 Physical Sciences, 1.4 Chemical Sciences, 2.10 Nanotechnology and 3.3 Health Sciences. Conversely, a decrease is expected in dFORD 2.5 Materials Engineering.

Strategic plan for educational and creative activities, its goals and their implementation (especially with regard to the results and recommendations from the previous evaluation period). The priority goal is to connect educational and creative activities and ensure the stability of research teams at TUL. Implementation of the measures of the TUL strategic plan for creative activities by sub-areas TUL implemented the recommendations resulting from the work of the international evaluation committee and subsequently revised internal processes and guidelines at the institutional level and at the level of individual units. An appropriate distribution of scientific activities, human resources and financial resources led to prioritizing research topics with the greatest international impact and topics that will be reviewed at regular one- to two-year intervals with the aim of capturing new research and development topics. In the interest of supporting excellence and social relevance of research, TUL introduced an internal university-wide system for evaluating the quality of scientific and creative work results, which is based on internationally recognized indicators and takes into account the specifics of individual scientific fields. TUL grant programs were created with the aim of maximizing the potential for achieving excellent results and increasing the success of research teams in obtaining grant support for basic research from national (GAČR) and international (ERC) providers. In the area of interdisciplinary cooperation support, TUL creates conditions for interfaculty research teams to enter large-scale international cooperation projects (administrative support for the preparation of these projects is provided by the Rectorate in cooperation with the faculty project departments). An important aspect is the developed strategy for the protection of industrial and intellectual property, the transfer of knowledge, experience, technology and know-how. Furthermore, a methodology for establishing spin-off companies has been established with the aim of streamlining the technology transfer process. TUL also supports university-wide grant competitions for young talented academics and scientists, and uses international mobility to support international cooperation in science and research. Another goal is to expand international cooperation in organizing conferences at TUL and journals published by TUL in the internationally recognized Web of Science and Scopus databases; increase Fulfillment of the vision and mission in the evaluated period can be classified as TUL defined priority directions and areas of R&D&I, including their sustainability and retrospective evaluation. The vision and mission were fulfilled by implementing research projects in accordance with the National Research, Development and Innovation Policy of the Czech Republic 2021+, the European Green Deal, profiling research topics and searching for new research directions.

TUL guarantees and ensures high-quality educational activities at all levels of study. The vision and mission were fulfilled by integrating scientific and research knowledge into educational activities,

using modern research infrastructure during studies, disseminating knowledge for the socio-economic development of society and implementing doctoral study programs.
Recommendations: The mission and vision of the evaluated institution in R&D&I are clearly developed. In the next period, it is recommended to gradually evaluate their fulfillment according to individual areas. Based on this evaluation, processes can then be continuously optimized.

5.2 Research and development objectives	
Evaluate the set goals of the HEI in both the area of R&D&I and the development of the HEI as an institution. Consider whether the goals are adequately established in relation to the size and type of the HEI, as well as its mission and vision, and whether they are achievable within the proposed timeframe.	
Rating [1–5]:	**5 - Outstanding**

Qualitative assessment:

The research and development goals for 2026–2030 are based on several strategic documents of TUL that are in line with each other (e.g., the institutional development plan looking ahead to 2030, the internationalisation strategy, the HR strategy, and the sustainability strategy), which are well aligned with Czech innovation strategies and the Horizon Europe missions.

Priority is given to "smart" interdisciplinary solutions to societal challenges, the application of advanced technologies, the strengthening of entrepreneurial attitudes, the management of socio-economic challenges, and the support of quality education. Expanding international integration and recognition is identified as a key objective.

In research and innovation, the goals for the next five years include strengthening basic, interdisciplinary, and intersectoral research and development based on cooperation and contractual relationships and seeking new directions (energy sectors, hydrogen technologies, nanotechnologies, semiconductors, and smart materials).

Increasing the proportion of internationally comparable results, supporting postdoctoral researchers, joining international networks, and increasing the volume of technology transfer with the help of spin-offs and start-ups are realistic objectives based on the current situation and results.

The objectives of the "third mission" are based on daily cooperation with industrial, administrative, educational and cultural partners; programmes for the general public; strengthening the alumni system; and active participation in the regional innovation ecosystem.

In the area of human resources, the goals based on the principles of the European Charter for Researchers and the Code of Conduct aim for regular performance evaluation, succession and career development, reduction of administrative burdens, building

interdisciplinary teams, strengthening international recruitment, and improving the leadership pipeline.

TUL is an institution with strong regional embeddedness and excellent connections with local industry, public administration, and educational infrastructure. The objectives reflect this, presenting realistic local roles and application-orientated research and development activities. TUL has fundamentally established an organisational framework for interdisciplinarity, and the on-site visit further demonstrated smooth cooperation between the research units.

TUL's R&D&I and institutional development objectives for the next five years are coherent, consistent with its mission and profile, and appear realistic within the timeframe for implementation. The objectives are based on several interrelated strategic documents. All this is commensurate with the capacities and structure of the university.

Recommendations:

Maintain existing strengths while prioritising international recognition and visibility through targeted, measurable actions aligned with faculty-level recommendations.

5.3 Institutional instruments and measures for the implementation of the research and development strategy

Evaluate the described institutional and strategic instruments for the fulfilment of the research and development objectives regarding how they will contribute to the fulfilment of these objectives. In your evaluation, also pay attention to the possible absence of key instruments or measures.

Rating [1–5]:	**4 - very good**

Qualitative assessment:

TUL describes itself as a research organization with a structure that combines vertical and horizontal dimensions, and has established TUC TUL for knowledge transfer. Strategic management is based on a process approach and strategic cycle with internal controls, covering educational, creative, internal processes, and third role areas.

A comprehensive list of institutional strategies and tools is provided, forming the backbone of its strategic implementation. The SER then breaks down these tools by their focus area:

- Promoting quality R&D&I, excellence, innovation, competitiveness: Instruments for promoting quality, excellence and the scale of the research unit are represented by: strategic plans (a global plan, internationalization plan, development plan, etc.); an HR strategy; an allocation methodology for DKRVO, driving the quality of research contribution; competitions for internal grant funding (university competitions for excellence); internal IT systems (for example GaP, Publikace TUL, MoTUL); rules and contracts relating to IP and commercialisation; TUC TUL; project support; financial motivations for project/publication initiatives; and staffing of incoming foreign staff. All have the common goals of developing, improving and causing research performance and results, both in terms of quality and impact.
- Human potential development: The HR agenda is centralised. Instruments to drive HR Strategy are in the form of regulations (e.g. Personnel Development/Evaluation, Wage regulations, Selection Procedure, Career Development, Work, and Habilitation); GEP; the

Code for Gender-sensitive communication; Framing and Action plans relating to data protection; satisfaction survey for employees; GEP and grant competitions,training and/or mentoring; benefits; and University Doctoral School. The framework used for HR appears to be structured from a group of regulations.

- Institutional resilience: Building on TUL's R&D strengths, tools include the existing and developing strategic documents (Cybersecurity order, stance on countries at risk, Illegitimate Influence strategy/manual) , data protection, IP protection directive, AI use directive.
- Ethics, scientific Integrity, good practice: Tools include the Ethics Code, Ombudsman, Academic Counselling and Support Centre, Research Ethics Committee, GEP, and the Code for Gender-Sensitive Communication.
- Table 5.3.1: The table lists a number of the key documents/tools, a description, implementation status, and year. Most listed have been marked as "Implemented" or "Partly implemented" with years running from 2011 to 2024, indicating ongoing developing and updating of the institutional framework. The descriptions provided in the table align with the narrative.

The collection of institutional instruments and measures presented is comprehensive and relates to all aspects required. The strategy documents represent a thoughtful structure, and specific regulations and operational tools exist to support it. Several of recently developed or updated instruments (Career Development Regulations 2022, Open Science Directive 2023, Cybersecurity Order 2023) demonstrate a proactive effort to adjust the institutional environment.

Recommendations:

The document includes several audit tools. However, it would be useful to briefly indicate how this portfolio of tools and instruments are interconnected and for what purpose the organizational units combine these tools and instruments. Ideally, by doing so, their cooperative value would become more clear (e.g., how does the process "Personnel Development and Evaluation" relate to the "Career Development Regulations" and the DKRVO allocation for excellence recognition?).

For the major tools and instruments (especially regarding new instruments such as the Open Science directive or the eventual Illegitimate Influence strategy), consider how they will be monitored and evaluated in the next five years. What will be their success indicators/KPIs?

The internal IT systems (e.g. GaP, Publikace TUL....) are significant tools and instruments for TUL. It could be useful to specifically position "Digitalization of R&D&I Management and Support" as a key strategic enabler and to sketch a plan towards its further development in TUL.

Successfully implementing these tools and instruments will require resources (human, financial, etc.). TUL should also describe how to guarantee adequate resources to maintain, develop, and effectively use institutional instruments and measures going forward.

5.4 Implementation of recommendations in Module 5

Evaluate how the HEI has reflected the recommendations from the previous evaluation of the IEP, if applicable.

If the HEI has not been evaluated before, the indicator will be marked as N/A – Not Applicable.

Rating [1–5]:	**4 - Very good**

Qualitative assessment:

The university considered the recommendations and implemented central system for evaluation of the publications, considering the Q1-Q4 levels of the journals. Applied research projects were

implemented in order to profit from the higher density of industrial companies in the region. Web pages are relaunched and more founding for basic research is separated. The gender imbalance remains as persisting trend at the university, which is not surprising, considering, that regarding the gender equality index, the country did not shown big progress since 2010.
Recommendations:

MODULE 5 RATING

MODULE 5 – SUMMARY EVALUATION

After evaluating each indicator, please provide an overall evaluation of Module 5. Evaluate the overall setting of the HEI's strategic objectives and development plan.

The aggregate grade is determined in accordance with the rules of the Methodology HEI2025+ as a simple average of the scores for each indicator.

INDICATOR	RATING [1–5]
5.1 Mission and vision of the evaluated institution in R&D&I	**5 - Oustanding**
5.2 Research and development objectives	**5 - Oustanding**
5.3 Institutional instruments and measures for the implementation of the research and development strategy	**4 - very good**
5.4 Implementation of recommendations in Module 5	**4 - Very good**
AVERAGE RATING	**4.5**
GRADE [A–D]	**A**

Summary assessment:

The strategy and policy framework is well-structured and aligned with modern university standards. The focus applies on applied science and regional impact.

Summary recommendations:

Better coordination and stronger stakeholder communication could enhance the implementation of the plan and demonstrate the success more visibly.