

Programme for Public Research & Development Support for Priority Areas
of Medical Sciences and Related Social Sciences – EXCELES

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1 Programme identification data

Name of the programme: Programme for the Support of Excellent Research in Priority Areas of Public Interest in the Health Sector (hereafter referred to as the "EXCELES programme"¹).

A breakdown into sub-programmes: This programme is not broken down into sub-programmes.

Programme identification code: For the purposes of registration in the publicly available R&D National Information System (hereinafter referred to as "IS VaVal"), the EXCELES programme has been assigned the code "*to be assigned*".

Grantor: With reference to Sections 34(1) and 4(1) of Act No. 130/2002 Coll., on the Support of Research and Development from Public Funds and on the Amendment to Some Related Acts (Act on Support for Research and Development), as amended, the grantor of the targeted support for projects under this programme is the Ministry of Education, Youth and Sports (hereinafter referred to as the "MEYS").

Delivery address of the grantor: Ministerstvo školství, mládeže a tělovýchovy
Odbor podpory vysokých škol a výzkumu - 32
Karmelitská 529/5
118 12 Praha 1

Programme duration and announcement date: The EXCELES programme is proposed for 2022-2026. The implementation period of the supported multi-year projects is planned between 2022 and 2026 and corresponds to the implementation period of the National Recovery Plan². The duration of individual projects will depend on the approved schedule for the implementation of components in the National Recovery Plan. The announcement of a public tender in research, development and innovation³ is planned for the 4th quarter of 2021, following the completion of negotiations with the European Commission on the National Recovery Plan. The Grantor reserves the right to repeat the public tender in R&D&I in the event of a lack of quality projects suitable for support or in the event of under-spending of the allocated support.

2 Legislative framework of the programme

The EXCELES programme is a research and development support programme defined in Section 2(2)(g) of Act No. 130/2002 Coll., which is intended to support research, development and innovation projects defined in Section 2(2)(h) of Act No. 130/2002 Coll.

Targeted support will be provided for projects under this programme throughout its duration in accordance with Section 3(2)(b) and Section 4(1)(b) of Act No 130/2002 Coll.

The provision of support is governed by Act No 130/2002 Coll. And Commission Regulation (EU) No. 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application with Articles 107 and 108 of the Treaty Text, as amended by Commission Regulation (EU) 2017/1084 of 14 June 2017 and amended by Commission Regulation (EU) 2020/972 of 2 July 2020, amending Regulation (EU) No 1407/2013 as regards its extension, Regulation (EU) No 651/2014 as regards its extension and the relevant adaptations (Treaty Text with EEA relevance) C/2020/4349, (hereinafter referred to as "Regulation No 651/2014") or shall be governed by its amendment in force at the time of the announcement of the public tender for the programme. The programme, as an implementing instrument of component 5.1 of the National Recovery Plan, must also be subject to Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility (RRF) and its implementing

¹) The name of the EXCELES programme stems from its focus on supporting EXCELlence in selected medical and social science disciplines studying mainly social and economic issues related to the impact of systemic health risks.

²) Resolution of the Government of the Czech Republic of 17 May 2021 No. 467, National Recovery Plan.

³) Pursuant to Section 17 and related provisions of Act No. 130/2002 Coll.

documents, which will be in force on the date of the announcement of the public tender for the programme.

Where the subject of the project will be exclusively independent research and development carried out by the research organisation in the context of its non-economic activities, support may be granted outside the State aid regime with reference to the Communication from the Commission – Framework for State aid for research, development and innovation of 27 June 2014 (2014/C 198/01), published in the Official Journal of the European Union, (hereinafter referred to as the "R&D Framework").

Following the provisions of Act No. 130/2002 Coll., certain procedural requirements for the provision of support under this programme are further governed by Act No. 218/2000 Coll., on Budgetary Rules and the Amendments to Certain Related Acts (Budgetary Rules), as amended, and Act No. 500/2004 Coll., Administrative Procedure Code, as amended.

Substantial technical details, in particular, in demonstrating the eligibility of the applicant, are also related to Act No. 111/1998 Coll., on Higher Education Institutions and on Amendments and Supplements to some other Acts (The Higher Education Act), as amended, and Act No. 341/2005 Coll., on Public Research Institutions, as amended.

3 Analysis of the issues addressed and justification for the programme

The situation caused by the Covid-19 pandemic has exposed gaps in the system and has become a challenge and an impetus to urgently address the national needs of the Czech Republic in areas that in this context appear to be key to ensuring socio-economic stability and long-term economic growth. The crisis caused by the massive spread of infectious disease, which, especially in conjunction with other health risks, has a major impact on the increase in mortality in the Czech Republic and is, therefore, associated with significant negative social and economic impacts, has highlighted the need to focus on supporting the ability of relevant scientific research capacities to respond flexibly to current needs of this type.

The programme's disciplinary definition is based on two main pillars – on the one hand, identifying the diseases with the highest morbidity and mortality rates and, on the other hand, identifying the potential of research capacities to respond to trends in these indicators, i.e. to push the frontier of knowledge in areas essential to address the challenges these diseases pose for society.

On the basis of statistics (number of deaths, morbidity, financial burden on the health and social system), diseases of the circulatory system (cardiovascular and cerebrovascular), which are often predisposing factors for metabolic diseases, oncological diseases, diseases of the nervous system and, according to the latest data, infectious diseases, can be classified as diseases with serious social impact.⁴ In 2019, diseases of the circulatory system caused 42.7% of deaths in the Czech Republic and cancer caused 25.7% of deaths.⁵ The analysis presented by the Ministry of Health of the Czech Republic also shows that the most frequent causes of death, i.e. diseases of the circulatory system and cancer, are also the most frequent comorbidities in those who died with Covid-19.⁶ Diseases of the nervous system seemingly represent a lower social risk in terms of the number of deaths, but their severity lies in the trend of a long-term increasing burden on the health

4) Statistical data on the development of the daily number of deaths between 2015 and 2020 show a significant increase in connection with the ongoing Covid-19 pandemic (Czech Statistical Office. *V roce 2020 zemřelo přes 129 tisíc obyvatel Česka (More than 129,000 people died in the Czech Republic in 2020)* [online]. 3. 2. 2021 [cit. 23. 7. 2021]. Available at: <https://www.czso.cz/csu/czso/v-roce-2020-zemrelo-pres-129-tisic-obyvatel-ceska>).

5) Czech Statistical Office. *Zemřelí podle seznamu příčin smrti, pohlaví a věku v ČR, krajích a okresech (Deaths by cause of death, sex and age in the Czech Republic, regions and districts) – 2010-2019* [online]. 16. 11. 2020 [cit. 23. 7. 2021]. Available at: <https://www.czso.cz/csu/czso/ceska-republika-podle-pohlavi-a-veku-2010-2019>.

6) Ministry of Health. *Data o celkové mortalitě a o příčinách úmrtí pacientů s covid-19 (Data on overall mortality and causes of death in Covid-19 patients)* [online]. [cit. 23. 7. 2021], p. 14. Available at: <https://koronavirus.mzcr.cz/wp-content/uploads/2020/11/Data-o-celkov%C3%A9-mortalit%C4%9B-a-o-p%C5%99%C3%AD%C4%8Din%C3%A1ch-%C3%BAmrt%C3%AD-pacient%C5%AF-s-covid-19.pdf>.

and especially social system⁷ Factors such as gender and sex also affect the burden on the health and social system. For example, men die more from coronary heart disease (415.9 men per 100,000 inhabitants) than women (276.2 women).⁸ Overall, men die at a younger age, while women live longer but with chronic diseases.

A bibliometric analysis also identified medical and related disciplines that achieve excellence in research, development and innovation (hereinafter referred to as "R&D&I").⁹ By combining data from the above statistics and analyses, it is possible to determine the prospective thematic and sectoral targeting of the programme, which corresponds to need in relation to the development of the Czech Republic.

On the basis of an analysis prepared by the Technology Centre of the CAS using data from the IS VaVal and data from the Czech Statistical Office (CSO) concerning the amount of targeted support by fields¹⁰ and in the interest of the effective allocation of public funds, fields that are not yet sufficiently supported from other sources, such as operational programmes implemented in the Czech Republic or European programmes (e.g. H2020), were also identified. Virology, immunology, infectiology, cardiology or endocrinology are among the fields that received less than ¼ of the public funding provided for biomedical projects in 2016-2019.

At the same time, the current epidemiological situation demonstrates the need to complement the research agenda in the medical fields identified in this way with research on the social and economic impact of systemic health risks. In the Czech Republic, there is still no workplace that would systematically devote itself to such research and whose results could be used as analytical support for the creation and implementation of measures (epidemic measures or financial and socio-economic instruments) to manage crises of this type. The need to link policy decision-making to research in the social and economic sphere, the so-called "evidence-based policy" concept, is amply demonstrated by professional literature¹¹ and key development strategies at national and global level¹². An adequate "evidence-based policy" approach can have major positive impacts in terms of

7) A 2013 study applying data from the large-scale European Cost of Disorders of the Brain in Europe study to the Czech Republic found that including socioeconomic burden in the overall costs for individual disease groups makes the brain disorders group the most costly. (Ehler, Edvard et al., 2013. Náklady na poruchy mozku v České republice (The cost of disorders of the brain in the Czech Republic). *Česká a slovenská neurologie a neurochirurgie (Czech and Slovak neurology and neurosurgery)*. **76/109**(3), 282-291). According to data from the Czech Statistical Office, diseases of the nervous system are one of the three diagnoses with the highest percentage growth in treatment expenditure (70%) between 2010 and 2017 (Czech Statistical Office. *Výsledky zdravotnických účtů ČR (Results of the Health Accounts of the Czech Republic) 2010-2017. Výdaje zdravotních pojišťoven (Expenditure of health insurance companies)* [online]. 13. 2. 2019 [23. 7. 2021], p. 5. Available at: https://www.czso.cz/documents/10180/90577099/26000519k3_1.pdf/90c9db8f-65b4-4cf2-9f44-d26228d62a5e?version=1.0.)

8) For more details see the Czech Statistical Office, 2020. *Zemřelí podle příčin smrti a pohlaví, standardizovaná míra smrtelnosti, mezinárodní srovnání (Deaths by cause of death and sex, standardised death rate, international comparison)* [online] Czech Statistical Office. 23. 7. 2021] Available at: <https://www.czso.cz/documents/10180/120583268/300002200235.pdf/3925ded1-b7b9-4bbc-bf09-b238b4d50d7b?version=1.1>.

9) Vondrák, Tomáš, Kučera Zdeněk, Pazour Michal. Posouzení zaměření zdravotního VaV na základě bibliometrické analýzy publikací ve vybraných lékařských a příbuzných oborech (Assessment of the focus of health R&D based on a bibliometric analysis of publications in selected medical and related fields). Technology Centre of the CAS, February 2021. (The document is available e.g. at: <https://www.strast.cz/cs/publikace/posouzeni-zamereni-zdravotniho-vav-na-zaklade-bibliometricke>).

10) Kučera Zdeněk, Vondrák Tomáš, Pecha Ondřej. *Posouzení kapacit a zaměření zdravotního VaV na základě analýzy účasti v národních programech VaV a Horizontu 2020 (Assessment of the capacity and focus of health R&D based on an analysis of participation in national R&D programmes and Horizon 2020)*. Technology Centre of the CAS, November 2020. (The document is available, for example, at <https://www.strast.cz/cs/publikace/posouzeni-kapacit-a-zamereni-zdravotniho-vav-na-zaklade-analyzy>).

11) E.g. Pasachoff, Eloise, 2017. Two Cheers for Evidence: Law, Research, and Values in Education Policymaking and Beyond. *Columbia Law Review* **117**(7), 1933-1972.

12) Strategický rámec ČR 2030 identifikuje nedostatečné využívání „evidence based policy“ přístupu v rámci SWOT analýzy (Strategic Framework Czech Republic 2030 identifies insufficient use of the "evidence-based policy" approach in the SWOT analysis). *Strategic Framework Czech Republic 2030*. Prague: Office of the Government of the Czech Republic, Department for Sustainable Development, 2017. p. 23. ISBN 978-80-7440-181-7.

the solutions offered to the medical disciplines or health policy supported by the programme¹³, and can also contribute significantly to the effective implementation and communication of public policies in general¹⁴. The programme will support the establishment of a national scientific authority for social and economic research on the impact of systemic health risks, which will analyse and further develop already implemented public policies in cooperation with the Government of the Czech Republic, thus preventing major failures in the implementation of public policies¹⁵, or in the area of cooperation with public authorities. The creation of such a national scientific authority is in line with the government's commitment to address the lack of implementation of the "evidence-based policy" approach in strategic governance and strategic management in the Czech Republic, and reflects the government's commitment to strive to create sufficient institutional and analytical capacity to ensure policy coherence for sustainable development¹⁶.

The programme is intended to initiate the establishment of long-term consortium links and, as a result, unified national platforms in each of the selected priority social science and medical areas consisting of the best scientific teams and workplaces in the Czech Republic. These platforms will systematically and systemically provide a professional background for the needs of the state administration. This will bridge the current fragmentation of official expert opinion platforms and enable faster and more transparent sharing of relevant and scientifically validated information and R&D&I results in a new quality across disciplines. The functioning of such national research authorities in selected scientific disciplines will enable faster responses and expert support for the management of the state administration in times of crisis in the area of its priority interests.

The creation of consortium links within the supported projects will also lead to overcoming the concentration of excellence in research in currently geographically limited foci. The analysis of the cooperation of research centres with other entities and with each other prepared by the Technology Centre of the CAS on projects supported from public sources¹⁷ and cartograms and data from the CSO on the funding of research and development from the state budget show that the current situation in the Czech Republic can be characterised by, among other things, existing excellence in results in some fields but, at the same time, rather sporadic successes and insufficient cooperation and networking (e.g. there is a low share of joint publications across thematically similar workplaces in the Czech Republic). This is particularly evident in fields with relatively fewer projects supported by public funds, such as virology, endocrinology or cardiology, where collaboration prevails either on an individual basis (virology) or on the basis of regional clusters (endocrinology)¹⁸.

Along with the above, the programme is an impetus for an optimised process of renovation and modernisation of existing facilities in the Czech Republic. In these priority fields, the programme will launch further investment development of existing premises and research facilities corresponding to the level of modern scientific laboratories and workplaces of European standard. The supported research facilities will serve both the teams involved in the project activities and in an "open access"

¹³) Katherine, Elizabeth, Smith, Srinivasa, Vittal, Katikireddi, 2013. A glossary of theories for understanding policymaking. *Journal of Epidemiology and Community Health*, **67**(2), 198-202 <http://dx.doi.org/10.1136/jech-2012-200990>. On the importance of data processing for prevention and public health functioning, e.g., Budd, Jobie, Miller, Benjamin, Manning, Erin et al. 2020. Digital technologies in the public-health response to COVID-19. *Nature Medicine* **26**, 1183-1192. <https://doi.org/10.1038/s41591-020-1011-4>.

¹⁴) Catunga, John, Paul. Critic, advocate, enforcer: the multiple roles of academics in public policy In: *Engaging with Policy, Practice and Publics, Book Subtitle: Intersectionality and Impacts*. Bristol University Press, Policy Press, 2020, p. 135-154. ISBN 978-1447350378. On the importance of health data interpretation in communication strategies, e.g., Naeem, Salman, Bin, Bhatti, and Rubina, 2020. The Covid-19 'infodemic': a new front for information professionals. *Health Information and Libraries Journal*, **37**, 233-239 <https://doi.org/10.1111/hir.12311>.

¹⁵) Howlett Michael, 2012. The lessons of failure: learning and blame avoidance in public policy-making. *International Political Science Review*. **33**(5), 539-555.

¹⁶) *Strategic Framework Czech Republic 2030*. Prague: Office of the Government of the Czech Republic, Department for Sustainable Development, 2017. p. 94. ISBN 978-80-7440-181-7. Ibid, Annexe 1, pp. 201-202.

¹⁷) Kučera Zdeněk, Vondrák Tomáš, Pecha Ondřej. *Posouzení kapacit a zaměření zdravotního VaV na základě analýzy účasti v národních programech VaV a Horizontu 2020 (Assessment of the capacity and focus of health R&D based on an analysis of participation in national R&D programmes and Horizon 2020)*. Technology Centre of the CAS, November 2020. (The document is available e.g. at: <https://www.strast.cz/cs/publikace/posouzeni-kapacit-a-zamereni-zdravotniho-vav-na-zaklade-analyzy>).

¹⁸) Ibid, pp. 20-24.

mode similar to that of large research infrastructures. This will ensure more efficient use and return on the invested public funds.

The programme will also contribute to the development of qualifications and skills in the selected priority areas. The potential for improvement lies in achieving advanced science education in priority areas to ensure highly qualified successors and continuity in the development of progressive topics. One of the requirements placed on the new national scientific authorities will be to ensure the international competitiveness of results in the supported priority areas and to actively participate in quality science education and knowledge transfer in these areas.

4 Objectives and basic intervention logic of the programme

4.1 Programme objective

The EXCELES programme aims to increase the ability of research capacities in selected priority areas of R&D&I to respond to current trends and needs in R&D&I in relation to the incidence of major diseases and the social and economic impact of systemic health risks associated with them. The selected R&D&I priority areas (hereinafter referred to as "R&D&I priority areas") are:

- a) specific biological and medical disciplines and related engineering and technology disciplines specifically focused on the study of infectious diseases and virology, which concentrate on diseases with statistically the highest mortality or high direct (medical) and indirect (social and economic) costs, as well as on the impacts and complications of these illnesses caused by Covid-19 type diseases;
- b) oncology and related disciplines studying cancers with the statistically highest mortality rates, while focusing on the impact and complications of these illnesses caused by Covid-19 type diseases;
- c) specific medical and other related disciplines in the neurosciences specifically focused on neurodegenerative and other types of neurological diseases, which focus on diseases with statistically the highest mortality or high direct (medical) and indirect (social and economic) costs, as well as the impacts and complications of these diseases caused by Covid-19 type diseases;
- d) specific medical and other related disciplines focused on metabolic and cardiovascular diseases that target diseases with statistically the highest mortality rates or high direct (medical) and indirect (social and economic) costs, as well as on the impact and complications of these illnesses caused by Covid-19 type diseases;
- e) specific social science and related disciplines focused on the social and economic impacts of systemic health risks, i.e. collectively on the issue of:
 1. the functioning of public administration, communication between public administration and the public, and the behaviour of society in situations of health risk,
 2. the effectiveness of healthcare, lifestyle and other socio-economic determinants of health risks and,
 3. rebuilding the economy after health or security crises in terms of economic policy, labour market and unemployment, human capital and education, or tackling the rise in poverty.

4.2 Programme sub-objectives

- a) Achieving and maintaining a European level of excellence in R&D&I priority areas.
- b) Strengthening interinstitutional, interdisciplinary and interregional cooperation in R&D&I priority areas and the quality of national research by further increasing international cooperation.
- c) Skills development, scientific education and support for the young generation of researchers in priority R&D&I areas, including the provision of good working conditions.

- d) Enhancing the relevance of research outputs or adding to existing knowledge in R&D&I priority areas by taking into consideration the gender perspective.
- e) Modernisation and development of research infrastructure and capacities in priority R&D&I areas, including the provision of professional information capacities and mechanisms.
- f) Establishment of a national expert authority in R&D&I priority areas providing expert and informational support for "evidence-based" decision-making by relevant public authorities.

4.3 Methods of achieving the stated objective

- a) Concentration of the best capacities from the Czech Republic in common topics and challenges into a centralised consortium project¹⁹ in a selected priority area of R&D&I; unification of existing excellent teams and capacities into national authorities of higher quality, and the interoperable sharing of scientifically verified information;
- b) a higher degree of internationalisation of national teams in R&D&I priority areas;
- c) Development of human resources and improvement of working conditions in the R&D&I priority areas;
- d) harnessing the potential of young and emerging researchers by engaging them in supported research activities;
- e) taking gender aspects into account in R&D&I priority areas, assessing and supporting their potential;
- f) the necessary renovation and modernisation associated with the necessary investment development of existing research capacities in the R&D&I priority areas, taking into account the European Commission's "do no significant harm" requirements²⁰.

4.4 Current situation in the Czech Republic and comparison with foreign countries

The transparent selection of the best projects in the public tender in R&D&I, carried out in accordance with Act No. 130/2002 Coll. and the focus of the programme, will enable:

- more efficient use of resources in a systemically standard and state-controlled way,
- the elimination of fragmentation and duplication in financially and capacity-intensive scientific disciplines or their less efficient, "multi-track" funding.

Since 2009, the Czech Republic, with the participation of the European Structural and Investment Funds, has been systematically investing in the construction and further development of excellent research and development workplaces.²¹ Cutting-edge, in many cases unique facilities have been built in the form of so-called large research infrastructures, which are included in the Roadmap of the Czech Republic and the Roadmap of the European Strategic Forum for Research Infrastructures (ESFRI). Large research infrastructures have created a top knowledge, instrumentation and personnel base in the Czech Republic for conducting excellent R&D&I at an internationally competitive level. Many Czech researchers are among European or global scientific leaders, as

¹⁹⁾ For the purposes of the EXCELES programme, the term "consortium project" means a project in which several different legal entities participate and the legal relations between them are based on the Czech legal system and are contractually bound. The draft agreement on the participation of other project participants in the project (see Section 2(2)(j) of Act No 130/2002 Coll.) must already be part of the project proposal.

²⁰⁾ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (Text with EEA relevance)

²¹⁾ Research, Development and Innovation Council (RDIC), 2019. *Analýza stavu výzkumu, vývoje a inovací v České republice a jejich srovnání se zahraničím v roce 2019 (Analysis of the state of research, development and innovation in the Czech Republic and their comparison with foreign countries in 2019)* [online]. [cit. 23. 7. 2021] Available at: <https://www.vyzkum.cz/FrontClanek.aspx?idsekce=677142> or the Report on the evaluation of the implementation of NP R&D&I measures, which was approved by Government Resolution No. 115 of 8 February 2019.

evidenced by their publications in Q1 (according to WoS)²², increasingly frequent experience with the application of their knowledge in the transfer to practice, leading, inter alia, to the application of patents in licensing agreements, the use of new certified treatments, methodologies, the design and use of new medical devices intended for medical practice, or participation and first successes in international programmes and consortium international projects, incl. prestigious European grants such as European Research Council (ERC) grants. A number of top research teams cooperate with the application sphere and capitalise on their joint know-how in the next stages of the innovation chain (basic research → applied research → innovation → product/service → profit → reinvestment in research) within the so-called "National Centres of Competence".

In the Czech research environment, the Methodology for the Evaluation of Research Organisations and Programmes of Special Purpose Support for Research, Development and Innovation, which was approved by the Resolution of the Government of the Czech Republic of 8 February 2017, No. 107 (hereinafter referred to as "Methodology 17+"), is gradually being implemented, and the Government of the Czech Republic plans to gradually increase institutional support for the development of research organisations. These measures should ensure financial security and stability for the future development of existing top research teams that are successfully established internationally. The implementation of Methodology 17+ is a long-term process that is rectifying the Czech research environment by prioritizing quality over quantity. Methodology 17+ emphasises sufficient space for design, progressive strategic orientations and visions of research organisations compared to the broad, disparate policies of previous periods. The external transformation of the funding system of research organisations is naturally accompanied by an internal transformation, which may be associated with short-term internal destabilisation (e.g. internal process "rebranding" for the purpose of obtaining an HR Award²³ or the implementation of gender equality plans that are currently becoming an essential prerequisite for international research cooperation). Czech research

²²) See also the results of the RDIC evaluation of Methodology 17+ at national level (RDIC, 2019. Hodnocení VaVal (R&D&I Evaluation). "Hodnocení 2018" / 2. rok implementace ("Evaluation 2018" / 2nd year of implementation) [online]. RDIC. [cit. 23. 7. 2021]. Available at: <https://www.vyzkum.cz/FrontClanek.aspx?idsekce=847179> a <https://hodnoceni18.rvvi.cz/www/biblio-obory>) or the evaluation of the disciplinary publication performance of research organisations in the Czech Republic in 2017 using the CERGE "IDEA think-tank" tool (IDEA CERGE-EI, 2018. *Oborová publikační výkonnost pracovišť výzkumných organizací v České republice v roce 2017 (Publication performance of research organisations in the Czech Republic in 2017)* [online]. [23. 7. 2021]. Available at: <https://ideaapps.cerge-ei.cz/Performance2017/>).

²³) These systemic changes are very much needed and are, therefore, reinforced by the relatively massive support with the participation of the ESIF, see e.g. calls No 02_16_028 and 02_18_054 - Capacity Development for Research and Development I and II in the OP RDE (OP RDE, 2021. Ukončené výzvy (Terminated calls). Výzva č. 02_16_028 (Call No 02_16_028) [online]. OP RDE. [Cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/vyzva/vyzva-c-02-16-028-rozvoj-kapacit-pro-vyzkum-a-vyvoj.htm> and OP RDE, 2021. Ukončené výzvy (Terminated calls). Výzva č. 02_18_054 (Call No 02_18_054) [online]. OP RDE. [Cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/vyzva/avizo-vyzvy-c-02-18-054-rozvoj-kapacit-pro-vyzkum-a-vyvoj-ii.htm>) or the interim evaluation of OP RDE – See also Evaluate OP VVV (2018) - Hodnocení posilování kapacit pro kvalitní výzkum, rozvoj VŠ a lidských zdrojů pro VaV (Evaluation of OP RDE (2018) – Evaluation of strengthening capacities for quality research, development of HEIs and human resources for R&D), (OP RDE2018. Úvod. *Vyhodnocení pokrytí podporovaných aktivit Prioritní osy 1 a 2 výzvami Operačního programu Výzkum, vývoj a vzdělávání (Introduction. Evaluation of the coverage of supported activities of Priority Axis 1 and 2 by calls of the Operational Programme Research, Development and Education)* [online]. OP RDE [Cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/balicek-dokumentu/vyhodnoceni-pokryti-podporovanych-aktivit-prioritni-osy-1-a-2-vyzvami-operacniho-programu-vyzkum-vyvoj-a-vzdelavani.htm>) or (OP RDE, 2018. Úvod. *Vyhodnocení výzvy Rozvoj kapacit pro VaV (Evaluation of the R&D Capacity Development Call)* [online]. OP RDE [Cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/balicek-dokumentu/vyhodnoceni-vyzvy-rozvoj-kapacit-pro-vav.htm>). This type of intervention is also planned for the next programming period in the new operational programme Jan Amos Komenský of the MEYS. Press releases on the new MRD programming period (DotaceEU.cz, 2019. *Novinky. Evropská komise chválí ČR za přípravu nového období (News. The European Commission praises the Czech Republic for preparing for the new period)* [online]. DotaceEU.cz [cit. 23. 7. 2021]. Available at: <https://www.dotaceeu.cz/cs/Evropske-fondy-v-CR/Novinky/Evropska-komise-chvali-CR-za-pripravu-noveho-obdob>) or the meeting of the Monitoring Committee of the MEYS on OP RDE on 13. 6. 2019 a 26. 9. 2019 (OP-ED, 2019. *Press releases. The new operational programme and other OP VVV calls were discussed at the Ministry of Education and Science* [online]. OP VVV [cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/aktualita/na-msmt-se-diskutovalo-o-novem-operacnim-programu-i-o-dalsich-vyzvach-op-vvv.htm>, OP RDE, 2019. *Tiskové správy (Press releases). Monitorovací výbor OP VVV schválil vyhlášení dvou nových výzev (The OP RDE Monitoring Committee has approved the announcement of two new calls)* [online]. OP VVV [cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/aktualita/item1035888.htm> or OP RDE, 2019. *Tiskové správy (Press releases). OP JAK* [online]. OP RDE [cit. 23. 7. 2021]. Available at <https://opvvv.msmt.cz/2021-plus>.

organisations are not yet sufficiently prepared for securing their top teams and paying sufficient attention to their stabilisation, facilities and development in times of systemic transformation, perhaps because of prejudices based on the view that where excellence or potential already exists, there is no need to invest further. However, wasting top-notch capacities on ensuring the basic existence of a research organisation in the Czech environment would only lead to a gradual reduction of the gained credit, the weakening of its still excellent teams, obsolescence and falling behind the current European and world trends. The current (and perhaps only temporary) instability within Czech research organisations, which is to be eliminated by the full implementation of Methodology 17+ and the transformation of the system of funding research organisations, is one of the causes of the outflow of established young scientists²⁴ abroad and the weakening of existing Czech top teams with a high degree of internationalisation, and may lead to their total disintegration as well as the loss of cultivated know-how and the knowledge base²⁵. In the ongoing process of implementation of the new methodology and funding model, a time-limited state intervention which will be closely focused on the targeted stabilization of internationally established scientific "top" teams working in Czech research organizations via this programme as a transit instrument of targeted support is, therefore, necessary.

The new programme, as an implementation tool of the Innovation Strategy and the National Recovery Plan, brings a new principle of national intervention into the system of support for research and development in the Czech Republic, namely the "top-down" principle. The professional focus of most of the existing systemic subsidy instruments in the Czech Republic was and is based on the "bottom-up" principle. Although the Czech Republic has identified priority research areas, e.g. within the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic, there is still no systemic instrument that would support excellent (oriented) research in a limited and relatively narrowly profiled section of knowledge domains. The new programme will fill this space and, in a top-down mode, by concentrating Czech excellence on a consortium project basis, will enable a significant qualitative shift in state-defined priority research areas.

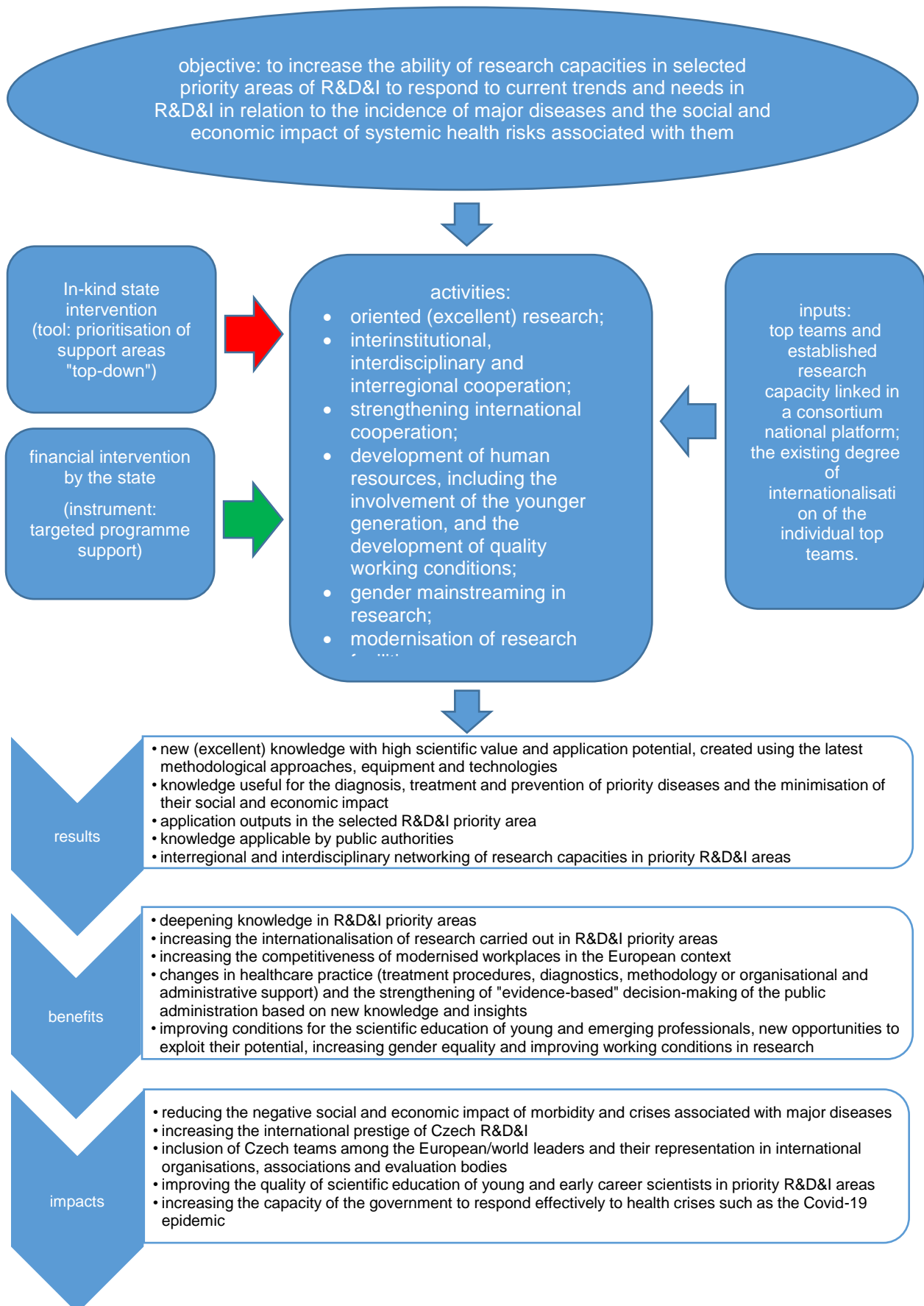
In contrast to the current practice in the Czech Republic, many countries in Europe and beyond traditionally and purposefully support specific areas of R&D&I through sector-specific calls or programmes. Such areas include in particular, climate change (e.g. Australia), seismology (especially Japan, USA, Turkey), ocean research (e.g. France, Sweden, Norway, USA, Australia), space research and related fields (USA, France, Russia), particle fields in chemistry or physics or microbiology (Austria, Switzerland, USA, France), artificial intelligence and ICT fields (Japan, Korea, USA, Germany).

An example of good practice and verification of the functioning of similar national authorities operating abroad can be some institutes operating e.g. in Germany in the Max-Planck-Gesellschaft group, e.g. Assoziierte Einrichtung - Ernst Strüngmann Institute (ESI) for Neuroscience or Assoziierte Einrichtung - Forschungszentrum caesar.

²⁴) To simplify the text, the masculine gender is used when referring to persons. However, the processor always has both men and women in mind.

²⁵) E.g. *Národní výzkumná a inovační strategie pro inteligentní specializaci České republiky (National Research and Innovation Strategy for Smart Specialisation of the Czech Republic) 2021 - 2027*, p. 35 (MIT, 2021. *RIS3 strategy. Národní výzkumná a inovační strategie pro inteligentní specializaci České republiky (National Research and Innovation Strategy for Smart Specialization of the Czech Republic) 2021-2027 (Národní RIS3 strategie - National RIS3 Strategy)* [online]. MIT [cit. 23. 7. 2021]. Available at: https://www.mpo.cz/assets/cz/podnikani/ris3-strategie/dokumenty/2021/1/A_RIS3-Strategie.pdf), or Communication from the Commission 628/2020, "A new ERA for research and innovation", p. 19, (Publications Office of the European Union, 2020. *Publication detail. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: New ERA for research and innovation* [online]. Publications Office of the European Union [23. 7. 2021]. Available at: <https://eur-lex.europa.eu/legal-content/CS/TXT/PDF/?uri=CELEX:52020DC0628&from=EN>). More generally on the migration motivation of scientific capacities, e.g. Kostecká, Yvona, Bernard, Josef, Kostecký, Tomáš *Zahraniční migrace vědců a výzkumníků a nástroje k jejímu ovlivnění (Foreign migration of scientists and researchers and tools to influence it)*. Sociologické studie / Sociological Studies 07:6. Prague: Institute of Sociology of the CAS, 2007. ISBN 978-80-7330-134-7.

4.5 Intervention logic of the programme



5 Strategic framework of the programme and linkage to oriented research priorities

The EXCELES programme is the sole implementing instrument of the separate component of the National Recovery Plan listed under 5.1 "Excellent research and development in priority areas of public interest in the health sector". It is also an implementation tool of the Innovation Strategy of the Czech Republic 2019-2030²⁶ for the area of "Innovation and Research Centres", which aims to significantly increase the quality and internationalisation of research carried out in the Czech Republic in the state-selected priority scientific areas. The aim is to achieve European or world excellence and thus become an equal and respected player in the European Research Area, which participates in the creation of trends of excellent European research.

The programme naturally corresponds to the set of planned measures of the Ministry of Education and Science for the fulfilment of the objectives of the approved National Policy on Research, Development and Innovation 2021+, which has a secondary link to other government priorities of R&D&I contained in previously adopted documents²⁷. The focus of the programme is in line with the priorities formulated in the National Priorities for Oriented Research, Experimental Development and Innovation in the area of "Population Health", through its thematic focus on identified key diseases. However, it emphasises not only the medical aspect, but also the social science aspect²⁸. The programme aims to strengthen the knowledge base and application potential in strategically important topics defined in the domain "Advanced Medicine and Pharmaceuticals" of the National Research and Innovation Strategy for Smart Specialization of the Czech Republic 2021-2027²⁹. The creation of a systemic instrument to support excellence-oriented research in healthcare also corresponds to one of the three strategic objectives of the Strategic Framework "Health 2030", i.e. to ensure a level of health research comparable to that of developed EU countries. Through its requirement to take into account the increased innovation potential of supported health research, the programme contributes to one of the key objectives of the framework³⁰. The focus of the programme also reflects some of the partial and systemic weaknesses of health research as identified in the Concept of Health Research until 2022³¹.

²⁶) The Innovation Strategy of the Czech Republic 2019-2030 was adopted by Government Resolution of 4 February 2019 No. 104. It is a strategic framework plan that predetermines the government's policy in the field of research, development and innovation and should help the Czech Republic to become one of the most innovative countries in Europe within twelve years. It consists of nine interlinked pillars that contain the starting points, the basic strategic objectives and the tools to achieve them. They are the areas of: R&D funding and evaluation, Innovation and Research Centres, National start-up and spin-off environment, Polytechnic education, Digitisation, Mobility and the building environment, Intellectual property protection, Smart investments and Smart marketing. The second pillar includes a commitment by the MEYS to prepare a proposal for a new programme. Partial negotiations with representatives of some key stakeholders such as the RDIC or CSF already took place according to the action plan (card) of the Innovation Strategy in the third and fourth quarter of 2019.

²⁷) Report on the evaluation of the implementation of the measures of the National Research, Development and Innovation Policy of the Czech Republic for the years 2016-2020 adopted by Government Resolution No. 115 of 8 February 2019, National Artificial Intelligence Strategy of the Czech Republic approved by Government Resolution No. 314 of 6 May 2019.

²⁸) National Priorities of Oriented Research, Experimental Development and Innovations approved by Government Resolution of 19 July 2012 No. 552, Priority Area 5 Healthy Population, Area 1 Emergence and Development of Diseases, 2 New Diagnostic and Therapeutic Methods and 3 Epidemiology and Prevention of the Most Serious Diseases.

²⁹) National Research and Innovation. Strategy for Smart Specialisation of the Czech Republic 2021-2027 (National RIS3 Strategy) approved by Government Resolution No. 66 of 25 January 2021. These include R&D&I topics in application sectors (cancer, diabetes, heart diseases, metabolic disorders, Alzheimer's disease and other neurodegenerative diseases, epidemiology and prevention of the most serious diseases, risk factors) or research topics in the field of social science research (societal impacts of population ageing, crisis management and public health protection), National RIS3 Strategy, Annexe 1. Karty tematických oblastí (Thematic area cards), pp. 38- 39.

³⁰) Strategický rámec rozvoje péče o zdraví v České republice do roku 2030 (Strategic framework for the Development of Healthcare in the Czech Republic until 2030). Zdraví 2030 (Health 2030), approved by Government Resolution No. 743 of 13 July 2020, p. 11; Specific objective 3.1 Involvement of science and research in addressing priority health challenges, p. 48-49, 89-92.

³¹) For example, the lack of clear support for basic research, fragmentation of research, underdeveloped multidisciplinary research, or the lack of analysis of the impact of major diseases on the health system (MoH, 2014. Koncepční

The programme is based on experience with the implementation of major projects of the Operational Programme Research and Development for Innovation (2007-2013) in Priority Axis 1, and regional research centre projects in Priority Axis 2 and its evaluation reports. It applies a number of experiences from the implementation of National Sustainability Programme I (2013-2020) and National Sustainability Programme II (2016-2020) and in particular, the conclusions of the evaluations of the relevant successfully completed projects of these two programmes.

The EXCELES programme is prepared as a complementary instrument to the "National Centres of Competence" programme under the responsibility of the TACR, as well as to other grant programmes focusing on the "proof of concept" phase. In contrast to them, EXCELES also supports basic oriented research as an integral part of applied research based on a disciplinary platform, carried out by excellent teams with a high degree of internationalisation in priority R&D&I areas. Thanks to its high-quality level, its outputs can also have a high potential for application in other, downstream stages of the innovation chain.

There are also obvious complementarities in relation to the calls for support for excellent teams in the Operational Programme Research, Development and Education (2014-2020, OP RDE)³² or the ERC activity in H2020. In both cases, it is a "bottom-up" principle, where the applicant for support freely determines the research objectives in the project and defines the disciplinary focus in which excellence will be achieved in accordance with the RIS3 strategy. Moreover, the support of ERC grants is closely linked directly to the investigator, who is also the grant holder and has full control over the composition of the micro-team, and the host organisation where research is carried out can be changed at any time during the course of the project. Stabilization and institutional anchoring of a broader team reaching critical size in the selected field is, therefore, not necessary. In the EXCELES programme, on the other hand, the initial stability and institutional anchoring of the team is assumed, desirable and necessary for the long-term concentration and targeted cooperation of research capacities in the state-selected priority area in order to achieve excellence and meet the objective set by the Innovation Strategy.

The EXCELES programme is also complementary to the Large Research Infrastructures Grant. Given the knowledge and technological uniqueness of large research infrastructures, whose capacities are available to users in open access mode, their intensive use by EXCELES-supported research teams is expected. Using the capacities of large research infrastructures listed at least in the Roadmap of the Czech Republic is one of the conditions of the programme and participation in international projects using ESFRI capacities is expected. The potential in using the capacities of large research infrastructures for projects in the priority areas of this programme is shown, for example, by the involvement of 13 Czech research infrastructures in the ERA vs. Corona Action Plan, in which the ESFRI, among other things, pools information on the activities and services of national large research infrastructures for projects focused on the Covid-19 pandemic³³

Due to the sectoral focus of the priority areas, the EXCELES programme is complementary to the support programmes under the Ministry of Health of the Czech Republic, which are based on the "bottom-up" principle and focus on applied health research, on the training of physicians or directly on building medical facilities and expanding their treatment capacities (not research capacities). While the expected benefits and impacts of EXCELES can also be linked to the healthcare application domain, the use of the results in patient treatment in medical practice is beyond the scope of this programme.

dokumenty výzkumu a vývoje na léta 2015 – 2022 (Concept documents for research and development for 2015 - 2022). Koncepce zdravotnického výzkumu do roku 2022 (Concept of Health Research until 2022) [online]. Ministry of Health of the Czech Republic [cit. 23. 7. 2021], p. 15-19. Available at: https://www.mzcr.cz/wp-content/uploads/wepub/8727/19643/Koncepce_zdravotnického_výzkumu_do_roku_2022.pdf and in more detail for each thematic objective).

³²) OP RDE, 2014. Úvod. *O programu* (Introduction. *About the programme* [online]. OP RDE [Cit. 23. 7. 2021]. Available at: <https://opvvv.msmt.cz/o-programu>.

³³) ESFRI, 2020. RI against COVID-19 pandemic. *Covid-19 Services & Resources - National Initiatives* [online]. ESFRI [cit. 23. 7. 2021]. Available at: https://www.esfri.eu/covid-19?qt-covid_19_actions=1#qt-covid_19_actions.

The "top-down" principle, which is an added value of the EXCELES programme, allows public funding to be more precisely targeted to reflect societal needs on the one hand and the high potential for research excellence in specific, narrowly defined areas on the other. It can be assumed that the research results obtained within this programme will be applied in departmental application sub-projects. The programme is conceived as a systemic tool to support excellence, regional and international cooperation and interdisciplinarity of research in R&D&I priority areas identified as key in terms of the national needs of the Czech Republic, while it is aimed at targeted support for the establishment of links between all of the most important R&D&I departments in a given field across the Czech Republic. Due to the complexity of the EXCELES programme, there is potential for complementary and synergistic links with programmes and subsidy measures in R&D&I aimed at supporting the above-mentioned sub-aspects of R&D&I capacity development (excellence, internationalisation, etc.), which will be addressed by individual members of the research team or institutes involved in the EXCELES consortium project. An informative overview of these programmes and subsidy measures is given in the table below. Specific possibilities for the additional funding of activities aimed at meeting the objectives of the EXCELES programme will be identified only after the publication of thematically relevant calls. Coordination of the substantive focus of programmes and calls of OPs under the responsibility of the MEYS is ensured by consultations within working groups. In the case of subsidy titles of other support grantors, coordination is also carried out by the participation of representatives of the MEYS in expert advisory bodies.

Links between EXCELES and other subsidy measures

Programme/subsidy measures	Objective	Focus	Links	Financial aspects
Support for large research infrastructures	Ensuring the operation and accessibility of unique research facilities in open access mode to users from the professional community.	Operational and operational-development activities of shared research capacities from the Roadmap of the Czech Republic and related projects from the ESFRI Roadmap.	Use of part of the unique capacities offered by large research infrastructures in "open access" mode on the basis of a state-identified societal need in EXCELES projects and, within its framework, funding of part of the research carried out on large research infrastructures.	Targeted support for a large research infrastructure project does not allow funding for the actual research carried out there. The financial allocation for large research infrastructure support projects for 2020-2022 is 5 658 mil. CZK (48 projects).
MoH: component 6.1 NRP "Increasing the resilience of the healthcare system"	Contribute to increasing the resilience of the healthcare system by developing and strengthening health infrastructure capacity and improving the staffing of health service providers.	Developing staff, infrastructure and data capacity in the health sector.	Given the focus of Components 6.1 and 6.2, there is no substantive overlap with the EXCELES programme.	The estimated allocation for 2020-2026 is 4 700 mil. CZK.
MoH: component 6.2 NPO "Prevention of oncological diseases"	Contribute to increasing the resilience of the cancer care system and raising awareness of cancer prevention options through the creation of cancer prevention centres and support for preventive screening programmes.	Establishment and development of cancer centres and the promotion of cancer prevention.		The estimated allocation for 2020-2026 is 10 250 mil. CZK.

MoH: Programme for the Support of Applied Health Research (CHRC)	Contribute to improving the health of the Czech population and continue to provide for current healthcare needs in the Czech Republic. The supported projects will provide new knowledge that will contribute to the improvement of clinical procedures in diagnosis, treatment and prevention of the most common, but also rare or completely new diseases.	Support for applied sectoral research with direct implications for medical practice.	The EXCELES programme, with its focus on excellent research with application potential in the health sector, creates the prerequisites for subsequent application of the acquired knowledge in sectoral application projects under the responsibility of the MoH of the Czech Republic focused on primary medical care.	Auditing with regard to the risk of possible duplication will be carried out at the level of project activities of individual projects or costs reported in the accounting records of beneficiaries. The estimated allocation of the Programme for the Support of Applied Health Research for 2020-2026 is 6 050 mil. CZK.
Calls for the support of excellence in OP RDE	Achievement of the top level of Czech research in the international scale, improvement of cooperation in research, improvement of infrastructural conditions for the training of future researchers.	In the field of R&D, OP RDE focuses on the development of infrastructural and human capacities for quality research, on building and developing research teams and cooperation with the application sphere, and on the development of the institutional environment of research organisations.	The EXCELES programme enables the development of excellence achieved with the support of OP RDE calls. The sub-project activities of the already closed calls Excellence in Research and Support for Excellent Research Teams may be complementary to the EXCELES programme.	The OP RDE calls are already closed. Auditing with regard to the risk of possible duplication will be carried out at the level of project activities of individual projects or costs reported in the accounting records of beneficiaries.
Jan Amos Komenský Programme 2021 - 2027 (OP JAK)	Supporting the development of an open and educated society based on knowledge and skills, equal opportunities, and developing the potential of each individual, which will lead to the growth of the competitiveness of the Czech Republic and the improvement of the living conditions of its inhabitants.	Oriented research with application potential in line with the priorities of the National RIS3 Strategy.	Potential for complementarity at the level of individual programme activities.	Calls under the OP JAK have not been announced yet. Auditing with regard to the risk of possible duplication will be carried out at the level of project activities of individual projects or costs reported in the accounting records of beneficiaries. The preliminary allocation for Priority 1 (Research and Development) is set at 1 658 mil. EUR.

ERC (Horizon 2020, Horizon Europe 2021-2027)	The Excellent Science pillar: grants from the European Research Council.	Support for excellent individual scientific projects at the frontiers of existing scientific knowledge.	The EXCELES programme uses the experience of experts from ERC projects, directs their activities to identified R&D&I priority areas and encourages follow-up submission of new applications for ERC grants by researchers from the Czech Republic. At the same time, at project level, it will provide targeted support for further development and modernisation of the beneficiaries' capacities in R&D&I priority areas, which is necessary for the growth of the Czech Republic's competitiveness in R&D&I at the international level.	In the period 2014-2020 (Horizon 2020), the ERC supported 38 projects of Czech entities with a total amount of 63 mil. EUR. Auditing with regard to the risk of possible duplication will be carried out at the level of project activities of individual projects or costs reported in the accounting records of beneficiaries.
INTER-EXCELLENCE (2021-2029)	Support for international cooperation in R&D&I.	Support for bilateral or multilateral cooperation with a foreign entity on a joint project or support for the mutual exchange of experience and mobility.	The EXCELES programme develops the already existing high level of international cooperation between the individual institutes involved in the supported consortium projects. The potential for complementarity arises at the level of individual programme activities.	The total expected allocation from the programme for 2021-2029 is 4 178 mil. CZK. Auditing with regard to the risk of possible duplication will be carried out at the level of project activities of individual projects or costs reported in the accounting records of beneficiaries.
CSF (Grant Projects of Excellence in Basic Research EXPRO)	Creating conditions for the development of excellent research, setting standards for excellent science, and helping to overcome the barriers that limit the success of ERC project proposals, thus enabling the necessary knowledge and experience to apply for highly prestigious European grants.	Support for excellent research projects by one person or a team from one or two institutions.	The EXCELES programme builds on existing experience of research excellence in the R&D&I priority areas. At project level, it will provide targeted support for the further development of capacities for excellent research (including support for the young generation of researchers), which will help to increase the competitiveness of applicants for support in EXPRO-type projects.	In the case of concurrent projects with a subject matter similar to that of the subject of support in the EXCELES programme, an assessment of the risk of possible duplication is carried out and audits are carried out down to the level of the project activities of individual projects or costs reported in the accounting records of beneficiaries.
TA CR (National Centres of	Increasing the effectiveness and	Supporting long-term cooperation between	The EXCELES programme will	

Competence; other programmes of support for applied research)	quality of the results of applied research and technology transfer in key fields with growth prospects, increasing the competitiveness of enterprises and strengthening the excellence and application relevance of research organisations.	research and application spheres, strengthening the institutional base of applied research.	support consortium research projects at the frontiers of existing knowledge with high application potential in priority R&D&I areas, thus creating conditions for follow-up collaborative projects with the application sector after the programme ends.	
MIT: TRIO and TREND programmes and calls in OP EIC, Component 5.2. of the NRP	Promoting entrepreneurship and increasing business competitiveness.	Support for industrial research, experimental development or innovation, support for the research infrastructure of enterprises and the introduction of innovation into business practice		

6 Total programme expenditure and its justification

6.1 Total expenditure on the programme

The overall financial allocation of the programme is based on the assumption that projects will be substantially dominated by independent research carried out by research organisations as a non-economic activity supported outside the State aid regime. However, the actual total costs and in particular, the amount of support in the programme may change during the course of implementation in cases where projects involve collaboration with enterprises and different categories of research. Another reason for changes may be a change in the amount of available funds in the state budget or the National Recovery Plan. The aid intensity is, therefore, estimated at around 97% on average.

The programme will be fully funded by 17000 - National Recovery Plan - Recovery and Resilience Facility (RRF)³⁴ The implementation of the EXCELES programme is conditional on the approval of Component 5.1. at the level of the European Commission and the allocation of funds in the indicator "Research, Experimental Development and Innovation" according to the amount of available resources in the government bill on the state budget as funds paid from EU funds. The programme will have a temporary impact on the state budget. The estimated amount of funding is shown in the table below. The final amount will depend on the results of the negotiations on the National Recovery Plan and its financial commitments, the current exchange rate of the koruna against the euro and their reflection in the draft expenditure on research, experimental development and innovation for 2022, and the medium-term expenditure outlook for 2023 and 2024 with a view to 2028.

Overview of the estimated amount of public expenditure and total programme expenditure (in thous. CZK)

³⁴) Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility (RRF) and its implementing documents that will be in force on the date of the announcement of the public tender for the programme.

Year	2022	2023	2024	2025	2026	Total
Public funding for the programme from the EU Recovery and Resilience Fund	1 000 000	1 250 000	1 100 000	900 000	750 000	5 000 000
Total funding for the programme	1 030 928	1 288 660	1 134 021	927 835	773 196	5 154 640

However, the costs of the public tender and the costs of the audits and evaluations of the projects and the programme within the legal scope and the scope of the European Commission's requirements for drawing EU funds from the Recovery and Resilience Fund will have to be drawn from the state budget of the Czech Republic for research and development as from 2021. These costs will not exceed the legal limit of 2.5% of the funds allocated to the grantor for research and development for a given calendar year pursuant to Section 3(3)(d) of Act No.130/2002 Coll.

The projects are scheduled to commence in early 2022. The proposed expenditure for the programme also includes investment costs for the renewal and modernisation of research infrastructure, in particular, instrumentation, which are expected to be highest in the first three years of the programme and to decrease gradually.

6.2 Justification for the proposed amount of support

The estimate of the EXCELES programme expenditure is based on the actual costs of research centre projects of similar scope and complexity. In the case of the projects of the National Sustainability Programme II (NSP II) with 55% aid intensity, 114 million CZK was disbursed from the state budget on average. The actual five-year cost of the project for the sustainability of a consortium-based, broadly multidisciplinary research centre of scientific excellence, which is well established internationally and is also active in fields related to the priority fields of this programme and is a model for the projects of this new programme (CEITEC) in terms of its scope and critical size, totalled 1 648 mil. CZK³⁵. The costs of the internationally renowned research centre focused exclusively on the medical fields of applied research in cardiology and neurosciences and with predominantly clinical research (ICRC) amounted over the five-year period in NSP II to 1 731 mil. CZK. The costs of the NSP II programme for the "minimalist" managed sustainability of the BIOCEV centre, focused exclusively on basic research in microbiology and related biomedical fields (without clinical research), which had other significant financial resources outside the NPU II programme, amounted to 445.6 mil. CZK. In the case of the other projects for the sustainability of research centres built from OP RDI, the total costs in NSP II including co-financing ranged from 600-850 mil. CZK in five years. However, in the NSP II programme, two of the six supported projects had no other participants directly involved in the project. One of the NSP II projects had only one and only three of the projects brought together more than 4 other participants, i.e. a consortium nature could be identified. The capacity of the research teams in NSP II projects, the qualifications of their key members, the range of their research activities and the ability to produce the quality of results they have demonstrated so far correspond to the estimated critical values for team sizes that are also expected in the EXCELES programme.

For the EXCELES projects, a significant part of the necessary basic research is expected to be supported with an intensity of up to 100% in relation to applied research (analogous to the European ERC programme mentioned above), with the proviso that any follow-up clinical trials, industrial

³⁵) For CEITEC project data see IS VaVal, 2021. Centrální evidence projektů (Central project registry). LQ1601 - CEITEC 2020 (2016-2020, MSM/LQ) [online]. IS VaVal [cit. 23. 7. 2021]. Available at: <https://www.isvavai.cz/cep?s=jednoduche-vyhledavani&ss=detail&n=0&h=LQ1601> and the IS VaVal, 2021. Centrální evidence aktivit (Central registry of activities). LQ - NÁRODNÍ PROGRAM UDRŽITELNOSTI II (LQ - NATIONAL SUSTAINABILITY PROGRAMME II) (2016-2020) [online]. IS VaVal [cit. 23. 7. 2021]. Available at: <https://www.isvavai.cz/cea?s=programy&ss=detail&n=0&h=LQ>.

research in the field of pharmacy and related areas will largely exceed the time limit and scope of the project in this programme and will be carried out mainly in the follow-up projects of individual actors outside this programme. The average aid intensity is, therefore, estimated at 97 %.

In view of the above, it is reasonable to expect that the average annual cost per project in the EXCELES programme will be between 200 and 250 mil. CZK, if the available state budget resources allocated to the programme and the limits set or negotiated with the European Commission allow it.

6.3 Aid intensity in the programme and its justification

The granting of support, including the limits for the aid intensity, is governed by Act No. 130/2002 Coll. and Regulation No. 651/2014 and, in cases where the subject of the project will be exclusively independent research carried out by a research organisation and the support can be granted outside the State aid regime, by the R&D Framework.

In the case of participation of business entities or other types of economic operators or research organisations carrying out economic activities in R&D&I above the limit set by Article 20 of the R&D Framework in the field to be supported by the project, the applicant will be considered as an enterprise and the amount of support will be determined in accordance with Regulation No 651/2014. Such an entity must not be an enterprise in difficulty and shall not be subject to a recovery order pursuant to a Commission decision within the meaning of Article 2(18) and Article 1(4)(a) of Regulation No 651/2014 and its Annexe.

As it is expected to support mainly independent research projects carried out by research organisations as a non-economic activity outside the State aid scheme, the aid intensity will normally be 100% of the total eligible costs. In the event that the support is granted under the State aid scheme, the aid intensity will always be calculated for each beneficiary and for each other participant in the project, and for each project individually according to the proportions of the categories of research to be supported in the project in accordance with Regulation No 651/2014.

7 Method of implementation of the programme

7.1 Method of implementation of the programme and its projects

The programme will be implemented in the form of targeted support for programme projects selected by the grantor in a one-stage public tender in research, development and innovation carried out pursuant to Section 17-26 of Act No. 130/2002 Coll., (hereinafter referred to as the "public tender").

The applicant's application for targeted support is a project proposal submitted to the public tender. Each applicant may submit only one project proposal³⁶.

The tender documentation and other information and documents necessary for the preparation and submission of the project proposal pursuant to Section 19 of Act No. 130/2002 Coll. will be published by the grantor on the day of the public tender announcement.

The targeted support will be provided, depending on the type of beneficiary, either in the form of a subsidy or in the form of an increase in the expenditure of an organisational unit of the State or a territorial self-government unit, or an organisational unit of the Ministry of Defence or the Ministry of the Interior engaged in R&D&I. The regulation of the relationship between the grantor and the beneficiary is subject to Section 9 of Act No. 130/2002 Coll. Depending on the type of beneficiary, the grantor will conclude a contract with the beneficiary or issue a decision on the provision of support.

³⁶) This does not preclude its participation in another project in the role of another applicant.

7.2 Applicants for support

Research organisations or enterprises engaged in research and fulfilling the conditions for the provision of support under Act No. 130/2002 Coll. and Regulation No. 651/2014 may apply for support. Only an applicant who fulfils all the conditions for the provision of support set out in this programme and in whose favour the grantor decides in a public tender of the programme pursuant to Act No 130/2002 Coll., may become the beneficiary of support. The programme is intended for legal persons.

8 The subject of support, expected results, benefits and impacts of the programme

8.1 Specification of the subject of support

The subject of support is the implementation of a consortium project focused on R&D&I and carried out by a multidisciplinary, highly qualified team with a high degree of internationalisation, using the most modern research infrastructures available and cutting-edge scientific methodology. The projects will support research activities aimed at achieving new breakthrough knowledge and knowledge with high added value and application potential in the above defined priority areas of R&D&I.

An essential part of the project shall be the identification of the application potential of the expected knowledge and a plan for the protection of intellectual property and rights to the results, the identification of the possibilities of applying the "open access" regime in the publication of results and sharing of verified scientific data to the maximum extent possible, where this is possible in compliance with all applicable regulations for the protection of personal data, sensitive data and intellectual property.

The support is intended exclusively to cover the eligible costs of the project, i.e., according to Section 2(2)(n) of Act No 130/2002 Coll., those eligible costs of the project that are defined in Sec. 4. Art. 25(3)(a)-(e) of Regulation No 651/2014 and Article 2(2)(m) of Act No 130/2002 Coll. and are eligible under the EXCELES programme, will be incurred during the project, have been duly justified in the project proposal in relation to the project activities and the chosen project objectives in accordance with the tender documentation of this programme, and have been approved by the grantor.

8.2 Supported project activities

- a) The targeted disciplinary and multidisciplinary association of prominent Czech scientific leaders and technological experts, successful and already established in the international scientific field, and the creation of expert, interdisciplinary platforms in state-selected R&D&I priority areas for the purpose of sharing knowledge and conducting research on a project basis;
- b) applied research involving the necessary share of basic research aimed at achieving new breakthrough knowledge, knowledge and skills³⁷ with high added value and potential in one of the defined priority areas of R&D&I according to Art 4.1, taking into account the principles of "do no significant harm";
- c) development of knowledge content in R&D&I priority areas from a gender perspective;
- d) targeted activities of the project team leading to the development, sharing and modernisation of research capacities (on the principle of "do no significant harm") and its active involvement in international R&D&I cooperation;
- e) human resources development, taking into account the gender-specific needs of the supported workplaces, including targeted activities aimed at internal transformation leading

³⁷) Section 2(1)(b) and Section 3(2)(b) of Act No. 130/2002 Coll.

to the HR Award and the implementation of the gender equality plan, support for scientific education and the involvement of young and emerging scientists;

- f) protection and application of R&D&I results obtained in the project to the maximum extent possible (regardless of their form), interoperable sharing of scientific information, including scientific data, and their dissemination based on FAIR³⁸ principles.

Should the applicant/beneficiary or other project participant be successful in obtaining support from foreign or other public or private funding sources for activities that overlap in substance with the subject of support in the project of this programme, he/she shall enter into negotiations with the grantor without delay in order to eliminate the possibility of double funding. This provision does not preclude the authorization of multi-source or cross-source financing; nor does it preclude the early successful termination of a project under this programme by mutual agreement with the grantor in accordance with the terms of the programme and applicable law. Participation in other competitions and tenders, including foreign ones, or the submission of a new, clearly different or complementary project proposal is not restricted by this provision. It is the responsibility of the applicant/beneficiary or other project participant who is the bearer or receiver of support for such a new project to ensure the complementarity of parallel projects, to define themselves in relation to them and to eliminate the risk of duplication.

8.3 Expected results of the programme

The expected results of the programme are new excellent knowledge, knowledge and skills that will move the existing knowledge base in the supported priority areas of R&D&I to a new qualitative level, thus expanding the possibilities for the diagnosis, treatment and prevention of serious diseases and allowing for the minimisation of their social and economic impact. The knowledge gained will also be useful for public authorities in addressing national population health needs or major societal health crises such as the Covid-19 pandemic. The expected outcome is also to overcome the current relative regional and sectoral isolation of existing research capacities in the supported R&D&I priority areas and to create functioning expert scientific platforms capable of further participating in research projects in R&D&I priority areas on a national and international scale and systematically providing an expert environment and verified scientific information for the needs of the state administration.

These expected results will be manifested by an increase in measurable outputs in the given R&D&I priority areas, i.e. an increase in the number of high-quality and internationally competitive peer-reviewed publications, and other measurable outputs of a non-publication nature such as internationally recognised therapies and methodologies, internationally certified medical devices and preparations, comprehensive research reports, new targeted analytical and impact studies or shared specialised databases and maps. Outputs are also expected to be useful for the development of regulations, strategic documents, public policies and standards of a legislative and non-legislative nature³⁹ Their number will depend on the number of researchers supported in the projects (at least

³⁸) FAIR principles stand for **Findability, Accessibility, Interoperability** and **Reusability** in line with European Open Access and EOSC policies (European Commission, 2021. *European Open Science Cloud (EOSC)* [online]. 25. 6. 2021 [cit. 23. 7. 2021]. Available at: https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/european-open-science-cloud-eosc_en),

³⁹) Types of results that applicants for support will choose at the level of individual projects in accordance with Resolution of the Government of the Czech Republic of 29. 11. 2017 No. 837, approving the Definition of Types of Results of separate Annexe No. 4 to the Methodology for the Evaluation of Research Organisations and Evaluation of Programmes of Special Purpose Support for Research, Development and Innovation, and must correspond to the objectives, expected results and benefits of the entire programme, must be realistically achievable by project activities in the conditions of the programme in relation to the estimated volumes of the disbursement of funds, measurable and evaluable according to the Methodology for the Evaluation of Research Organisations and Programmes of Special Purpose Support for Research, Development and Innovation, which was approved by the Resolution of the Government of the Czech Republic of 8 February 2017, No. 107 (Methodology 17+). An analytical or impact study submitted to the government by a public authority (PA) or used by it to address a specific public policy issue on the social and economic impacts of systemic health risks can be recognised as a "type O" another outcome in this programme. The grantor is

5 per FTE researcher or academic staff member for the entire duration of the project). Indicators of engagement in collaborative R&D&I at national and international level are also expected to grow. Encouraging the participation of young researchers in R&D&I priority areas will be reflected in their co-authorship and contribution to outputs.

The target value cannot be objectively determined at the time of the programme preparation, because it is not possible to clearly identify in advance the baseline or the number of supported researchers, which depends both on the priority area, the subject of support and the scope of project activities specified only in the project proposal, and on a number of global factors (in particular, accelerated development in selected priority scientific fields, and the development of the European and Czech economy)⁴⁰

Given the nature of the results, the grantor will monitor their application in the three years following the completion of the projects.

8.4 Expected benefits of the programme

The supported project activities and their results will contribute in the short term to the deepening of knowledge in R&D&I priority areas, to increasing interregional and interdisciplinary scientific research cooperation within the Czech Republic and, thanks to the creation of new or strengthening of existing international contacts, to increasing the Czech Republic's involvement in international cooperation in R&D&I priority areas. In connection with the necessary modernization and investment support of R&D workplaces involved in the project, the expected benefit is also an increase in their competitiveness in the European scale.

In selected R&D&I priority areas, new findings, skills and knowledge will also bring gradual changes to healthcare practice, which will be reflected, for example, in the modernisation of treatment procedures, diagnostics, methodology or in the organisational and administrative provision of healthcare services. An expected benefit is also the use of results to increase the qualification and "evidence-based" decision-making of public authorities.

Involving young and early-career researchers and improving the quality of science education in R&D&I priority areas will broaden their orientation and opportunities for internationalisation in R&D&I priority areas. Incorporating gender aspects into the topics addressed will bring a new perspective and may reveal new needs in R&D&I as well as other hitherto unconsidered socio-economic aspects of the issues under study. It will also help to increase international competitiveness, as the obligation to take gender and sex into account is now an obligation under both the Horizon Europe Framework Programme and the ERC.

Functioning national institutes as scientific authorities for priority areas will remove the existing fragmentation of opinion in these R&D&I areas. Minority achievements of individuals will be capitalised through knowledge sharing at the national level, ensuring international competitiveness of results and knowledge transfer in the supported priority areas. They will provide interoperable and user-friendly digital public services to the public administration and other interested parties for the given area of competence, while contributing to quality science education.

8.5 Expected impacts of the programme

In the long term, it is expected that the results of the programme will be used in other healthcare application outputs (especially in the form of certified methodologies and treatments), which will have a positive impact on the reduction of the morbidity and mortality of selected diseases. Strengthening the "evidence-based" decision-making of public authorities is also expected to increase their ability to respond effectively to national or transnational health crises and to reduce the negative social and

entitled to request information on the compliance with the required quality of the result from the relevant PA for the purposes of acceptability of such a result.

⁴⁰⁾ Defining the baseline will be an essential part of any project design.

economic impacts of such crises. An expected impact is also the increase in the international prestige of workplaces involved in the supported projects and their inclusion among European or even global excellent workplaces for a specific area of R&D&I. This is also linked to new opportunities for more active participation in international projects, scientific platforms, organisations and associations, or participation in professional evaluation and assessment structures of R&D&I at international level. The involvement of young and emerging researchers and the improvement of the quality of scientific education in R&D&I priority areas will ensure the generational continuity and further development of R&D&I activities. Taking gender aspects into account in the content of research, in the composition of teams and in improving the working conditions of research will ensure a balanced perspective in addressing societal needs.

In the supported R&D&I priority areas, this is a positive qualitative change compared to the baseline situation at the start of the provision of support. Its need arises from analytical studies of the OECD and CSO comparing both the performance and achievements of EU countries in R&D&I and identifying risk diseases and their severity, as well as from bibliometric analyses (from WoS or Scopus), sectoral analyses from IS VaVal data or evaluations carried out in Module 1 according to Methodology 17+ applied by the RDIC. The change will be monitored not only in the databases and statistics mentioned above, but also on the basis of collaborative analyses carried out on data in the IS VaVal or specialised statistics of the CSO.

8.6 Possible risks and negative impacts

The programme has its risks and may have negative impacts, which could arise due to a number of external and internal factors (political, socio-economic, legislative, etc.). The most significant of these are identified in the table below.

Risk	Risk management, method of minimisation
Inappropriate selection and support of a too narrowly defined and too isolated scientific field at project level with minimal overlap with other disciplines, whose temporary nature will not be recognised at the time of project preparation and selection, and which will not develop further after the termination of programme support or due to changes in global trends.	The projects and their implementation will be supervised by ISAB - International Scientific Advisory Boards, whose task is, among other things, to identify an undesirable direction of the project and recommend changes on the basis of an ongoing project evaluation.
Lack of interest of top experts in the topics offered by the state, lack of quality project proposals.	Although the topics supported were determined by the state, they were based on a detailed analysis of the state of excellence and the need to address societal challenges. If there is a lack of quality projects, the grantor will focus more on promoting the attractiveness of the programme and informing the public in the form of round tables or seminars for interested parties and repeat the tender.
Deliberate "poaching" of the best scientific capabilities of another research organisation for the purpose of obtaining support in the programme by the applicant and interrupting their positive working relationship with the parent organisation.	The programme aims to create consortium clusters of professional workplaces across the Czech Republic, which will lead to legally anchored, mutually agreed (and, therefore, mutually beneficial) cooperation at the level of participating organisations enabling the exchange of experience, sharing of knowledge, sharing of research infrastructure and capacities or managed mobility, reducing the risk of expert turnover.

Attenuation of other, progressive research activities at the applicant's workplace for the sole purpose of focusing on the programme topics.	The initiation project form will ensure that the existing internal financial resources of the participating entities are not drained from other activities (e.g. within the institutional support of the research organisation) until a full-fledged, stable position as a national research authority is established.
Instability of the financial security of the programme due to budgetary changes.	The programme is a component of the National Recovery Plan approved by Resolution of the Government of the Czech Republic No. 467 on 17. 5. 2021, and as such will be a priority programme in the medium-term outlook and in the longer-term commitment to the European Commission in terms of the state budget after its approval.
Changes in economic or organisational conditions in the beneficiary's organisation shortly after the end of the project that prevent the further development of the supported and otherwise promising scientific field.	The consortium nature of the newly created national authorities in the R&D&I priority areas will allow for a smooth transition in management or the transfer of roles between involved expert workplaces across the Czech Republic.
After the end of the project, the departure of excellent scientists who are key for the development of the field in the Czech Republic abroad on the basis of newly created contacts during the project.	The use of a targeted form of support will enable the participating workplaces to achieve, among other things, standards comparable to those of European workplaces, which should level the playing field and provide opportunities for further career development, thereby reducing the unnecessary departure of Czech top researchers abroad.

9 Eligibility requirements for applicants

The requirements for demonstrating the eligibility of the applicant for support in the programme are governed by the provisions of Section 18 of Act No. 130/2002 Coll., the R&D Framework and Regulation No. 651/2014.

The applicant and each other project participant has the professional qualifications to carry out a project in the programme according to Section 18(2)(a) of Act No 130/2002 Coll., if it is successfully and systematically engaged in research and development, i.e. it demonstrates that it is

1. a research and knowledge dissemination organisation (hereinafter referred to as a "research organisation")⁴¹ operating in the selected R&D&I priority area for at least 3 years or a company active in R&D&I and R&D&I support programmes or benefiting from R&D&I tax credits for at least 1 year, and is able to demonstrate this fact;
2. able to justify and demonstrate, by bibliometric, patent, performance or other standard and recognised analysis or method over the last 3 calendar years, that the workplace where the project will be carried out has sufficient scientific expertise or experience in knowledge transfer and application of knowledge in practice in the selected R&D&I priority area to be supported in the project (mandatory project annexe).

⁴¹), i.e. a research organisation meeting the definition under Chap. I. Article 2, paragraph 83. of Commission Regulation No. 651/2014 as amended or registered in the list of research organisations maintained pursuant to Act No. 130/2002 Coll.

Pursuant to Article 18(9) of Act No 130/2002 Coll., each project proposal applying for support under this programme, must further demonstrate that

(a) the applicant or other project participant:

3. is a research organisation or enterprise that has been a beneficiary (host institution) of a project funded by the European Research Council (ERC)⁴², NSF⁴³, or similar major international grant⁴⁴ during the last 3 calendar years in the selected R&D&I priority area; whereas for a project submitted for an R&D&I priority area under Article 4.1 point e), this condition must be fulfilled in all points 1 to 3;
4. has at least one person on the research team who has successfully worked on a prestigious foreign, European or non-European research project in the selected R&D&I priority area funded by NSF, NASA or ERC (e.g. ERC grant) or a project awarded the Seal of Excellence⁴⁵, or a person who has submitted such a project to the ERC and this has been evaluated in category A, or a person who is a member of international ERC or Seal of Excellence review panels or non-European prestigious review panels in the R&D&I priority area or in a close and related field intended to be the subject of project support under this programme, or a person who is the holder of at least one valid international patent, internationally recognised treatment, internationally recognised certified methodology or medical device, or a person who publishes in peer-reviewed journals with a citation index in the 'top 5' (at worst top 10 for high-profile fields, e.g. medicine or ICT according to WoS or Scopus) in the R&D&I priority area selected for the project or in a related field; the applicant must be able to provide relevant evidence of this fact;
5. has at least one other person on the research team, in addition to the person mentioned above, who has carried out research and development practice in the R&D&I priority area and successfully participated in the transfer of knowledge into practice or the commercialisation of R&D&I results (e.g. demonstrable participation in successful patent proceedings, development of candidate compounds or drugs in advanced preclinical or clinical testing, knowledge transfer with output in the form of a recognised and established treatment procedure, prototype, functional sample, utility model, software application, certified methodology or medical device applied directly in medical practice, translation of R&D&I results into regulations and standards, specialised map or specialised database or its operation)⁴⁶, and the applicant is able to provide relevant evidence of this fact;
6. has at least one person in the research team who has carried out successful R&D practice or has successfully participated in the knowledge transfer or commercialisation of R&D&I results in a foreign research organisation as an R&D worker or in a major innovative foreign enterprise continuously for at least 6 months and has made a demonstrable contribution to successful research or knowledge transfer⁴⁷, and the applicant is able to provide relevant evidence of this fact;

⁴²) European Research Council, 2021 [online]. ERC. [cit. 23. 7. 2021]. Available at: <https://erc.europa.eu/>.

⁴³) NSF International, 2021 [online]. NSF. [cit. 23. 7. 2021]. Available at: <https://www.nsf.org/>.

⁴⁴) H2020 projects such as the EIC Accelerator Pilot, Marie Skłodowska-Curie Actions (MSCA) individual fellowships or Teaming projects are also eligible.

⁴⁵) The label/seal of quality is awarded to project proposals submitted to European R&D&I support programmes or framework programmes (H2020/HE), see the European Commission, 2021. Seal of Excellence [online]. EC. [cit. 23. 7. 2021]. Available at: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/seal-of-excellence_en.

⁴⁶) On knowledge transfer in social sciences, e.g. Kadlečíková, Kristýna, 2008. *Aplikovaný společenskovední výzkum (Applied social science research)* [online]. Technology Centre of the CAS [cit. 23. 7. 2021]. (The document is available e.g. at: https://www.mkcr.cz/doc/cms_library/aplikovany_spolecenskovedni_vyzkum_studie_21-3-08_vcetne_titul-2281.doc.)

⁴⁷) In the case of social science disciplines, it is necessary to substantiate at least the history of professional work at a foreign institution.

7. has active links to reputable foreign workplaces in the selected R&D&I priority area, or is able to demonstrate active participation of members of the research team in international professional networks or links to them.

(b) the applicant and any other participant in the project:

8. is able to ensure the material, technical, informational and organisational administrative conditions for the successful implementation of the project in accordance with European standards⁴⁸, as well as to ensure the preference for gender balance of the project team and the project advisory body (e.g. implementation of the conditions for obtaining the HR Award⁴⁹ or a gender equality plan as a tool for improving the quality of working conditions), based on the facts stated in the project proposal (in particular, the provision of research, working and operational capacities, including both the allocation of the necessary premises and equipment, as well as the necessary staff capacities in the research team and in the "service" organisational, administrative and economic staff, access to information resources, economic and administrative services, legal services and project support for the research team);
9. is able to provide sufficiently qualified staff to ensure professional capacities for the project by concluding an employment relationship with the principal investigator in the scope of at least a 0.7 full-time equivalent (FTE), or with the collaborating investigator (in the case of another project participant) in the scope of at least a 0.5 FTE on average for the entire project duration (2022-2026), without being burdened with other work duties within this amount of time.

(c) the applicant only:

10. is able to demonstrate that the research team includes representatives of internationally recognised teams from the Czech Republic working in the selected R&D&I priority area, and declare a link to the application sphere;
11. is able to coordinate and manage the consortium project by clearly defining executive and management roles, financial flows, material and financial obligations and rights to assets and results obtained from the project in the project contract(s) with other project participants;
12. is able to ensure the coordination and organisational and administrative management of the project in terms of personnel, by designating a qualified person in the role of project coordinator who has participated in the preparation of the project proposal and will be responsible for the organisational, administrative and financial management of the project, and for communication with the grantor; document his/her qualifications and previous experience in a relevant manner, and concluding an employment relationship with him/her at least to the extent of 0.5 full-time equivalent (FTE) for the entire duration of the project, and at least for 6 calendar months following the date of termination of the project, including an evaluation of the project and its impact, dissemination of results or implementation of a 'data management plan',
13. is able to provide sufficient quality professional support for the project by providing an international expert panel/international scientific advisory board (ISAB), which will

⁴⁸) A commitment to fulfil the conditions of the project, e.g. in accordance with the ERC model grant agreement, is considered a European standard, and an appropriate environment for the research team is needed to ensure that the objectives of the programme are met in full and to an appropriate quality. The applicant and other project participants will, therefore, be obliged to create conditions for the research team similar to those that are standard for the implementation of prestigious projects at the European level (analogous to ERC grants). Details will be included in the tender documentation.

⁴⁹) or proof of an award already obtained.

supervise and evaluate the quality of the professional project activities and make expert recommendations in all R&D&I areas included in the project on an annual basis, so that the project activities reach the limits of the current state of scientific knowledge; furthermore, the applicant must fully ensure the activities of the ISAB throughout the project and during the period of its evaluation and dissemination of the results for at least another 6 calendar months after the end of the project.

10 Eligible project costs and incentive effect

10.1 Definition of eligible project costs

Eligible project costs are defined in this programme in accordance with Section 2(2)(m) of Act No 130/2002 Coll. and, in the case of support for economic activities, also in accordance with Annexe I of the R&D Framework, Chapter III, Section 4, Article 25(3) and Article 26 of Regulation No 651/2014 as costs or expenditure in research, development and innovation incurred by the applicant or other participants in the project for the necessary R&D&I activities defined by the project in the context and for the purpose of meeting the stated objectives of the project and the chosen programme objective to be fulfilled by the project.

The eligible costs of a single project must not exceed the limits laid down in Regulation (EC) No 651/2014 in the case of support for economic activities under the programme. The limits are set for each category of research and apply to 1 project and 1 applicant/beneficiary and correspond to the crown equivalent on the date of the announcement of the public tender for this programme in the amount of:

- a) 40 mil. €⁵⁰ for a basic research project,
- b) 20 mil. € for an industrial research project,
- c) 15 mil. € for an experimental development project.

Eligible costs are⁵¹:

- a) personnel costs or expenses of members of the research team and of other, research or academic or R&D staff, technicians and other support staff to the extent necessary for the purposes of the project;
- b) the cost or expense of tools and equipment to the extent necessary for the purposes of the project;
- c) costs or expenses for externally supplied services or subcontracts incurred in direct connection with the project, provided that the contractor is not the researcher or another member of the research team, another employee of the applicant or a natural or legal person associated with them, or a legal person with direct supervision of the applicant/beneficiary or in a relationship of subordination or other exercise of ownership or influence;
- d) costs or expenses for the protection of intellectual property or the presentation, dissemination, sharing and protection of R&D&I results and scientific data generated and produced by the project;
- e) the cost or expense of repairs and renovations to premises and parts of buildings to the extent necessary for the purposes of the project;

⁵⁰) In the case of conversion into CZK, the official CZK to € exchange rate of the Czech National Bank current on the date of publication of the tender documentation for the announced public tender of this programme must be used.

⁵¹) The detailed definition of eligible costs will be contained in the tender documentation.

- f) the cost or expense of contract research, knowledge and patents purchased or acquired under licence from external sources at arm's length, as well as the cost of consultancy and equivalent services used exclusively for the purposes of the project;
- g) other operating costs or expenses, including materials, supplies and similar products, incurred as a direct result of the project;
- h) additional overheads or expenses up to 20% of the eligible non-investment costs of the project per year for the accounting period and overall, incurred as a direct result of the project.

The grantor of support reserves the right to include in eligible costs only costs generated from the date on which the beneficiary became legally entitled to the support (i.e. from the effective date of the contract for the provision of support or from the date on which the decision to grant the support becomes legally binding).

10.2 Incentive effect

In accordance with Chap. 4.4. Under the R&D framework, the support provided must lead to R&D activities or projects that would otherwise not have been carried out at all or would have been carried out only to more limited extent. As part of the project proposal evaluation process, the grantor of support will assess the achievement of the incentive effect of the support for each project proposal and for each applicant individually. In order to fulfil the incentive effect, the project activities must not be commenced before the application for support is submitted.

11 Method and criteria for evaluating project proposals

11.1 Evaluation method for project proposals

The method of selecting projects in the public tender is regulated by Section 21 of Act No. 130/2002 Coll. The subject of evaluation in the selection of projects in the public tender is the project proposal submitted by the applicant to the grantor within the tender period in accordance with the requirements contained in the tender documentation, including all its annexes and documents demonstrating the applicant's eligibility.

The project proposals will be inspected by the project proposal acceptance committee for compliance with the conditions of the public tender. The results of the committee's evaluation will then be forwarded to the grantor for a decision on whether or not to accept the project proposal into the tender. Project proposals accepted into the tender will be referred to the grantor's expert advisory body for evaluation. The manner of proceedings of the expert advisory body of the Ministry of Education, Youth and Sports established for this programme, its composition, the manner of handling the data contained in the project proposals and other rules for the activities of the grantor's expert advisory body are regulated by the statutes and rules of procedure, which the grantor will issue and publish on the programme's website together with the announcement of the first public tender.

For each project proposal accepted into the public tender, the grantor shall provide expert opinions from at least two independent opponents who, in accordance with Section 21(5) of Act No 130/2002 Coll., must not be biased in relation to the subject of the public tender or the applicants, in particular, they must not be involved in the processing of the project, they must not have a personal interest in the decision to grant support to a particular project, and they must not be linked to the applicants via a personal or employment or other similar relationship.

In the event that the grantor, on the proposal of the committee for the acceptance of project proposals, decides, pursuant to Section 21(3) of Act No. 130/2002 Coll., that the project proposal has not met the conditions of the public tender set out in the tender documentation or decides, on the basis of a reasoned recommendation of the grantor's expert advisory body, that the project proposal will not be further evaluated for fundamental reasons pursuant to Section 21(5) of Act. No. 130/2000 Coll., the project proposal will be eliminated from the public tender and no opponents' opinions will be provided for this project proposal.

The grantor's expert advisory body and independent expert opponents will objectively and impartially evaluate the project proposals according to the rules and criteria announced in the public tender of the programme⁵². In both cases, the same evaluation criteria as set out in the following article shall apply. The grantor's expert advisory body is obliged to take into account the evaluation of the project proposal by the expert opponents and to consider their opinion and, in case of substantial differences, to duly justify them in the protocol.

For each project proposal evaluated under Section 21(6) of Act No. 130/2002 Coll., submitted to the public tender, the expert advisory body shall prepare a report on the result of the evaluation.

The determination of the final ranking of project proposals is carried out in accordance with Section 21(7) of Act No. 130/2002 Coll. The final ranking of the evaluated project proposals will be based on the scoring of the project proposals by the grantor's expert advisory body and their simple descending order.

The grantor will decide on the result of the tender. The result of the tender will be announced to the applicant on the programme website. Successful applicants will be invited to demonstrate their eligibility in accordance with the tender documentation and to conclude a contract for the provision of support via the programme website.

11.2 Criteria for the evaluation of project proposals in the public tender

The criteria that will generally be applied in the expert evaluation of project proposals are:

1. Eligibility for the project, in particular, the material-technical, organisational-administrative and institutional capacities of the applicant and other project participants, including the capacity to implement and manage the consortium project in the conditions determined by the consortium and internal organisation of the applicant and other project participants.
2. Expertise to solve and ensure the staffing of the project (incl. the expertise of the research team for the selected R&D&I priority area, balance in its composition, representation of internationally recognised personalities, men and women).
3. Quality of the proposed project solution:
 - a) programme relevance – compliance of the defined solution method with the programme objectives and R&D&I Priorities;
 - b) quality of the solution method – complexity, significance and feasibility of achieving the project objectives in time and in the material, technical and organizational-economic conditions of the applicant and other project participants, taking into account gender and "do no significant harm" aspects (clarity of the concept, preparation and adequacy of the proposed methodology, complexity, interdisciplinarity and relevance of the substantive scope of project activities to the set project objectives, incl. the actual method of addressing the project through project activities, the choice of criteria for meeting the project objectives and setting target values for the selected indicators at the project level, the method of sharing knowledge, scientific data and knowledge transfer);
 - c) results and outputs – the relevance of the overview of expected results and outputs for addressing known or expected, current or future societal needs in the selected R&D&I priority area;
 - d) the correct categorisation of project activities between basic research, industrial research and experimental development and innovation.

⁵²) In relation to the subject of support, the role of the independent opponents will not be to evaluate the solution of a specific scientific problem, but the quality of the complex consortium project and, above all, the ability of the applicant to implement the project under the conditions proposed by it in order to meet the objective of the programme in the selected R&D&I priority area.

4. Internationalisation and multiregionalism:
 - a) degree of involvement and cooperation of top teams and experts from the Czech Republic and abroad (including the involvement of foreign departments in the solution; mutual use of research facilities of cooperating departments; sharing of knowledge and scientific data on FAIR principles);
 - b) regional representation of relevant top teams in the project solution;
 - c) the degree of utilisation of large research infrastructures in relevant R&D&I areas;
 - d) a proposal for the composition of a relevant international expert board (International Supervisory and Advisory Board – ISAB), composed mainly of prominent foreign R&D&I personalities, a representative of the application sphere, and a legal and economic expert, which will professionally supervise the scientific research project activities.⁵³
5. effectiveness and economic viability of the project (the ratio of expected project costs in relation to the ambition, i.e. to the chosen project objectives, results and expected benefits for the fulfilment of the programme objective).

(The detailed specification and criteria evaluation system will be part of the tender documentation published when the public tender of the programme is announced.)

12 Monitoring and evaluation at project level

The implementation of a project which has received targeted support from the state budget is monitored annually on the basis of an interim report prepared by the beneficiary according to the instructions of the grantor. The beneficiary shall include in the interim report an evaluation of the project's focus and results carried out by ISAB members. Monitoring of the project by the grantor will be carried out with the participation of members of the grantor's expert advisory body.

The grantor shall carry out an inspection and substantive evaluation of the fulfilment of the project objectives in accordance with Section 13(1) and (2) of Act No. 130/2002 Coll. with the participation of members of the grantor's expert advisory body, on the basis of two independent opposing opinions and in cooperation with ISAB members, including an evaluation of the results achieved and their legal protection, once during the project implementation (interim evaluation), i.e. after the end of the second calendar year of the project implementation in 2024, after the project implementation is completed, and whenever non-compliance is detected during the monitoring of the project implementation.

The grantor's requirements for the submission of interim and final reports on the project will be specified in the contract for the provision of support for project implementation, which the grantor concludes with successful applicants.

⁵³⁾ This board will critically comment and make recommendations in writing at the end of each year on the fulfilment of the objectives and mission of the project consortium as a national R&D&I authority, on the status and role of the project consortium in international R&D&I networks and clusters and the overall state of internationalisation of the project consortium, on the overall scientific performance of the project consortium and the quality of its results and outputs, on knowledge transfer and exploitation of application potential, on the use of relevant capabilities and capacities of existing large research infrastructures, its involvement in international professional structures and the use of human resources from abroad, the management and use of staff and research capacities of the project consortium and beyond, the sharing of knowledge, scientific data and the application of the open access strategy and FAIR principles in the research practice of the project consortium, the financial issues and the effectiveness of the use of the project consortium's resources in relation to its performance, the professional orientation and the research agenda of the project consortium for the coming period.

13 Monitoring and evaluation at programme level

The method of evaluation at programme level is prescribed by the relevant government documents⁵⁴ and is conditioned by the programme's focus on applied oriented research with a high proportion of essential basic research, its objectives, its competitive nature and the related unpredictability of the resulting portfolio of ambitions and actual outputs of the supported projects.

13.1 Programme monitoring and evaluation schedule

- a) Ongoing monitoring at project level carried out over the past calendar year
- b) Ongoing monitoring of the programme at grantor level and interim evaluation of projects (2024)
- c) Final evaluation of projects within 12 months after completion
- d) Final evaluation of the programme and its results by the grantor within 18 months after the termination of support
- e) Independent ex-post evaluation of the programme according to Methodology 17+ after the termination of support
- f) Monitoring and evaluation of project and programme benefits and impacts (2029)

The data base for the evaluation of the projects and the programme will be, in particular:

- currently available reports and analytical studies in the field of R&D&I carried out by the CSO and other independent bodies (CAS TC, RDIC, CAS, OECD, Deloitte, etc.);
- analyses and evaluations carried out by the MEYS for R&D&I;
- patent and bibliometric analyses performed using internationally recognised citation databases (Web of Science (WoS) and Scopus), performance analyses and other standard methods for determining the quality of obtained results;
- foresight methods, cluster methods or other analytical methods applied for the purpose of the RIS3 strategy, in particular, for the purpose of identifying strategic disciplines and determining their suitability for support in the programme;
- published results of the evaluation of research organisations according to the applied Methodology 17+, especially in Module 1, and data in IS VaVal;
- interim and final reports of projects supported under this programme.

13.2 Programme monitoring and evaluation method

At programme level, the implementation of the basic parameters of the programme will be continuously monitored and the implementation of the programme as a whole will be tracked. Evaluations carried out at programme level have formative objectives.

After the first public tender is closed, an evaluation will be carried out in terms of the relevance of the supported projects to the objectives and activities of the programme and in terms of the financial characteristics of the supported projects in relation to the use of the programme budget. The administrative processes related to the preparation and evaluation of project applications will also be monitored, which may subsequently be capitalised on in other public tenders outside this programme.

⁵⁴) Resolution of the Government of the Czech Republic of 13 May 2015 No. 351 on the Basic Principles of Preparation and Evaluation of Programmes and Groups of Grant Projects for Research, Development and Innovation, and Resolution of the Government of the Czech Republic of 8 February 2017 No. 107 on the Methodology for the Evaluation of Research Organisations and Programmes of Special Purpose Support for Research, Development and Innovation.

The financial characteristics of the supported projects in relation to the use of public funds of the programme and its effectiveness are also monitored on an annual basis with the participation of an expert advisory body and are one of the bases for the interim evaluation of the programme, which will take place at the level of the grantor after the second year of the programme implementation in 2024.

The subject of the programme evaluation will be transparency, administrative burden or functionality of the programme, effectiveness and relevance in relation to the programme objectives. The fulfilment of the objectives of the programme by the implemented projects will be evaluated as well as their first benefits and impacts, if these can already be identified, e.g. in relation to the current performance of the Czech Republic in priority research areas using bibliometric data, patent databases and available independent analytical studies. The evaluation will be carried out with the participation of external evaluators, members of the grantor's expert advisory body.

The grantor will use the monitoring data to manage the programme. Recommendations arising from the interim evaluation also lead to necessary adjustments in order to maximise the benefits and achieve the programme objectives.

The final evaluation of the programme, its benefits and impacts will take place after the completion of all projects of the programme, after the termination of the provision of support, and after its settlement with the state budget in 2027. The evaluation will be carried out at the level of the grantor in the form of a self-evaluation with the participation of the grantor's expert advisory body, followed by an evaluation of the programme by an independent body.

After the end of the programme, the grantor will monitor and evaluate the implementation of the "data management plans", including the application of the results or "open access", the benefits and impacts of the programme, and the subsequently applied results of the projects at least from 2027 to 2029.

14 Fulfilment criteria for the programme objectives

The programme evaluation is based mainly on the results of the evaluation of individual projects supported by the programme in the criteria listed below. In relation to these, it is possible to establish a number of other criteria and indicators that can be used to evaluate the programme. For many of them, however, it is usually not possible to set target values, both because of the lack of relevant empirical input (which is typical especially for the R&D&I field) and because of the competitive nature, which by law does not allow prior knowledge of the range of applicants and their research portfolio, as well as of project proposals and projects ultimately supported. The following criteria were, therefore, selected.

a) relevance

Indicator	Value
Link to the National Recovery Plan in Component 5.1	all projects relevant
Link to the Innovation Strategy	all projects relevant
Link to the National R&D&I Policy	all projects relevant
Synergy with concurrent subsidy titles	no duplicity
Share of the number of supported projects with international activities of members of the research team, international cooperation, international research activities and projects	at least 50 %

Share of the number of supported projects using available state-of-the-art facilities of large research infrastructures from the Roadmap of the Czech Republic	at least 30 %
Qualitative change achieved by the implementation of the programme in relation to the identified needs in the supported R&D&I priority areas (and to the baseline in 2021)	(change – qualitative assessment)

b) programme functionality

Indicator	Minimum value
Disbursement of the approved annual allocation of the programme	70 %
Number of supported projects	4
Number of successfully completed projects	75 %
Average value of the number of cooperating entities in the project	3

c) programme effectiveness

The monitoring and evaluation of the results produced by the R&D&I projects is a basic parameter for evaluating the effectiveness of the programme. Their quality determines the extent to which a positive qualitative shift has occurred, the achievement of the required excellence in the state-selected R&D&I field, and whether Czech researchers are really at the frontier of current scientific knowledge. There are a number of other indicators for the effectiveness of such a specialised programme. However, the spectrum of results and their quantitative target values cannot be reliably specified in advance, mainly due to the research nature of the supported activities, which determines the high risk of any prediction. Another key input is the benefits and impacts of the implementation of the individual supported projects and their evaluation.

Quantitative effectiveness indicators	Minimum value
Share of R&D&I publication results in Q1 in the total number of publication results (according to WoS or Scopus)	30 %
Number of applied results registered under PCT or recognised therapies, certified therapeutic devices or medical supplies	3
Number of applied results in the social sciences	1
Number of R&D&I projects with secured funding from foreign sources after the end of the programme	3
Number of R&D&I priority areas with a qualitative shift in the production of R&D&I results to Q1 or above	3

Qualitative criteria and effectiveness indicators		
Criterion	Indicator	Method
Protection and dissemination of results in the academic and user communities, including the application of the open access regime and FAIR principles	implementation of results	implementation mapping
Publication results of the programme	quality of publications	citation analysis (WoS, Scopus)
Benefits of the publication results (users in terms of fields, sectors, country of origin, etc.)	use of publications	citation tree (citation analysis, mapping)
Response to applied results	quality of results (kind, types), financial return, if already existing at the time of the project	patent analysis and analysis of the types of applied results, financial analysis
Contribution of the programme to the development of fields	citation rate, use of application outputs	citation analysis, analysis of benefits from licenses and other types of contracts with users (financial and non-financial) questionnaire survey
Contribution of the programme to strengthening domestic R&D&I cooperation	the role of supported organisations in the field and in the community	cluster or other analytical method for the state of cooperation before the implementation of the programme (use of data from the IS VaVal) and after the termination of support
Contribution of the programme to strengthening international R&D&I cooperation (links between teams and organisations)	"Ego-Network" of supported researchers	network analysis
Increased national and international prestige	nationally recognised professional awards, international awards, new memberships in foreign expert panels and advisory bodies, international networks, invitations to guest lectures abroad	report analysis and questionnaire survey
Activities and the success of beneficiaries in international cooperation projects and in	success in international projects, programmes or	analysis of reports, statistics, available foreign

international programmes and recognised professional networks	other types of contracts with a foreign entity	databases (EC, e-corda, etc.), questionnaire surveys
Sustainability of teams and research	financial "return" (amount of funds received from follow-up international projects, programmes, contracts or from patents and other types of licences); representation of junior positions	analysis of reports, statistics, available foreign databases (EC, e-corda, etc.), questionnaire surveys
Gender balance	gender balance, including women's/men's representation in teams, leadership positions and advisory bodies, gender and sex perspective in research content, consideration of good working conditions (e.g. through the HR Award or gender equality plans)	implementation mapping, report analysis, statistics, questionnaire survey
Social sustainability	impacts on the environment, the circular economy, climate and water resources ("do no significant harm aspects")	implementation and impact mapping, questionnaire survey

d) threshold conditions for success at programme level

The success of the programme is directly linked to the success of individual projects. This programme can be considered successful after the completion of the projects if at least 75% of the supported projects meet the threshold conditions for project success according to the tender documentation. The required excellence of the research carried out in the supported R&D&I priority areas will be identified by bibliometric analysis and an increase in quality is expected compared to the baseline of 2021. Success will also be "measured" by the extent to which institutional or other funding is secured for the further development of national authorities, including international cooperation, to ensure the sustainability of excellence in the supported R&D&I priority areas.

e) monitoring and evaluation of the benefits and impacts of the programme

The grantor will monitor the implementation of the "data management" plans, including the application of the results in an "open access" mode on FAIR principles (where possible), and their protection as well as the benefits and impacts of the projects and programme for at least 3 years after the termination of the programme. The evaluation will be carried out in 2027 and 2029. The main criterion will be the qualitative change compared to 2021, in particular:

- in the quality of applied R&D&I results,
- in the quality and forms of research carried out in the supported R&D&I priority areas,
- in the quality and forms of science education carried out by supported R&D&I units
- in the degree of internationalisation of supported R&D&I departments and strengthening of international cooperation links
- in the degree of knowledge transfer, application of knowledge in practice and strengthening of links with the application sphere.

The evaluation of sub-objective 4.2(e) will also be an integral part of the systemic evaluation of the R&D of research organisations within the framework of Methodology 17+. Qualitative changes will be evaluated with the help of foreign members of the ISAB supported workplaces and the grantor's expert advisory body. Both peer review and analytical methods will be used, such as patent or bibliometric analyses developed for the supported disciplines, performance, cluster and sector analyses, and other types of analyses, e.g. using collaborative analytical maps and co-authorship of publicly available data from international and national databases.