**Marek Blažka**

**Karel Šperlink**

**Libor Kraus**

# GUIDE TO THE SYSTEM OF PUBLIC SUPPORT FOR RESEARCH, DEVELOPMENT AND INNOVATION IN THE CZECH REPUBLIC – 2018

**Authors:**
RNDr. Marek Blažka
Doc. Ing. Karel Šperlink, CSc., FEng.
Ing. Libor Kraus

**Publications issued to date:**

1. Guide to the System of State Aid for Research and Development in the Czech Republic – 1999
ISBN 80-86122-42-5

2. Guide to the System of State Aid for Research and Development in the Czech Republic – 2000
ISBN 80-86122-55-7

3. Guide to the System of State Aid for Research and Development in the Czech Republic – 2001
ISBN 80-86122-73-5

4. Guide to the System of State Aid for Research and Development in the Czech Republic – 2002
ISBN 80-86122-99-9

5. Guide to the System of Public Support for Research and Development in the Czech Republic – 2003
ISBN 80-7329-030-8

6. Guide to the System of Public Support for Research, Development in the Czech Republic – 2004
ISBN 80-7329-053-7

7. Guide to the System of Public Support for Research and Development in the Czech Republic – 2005
ISBN 80-7329-081-2

8. Guide to the System of Public Support for Research and Development in the Czech Republic – 2006
ISBN 80-7329-112-6

9. Guide to the System of Public Support for Research and Development in the Czech Republic – 2007
ISBN 80-7329-142-8

10. Guide to the System of Public Support for Research and Development in the Czech Republic – 2008
ISBN 978-80-7329-171-6

11. Guide to the System of Public Support for Research and Development in the Czech Republic – 2009
ISBN 978-80-7329-206-5

12. Guide to the System of Public Support for Research and Development in the Czech Republic – 2010
ISBN 978-80-87294-16-1

13. Guide to the System of Public Support for Research and Development in the Czech Republic – 2011
ISBN 978-80-87294-27-7

14. Guide to the System of Public Support for Research and Development in the Czech Republic – 2012
ISBN 978-80-87294-30-7

15. Guide to the System of Public Support for Research and Development in the Czech Republic – 2013
ISBN 978-80-87294-40-6

16. Guide to the System of Public Support for Research and Development in the Czech Republic – 2014
ISBN 978-80-87294-48-2

17. Guide to the System of Public Support for Research and Development in the Czech Republic – 2015
ISBN 978-80-87294-57-4

18. Guide to the System of Public Support for Research and Development in the Czech Republic – 2016
ISBN 978-80-260-9613-9

19. Guide to the System of Public Support for Research and Development in the Czech Republic – 2017
ISBN 978-80-906810-0-2

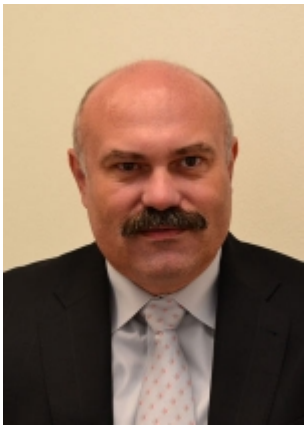
# FOREWORD

## ČSNMT

The Czech Society for New Materials and Technologies was founded in 1993. Its mission is to help its members develop their creative abilities and expertise, to advance the science, engineering, and manufacturing applications of new materials and technologies, and to promote international cooperation. CSNMT is convinced that research, development and innovation belong to fundamental prerequisites for maintaining the competitiveness and fostering the development of the society and national economy.

The initiator of this Guide was the late Ing. Tasilo Prnka, DrSc., an excellent scientist, specialist and science populariser, one of the founders and the first president of the Czech Society for New Materials and Technologies. The Managing Committee of CSNMT has decided to launch this publication series, which will continue to remind us of his legacy.

## COMTES FHT



The company COMTES FHT a.s. was established in December 2000 as a start-up focusing on research and development of metallic materials and their processing technologies. Since 2003, it has been operating as a research organisation according to the rules of the Community Framework.

The mission of the research organisation COMTES FHT is to strengthen the competitiveness of European manufacturing companies by providing highly-specialised services for the development, innovation and implementation of state-of-the-art processes and products. COMTES FHT continues to seek new challenges, new fields of research and new applications to be developed and put into practice for the benefit of industry. It focuses on metallic materials and, recently, on polymer composites and plastics as well. It is based in its own premises in the town of Dobřany in the western part of the country.

COMTES FHT has successfully completed a number of research projects. Undoubtedly, one of the largest and most important ones was the “West-Bohemian Centre of Materials and Metallurgy” project under the RDIOP programme. As part of this project, a two-storey building has been erected on the company’s grounds, housing laboratories for metallographic analysis, computer modelling and design. In addition, a unique metallurgical laboratory has been set up. Each year, COMTES FHT serves more than 140 clients and carries out dozens of research projects in collaboration with Czech and foreign partners across the globe.

Current challenges include the construction of a science and technology park and a business incubator adjacent to the company’s premises, the procurement of new instruments and equipment, and the exploration of new research orientations. COMTES FHT has thus entered a new phase, with an opportunity to demonstrate its vision to a much wider audience by supporting research and development, not only in the Czech Republic but across the globe.

## HISTORY OF THE GUIDE

In 1999, the Czech Society for New Materials and Technologies published the first Guide to the System of State Aid for Research and Development in the Czech Republic – 1999. This was the first time when detailed information on the programmes of state aid for research and development in the

Czech Republic and on the support of international cooperation in research and development was compiled in a single booklet. After this first edition had been very well received, its later versions have continued to be published for twenty years, eventually under the title “Guide to the System of Public Support for Research and Development in the Czech Republic”. The Guide is updated every year to provide the most recent information and to reflect the current situation in research and development.

As the Czech Society for New Materials and Technologies and COMTES FHT firmly believe that research, development and innovation are the cornerstones of the modern society and prosperous economy, they have decided to jointly publish this Guide for the third time. Both organisations believe that it will become a useful aid for not only the applicants for research and development funding but also for others interested in this field.

**Doc. Ing. Karel Šperlink, CSc., FEng.**
President of the CSNMT

**Ing. Libor Kraus**
Chairman of the Board of COMTES FHT

# Table of content

## INTRODUCTION

The “Guide to the System of Public Support for Research and Development in the Czech Republic – 2018” is the twentieth publication in the series that has been published continuously since 1999. This year’s Guide has the same ambition as the very first one: to inform professionals as well as the general public about the options and ways of obtaining funding from support programmes for research and development, and to give a summary of recent developments in this field. The underlying motivation for this effort is the simple fact that the research and development landscape constantly evolves.

The first edition was published in 1,000 copies. It was the first publication to provide comprehensive information on research and development in the Czech Republic from the perspective of international support as well as state aid. At that time, the ministries and offices which act as budget agencies in the Czech Republic differed greatly in their views of the government funding for research and development. Horizontal coordination of relevant programmes was practically absent, as was any integrated national research and development policy.

Since then, the system of research and development underwent many changes. In 2000, the first National Research and Development Policy was formulated. In 2002, the Support of Research and Development Act No. 130/2002 Sb. entered into effect and became crucial for shaping the future of Czech research and development. In 2007, as the new version of the National Research and Development Policy was being prepared, deficiencies in the public support of R&D were identified of such proportions that they led to what became known as the Reform of the Research, Development and Innovation System. The Reform has transformed the management of research and development and innovation (RDI) at all levels, including the state administration, and changed the course of and upgraded the standards for Czech research and development. In 2009, the amended Act No. 130/2002 Sb. came into effect. In 2012, the government adopted newly-formulated RDI Priorities, a document that identified research and development areas of key importance to the Czech Republic. In 2014, the Partnership Agreement between the Czech Republic and the EU for the 2014–2020 period was ratified. The same year, the European Commission adopted two important legal rules, the new Regulation No. 651/2014 and the new Framework for State Aid for Research, Development and Innovation. In 2016, the National Research, Development and Innovation Policy of the Czech Republic for 2016–2020 was approved. In 2017, the Methodology of Evaluation of Research Organisations and Programmes of Specific-Purpose Funding for Research, Development and Innovation was approved by the government. It is essential to the R&D sector because its rules will govern the way institutional funding will be allocated to research organisations in the coming years. It also introduced definitions of new types of results.

As all these rules and documents have had and continue to have a profound impact on R&D in the Czech Republic, each of them led to updates to and expansion of this Guide.

As with previous editions, this year’s Guide has been compiled using publicly accessible data and resources, and documents provided by the Research and Development Council and the budget agencies (public funding providers).

As this booklet reports on the state of affairs as of March 2018, some information may become outdated even in the same year.

## 1. THE SYSTEM OF RESEARCH, DEVELOPMENT AND INNOVATION IN 2018

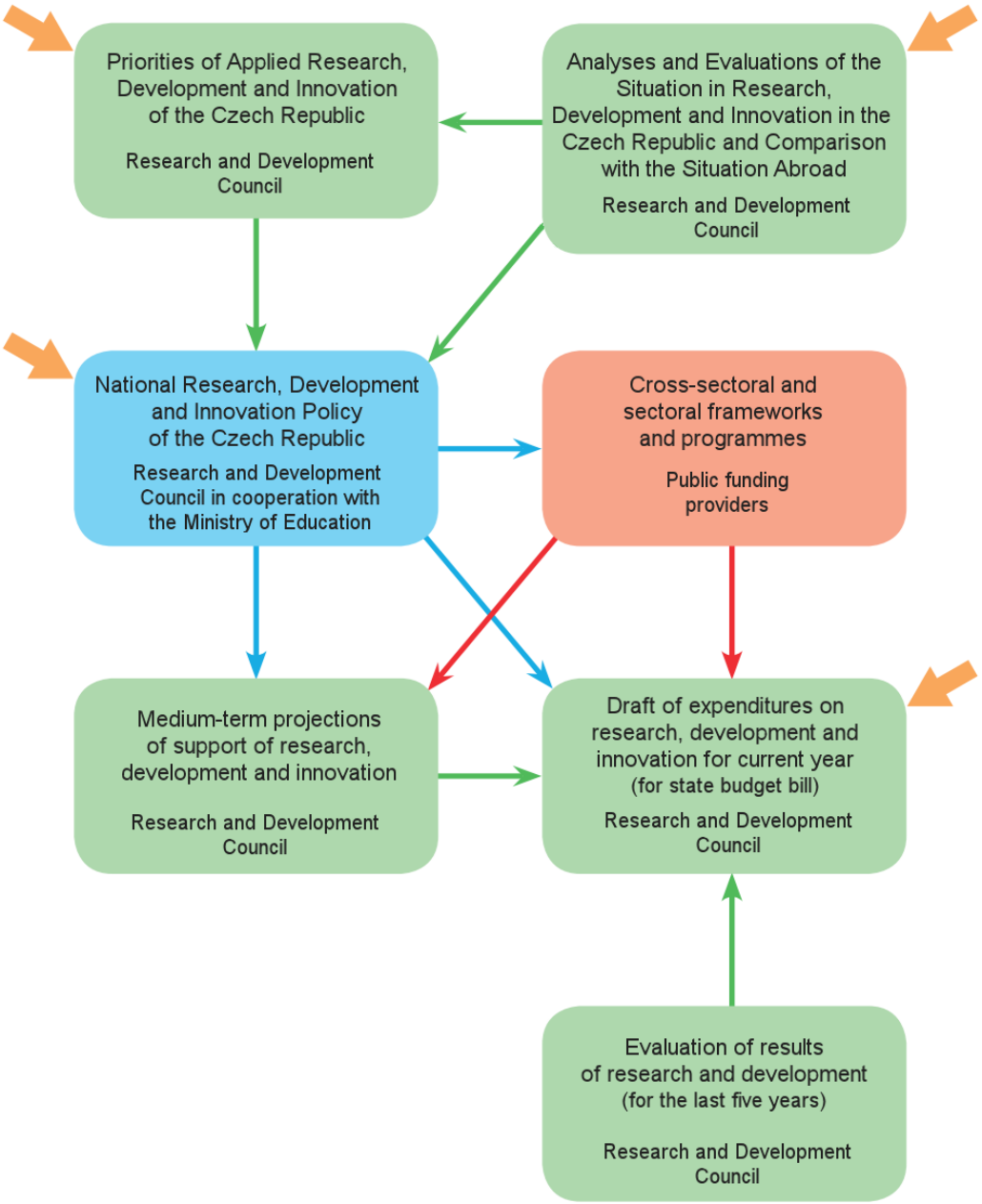
Today's system of research, experimental development and innovation (RDI) in the Czech Republic (CR) can be characterised from various perspectives, for instance through its fundamental framework documents. These documents mainly concern the part of RDI funded by the government or, more precisely, funded from all public sources, such as the state budget, EU, and other public sources, including regional and municipal administrations. Since financing from multiple sources is a common practice, the publicly-funded RDI activities are closely linked to all other RDI efforts, whether those receive funding from domestic private sources or from abroad. A significant portion of non-public funded RDI also benefits from some form of state support, e.g. through tax incentives (deduction of research and development expenditures from the income tax base).

The system of support for RDI is described below in terms of seven aspects and related documents:

1. Conceptual and strategic (provided by the National Research, Development and Innovation Policy of CR),
2. Thematic focus (the Priorities of Oriented RDI),
3. Legislative (the Support of Research and Development Act No. 130/2002 Sb., as amended, and the Framework for State Aid for RDI)
4. Financial (state budget for RDI, deduction of RDI spending, and other measures)
5. Assessment (Evaluation of Research Organisations and others),
6. Information (the RDI Information System),
7. Analytical (e.g. the Analysis of the Situation in Research, Development and Innovation in the Czech Republic and Comparison with the Situation Abroad),

The relationships among the main documents in the RDI system are outlined in the following diagram. The roles of bodies and institutions involved in the system depend on the perspective taken to examine them. The Research and Development Council (R&DC) and the Ministry of Education, Youth and Sports (MEYS) are those with the major remit. In terms of the actual support provided for RDI, the key players are fourteen ministries (public funding providers).

Schematic of the RDI framework (links between documents)




Explanation:

Data from the Research and Development and Innovation Information System of the Czech Republic and other documents

### 1.1 National Research, Development and Innovation Policy of the Czech Republic

The document entitled The National Research, Development and Innovation Policy of the Czech Republic is approved at the government level. It outlines the main goals of the funding to be provided, the thematic focus, gives estimates of RDI spending from the state budget, the EU funds and private sources, and describes the priorities of applied research, development and innovation, and the measures for their implementation. It is a fundamental document that defines the orientation of the entire system for the next period.

Since 1994, there have been a number of predecessors to the current version of the policy. The following are a few examples from the recent period (after 2004):

- The National Research and Development Policy of the Czech Republic for 2004–2008
- The National Innovation Policy of the Czech Republic for 2005–2010
- Harmonisation of the National Research and Development Policy of the Czech Republic for the period from 2004 to 2008 with the National Innovation Policy of the Czech Republic and other relevant Czech and EU documents
- The National Research, Development and Innovation Policy of the Czech Republic for 2009–2015
- The Update to the National Research, Development and Innovation Policy of the Czech Republic for 2009–2015 and Projection until 2020 (2013 Update to NRDIP)
- National Research, Development and Innovation Policy of the Czech Republic for 2016–2020

The drafting process for the new policy in 2007 revealed problems and shortcomings in the existing system of public support for R&D of such gravity that profound changes to the entire system were necessary. In response, the R&D Council drafted the Reform of the Research, Development and Innovation System.
The Reform brought these fundamental changes:

1. In order to facilitate coordination and minimize the overlap of responsibilities, the number of public funding providers was considerably reduced (from 22 to 11).
2. The institutional funding, which is intended to foster the development of research organisations, was no longer allocated on the basis of assessment of general large research projects (known as “research plans”) but either on the basis of a comprehensive evaluation of the results produced by research organisations or based on an evaluation carried out by the public funding provider (the Academy of Sciences of the Czech Republic).
3. A significant portion of the responsibility for the specific-purpose funding for R&D was transferred from ministries and government offices to agencies: the Czech Science Foundation (GA CR) and the Technology Agency of the Czech Republic (TA CR); the latter was established by an amendment to Act No. 130/2002 Sb.
4. However, the ministries retained responsibilities for supporting four cross-sectoral and three sectoral areas.
5. Each of the four cross-sectoral areas is supported as a whole: International Collaboration in R&D (MEYS), Security R&D (Ministry of the Interior), Applied R&D of National and Cultural Identity (Ministry of Culture), and Support of Large R&D Infrastructures (MEYS).
6. The specifics of the three sectoral areas make it impossible for the TA CR to provide effective support like in other sectoral R&D fields. These areas are therefore supported through TA CR: Applied Agricultural R&D (Ministry of Agriculture), Applied Defence R&D (Ministry of Defence), and Applied Healthcare R&D (Ministry of Health).
7. Conditions and rules have been defined for establishing centres of excellence and for creating large infrastructures for R&D.
8. Principles were set out for RDI funding provided from the EU funds until 2013 (or 2015) under the following operational programmes: Research and Development for Innovation (RDIOP), Entrepreneurship and Innovation (EIOP), Education for Competitiveness (ECOP), Prague – Competitiveness, and Prague – Adaptability.

### 1.1.1 National Research, Development and Innovation Policy of the CR for 2009–2015

The Reform was approved by the government on 26 March 2008 and published as Government Resolution No. 287. The R&D Council was called on to partner with the MEYS, and to submit by 31 March 2009 a draft National Research, Development and Innovation Policy of the Czech Republic for 2009–2015.
This new policy drew on the following strategic studies carried out by the Technology Centre AS CR:

- Green Paper on Research, Development and Innovation in the Czech Republic
- White Paper on Research, Development and Innovation in the Czech Republic
- Blue Paper on Research, Development and Innovation in the Czech Republic

Other resources used for drafting the National Research, Development and Innovation Policy for 2009–2015 included materials of the EU and the Organisation for Economic Cooperation and Development (OECD). In the 2007–2013 budget period, the EU Cohesion Policy offered considerable potential for RDI in the Czech Republic. In accordance with the Lisbon Strategy, the new Cohesion Policy supported an increased use of Structural Funds and the Cohesion Fund for developing R&D capacities. In the 2007–2013 period (in some cases until 2015), an annual investment in RDI of approx. CZK 13 billion from EU funds was available to the Czech Republic under three operational programmes (RDIOP, EIOP, and ECOP).

The National Research, Development and Innovation Policy of the CR for 2009–2015 approved by Government Resolution No. 729 of 8 June 2009 comprised the actual policy document, as well as the Priorities of Applied Research, Development and Innovation 2009–2011, and five annexes.

The National RDI Policy consisted of six inter-related parts:

1. Background to the NRDIP
2. Main principles of the NRDIP
3. NRDIP objectives and activities
4. Main principles of the NRDIP after 2015 (background, financial aspects, international aspects, and regional aspects)
5. Demands and ramifications (demands on legislation, state budget, and other requirements for the economy, society, and the environment)
6. The Priorities of Applied Research, Development and Innovation of the CR for 2009–2011

The Policy was arranged into 35 specific measures to meet nine objectives (the administrator of each objective is listed in the parentheses):

1. Establish strategic management of RDI at all levels (R&DC) – 4 measures
2. Focus the public funding of R&D on the needs of sustainable development (R&DC) – 2 measures
3. Improve the efficiency of the system of public support of RDI (R&D Council) – 5 measures
4. Apply the results of R&D to innovation and improve the public-private cooperation in RDI (Ministry of Industry and Trade (MIT), MEYS, and TA CR) – 10 measures
5. Strengthen the engagement of the Czech Republic in the international cooperation in RDI (MEYS, MIT, and AS CR) – 3 measures
6. Secure quality human resources for RDI (MEYS, MIT, and AS CR) – 3 measures
7. Create in the Czech Republic an environment which stimulates RDI (MEYS with MIT and AS CR) – 3 measures
8. Provide effective links to policies in other areas (R&DC) – 2 measures
9. Rigorously evaluate the RDI system (R&DC) – 3 measures

The document included the Priorities of Applied Research, Development and Innovation. The NRDIP and the Priorities of Applied Research, Development and Innovation are available in Czech at http://www.vyzkum.cz/ under the heading Dokumenty / Archiv - Národní politika VaVaI. In its National Reform Programme, the government committed to gradually increase the GDP share of public spending on RDI to eventually reach 1% of GDP in 2020.

### 1.1.2 Update to the National Research, Development and Innovation Policy of the Czech Republic for 2009–2015 and Projections until 2020

The Research and Development Council (R&DC) began working on the Update to NRDIP in September 2010. Studies were developed for individual measures and their conclusions became inputs for updating the National RDI Policy. Analyses of the performance of NRDIP activities are available at http://www.vyzkum.cz/ .

Finally, R&DC proposed to update the NRDIP, to include projections until 2020, and to align its structure to similar documents of other EU Member States. The reason was that in 2014, while the NRDIP was still in effect, the new 2014–2020 programming period for the EU funds began, for which it was practical to have a national policy consistent with those of partner countries.
Another reason was the need for bringing the support for research, development and innovation in the Czech Republic in line with the capacity of the state budget. As the policy had been drawn up in 2008, the annual increase in the government spending on research was anticipated at 8%. After 2010, however, the figure became much lower. The budget constraints and the economic outlook led to a review of the objectives to make the NRDIP financially viable.

The Update to the National Research, Development and Innovation Policy of the Czech Republic for 2009–2015 and Projections until 2020 (2013 Update to NRDIP) was approved by Government Resolution No. 294 of 24 April 2013. The same resolution required that the updated National Research, Development and Innovation Policy should be submitted to the government by 31 December 2015.

The 2013 Update to NRDIP drew on the evaluation of the previous Policy. It was divided into the following four sections, each of which directly fulfilled the main objective: establishing favourable conditions for creating new knowledge and for its use in innovation.

1. High-Quality and High-Productivity Research System: this section comprises actions to be taken to secure quality human resources for RDI, and to create quality research infrastructures, to improve the effectiveness of public funding of RDI, and to facilitate the engagement of the Czech Republic in international R&D cooperation.
2. Environment for Effective Knowledge Dissemination and Utilisation: this aims to develop competencies for effective knowledge transfer between research organisations (RO) and innovating enterprises, to launch and efficiently use financial tools to promote knowledge transfer from research to practice, and to make use of new R&D findings in innovation.
3. Innovating Enterprises: this section deals with improving the innovation performance of enterprises, with the creation and efficient use of tools that promote innovation activities in companies, and with attracting direct foreign investment in research and innovation in the Czech Republic.
4. Stable, Effective and Strategically Managed RDI System: this section comprises measures aimed to improve the coordination or RDI management system, to strengthen the strategic approach to formulation and implementation of the RDI policy, and to boost the role of the Czech Republic in shaping the ERA.

The 2013 Update to NRDIP also covered several aspects to which the existing NRDIP had devoted limited space, such as innovation or the linking of educational, research and innovation activities together. Innovation was approached as an interactive process, wherein the interaction among the stakeholders in the RDI system, including the customers who are users of the resulting innovations, generates positive effects. The 2013 Update to NRDIP thus placed a greater emphasis on creating an environment and conditions for introducing innovations into the private and public sectors, and linking stakeholders together to encourage effective transfer of new knowledge and market stimuli.

### 1.1.3 The National Research, Development and Innovation Policy of the Czech Republic for 2016–2020 (NRDIP 2016)

The National Research, Development and Innovation Policy of the Czech Republic for 2016–2020 (NRDIP 2016) approved by Government Resolution No. 135 of 17 February 2016 aimed to provide favourable conditions for creating new knowledge, promote its conversion into innovation, and contribute to fulfilment of the vision. NRDIP 2016 focuses on key areas, such as the management of the RDI system, the public sector of RDI, collaboration between the private and public sectors of RDI, innovation in enterprises, and RDI focusing. The document sets strategic and specific objectives and defines relevant measures. The key to implementing NRDIP 2016 was to implement appropriate strategic management of the RDI policy, and efficient use of funds from the state budget and from European Structural & Investment Funds. One of the main planned steps was to establish a new Ministry for Research and Development (MRD) which would incorporate both the CSF and TA CR and assume a major portion of the R&D competences of the Ministry of Education. The MRD was to be established by a new bill on support for research, development and innovation which was intended to supersede Act No. 130/2002 Sb. However, this bill has never been passed into law.
One of the sources for formulating the NRDIP 2016 was the assessment of performance and measures set out by the 2013 Update to NRDIP. The assessment was carried out on the basis of an analysis prepared by the Technology Centre of the Academy of Sciences of the Czech Republic. The findings were as follows:

- The system of management and funding of research, development and innovation is fragmented and its strategic orientation is inadequate. Coordination mechanisms are either lacking or ineffective, which hinders the collaboration between individual elements of the system.
- There has been general improvement in public research (research infrastructures and capacities, and publication quality). At the same time however, the public research sector remains isolated (on the international scale and from domestic industrial cooperation).
- There is inadequate output of applied results of research, inadequate knowledge transfer from public research to applications, and weak collaboration between research organisations and companies.
- The investment of enterprises in research and innovation is growing. In this respect, multinational corporations are the dominating players, whereas the sector of research and technology-oriented small and medium enterprises remains relatively underdeveloped.

NRDIP 2016 therefore sets the following strategic goals:

- Establishing a stable, effective, strategically-managed and financially viable system of research and innovation
- Creating a stable and high-quality sector of research organisations which are ready for and open to collaboration and knowledge sharing
- Setting up a system of cooperating enterprises, research organisations, public administration bodies and other stakeholders to provide new resources and knowledge for innovation
- Improving the innovation performance of enterprises in the Czech Republic by boosting research activities and introducing new technologies and procedures to improve the efficiency of business processes
- Strategically focusing the support for applied research on current and potential needs of enterprises and the society

Each of the strategic objectives is divided into specific objectives for which relevant measures are identified together with deadlines and responsible institutions.

To implement and finance the measures set out in the NRDIP 2016, maximum use was to be made of the European Structural & Investment Funds which are available to the Czech Republic in 2014–2020.

Another tool which contributed to the effective management of research, development and innovation and to the support for applied research on the national and regional levels was the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic (National RIS3 Strategy), whose aim was to meaningfully channel the funding (from European, national and private sources) into

the relevant sectors to support innovation. EU Member States were invited to develop their RIS3 strategies in order to identify promising areas of the economy to be supported from the ESIF. The RIS3 strategy of the Czech Republic reflected the priorities of the Czech economy to be supported by the ESIF programmes and the R&D support programmes of the MIT and TA CR. The first National RIS3 strategy of the Czech Republic was approved by Government Resolution No. 1028 of 8 December 2014. Its updated version was approved by Government Resolution No. 634 of 11 July 2016.

To implement this updated National RIS3 strategy, new sector platforms were established under the auspices of the OG CR to identify the key obstacles that enterprises are facing in RDI, and to discuss their material needs in applied research.

Another change brought about by the NRDIP 2016 was an increase in the number of public funding providers from 10 to 14. The applied research needs of selected ministries were then listed in the information annex to the NRDIP 2016. In 2017, the Ministry of the Environment of the Czech Republic, Ministry of Transport, Ministry of Labour and Social Affairs and Ministry of Foreign Affairs began providing institutional funding to research organisations in their respective areas of competence (the previous provider in 2012–2016 was the Ministry of Education). Specific-purpose funding for these needs is administered under the BETA 2 cross-sectoral programme of TACR , focusing on the needs of state administration bodies, which was launched by Government Resolution No. 278 of 30 March 2016.

### 1.2 Priorities of oriented research, development and innovation

#### 1.2.1 Long-Term Principal Research Directions

Until 2008, research and development priorities were referred to as “long-term principal research directions” (LTPRD). Despite all the effort, the LTPRD remained too broad, reflecting essentially all scientific (research) disciplines in the Czech Republic (7 directions).
The LTPRD used a single framework, comprising all seven thematic directions:

1. Sustainable development,
2. Molecular biology,
3. Energy resources,
4. Materials research,
5. Competitive engineering,
6. Information society,
7. Security research.

#### 1.2.2 Priorities of Applied Research, Development and Innovation of the Czech Republic for 2009–2011

In 2008, the LTPRD document was reviewed. It was updated again in 2009, renamed as the Priorities of Applied Research, Development and Innovation of the Czech Republic for 2009–2011, and incorporated into the National Research, Development and Innovation Policy of the Czech Republic for 2009–2015. Due to requests for adding even more topics, the priorities failed to focus on those directions of research, development and innovation whose outcomes could be decisive for economic competitiveness and societal development. A majority of developed countries focus on between 3 and 5 priorities. By contrast, the Priorities of Applied Research, Development and Innovation of the Czech Republic for 2009–2011 had 8 priorities:

1. Biological and environmental aspects of sustainable development
2. Molecular biology and biotechnology
3. Energy resources
4. Materials research
5. Competitive engineering
6. Information society,
7. Security and defence
8. Priorities of development of the Czech society

### 1.2.3 National Priorities of Oriented Research, Experimental Development and Innovation

The Priorities of Applied Research, Development and Innovation of the Czech Republic for 2009–2011 were formulated in a very general and all-encompassing manner. They lacked adequate focus on the needs of the society, namely the societal and economic development of the country. The insufficient concentration of public resources on relevant areas led to underfunding of certain important research directions capable of delivering breakthrough discoveries in oriented research and applied research solutions for enhancing the competitiveness of the Czech Republic and meeting the needs of societal development. Although the RDI programmes that provided the specific-purpose funding frequently referred to the existing research directions, the actual connection was all too often just formal.

The Priorities of Applied Research, Development and Innovation of the Czech Republic for 2009-2011 were substituted with new National Priorities of Oriented Research, Experimental Development and Innovation (RDI Priorities), approved by Government Resolution No. 552 of 19 July 2012.

The RDI Priorities were stipulated as a definite and concrete matter of state and public interest which combined long-term objectives with multidisciplinary orientation, was relevant and desirable across the society, and achievable in the long term through RDI activities using the country's available material and human resources. The application of the new RDI Priorities was expected to facilitate the effective use of public resources for specific-purpose funding of RDI, and therefore to better meet the key needs of the development of the Czech society. The most important contribution and purpose of the RDI Priorities was the strategic re-orientation of a portion of national RDI efforts (mainly in applied research and development but also in basic research) towards areas which help to address the Czech Republic's challenges of today and the foreseeable future, and to exploit potential opportunities for the country's balanced development.

The Implementation of RDI Priorities was approved by Government Resolution no. 569 of 31 July 2013. The RDI Priorities cover the period until 2030 and are included in the Update to NRDIP. The Implementation of RDI Priorities requires that they are taken into account in the preparation of RDI programmes for specific-purpose funding. The RDI Priorities were also intended to inform the plan for EU Structural Funds for 2014–2020.
At present, there are six Priorities which are further divided into areas, sub-areas and sub-objectives. Their complete version can be found at http://www.vyzkum.cz/:

- Priority 1 – Competitive knowledge-based economy
- Priority 2 – Sustainable power industry and material resources
- Priority 3 – Environment for quality life
- Priority 4 – Social and cultural challenges
- Priority 5 – Healthy population
- Priority 6 – Secure society

The RDI Priorities build on not only the NRDIP objectives, but also the International Competitiveness Strategy 2 and the National Innovation Strategy 3, while reflecting the priority areas of the Horizon 2020 framework programme.

Although the RDI Priorities, i.e. the individual priority areas defined in response to fundamental societal challenges, were conceived in such a way as to avoid their overlapping, it is understandable that some connections exist among the separate priority areas. Consequently, there are also some relationships among priority objectives in individual priority areas (PAs). The design of new RDI programmes aimed to meet these priority objectives must reflect those connections to ensure that the support is comprehensive. State budget spending on RDI was another consideration involved in preparing the RDI Priorities. As their name indicates, RDI Priorities were given priority in the plans of RDI spending for the relevant calendar year approved according to the State Budget Act.

Since the RDI Priorities (objectives) are to be implemented on a continuous basis until 2030 and the future RDI spending from the state budget is impossible to predict, the spending on individual RDI

Priority areas was indicated for reference as shares of the total spending on all RDI Priorities. Another reason why exact amounts could not be specified is that the RDI Priorities were expected to be pursued not only through the specific-purpose funding for open-grant and programme projects but also through RDI activities funded from other sources (e.g. institutional funding of long-term systematic development of research organisations and for international cooperation). Some objectives may even be achieved as part of specific academic research. In addition, the available matching private funding for projects aimed at RDI Priorities was expected to vary among the priority areas. A report on the implementation of RDI Priorities is to be submitted to the government by the end of 2018.

### 1.3 Legislation and legal regulations

The legal framework of the public support for RDI in the Czech Republic is provided by:

- Act No. 130/2002 Sb., on the support for research, experimental development and innovation from public funds and on changes to certain related acts (Support of Research and Development Act), as amended.
- The implementing instrument for Act No. 130/2002 Sb. is Government Resolution No. 397/2009 Sb., on the research, experimental development and innovation information system.
- Act No. 341/2005 Sb., on public research institutions, as amended,
- Act No. 227/2006 Sb. on research on human embryonic stem cells and related activities and on changes to certain related acts, as amended,
- Communication from the Commission: Framework for State Aid for Research, Development and Innovation (2014/C 198/01)
- Commission Regulation (EU) No. 651/2014 of 17 June 2014, declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty – General Block Exemption Regulation
- Act No. 586/1992 Sb., on income tax, as amended

All the above-mentioned and some other regulations are available in Czech at www.vyzkum.cz, in the "Dokumenty" section.

Act No. 130/2002 Sb., on the support for research, experimental development and innovation (Support of Research and Development Act) has been amended seventeen times. Responding to this scope of changes, the Prime Minister promulgated the full text of Act No. 130/2002 Sb. as Act No. 211/2009 Sb. However, even this full text is now outdated, as Act No. 130/2002 Sb. was again amended by Act No. 420/2011 Sb., on changes to certain acts in relation to the enactment of the Act on the criminal liability of legal entities and proceedings against them. The 24th part of Act No. 420/2011 Sb. amended sections 7, 9 and 18 of the Support of Research and Development Act, and added the new section 14a concerning the qualifications of an applicant. Act No. 469/2011 Sb. altered the time limits for proposal submission and evaluation. Act No. 49/2013 Sb. brought changes concerning the bodies of the Czech Science Foundation and the Technology Agency of the Czech Republic. Furthermore, Act No. 194/2016 Sb. incorporated into national regulations some provisions of European legislation, namely Articles 107 through 109 of the Treaty (the "Treaty") on the Functioning of the European Union, Regulation (EU) No. 651/2014 of 17 June 2014, declaring certain categories of aid compatible with the internal market, in accordance with Articles 107 and 108 of the Treaty (and equally Regulation (EU) No. 702/2014 regarding the agricultural and forestry sectors) and Communication from the Commission – Framework for State Aid for Research, Development and Innovation (2014/C 198/01). Act No. 194/2016 Sb. also established the List of Research Organisations, effective from 1 July 2017, where conditions and criteria are subject to the rules of administrative procedure of the Ministry of Education of the Czech Republic. Further amendments to Act No. 130/2002 Sb. resulted from Act No. 298/2016 Sb., Act No. 135/2016 Sb. and Act No. 367/2016 Sb. which altered other laws as well. The last major amendment to Act No. 130/2002 Sb. was brought by Act No. 146/2017 Sb. which updated the definition of eligible costs and cancelled the changes introduced one year earlier by Act No. 194/2016 Sb.

Responding to the abundance of amendments and to the efforts to establish a Ministry for Research and Development, the R&D Council formulated the substance of a new bill in 2016 and, one year later, the actual bill on the support for research, development and innovation to supersede Act No. 130/2002 Sb. The substance of the new bill was approved by Government Resolution No. 719 of 24 August 2016 but failed to be passed into law, as the government resigned after the general elections.

The implementing instrument for Act No. 130/2002 Sb. is Government Resolution No. 397/2009 Sb., on the research, experimental development and innovation information system, which identifies the data relevant to individual parts of the information system.

Act No. 341/2005 Sb., on public research institutions, as amended, has transformed a majority of the RDI institutions funded by contributions from the state budget to new legal entities. It has been amended nine times. It provides for the following:

a) The method of establishment, entry in the register, operation, methods of dissolution, and deletion from the register of public research institutions,
b) The positions and competences of the establishing entities, and of bodies of public research institutions,
c) The transformation of research institutions funded by contributions from the state budget to public research institutions.

Act No. 227/2006 Sb., on research on human embryonic stem cells, allows research on these cells to be conducted under transparent conditions. It also addresses importing and exporting embryonic stem cells and prohibits the export of embryos for research purposes. It has been amended nine times.

In 2014, the European Commission issued Regulation (EU) No. 651/2014 of 17 June 2014, declaring certain categories of aid compatible with the internal market in accordance with Articles 107 and 108 of the Treaty – General Block Exemption Regulation (GBER). GBER superseded Commission Regulation (EC) No. 800/2008 which declared certain categories of aid compatible with the internal market in accordance with Articles 107 and 108 of the Treaty (the earlier General Block Exemption Regulation). The European Commission thus permitted exemption from the notification requirement and, where applicable, shortening or even omitting the notification proceedings in research, development and innovation altogether, provided that the conditions of GBER were met, whereas these requirements are normally mandatory for any form of state aid for research, development and innovation.

On 27 June 2014, the European Commission issued a new Framework for State Aid for Research, Development and Innovation (2014/C 198/01) (Framework), which superseded the Community Framework for State Aid for Research, Development and Innovation (2006/C 323/01). The Framework governs the conditions for the operation of research organisations and their non-economic and ancillary economic activities which are compatible with the internal market of the EU.

In 2014, the GBER and the Framework led to several changes which were important to research, development and innovation in the Czech Republic, namely:

1) New definitions of terms in the GBER (Article 2, points 83–98), and in the Framework (point 15, paragraphs a–jj):

- Instead of the term “applied research” , the term “industrial research” is used,
- “Applied research” is therefore now defined as “industrial research, experimental development or their combination”,
- For the term “project”, objectives were specified as mandatory elements, for whose achievement all activities, costs and requirements must be stated in order for the (anticipated) results to be assessed and compared to the objectives,
- For “research and knowledge-dissemination organisations” (research organisations – RO), the scope of non-economic activities was expanded to include knowledge transfer, whereas the interpretation of “education” was narrowed to public education,
- “Knowledge transfer” now comprises predominantly research collaboration, consultancy, licensing, spin-off creation, publication, and mobility,
- “Collaborative research” subject to effective collaboration (between ROs or between an RO and an undertaking under the conditions of point 28 of the Framework) is now expressly defined as a non-economic activity,
- “Contract research” (research on behalf of undertakings) – provision of services, equipment lease, and other activities are expressly defined as economic activities,
- There is a new definition of the term “research infrastructure” which only applies to equipment, resources and services for research,
- “Exclusive development” means the public procurement of research and development services,

- "Pre-commercial procurement" is now defined as sharing the results between the contracting entity or authority and the provider (e.g. prototypes, test series, and others).

2) Increased notification thresholds (Art. 4, point 1, paragraph i) of the GBER):
- Two-fold increase (current levels: EUR 40 million for fundamental research, EUR 20 million for industrial research, and EUR 15 million for experimental development).

3) Incentive effect (Art. 6, point. 2 of the GBER, points 62–65 of the Framework):
- Simplification – with small and medium enterprises (SMEs), an application for funding prior to commencing the work is sufficient (section 14, paragraph 3 of Act No. 218/2000 Sb., on budget rules, sets out the elements of such applications), whereas large enterprises may be required by the public funding provider to provide additional information.

4) Aid intensity (Art. 7 of the GBER, points 73–77, 89, and Annex II to the Framework):
- A ratio of total public funding and total approved costs of the project (i.e. not just the proportion of the specific-purpose funding), formerly "aid rate",
- The maximum basic aid intensity remains unchanged but the calculation method used for aid increase is modified slightly (for industrial research and experimental development in SMEs).

5) Cumulation of aid (Art. 8 of the GBER, paragraphs 83–93 of the Framework):
- Cumulation of aid is allowable from various R&D sources (including various projects and institutional funding for development of research organisations) and even from sources outside R&D (i.e. those governed by other Articles of the GBER).

6) Eligible costs (Art. 25, point 3 of the GBER, point 73a of the Annex I to the Framework):
- Specified mainly in terms of personnel costs (overhead costs should not include personnel costs directly related to the project).

7) Investment in research infrastructures (Art. 26, point 6 of the GBER):
- The aid intensity must not exceed 50% of the eligible costs.

Research and development and its public funding are governed not only by the aforementioned rules but also by other related legislation which sets out limits for state intervention in competition (the Public Support Act No. 59/2000 Sb.), provides for public procurement, defines the status of state research organisations and the grant policy (Budget Rules Act No. 218/2000 Sb.), defines the status of the Academy of Sciences of the Czech Republic, establishes institutions of higher education, governs the rules of public administration information systems, and other matters. In addition, research and development are provided for by general legal rules for contractual relations, protection of industrial rights, provision of information, and auditing.

As of 1 January 2005, amendments to Act No. 586/1992 Sb., on income tax (Income Tax Act), introduced a deduction from the tax base equal to 100% of expenses on R&D, i.e. approximately one quarter of the grant awarded to meet the total project costs.
Act No. 458/2011, which was due to take effect in 2015 as an amendment to this Income Tax Act, retained the support for R&D projects through the deduction of project costs from the income tax base (deduction of 100% of costs) but introduced two key changes. Firstly, the deductible expenses can include those services for research and development projects which were provided by public higher education institutions or by research organisations. Secondly, the total deduction rate has been increased from 100% to 110% for expenses which increased over the previous period. The statutory measure of Senate No. 344/2013 Sb., which was passed in response to the new Civil Code, altered the provisions regarding tax deductions for research and development, and brought the effective date of the above Act forward to 1 January 2014. In 2017, the General Financial Directorate issued Information on research and development projects as a prerequisite for tax deduction for research and development support, pursuant to section 34, subsections 4 and 5 of the Income Tax Act, which stipulates the relevant project elements.

### 1.4 Budget for research, development and innovation

#### 1.4.1 Draft budget preparation

The key player in preparing the initial draft of the budget for research, development and innovation is the Research and Development Council (R&DC). When it comes to the final draft, the decisive institutions are the Ministry of Finance, the government, and the Chamber of Deputies of the Czech Republic. Once the state budget is approved by the Chamber of Deputies, the Ministry of Finance allocates funds to individual budget agencies – the public funding providers.

The preparation of the draft budget has several stages (those described below apply to the RDI budget for 2018):

1. In November (2016), the R&D Council approved the R&DC Guideline for Drafting State Budget Expenditure of the Czech Republic for Research, Development and Innovation for 2018-2020 with Projections until 2022.
2. In December (2016) the R&DC proposed to the funding providers the total spending on research, development and innovation for individual budget headings and the amount of institutional and specific-purpose expenditure for the period 2018 - 2020,
3. In January (2017), budget agencies, i.e. funding providers, submitted detailed proposals of spending for the coming year (2018) and draft medium-term projections for the next two years (2019 - 2020),
4. In February (2017), the R&DC and budget agencies discussed these proposals,
5. At the end of March 2017, the R&D Council approved draft budget for circulation for comments from the ministries which began in early April,
6. On 22 May 2017, Government Resolution No. 385 approved the draft of state budget spending on RDI for 2018, the medium-term projections for 2019 and 2020 and the long-term projections until 2022,
7. In September (2017) the government approved the state budget bill for 2018 (including the spending on research, development and innovation according to the Government Resolution from May) and presented it to the Chamber of Deputies.
8. The Chamber of Deputies debated the state budget bill for 2018 in the first reading (5 December), after which it was no longer possible to alter the overall spending and revenues. The bill was then debated in the parliamentary committees, which was followed by second (15 December) and third readings, enactment (on 19 December 2017 by Resolution No. 65), signing into law by the president, and publishing as Act No. 474/2017 Sb. The total expenditure allocated for 2018 is CZK 34,797 million. The original government proposal was altered by cutting the expenditure under several headings (particularly the MIT heading, which was reduced by CZK 0.5 billion).

Once the budget was approved by the Chamber of Deputies, its items were specified in detail over one month, after which relevant funds were released to recipients in line with conditions of programmes and activities. In the field of research, development and innovation, the release of funds is conditioned on meeting the requirements stipulated by Act No. 130/2002 Sb., as amended. The main ones concern the beneficiary's fulfilment of its 2017 obligations from the running projects, and entering relevant data about projects and other RDI activities into the RDI Information System.
For running projects, Act No. 130/2002 Sb. stipulates a maximum time limit for providing the funds as 60 days from the start of the calendar year. With new projects and other activities, the 60-day period starts on the effective date of the contract or the grant award decision. If the beneficiary is in default of its performance, the public funding provider is entitled to enter into a contract with the next-ranking applicant entity. If the public funding provider is in default, the beneficiary is entitled to a compensation corresponding to the planned project costs for the period of the default.

In previous years, this procedure was delayed and the draft state budget for RID was submitted to the government at the end of June or in July. In 2010 and 2011, the government did not approve the draft budget submitted by the R&D Council. Based on a proposal by the Ministry of Finance, the government then defined the total spending on research, development and innovation in September in

its state budget bill of the Czech Republic for the coming year. In 2012, the government approved the proposed RDI spending of the state budget for 2013 and the projections for 2014 and 2015 via its Resolution No. 458 of 26 June 2012. These expenditures were lower than those planned for 2012. However, in September 2012, the expenditures of the Academy of Sciences of the Czech Republic were increased in the course of the debate on the state budget bill for 2013. As a result, the total RDI expenditure of the 2013 state budget was CZK 26.1 billion, approximately CZK 0.5 billion less than in the previous year.
In 2013, the budget preparation process was even lengthier. The RDI expenditure proposal for the 2014 state budget with projections for 2015 and 2016 was approved by Government Resolution No. 518 as late as 3 July 2013. There was an increase for this period (i.e. 2013–2016) of CZK 2.1 billion. However, this proposal was subsequently revoked and substituted with Government Resolution No. 729 of 25 September 2013, On the State Budget Bill of the Czech Republic for 2014, and the Proposals of Medium-Term Projections for the State Budget of the Czech Republic for 2015 and 2016 and on the Revocation of Government Resolution No. 518 of 3 July 2013 on the Proposal of RDI Expenditure of the State Budget of the Czech Republic for 2014 and the Projections for 2015 and 2016. As a result, the state budget spending on research, development and innovation for 2014 was approved at CZK 26.6 billion.
In 2014, the proposed state budget spending on research, development and innovation for 2015 was again approved only as part of the state budget bill of the Czech Republic for 2015 and the medium-term projections for 2016 and 2017, reaching CZK 26.9 billion.
In 2015, the RDI expenditure proposal for the state budget for 2016 was approved by Government Resolution No. 380 of 25 May 2015. The RDI expenditure for 2016 was thus increased to CZK 28.6 billion, with a reserve of additional CZK 0.5 billion.
By this 0.5 billion, the RDI expenditure of the state budget for 2016 was increased to CZK 29.1 billion through Government Resolution No. 748 of 23 September 2015, On the State Budget Bill of the Czech Republic for 2016, and the Proposals of Medium-Term Projections for the State Budget of the Czech Republic for 2017 and 2018 and Medium-Term Expenditure Frameworks for 2017 and 2018.
In 2017, preparation of the draft of state budget expenditures on research, development and innovation for 2018 began relatively smoothly. The R&D Council draft was approved by Government Resolution No. 385 of 22 May 2017. Three weeks later, however, a proposal by the Ministry of Finance, which reduced the spending on RDI by CZK 1.8 billion, was approved by Government Resolution No. 442 of 14 June 2017, on the preparation of the state budget of the Czech Republic for 2018. Hence, two state budgets were developed simultaneously over the next three months, with all the difficulties arising from such a situation. It was the government bill on the 2018 state budget, which was approved by Government Resolution No. 674 of 25 September 2017, which merged both proposals. The core was the document from May, with some alterations from the June version.
The draft of the Czech state budget spending on research, experimental development and innovation for 2019, the medium-term projections for 2020 and 2021 (and the long-term projections for 2022 and 2023) are being prepared in the same way and time frames as last year.

### 1.4.2 Structure of the RDI budget

The public funding of research and development has two forms:

**Specific-purpose funding** for research projects and other activities. Specific-purpose funding is provided by budget agencies through subsidies to legal or natural persons or through increased spending on organisational units of the state, organisational units of regional self-government units or organisational units of ministries engaged in research and development, in the following forms:

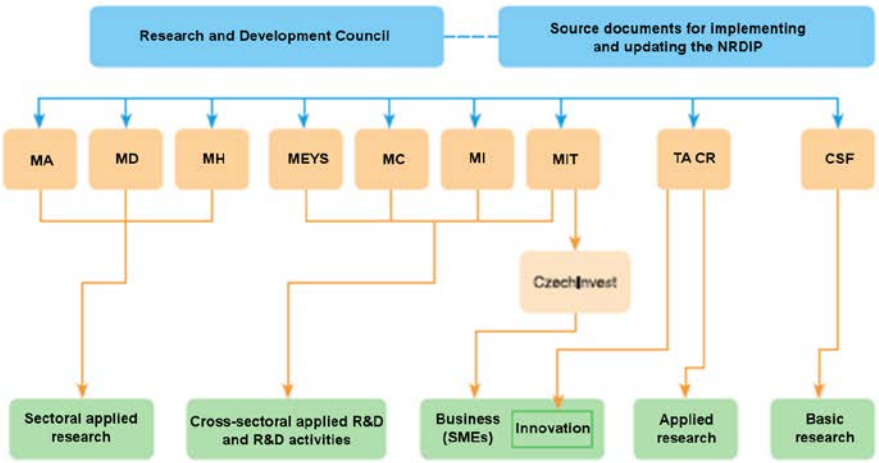
- "Open-grants" for basic research, i.e. funding for projects proposed by natural or legal persons, where the beneficiaries themselves determine the objectives and methods of investigation
- "Programme funding" for applied research, development and innovation projects which meet the objectives of programmes designed and launched by public funding providers. The programmes are designed and announced by budget agencies, reviewed by the Research and Development Council, and approved by the government. Some of them support "projects for state administration", for which the desired results are defined by the

state administration itself. Since the sole user of those results is the state, the public tenders are announced in accordance with Act No. 137/2006 Sb.,
- **Funding of specific academic research**, which is defined as research carried out by students in accredited doctoral or Master's study programmes in direct relation to their education,
- **Funding of large infrastructures for research, development and innovation**, where individual projects are approved at the government level.

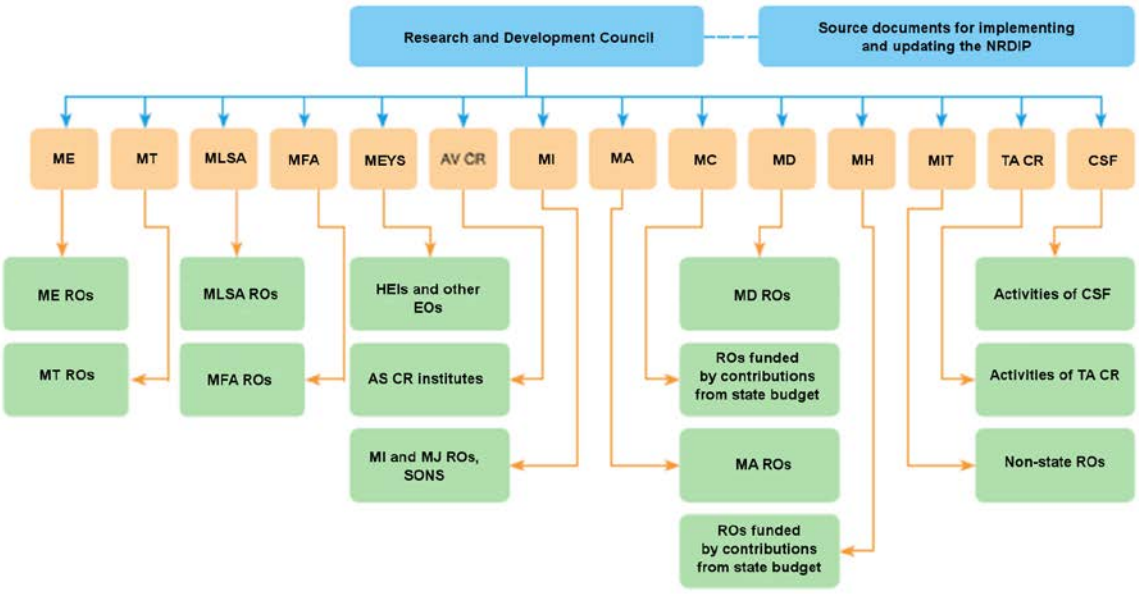
**Institutional funding** for research organisations and other activities:
- Long-term conceptual development of a research organisation based on assessment of its results and, from 2018, based on gradual implementation of evaluation of research organisations,
- International cooperation of the Czech Republic in research and development on the basis of international agreements, which includes fees for the country's participation in international programmes and membership in organisations, as well as the funding of international collaboration projects where the projects are selected by the European Union or another international organisation (e.g. Horizon 2020),
- Operational programmes in research, development and innovation, or parts thereof, where the projects are selected through a competitive bidding process according to the GBER. The government expenditure on RDI is used for 15% co-funding of RDI-related operational programmes for which the European Commission provides the remaining 85% of public funding. In previous years, this arrangement was used for the RDIOP (MEYS) and, in modified formats, for the ECOP (MEYS) and EIOP (MIT) programmes. These operational programmes had ended (the last projects finished in 2015) and were replaced with the Research, Development and Education Operational Programme (RDEOP) administered by the Ministry of Education and the Enterprise and Innovation for Competitiveness Operational Programme (EICOP) of the Ministry of Industry and Trade.
- Costs of the system of support for research, development and innovation, namely the costs of public tenders and project evaluation, awards and other expenses, as well as the operating costs of the Research and Development Council, Czech Science Foundation, Technology Agency of the Czech Republic and the Academy of Sciences of the Czech Republic.

The institutional funding for development of research organisations follows certain conditions. From 2007, it was the Community Framework. As of 2014, it is the Framework for State Aid for Research, Development and Innovation. The funding is available to research organisations, i.e. all public and private legal entities, which meet the provisions of Act No. 130/2002 Sb., as amended. In relation to research organisations, these provisions require the following:
- The beneficiary's main purpose is to carry out basic research or applied research or applied development and they disseminate their results through teaching, publishing or technology transfer.
- Their profits are invested back in said activities.
- Preferential access to their research capacities or results is not available to entities engaged in economic activities consisting in offering goods or services, which could exert influence on the research organisation.

***Specific-purpose funding for RDI***




***Institutional funding for RDI***



### 1.4.3 Identification of research organisations

The decision on whether an entity meets the definition of a research organisation is the responsibility of the public funding provider, in accordance with Articles 107 and 108 of the Treaty on the Functioning of the European Union (TFEU) and the new Framework for State Aid for Research, Development and Innovation. The Research and Development Council has reviewed the fulfilment of the conditions. In early 2017, the Council published the latest List of Identified Research Organisations (reflecting the state as of 2 February 2017) (www.vyzkum.cz / sekce Posuzování VO). On 1 July 2017, according to section 33 (a) of Act No. 130/2002 Sb., the MEYS began reviewing applications for entry in the list of research organisations on the basis of the rules of administrative procedure (the implementing instrument is government resolution No. 160/2017 Sb.), and therefore the Council finished the review. After 1 July 2017, all research organisation had to apply with the MEYS for registration in the list of research organisations and submit documents defined in the implementing instrument.

Until 2018, the amount of institutional funding allocated by the state budget to each provider's research organisations mainly depended on the results they had produced. In addition, these research organisations had to be identified as such by the R&D Council. From 2018 onwards, the additional funding beyond the 2016 amount is allocated on the basis of the evaluation of research organisations (although some public funding providers will adopt this arrangement no sooner than in 2019). Competent public funding providers now have the authority to decide on providing institutional funding for the development of research organisations.

### 1.5 Evaluation of results produced by research organisations

The evaluation of results produced by the research organisations which receive public funding only started after the year 2000. Evaluations before then typically took the form of "self-evaluation", if performed at all. The National Innovation Policy of the Czech Republic for 2005–2010 therefore called on the R&D Council to develop and continuously improve the methodology of research evaluation. A number of changes have been made since 2004, when the Methodology of Evaluation was drafted and used for the first time. The document, as well as the results of evaluations, is available in Czech at http://www.vyzkum.cz, in the "Hodnocení VaVaI" section.

The Methodology of Evaluation of Research Organisations and Results of Completed Programmes (for 2010 and 2011) did not differ significantly from the 2012 version. It provided for evaluating only those results which met the relevant definitions, the conditions for being entered in the Research, Development and Innovation Information System of the Czech Republic (RD&I IS), and which were actually entered in this system.

The 2012 Methodology had the following elements:

- No evaluation of the effectiveness of research organisations (ROs) was conducted.
- The evaluation of results only applied to those ROs which were eligible for institutional funding according to the rules approved by the R&D Council, and according to the current government-approved draft of state budget spending on RDI. Some ROs could have been added upon discussion on the draft budget for the coming year between the R&D Council and the public funding providers.
- The evaluation covered results applied in the previous five years, regardless of the funding source used for achieving them.
- In accordance with Act No. 130/2002 Sb., the evaluation also applied to new results which were entered in the Information Register of R&D Results (IRRDR) between 30 May of the previous year and 30 May of the year of evaluation, or until 29 May 2012.
- In accordance with the mentioned Act, the evaluation of results of completed programmes included results which had already been evaluated as results of ROs but were also related to the relevant programme, and the results produced by other beneficiaries under that programme which had been entered in the IRRDR within 250 days of the end of support.

The Methodology of Evaluation of Research Organisations and Results of Completed Programmes (for 2013–2015) was approved by Government Resolution No. 457 of 19 June 2013.

It relied on three interrelated pillars which brought about the following changes:

- **Pillar I: Subject-based evaluation of publications.** For each subject group, the methodology defines the relevant types of results and their maximum share of available points. This evaluation pillar comprises the so-called Subpillar I, which defines the peer review process and methods for selected types of results, e.g. books, chapters in books and articles in peer-reviewed journals without impact factor.
- **Pillar II: Evaluation of quality of short-listed results.** Its objective is to introduce a democratic principle, whereby each RO has the right to select and submit a limited number of results for expert evaluation. Within each subject group, an expert panel with a considerable share of foreign experts selects no more than 20% of those results to be awarded a special bonus. In addition, a special excellence bonus will be awarded to those research organisations whose members succeed in obtaining project funding from the ERC (European Research Council).
- **Pillar III: Evaluation of patents and non-publication results of applied research.** As opposed to the previous practice where all non-publication results of research were awarded fixed numbers of points, this rule now only applies to patents. The point scores for all the other results will depend on the amount of funding for applied research projects and on the volume of contract research.

In 2013, only Pillars I and III were used. Pillar II and the full version of Subpillar I were to be deployed in 2014. The purpose of the 2013 transition period and the stepwise launch of the other pillars was to allow research organisations to prepare for this methodology without disrupting data collection processes that were running.
The final outcomes of the 2013 evaluation of research organisations were delayed. They were published on 30 May 2014 on the website of the R&D Council.
The R&D Council approved the outcomes of the 2014 evaluation on 18 December 2015 and subsequently published them (in Czech) at www.vyzkum.cz / section entitled “Posuzování VO”.

The evaluation of research organisations for 2015 and 2016 followed the updated Methodology of Evaluation of Research Organisations and Results of Completed Programmes. It is the one approved for 2013–2015, which was updated and extended for one more year, i.e. for 2016.

### 1.5.1. M17+ Methodology of Evaluation of Research Organisations and Programmes of Specific-Purpose Funding for Research, Development and Innovation

Over a long period of time, the R&DC has been developing a new system for evaluating research organisations and their institutional funding, drawing on the outcomes of a project entitled “Effective System of Research Financing, Development and Innovation” carried out as part of the IPN scheme (Individual National Projects) under the Research and Development for Innovation Operational Programme. The new Methodology of Evaluation of Research Organisations and Programmes of Specific-Purpose Funding for Research, Development and Innovation (M17+) was approved by the Government Resolution of 8 February 2017.
The goals of the M17+ are to provide input for effective management at all levels of the research, development and innovation system in the Czech Republic (the formative aspect), promote efficient use of public funds (the summative aspect), and improve the quality and international competitiveness of Czech research, development and innovation. It should inform decisions on institutional funding for long-term systematic development of research organisations (LSDRO) in line with relevant regulations, provide information for the management of the entire RDI system in the Czech Republic, data for funding providers, and support the decisions taken by the management of research organisations (RO). The evaluation should also provide input into decisions on granting institutional funding for LSDRO, which is a motivational tool for improving the performance of ROs.

The fundamental principles of the M17+ are as follows:

1. **Three-level evaluation.** In the RDI system, every management level requires information at a different level of detail. The M17+ comprises the following three management and evaluation levels: the entire RDI system (the central authority is the R&D Council/Office of the Government), the funding providers, and the management of ROs. The M17+ is mainly devoted to the national level, and defines the methodology for public funding providers.
2. **Classification of ROs into three segments**. Based on their positions within the RDI system, and their missions, research organisations are divided into three segments for evaluation purposes: higher education institutions (HEI), institutes of the Academy of Sciences of the Czech Republic (AS CR), and the sectoral segment.
3. **Common framework for quality assessment of ROs**. M17+ introduces quality assessment across five basic evaluation modules for all types of ROs: M1 – Quality of selected results, M2 – Research performance, M3 – Societal relevance, M4 – Viability, M5 – Strategy and conceptual framework. The relative weights of modules shall reflect the position and mission of each RO in the RDI system. The modules constitute an evaluation framework which may be adapted at the funding provider level, and adjusted with respect to an RO's position in the RDI system.
4. **Evaluation frequency**. In the implementation period, annual evaluations on the national scale will mainly use the tools for M1 and M2 modules (bibliometric analysis or remote peer review in those disciplines where bibliometrics cannot provide relevant data for a review). Full-scale evaluation across all five modules will be in place by 2020. The target state expected to be in place beyond 2020 involves full-scale evaluations at five-year intervals.
5. **Three basic evaluation tools**. In individual modules, the ROs will be evaluated using bibliometric analysis, remote peer review and a review by a specialist panel. After the implementation period, members of the panels will also conduct on-site visits.
6. **Selection of ROs for evaluation**. Only those ROs will be evaluated which are listed in the Register of Public Research Institutions maintained by the MEYS. The evaluation will concern the results of ROs listed in the Information Register of R&D results.
7. **Specialist panels**. Research organisations will be assessed by six specialist panels according to the OECD classification fields (as outlined in the Frascati Manual): Natural Sciences, Engineering and Technology, Medical and Health Sciences, Agricultural and Veterinary Sciences, Social Sciences, Humanities and the Arts. The panels will be composed of experts in applied and industrial research and specialists from industry. Where appropriate and effective, the specialist panels will be composed predominantly from independent foreign experts. In their evaluation of selected results, the panels will rely on remote peer reviews, mostly by foreign reviewers, after considering whether their use would be appropriate and effective. Finally, the panel will propose classification of each result into one of five quality classes, provide substantiation for this proposal, and submit a general report.
8. **RO rating**. Full-scale evaluation across all modules in five-year intervals will lead to rating ROs on a four-level scale. The basis for the rating will be evaluations on the national level and on the level of public funding providers. The rating will be decided upon a discussion between representatives of the relevant public funding provider (where the public funding provider is not the founding organisation, a representative of the founding organisation will be invited as well), representatives of the R&D Council/Office of the Government of the Czech Republic, (vice-)presidents of the panels and possibly other invited experts. Results of the evaluation will be subject to approval by the R&D Council. A report will be compiled on the result of the entire evaluation of a particular RO and discussed with the RO prior to release. During the implementation period, the rating of the RO results will have indicative nature. The first long-term rating will take place in 2019.
9. **Implementation period**. The new methodology is being adopted gradually between 2017 and 2019. The evaluation will involve results applied in the previous year. 2019 will be the first year for research organisations to be evaluated using the complete M1 module and bibliometric analysis according to M2, and for the review panels to be composed of international experts. The evaluation will cover the results for the 2014–2018 period, using the evaluation outcomes from 2017 and 2018. ROs will be rated on the above-mentioned quality scale.
10. **Transition to five-year evaluation period.** The readiness for a full-scale evaluation differs considerably between various public funding providers and parts of the system. Some public funding providers completed evaluations at their level in 2017, others are to follow in 2018.

11. **Principles of LSDRO funding.** The funding for long-term systematic development of research organisations will consist of two components: the stabilisation component (the base) and the motivational one (the increment). In the implementation period, the base component will equal 100% of the LSDRO expenditure for 2016 divided according to the 2013–2016 Methodology. The motivational component, which will be at least equal to the year-on-year increase in the LSDRO funding, will be allocated on the basis of evaluation. The evaluation will lead to ROs' classification into four groups: A, B, C, and D.

### 1.6 The Research, Development and Innovation Information System

The Research, Development and Innovation Information System (RD&I IS) is a public administration information system for collecting, processing, disseminating and using data on publicly-funded research, development and innovation.

The purpose and the content of the RD&I IS, its users' rights and duties, and the procedure for submitting, entering, processing and disseminating the data are set out in the Support of Research and Development Act No. 130/2002 Sb., as amended, in Government Resolution No. 397/2009 Sb., on the research, experimental development and innovation information system, in special legal regulations, and in the Operating Rules of the RD&I IS.

The RD&I IS is administered by the Research and Development Council. It is operated by the Office of the Government of the Czech Republic.

The RD&I IS consists of four interconnected registers (their Czech acronyms are listed as well):

- Register of Public Tenders in Research, Development and Innovation (PTRDI) – VES,
- Central Register of Research, Development and Innovation Activities – CEA,
- Central Register of Projects – CEP,
- Information Register of R&D Results – RIV,

and is linked to the inactive legacy Central Register of Research Plans – CEZ.

On 31 May 2016, the Research and Development and Innovation Information System, which was operated by a consortium of the Czech Technical University and InfoScience Praha (at http://www.isvav.cz), was closed down due to expired contract with the OG CR. The information system entitled "IS VaVaI 2.6.0" (RDI Information System 2.6.0 or RD&I IS 2.6.0), now operated by the Office of the Government, can be found at https://www.rvvi.cz/:

The landing page of the RD&I IS 2.6.0


The main changes in the RD&I IS 2.6.0 launched in early 2018 included the following:

- New types/subtypes of results were introduced in accordance with Definitions of types of results (identified as: Jost, Ekrit, Enekrit, Sdb, NmetS, NmetC and NmetA), and definitions of some types of results (such as R), criteria for their application (e.g.: P) and the web-based checking service were updated,
- New data elements: field of research for the result/project, as defined by the OECD field of research classification – Frascati Manual 2015 and the field comparison table,
- Identifiers of persons – optional fields have been added for ORCID, Scopus Author ID and ResearcherID codes and periodical e-ISSN numbers,
- The R37 fields have been expanded from 1,024 to 3,000 characters, and the R42 and R46 fields from 2,000 to 10,000 characters,
- One data export option was added to the CEP module, reflecting the actual use of funds from the state budget,
- The funding allocated for the current year can be displayed in the CEA module.

### 1.7 Analyses of the Situation in Research, Development and Innovation in the Czech Republic

The documents entitled “Analysis of the Situation in Research, Development and Innovation in the Czech Republic and Comparison with the Situation Abroad” (RDI Analyses) have been prepared on a regular basis since 1999. From 2003, it is the R&D Council which compiles and submits them to the government every year. They are then published in Czech and English versions on-line and in printed form. RDI Analyses do not contain any proposals to eliminate the weaknesses or promote the strengths identified. They are, however, used as source documents for preparing important conceptual and strategic documents, namely the NRDIP. The analyses have repeatedly found slight improvements in RDI inputs and outputs in the Czech Republic, but also reported that the country was significantly and continuously lagging behind developed countries.
The 2016 RDI Analysis, which was noted by the government on 29 November 2017, was prepared by the Department of Analysis and Coordination of Science, Research and Innovation of the Office of the Government. Eleven chapters of the RDI Analysis 2016 contain a review and international comparison of the main RDI indicators of the Czech Republic.
The structure of the RDI Analysis 2016 is very similar to the 2015 version to facilitate comparison between these years.

**Structure of the 2016 RDI Analysis**

*SUMMARY*
*INTERPRETATION PART*

1. *Financial flows in research and development*
   - *1.1 Total expenditure on research and development*
   - *1.2 Financial flows among sectors*
   - *1.3 Direct and indirect support of research and development in the business sector*
2. *Funding the research and development from the state budget*
   - *2.1 Process of drafting the research and development part of the state budget*
   - *2.2 Categories of support for research and development in the Czech Republic and the structure of funding providers and beneficiaries*
   - *2.3 Specific-purpose funding of research and development by fields*
3. *RDI funding in the Czech Republic from European resources*
   - *3.1 Strategic framework for RDI funding in the Czech Republic from ESI Funds*
   - *3.2 Horizon 2020 framework programme*
4. *Human resources in research and development*
   - *4.1 Numbers of employees in research and development*
   - *4.2 Numbers of researchers*
   - *4.3 Researchers’ levels and fields of education*
   - *4.4 Gender aspects*
5. *Research infrastructures and research and development centres*
   - *5.1 Research and development centres*
   - *5.2 Research centres at higher education institutions in 2016*
   - *5.3 Strategy for supporting large research infrastructures in the Czech Republic*
6. *Results of research and development*
   - *6.1. Types of results and trends in their volumes*
   - *6.2. Distribution of results across fields and its time variation*
   - *6.3. Quality of results and their international comparison*
7. *Innovation performance of the Czech economy and its international comparison*
   - *7.1 Innovation performance of the Czech Republic: basic indicators*
   - *7.2 Innovation performance: combined indicators*
8. *Sectors of the national economy in relation to research, development and innovation*
9. *Implementation of the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic*
   - *9.1. Characteristics of the National RIS3 Strategy*
   - *9.2. Funding of the National RIS3 Strategy*
   - *9.3. Fulfilment of specific objectives of the National RIS3 Strategy and focus on application sectors*

*10. Societal challenges in relation to research and development in social sciences and humanities*
*11. Data sources in research, development and innovation*
*STRATEGIC RECOMMENDATIONS*
*List of abbreviations*
*ANNEX*

The opening chapter of the RDI Analysis 2016 paints a positive picture of the evolution of the Czech RDI system, as indicated by several analyses and international comparisons. Fundamental indicators show a relatively favourable environment for RDI. This means that, in a long term, research and development expenditure has been growing, as well as the number of researchers.
The interpretation part of the report is very detailed. The analysis also offers twenty strategic recommendations for maintaining the good performance of the effective parts of the research, development and innovation system, and for improving the rest. Some of those measures concern gathering relevant data for further analyses.
These strategic recommendations developed by the Research and Development Council indicate the Council's priorities for the coming years:

- Continue to prepare the RDI system for the period after 2020 and 2023 when financing from Structural Funds of the EU becomes either unavailable or very limited.
- Stabilize the financial condition of research organisations by reinforcing the long-term institutional component of the state budget for research, development and innovation, as opposed to the specific-purpose component, in response to the new method of evaluation of research organisations which emphasises the quality of output and its innovation effects.
- Analyse in greater detail the links between business and public entities (higher education institutions, institutes of the Academy of Sciences, and sectoral research facilities), focusing on social and economic growth (including the proportion of employment in high-tech fields and the growth of real wages).
- Analyse the benefits of particular instruments of financial support and optimize the instruments accordingly.
- Keep track of the institutional funding for research, development and innovation per field of science.
- Keep track of RDI funding at the national level and employ the accounting classification into direct costs (labour costs, materials, services) and indirect costs for funding categories, in particular institutional funding.
- As a priority, complete the planned alignment of the science field and sector group codes as used in the RDI Information System of the Czech Republic to the OECD Fields of Research and Development (part of the Frascati Manual).
- Correlate data obtained from various surveys and government registers (e.g. CSO surveys and registers of the Czech Social Security Administration, the General Financial Directorate and the RDI Information System) for detailed analyses of the RDI base, and observe the strict legal constraints on such correlations.
- Turn R&D centres which were built with funding from EU SF (namely the RDIOP) into hubs of long term applied research collaboration.
- While planning the funding for operational and organisational development of research infrastructures, emphasise the element of institutional funding for long-term conceptual development of research organisations.
- Regularly monitor the use of research infrastructures for conducting applied research that answers the needs of important sectors of the Czech economy.
- Allocate state budget funding with greater emphasis on research and development in crucial/breakthrough areas of individual fields of science eligible for international protection of results.
- At the national scale, keep track of the actual application of R&D results.
- Consistently implement the new method of evaluation of research organisations and programmes for specific-purpose support for research, development and innovation in order to deliver its envisaged benefits.
- Implement measures that motivate research organisations to perform applied research to increase the ratio of applied results to publication results.

- Take steps to improve the quality of publication output and internationalisation, in particular in basic research.
- Allocate state budget funding with greater emphasis on research and development in crucial/breakthrough areas of individual fields of science eligible for international protection of results.
- At the national scale, keep track of the actual application of R&D results.
- Consistently implement the new method of evaluation of research organisations and programmes for specific-purpose support for research, development and innovation in order to deliver its envisaged benefits.
- Continue to remove the main barriers to innovation in the Czech Republic: low venture capital investments, scarce use of international patents as a means of intellectual property protection, and lack of human resources (specialized education, career rules).
- Conduct sector-specific analyses or research and development in the business sector using individual input data (e.g. from CSO statistical surveys) without compromising their anonymity on the output side.
- Continue to monitor long-term trends and review year-on-year comparisons of macroeconomic variables for respective sectors in relation to research and development.
- Discuss the research and development in social sciences and humanities and their benefits, evaluation and funding within the Committee for Social Sciences and Humanities, an advisory body of the Research and Development Council.

More detailed information can be found at:
http://www.vyzkum.cz/
http://www.vyzkum.cz/FrontClanek.aspx?idsekce=677142
https://www.czso.cz/csu/czso/prima-verejna-podpora-vyzkumu-a-vyvoje-v-ceske-republice
https://www.czso.cz/csu/czso/ukazatele-vyzkumu-a-vyvoje-2016
http://www.statistikaamy.cz/category/analyzy/veda-a-vyzkum/

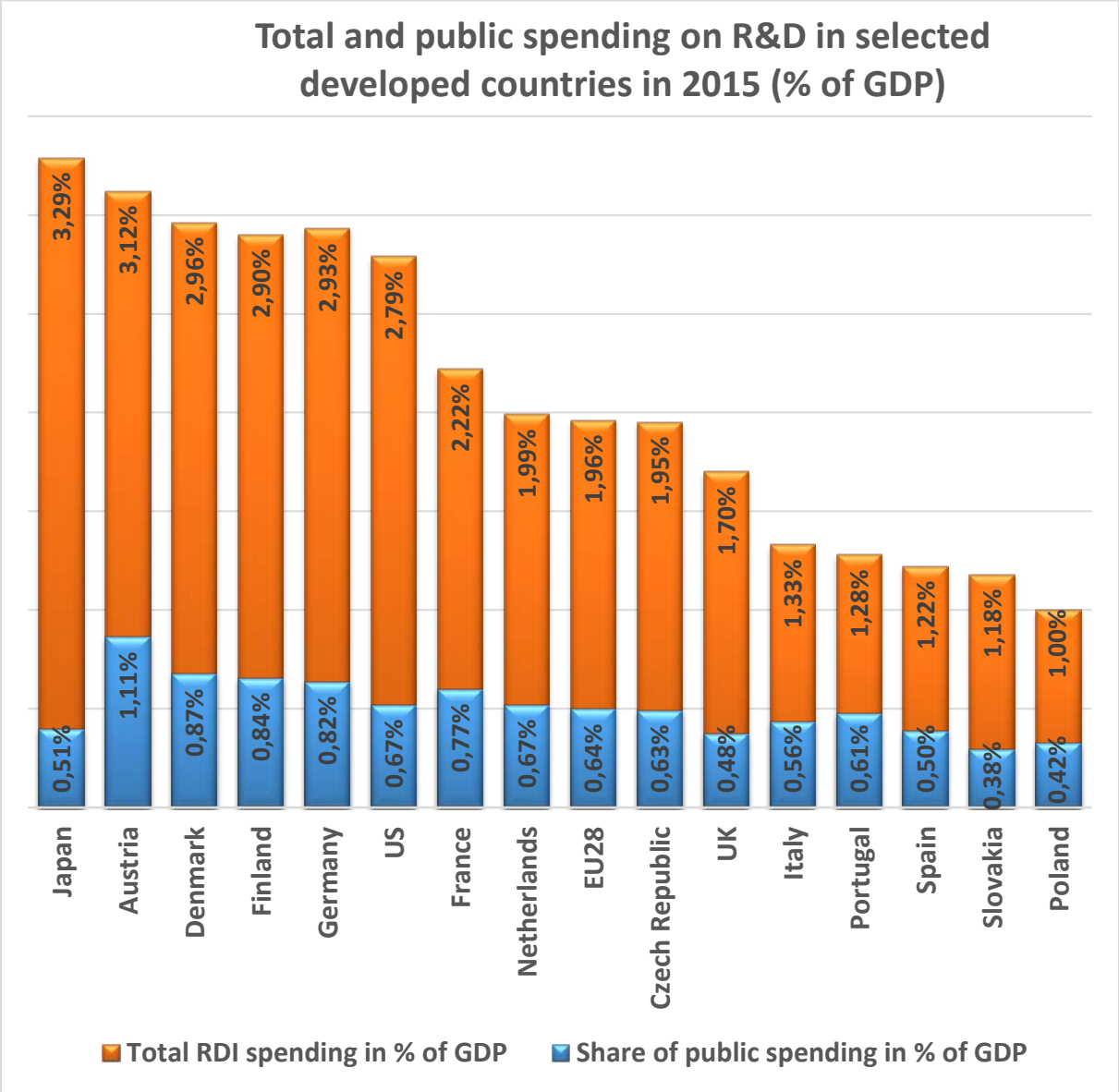
## 2. PUBLIC FUNDING OF RESEARCH AND DEVELOPMENT

Direct public funding is the primary tool for implementing R&D policies in the Czech Republic and elsewhere. The amounts of total direct funding and public funding are among basic indicators for evaluating R&D in various countries. The EU as a whole is known to lag behind the USA and Japan, or Asian economies, in the amount of R&D spending. The Lisbon Strategy was adopted in 2000 with the objective of making the EU the most competitive global economy by 2010. In 2002, another R&D objective was announced in Barcelona: to increase the total R&D expenditure to 3% of GDP by 2010, of which one-third would come from public sources and two-thirds (2% of GDP) from private (business) sources. The EU has not achieved these objectives yet, and neither has the majority of its Member States.

The Czech Republic adopted the Lisbon Strategy as well, which has been reflected in documents that set the course of the country's R&D. The Czech Republic was closest to achieving the objective of the total R&D spending of 2% of GDP in 2014. This share has been continuously declining since 2014. In 2016, it was 1.68%, same as in 2011. Although the country still fails to meet the overall objectives, it has achieved the EU average level. Most of the investment which contributed to this came from private sources.

**2.1 Total and public spending on R&D in selected developed countries in 2015**

Total and public spending on R&D in selected developed countries in 2015 (% of GDP)




*Source: OECD MSTI 2017/1*

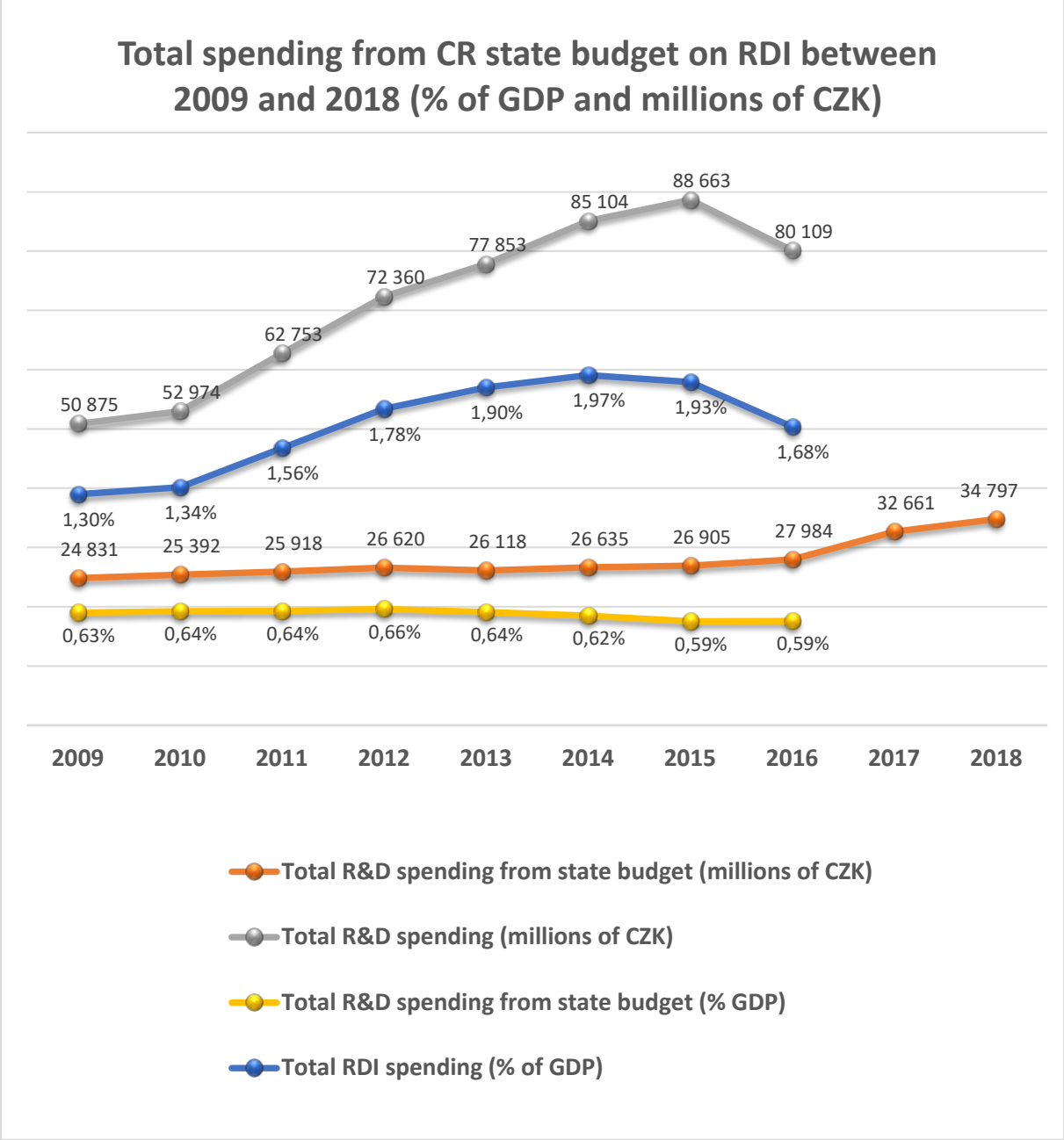
In 2015, the only EU country which was able to meet the first criterion of the Lisbon Strategy (total R&D spending of 3.12% of GDP) was Austria. Those which came closest were Denmark, Finland and Germany whose long-term level is just under 3%. The R&D spending in these countries notably exceeds the EU average which was 1.96% in 2015.

The second criterion (2% of total spending coming from non-public sources) was met by Denmark, Finland and Germany in 2015. Recent years have seen no substantial changes here. The EU as a whole has not met any of these criteria yet, and neither has the Czech Republic. Of the selected countries referred to in this section, the United Kingdom, Italy, Portugal, Spain, Slovakia and Poland reported lower total spending on R&D than the Czech Republic.

A high share of private investment in R&D is typical of Asian countries, such as Japan. No other EU country can report a 78% share of private spending on R&D.

**2.2 Total expenditure from the state budget of the Czech Republic on research, development and innovation**

Total expenditure from the state budget of the CR on RDI between 2009 and 2018 (% of GDP and millions of CZK)




*Source: Czech Statistical Office, state budgets of the Czech Republic for the given years*

As R&D was one of the government's main priorities, spending rose even during the crisis, despite sweeping cuts in other public spending. State budget spending on R&D continuously increased until 2013, although the rate of this increase only began to accelerate in the last two years. The year 2017

has seen a major increase by approx. CZK 4.7 billion, which is the largest increment in the period of interest. This trend will continue in 2018 with a planned increase of approximately CZK 2.1 billion.

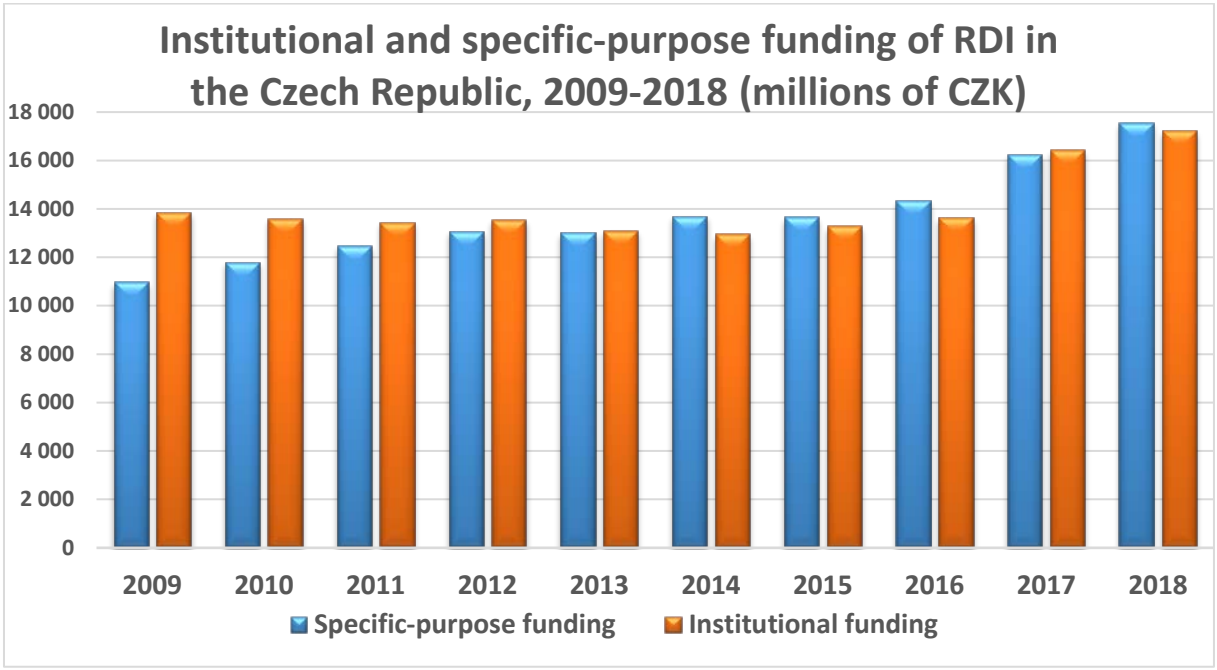
However, when expressed as a GDP ratio, the spending has been decreasing in recent years, according to available data. This means that the increasing amount of R&D spending from the state budget until 2016 did not match the growth of the entire economy. The total R&D spending curve declines even more steeply.

The state budget expenditures on R&D are not the only public sources available. Since 2007, Structural Funds of the EU have been gaining importance. This concerns mainly the Research and Development for Innovation and, to a lesser extent, the Education for Competitiveness and Entrepreneurship and Innovation Operational Programmes. More than CZK 100 billion from the EU resources was allocated for research and development under these three operational programmes until 2015. Since 2015, the newly-launched operational programmes Research, Development and Education (RDEOP) and Enterprise and Innovation for Competitiveness (EICOP) promise to become the largest available sources.

After 2010, once the effects of the economic crisis began to subside, the total spending on R&D showed a rising trend. In 2014, it exceeded CZK 80 billion for the first time, bringing the Czech Republic to a level slightly above the EU average. 2016 saw a year-on-year decrease of CZK 8.5 billion to CZK 80.1 billion, i.e., a 9.6% drop. The transition to a new programming period of European funds is reported as one of the main causes.

**2.3 Institutional and specific-purpose funding from the state budget for research, development and innovation**

Institutional and specific-purpose funding of RDI in the Czech Republic between 2009 and 2018 (millions of CZK)




*Source: State budgets of the Czech Republic for the given years*

The total state budget spending on R&D is divided into two streams. The first is specific-purpose funding, and the second institutional funding.

Specific-purpose funding is distributed predominantly through public tenders for selected research projects. These include open-grant projects, where the objectives and methods of basic research projects are determined by the researchers themselves. Then there are programme projects in applied R&D which aim to fulfil the objectives of a particular programme. Specific-purpose funding also goes to those research projects that fulfil the needs of the state (public research and development contracts). Finally, it is also provided for expanding R&D infrastructures and for specific academic research.

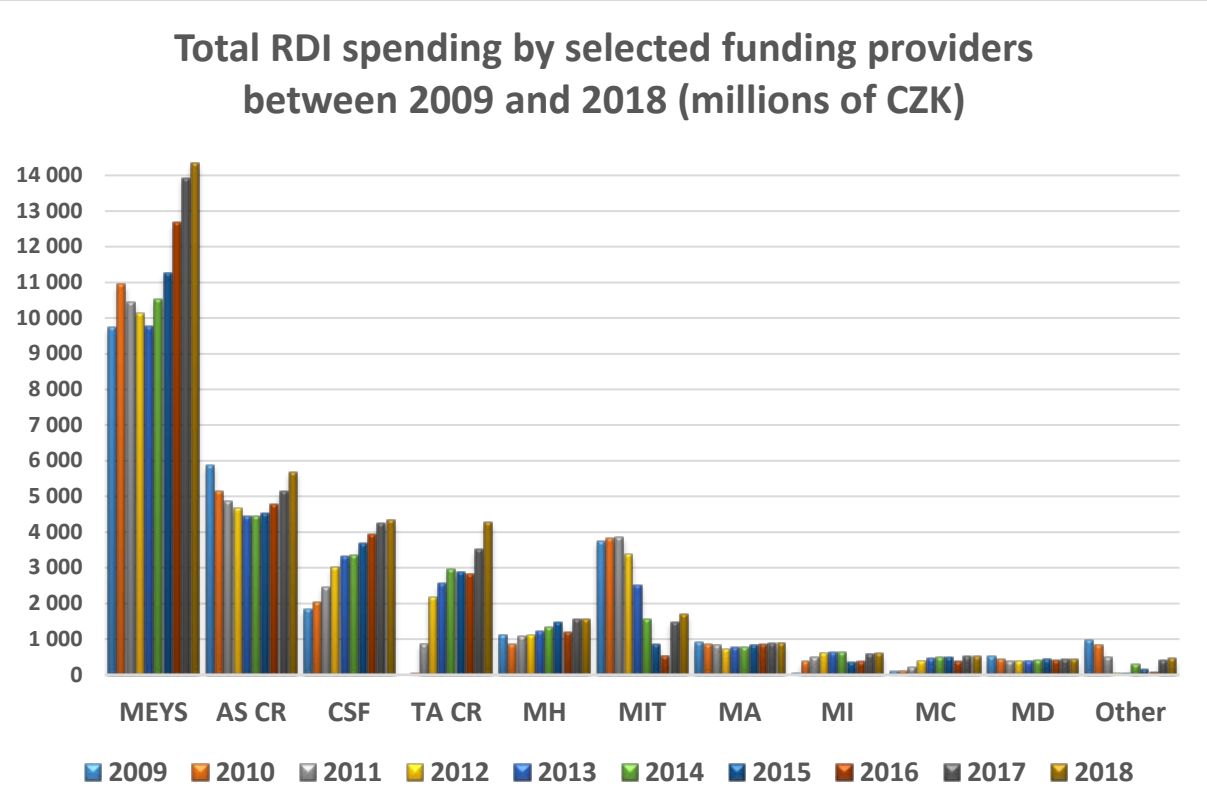
The dominant form of institutional funding provided to research organisations today is reimbursement of the costs of their development based on evaluation of their results. Institutional funding is also awarded for certain activities in international R&D cooperation and as co-funding for operational programmes in RDI. Finally, institutional funding meets the costs of public tenders, evaluation procedures, and financial awards for extraordinary achievements, as well as the operating costs of the Academy of Sciences of the Czech Republic and other institutions. The ratio between institutional and specific-purpose funding in the Czech Republic cannot be compared to similar indicators abroad because their structures differ.

After 2001, institutional funding was higher than specific-purpose funding. In the past, the R&D Council strove to reduce the differences between them. Specific-purpose funding tends to be awarded on the basis of competition, whereas institutional funding is in fact often granted automatically, once the beneficiary meets certain basic conditions. However, the data gathered after 2010 are not directly comparable with those from the previous years. This is due to changes in R&D funding (e.g. the funding for specific academic research used to be reported as institutional funding until 2009, whereas from 2010 it has been classified as specific-purpose funding). 2014 was the first year when the

amount of specific-purpose funding exceeded the institutional funding. This was the case until 2017, in which institutional and specific-purpose funding became equal, and remained so in 2018.

**2.4 Expenditure on research, development and innovation by selected public funding providers**

Specific-purpose funding of RDI by selected public funding providers between 2009 and 2018 (millions of CZK)



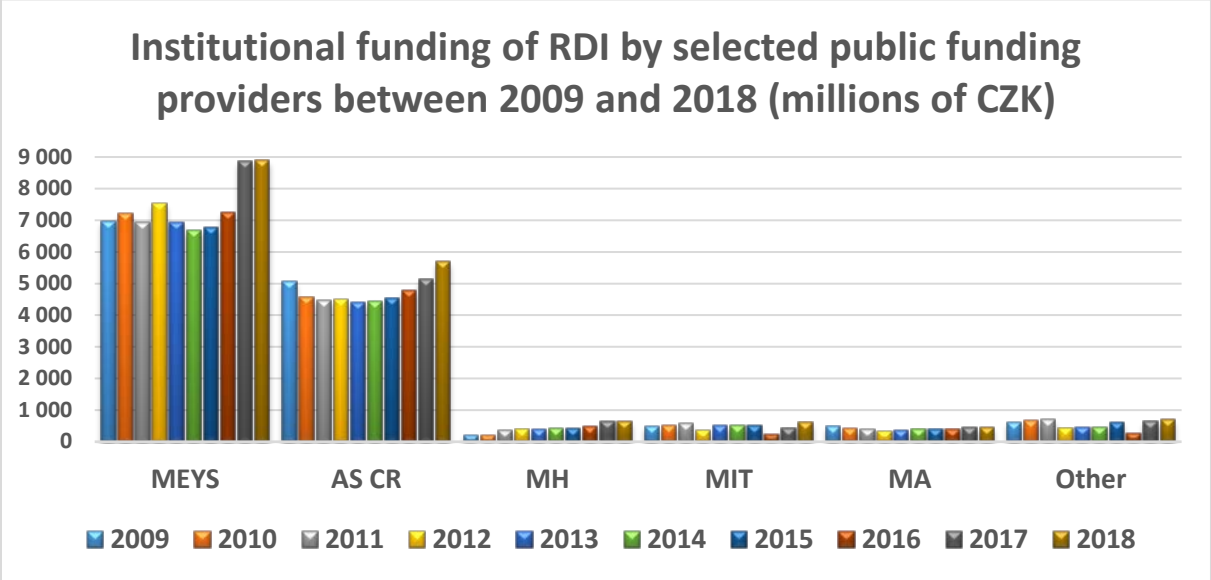

*Source: State budgets of the Czech Republic for the given years*

The graph shows the history of total funding from ten public funding providers. The data for four other providers – Ministry of Environment, Ministry of Labour and Social Affairs, Ministry of Transport and Ministry of Foreign Affairs – are indicated as “Other”.

The Reform of the Research, Development and Innovation System from 2008, which was approved by the government, reduced the number of state budget headings (and therefore the number of corresponding public funding providers) for R&D from 22 to 11. (The eleventh one, from which no external organisations are funded, is administered by the Office of the Government of the Czech Republic, and is used for funding the operation of the Research and Development Council.) In 2017, the number of funding providers rose to 14 (and the number of budget headings increased to 15); the institutional funding providers are, again, the Ministry of the Environment, Ministry of Transport, Ministry of Labour and Social Affairs and Ministry of Foreign Affairs.

**2.5 Institutional funding of research and development by selected public funding providers**

Institutional funding of RDI by selected public funding providers between 2009 and 2018 (millions of CZK)




*Source: State budgets of the Czech Republic for the given years*

The Reform of the Research, Development and Innovation System, which was approved by the government (Government Resolution No. 287 of 26 March 2008), fundamentally changed the way institutional funding was provided. Still running large research projects (referred to as “research plans”) were to be completed as planned, but no calls for new ones were to be announced. A new basis for granting institutional funding was chosen: the evaluation of research organisations according to government-approved methodology or, in the case of the Academy of Sciences of the Czech Republic, self-evaluation. Today, the Research and Development Council draws on the outcomes of this evaluation for drafting the state budget for RDI. (In the 2013–2015 period, the Council followed the principle of 20% allocation on the basis of evaluation scores, and 80% allocation on the basis of the previous year’s allocation. However, its RDI budget drafts were not approved in those years. Between 2016 and 2018, the R&DC’s draft built mainly on approved medium-term projections and on the outcomes of budget negotiations with individual public funding providers.)

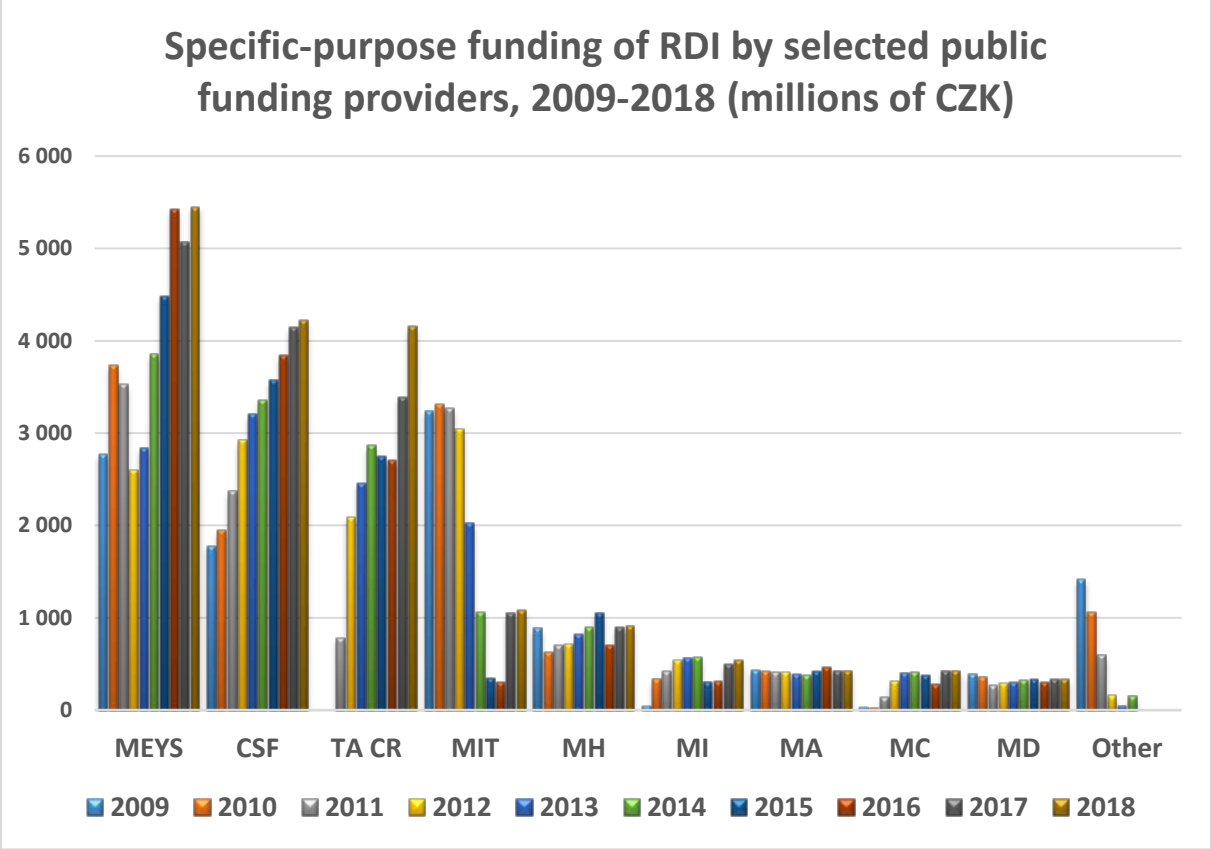
As mentioned above, institutional support is also provided for matching the funding of operational programmes in RDI. Finally, institutional funding meets the costs of public tenders, evaluation procedures, and financial awards for extraordinary achievements.

The lion's share of institutional funding is distributed by the Ministry of Education of the Czech Republic (MEYS) and the Academy of Sciences of the Czech Republic (AS CR). MEYS provides institutional funding to higher education institutions and to some research organisations. It also co-funds operational programmes in RDI AS CR provides institutional funding to its institutes. Therefore, the expenditures are not directly comparable.

Since 2017, the institutional funding providers are, again, four ministries (the Ministry of the Environment, Ministry of Transport, Ministry of Labour and Social Affairs and Ministry of Foreign Affairs) which are to provide to their research organisations a total of CZK 383 million in 2018. In the graph, these four new public funding providers are indicated as “Other”, along with three other providers: the Ministry of Defence, Ministry of Culture and Ministry of Interior whose total allocated amount is CZK 267 million.

**2.6 Specific-purpose funding of research, development and innovation by selected public funding providers**

Specific-purpose funding of RDI by selected public funding providers between 2009 and 2018 (millions of CZK)




*Source: State budgets of the Czech Republic for the given years*

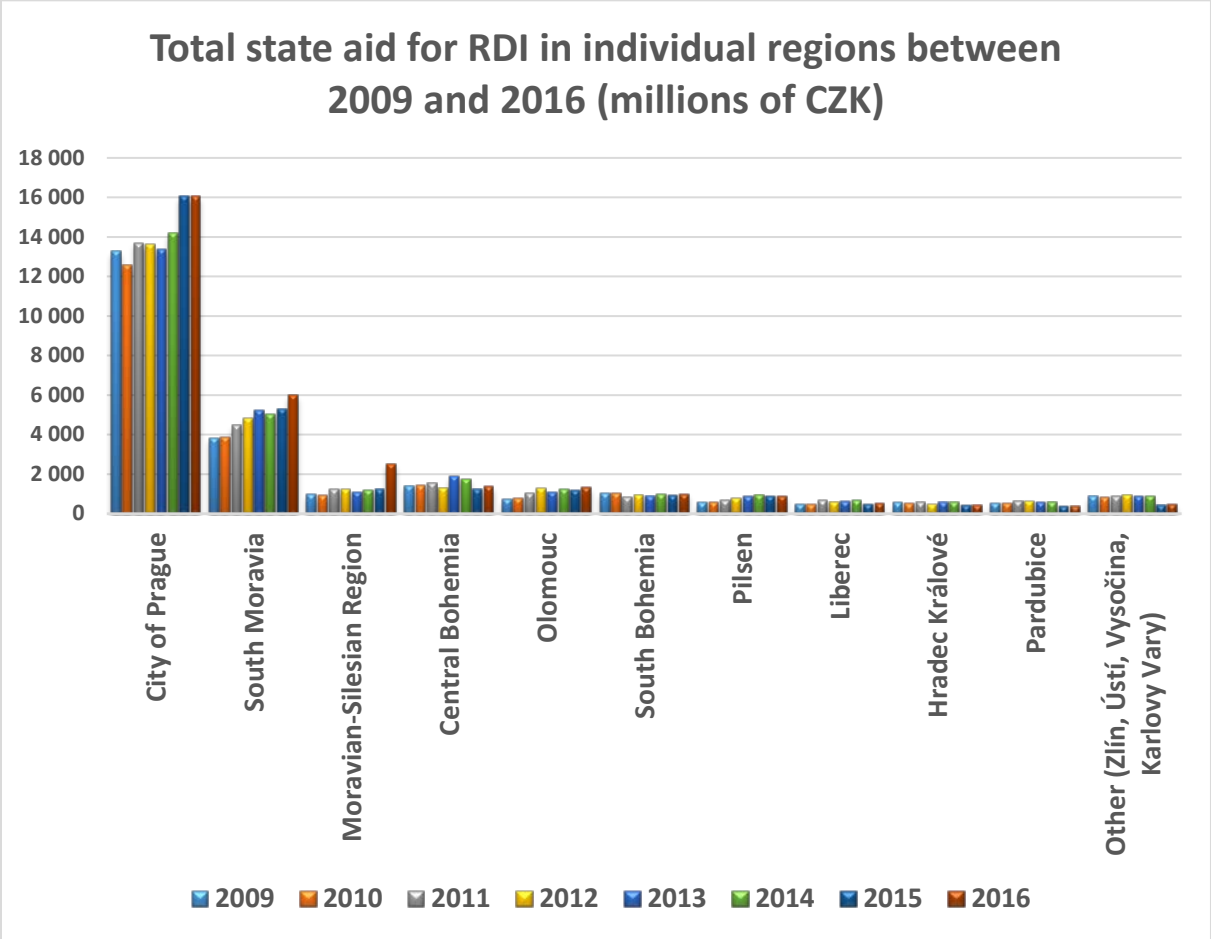
Specific-purpose funding for R&D is awarded for R&D projects upon public tenders. The Czech Science Foundation (CSF) provides funding for open-grant projects in basic research. Other public funding providers, including the Technological Agency of the Czech Republic (TA CR), support programme projects under their R&D programmes. The Ministry of Defence, Ministry of the Interior and the TA CR also award public contracts in R&D.

The increase in the Czech Science Foundation's expenditures (CSF) after 2010 – seen in the above graph – resulted from a change in the rules of support: since 2011, CSF has also been funding wage costs of new projects. TA CR expenditures began to rise after it had taken over responsibility for several R&D areas previously administered by other budget agencies which ceased to provide specific-purpose funding for RDI.

The increase in the amount of funding under the state budget heading of the Ministry of Education (MEYS) was due to the launch of the National Sustainability Programme I (NSP I), and the National Sustainability Programme II (NSP II). These promote the sustainability of the new research centres established under RDIOP and Prague – Competitiveness Operational Programme (PCOP). As of 2016, substantial funds are available for individual projects of large infrastructures.

**2.7 Total state aid for research, development and innovation in regions**

Total state aid for RDI in individual regions between 2009 and 2016 (millions of CZK)




*Source: State budgets of the Czech Republic for the given years, RD&I IS*

The above figures for the total state funding of R&D include all specific-purpose funding that was provided in the relevant years. Of the other type of public funding, the institutional funding, only that for the former large research projects (referred to as “research plans”), and for the development of research organisations, has been included here. The funding of specific academic research and selected international cooperation activities in R&D was excluded.

In geographic terms, public funding is distributed rather unevenly across the territory of the Czech Republic, as in many other countries. This reflects the historical distribution of R&D facilities across the country. The capital city of Prague absorbs around 50% of the total public funding of R&D. Of the total fourteen regions, a mere four regions, including Prague, receive almost 80% of the total funding. Establishment of new R&D infrastructures outside Prague was expected to mitigate these differences. This effort was funded by the EU under the Research and Development for Innovation Operational Programme. The measure was only partially effective in equalizing the regional distribution because the proposal evaluation process did not take the geographic aspect into account. The greatest rise in investment was seen in the South Moravia, Olomouc, Pilsen and Central Bohemia Regions. These, however, are the regions in which the R&D spending was second to Prague even before then (this aid from operational programmes is only reported in the amounts provided from the state budget – “co-funding”). As the amounts for the Zlín, Ústí, Vysočina and Karlovy Vary Regions were very low, they were added together and shown as a single item.

## 3 RDI PUBLIC FUNDING PROVIDERS AND PROGRAMMES IN THE CZECH REPUBLIC

### 3.1 Czech Science Foundation (CSF)

The Czech Science Foundation began its operations in 1993. One of its tasks is to award grants to the best basic research projects from all fields of science on the basis of annual public tenders in research where the objectives and project implementation methods are proposed by scientists themselves..
The projects lead to new knowledge of the underlying foundations of phenomena and observable facts which are published in a way that is customary in the discipline. Every year and for each project, the CSF reviews the progress and compliance with the objectives of the project. Finally, it evaluates the results of each completed project. The CSF acts as a budget agency, which means that it awards grants, i.e. specific-purpose funding for basic research projects, from a separate heading of the state budget.

Every year, about 3,000 proposers apply for funding from the CSF, of whom approximately one quarter succeed but the success rate varies from year to year.
The funding from the CSF goes to so-called 'standard projects', 'junior projects' (which fully substituted the former 'post-doctoral projects' in 2017), 'excellence in basic research' projects and international (bilateral) projects. In 2014, international "LA Grants" began to be awarded. From 2017, projects which support international collaboration for obtaining ERC grants will be supported. A public tender for EXPRO projects for excellence in basic research will be announced in 2018.

The activities of the CSF are as follows:

- Prepares and conducts public tenders in research through which grants are awarded.
- Its expert consulting bodies evaluate project proposals, and select the best ones to receive funding.
- Awards grants within current financial limits, i.e. based on the allocation from the state budget, and makes contracts with applicant entities.
- Monitors the project progress and fulfilment of objectives through annual interim project reports.
- Evaluates the results achieved by the project, based on its final report.
- Reviews the project team's management of project funds, i.e. the purpose of expenses, and compliance with relevant regulations and requirements.
- Cooperates with foreign scientific bodies and institutions, in particular from the Member States of the European Community.

Types of open-grant projects:
The CSF provides specific-purpose funding for the following types of open-grant projects:

- Standard grant projects (GA)
- International (bilateral) projects (GC)
- Excellence in basic research projects (GB)
- Junior grants (GJ)
- LA grants (GL)
- Projects which support international collaboration for obtaining ERC grants.

#### 3.1.1 CSF Discipline Committees and Panels

Discipline committees receive, screen, and evaluate project proposals in basic research. They have been established for the following groups of disciplines:

- Technical sciences (OK1)
- Physical sciences (OK2)
- Medical and biological sciences (OK3)
- Social sciences and humanities (OK4)
- Agricultural and biological-environmental sciences (OK5)

Within these groups, the scope is narrowed down to panels:
(On 7 March 2013, the CSF specified in greater detail the content of panels P102, P108, P402, and P403. Rather than choosing panels merely by name, applicant entities should first familiarize themselves with the panel content.)

1. Technical sciences
- P101 Mechanical Engineering
- P102 Electrical engineering and electronic engineering
- P103 Cybernetics and information processing
- P104 Construction materials, architecture
- P105 Structural mechanics and construction, fluid mechanics
- P106 Technical chemistry
- P107 Materials and metallurgy
- P108 Materials science and engineering

2. Physical sciences
- P201 Mathematics
- P202 Computer science
- P203 Nuclear and particle physics, plasma and low temperature physics
- P204 Condensed matter and material physics
- P205 Biophysics, macromolecular physics, and optics
- P206 Analytical chemistry – chemical and structural analysis of atomic, molecular and biomolecular systems
- P207 Chemical and biochemical transformations
- P208 Chemical physics and physical chemistry
- P209 Astronomy and astrophysics, atmospheric physics, meteorology, climatology and hydrology, physical geography
- P210 Geophysics, geochemistry, geology and mineralogy, hydrogeology

3. Medical and biological sciences
- P301 Genetics, experimental oncology, medical biochemistry, metabolism, and nutrition
- P302 Morphological disciplines, microbiology, immunology, epidemiology, and hygiene
- P303 Physiological disciplines, pharmacology, neurosciences, and toxicology
- P304 Clinical and preclinical research, experimental medicine
- P305 Molecular, cellular, structural and developmental biology and bioinformatics

4. Social sciences and humanities
- P401 Philosophy, theology, religious studies
- P402 Economic sciences, macroeconomics, microeconomics, econometrics (except financial econometrics), quantitative methods in economics (except operational research)
- P403 Business sciences, management, finance, financial econometrics and operational research
- P404 Sociology, demography, social geography, and media studies
- P405 Archaeology and pre-modern history (until 1780)
- P406 Linguistics and literature
- P407 Psychology, pedagogy
- P408 Juridical sciences and political science
- P409 Art sciences
- P410 Modern history (after 1780) and ethnology

5. Agricultural and biological-environmental sciences
- P501 Plant physiology and genetics, plant medicine
- P502 Animal physiology and genetics, veterinary medicine
- P503 Food science, ecotoxicology and environmental chemistry
- P504 Landscape management, forestry and soil biology, ecosystem ecology

- P505 Animal and plant ecology
- P506 Botany and zoology

### 3.1.2 Standard grant projects (GA)

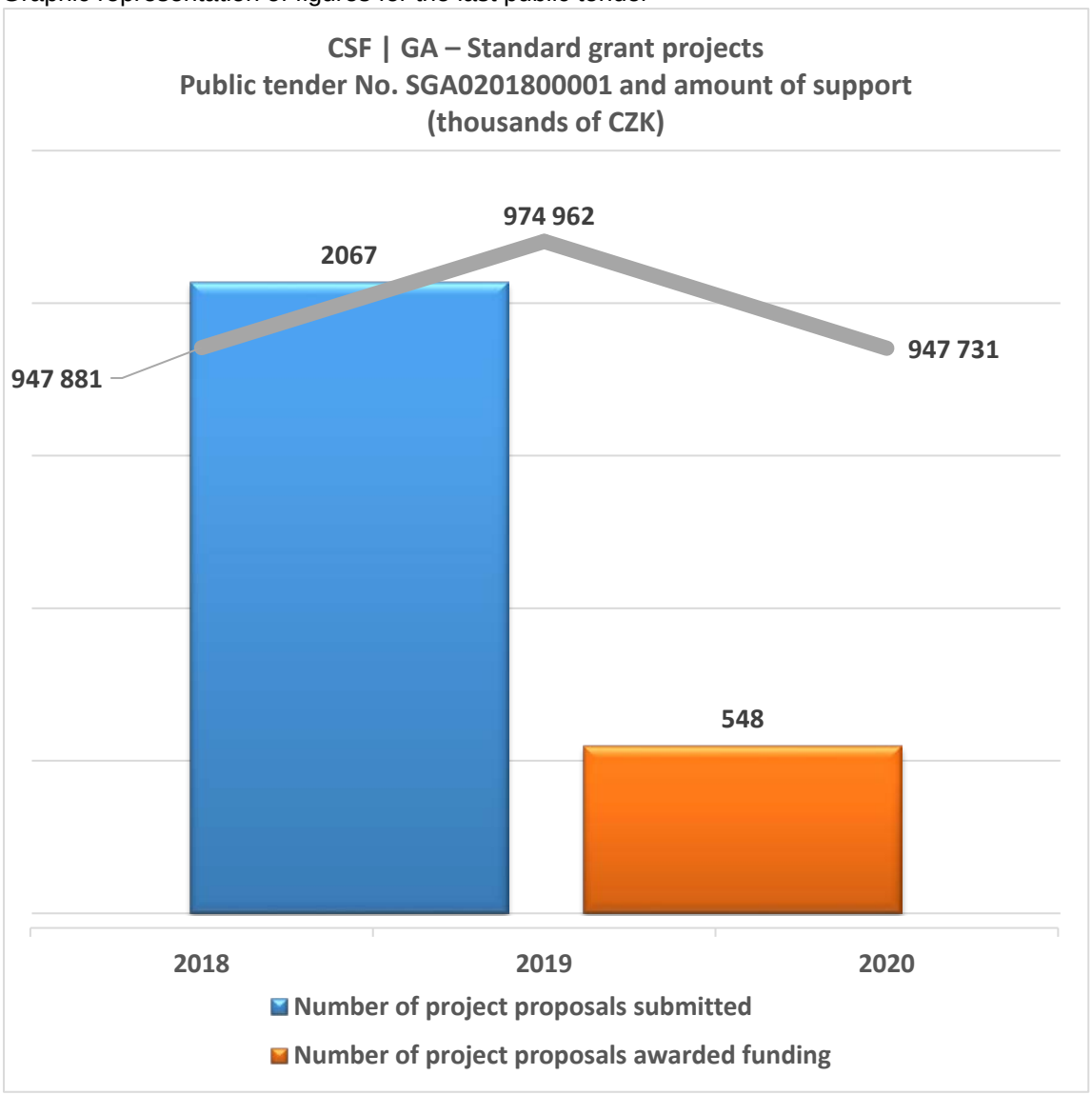
Standard grant projects are basic research projects. The CSF has supported such projects since its establishment in 1993. **According to information from the RD&I IS, this programme has, until March 2018, supported 14,066 projects with state aid totalling CZK 37.380 billion.**

- The typical project duration is 3 years
- Any field in basic research is eligible for support.
- The project topic is chosen by the proposer.
- Eligible applicant entities include all legal and natural persons, organisational units of the state or regional self-governments, or those organisational units of the Ministry of Defence and Ministry of the Interior which are engaged in research and experimental development.
- Public tenders are typically announced once a year, normally in March. Evaluations are completed in the autumn and the results are announced before the end of the calendar year.
- The investigator can be either one person or an entire research team, whose members may even come from various institutions
- The main criteria considered for awarding the grant are the proposed objectives, the method of investigation, the planned outcomes, the applicant entity's foreign cooperation and earlier collaboration with CSF, and commensurate funding requirements.

Funding allocated in 2017

| Period | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|
| Amount of aid (thousands of CZK) | 947,881 | 974,962 | 947,731 | 2,870,574 |

Graphic representation of figures for the last public tender




(Amount of specific-purpose funding to be awarded through public tenders:
CZK 2,870,574 thousand)

*Source: Research, Development and Innovation Information System*

In 2018, a call for proposals under this programme will be announced.

### 3.1.3 International (bilateral) projects (GC)

International open-grants are awarded for basic research projects carried out in bilateral cooperation between scientists or research teams. The projects are selected in collaboration with various foreign funding providers: Deutsche Forschungsgemeinschaft (DFG), National Research Foundation of Korea (NRF), and National Science Council of Taiwan (NSC). **According to information from the RD&I IS, this programme has, until March 2018, supported 139 projects with state aid totalling CZK 0.524 billion.**

The CSF can only award a bilateral project grant if the foreign provider awards the funding as well, i.e. the proposal must be accepted by both national providers.

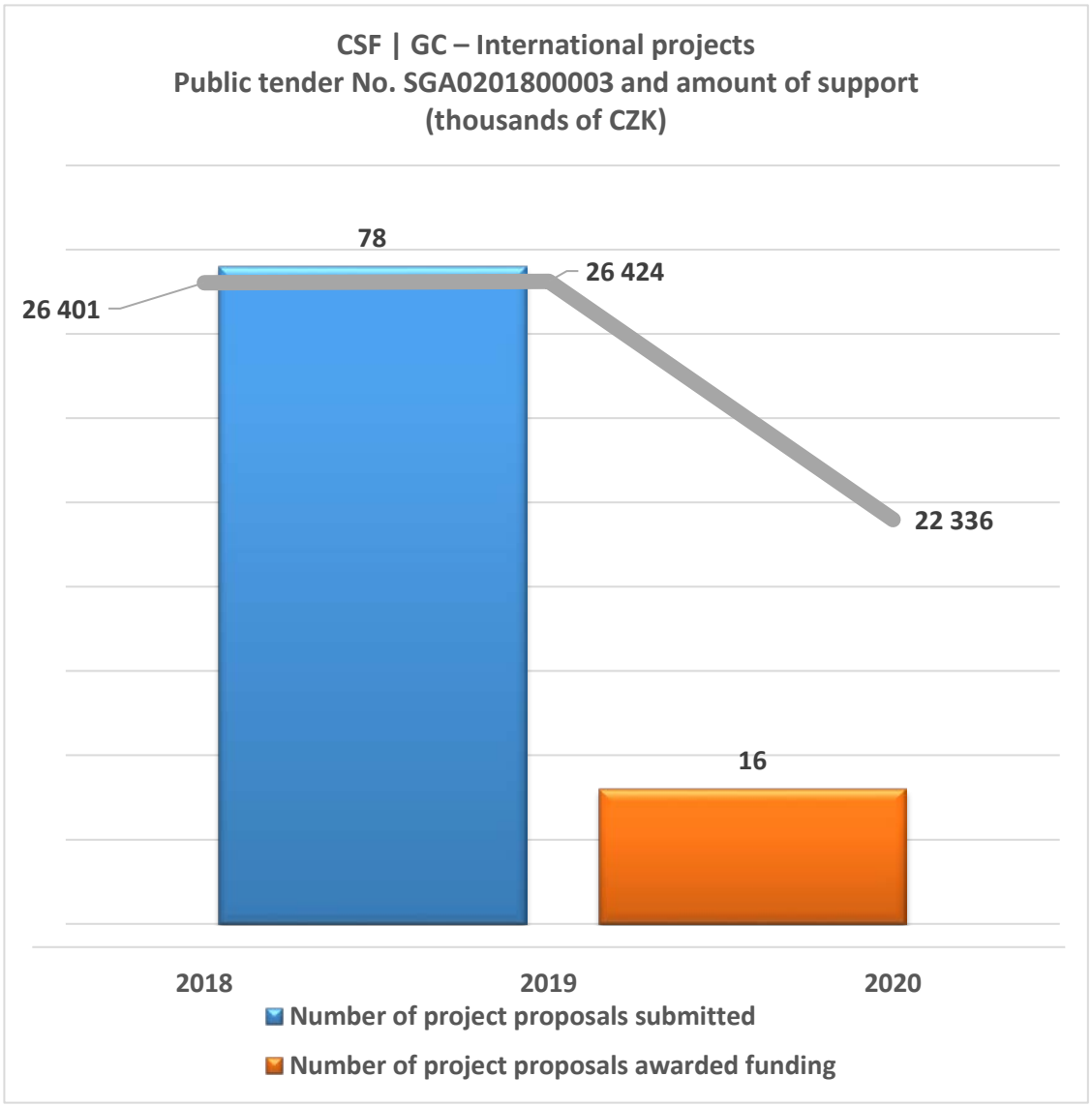
- The projects can focus on any field of basic research
- The project topic is chosen by the proposer.

- The project duration is 2–3 years
- In the Czech Republic, these public tenders are typically announced once a year, normally in March. The evaluation is completed in autumn and the date on which the results are announced in the Czech Republic depends on the date of award in the partner country
- Each national provider only funds the project activities on its territory

Funding allocated in 2017

| Period | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 26,401 | 26,424 | 22,336 | 75,161 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders:
CZK 75,161 thousand)




*Source: Research, Development and Innovation Information System*

In 2018, a call for proposals under this programme will be announced.

### 3.1.4 Junior grants (GJ)

In 2014, the CSF announced, for the first time, a public tender to award junior grants for projects proposed by excellent young scientists. The funding was released in 2015. These public tenders will continue to be announced on an annual basis until 2022. To be eligible, applicants must be under 35 years old in the year they submit the proposal. The project period is three years. **According to information from the RD&I IS, this programme has, until March 2018, supported 224 projects with state aid totalling CZK 1.078 billion.**

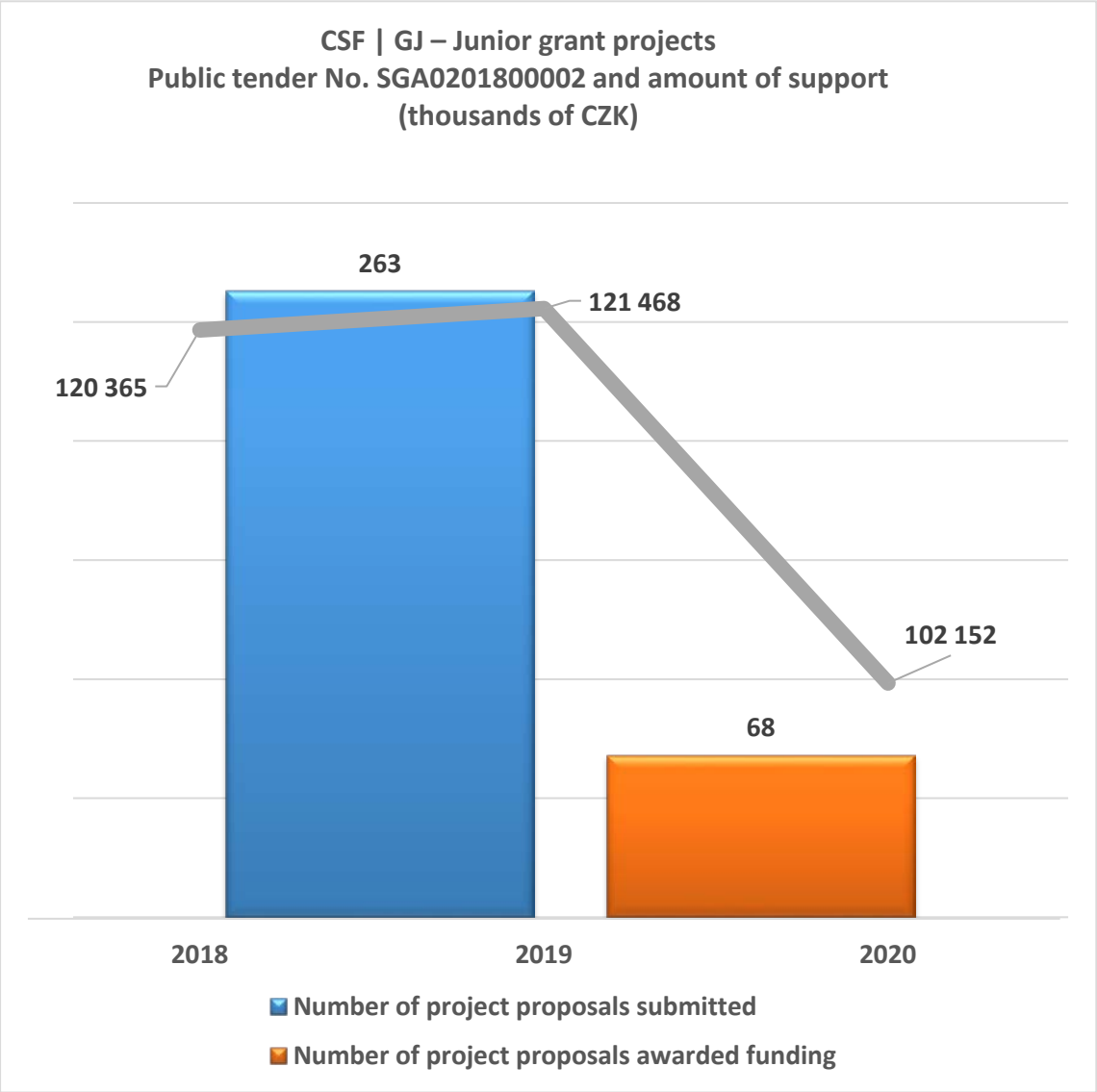
In a single junior grant competition, each applicant can only submit one proposal. If this proposal is awarded funding, the applicant will not be allowed to apply for a junior grant again. Proposals may also be submitted by those who are already conducting another standard grant project, an international project or a post-doctoral grant project with funding from the CSF. In the year of the proposal submission, the applicant and the project team members must be under 35 years of age and, if having a PhD or an equivalent degree, they must have received it within the previous 8 years.

The aid intensity can be up to 100%. The maximum amount of aid for a single project is defined by the Framework (i.e. EUR 20 million) but tends to be approximately two orders of magnitude lower for projects of this type.

Funding allocated in 2017

| Period | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|
| Amount of aid (thousands of CZK) | 120,365 | 121,468 | 102,152 | 343,985 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders: CZK 343,985 thousand)




*Source: Research, Development and Innovation Information System*

In 2018, a call for proposals under this programme will be announced.

### 3.1.5 LA grants (GF)

LA grants are awarded by the CSF for those international projects whose proposals are evaluated using the “Lead Agency” principle. Their purpose is to support international cooperation in basic research. **According to information from the RD&I IS, this programme has, until March 2018, supported 30 projects with state aid totalling CZK 0.142 billion.**

Project proposals are evaluated on an international basis pursuant to section 7, subsection 4 of the Support of Research and Development Act No. 130/2002 Sb. In this scheme, the calls for proposals are published by the partner agency. The proposals should follow the partner agency’s rules.

LA grants started in 2015 and their support will end in 2022. In the final two years, no new projects will be launched, and those running (from 2020) will be finished as planned.
The project duration in this scheme was set at 24–36 months as being the optimum period for achieving their objectives.

The aid intensity can be up to 100%. The maximum amount of aid for a single project is defined by the Framework (i.e. EUR 20 million) but tends to be more than three orders of magnitude lower for projects of this type. Another call for proposals is to be announced in 2018. Public tenders of this type are announced once a year, usually in November.

### 3.1.6 Projects which support international collaboration for obtaining ERC grants (GH)

This is a separate type of projects which support applicants for ERC grants. The aim is to help scientists acquire experience and succeed in obtaining funding from the schemes of the European Union, and to promote excellence in basic research in the Czech Republic.

The CSF has been supporting these projects since 2016. The project duration is 3–6 months. These projects can focus on any field of basic research. The project topic is chosen by the proposer. Only one applicant entity may be listed in the proposal.

To be eligible to submit an open-grant project application under “Support of ERC Grant Applicants”, the responsible applicant employee shall be an investigator of a running Junior Grant project which has passed at least one evaluation, or an investigator of a completed Junior Grant project whose last evaluation rating prior to the submission of the “Support of ERC Grant Applicants” application was either “fulfilled” or “excellent”.

The call for proposals of projects which support international collaboration for obtaining ERC grants in basic research is announced upon consultation with the European Research Council (ERC). Funding for these open-grant projects is to be provided upon the call for proposals and until 2022.
The Support of ERC Grant Applicants project will be conducted in a foreign facility. The evaluation will take place at an international level. Key evaluation criteria include scientific excellence, innovation, originality, prior scientific and publication activity of the responsible applicant employee, and his or her professional qualification for submitting a project application to one of the main ERC funding schemes (StG, CoG, AdG) with the host institution in the Czech Republic within the prescribed time limit upon completion of this open-grant project.

### 3.1.7 EXPRO grants for excellence in basic research (GX)

These new grants aim to support research teams led by prominent internationally-recognised scientists or by young researchers who demonstrate a clear potential for excellence. This funding should go towards areas of excellence, or those with a potential for excellence, and ultimately boost the quality of Czech science. Excellent research depends on top scientists and is often associated with high risk-high gain projects, such as ERC projects. No support for such projects has been available in the Czech Republic so far, leading to low success rates in obtaining ERC grants.

Applications will be evaluated with the emphasis on the proposer's excellence, publications and other criteria. The projects should take five years and their staff's FTE should be no less than 0.5. The grants are expected to reach up to CZK 10 million/year, i.e., much more than in standard projects. For an EXPRO project to be completed successfully, either the investigator or one of the team members must submit an application for an ERC grant within six years of the project start date.

The CSF expects the first public tender to be announced in the second quarter of 2018 and the first projects to start in 2019.

### 3.1.8 Public tenders

| Programme code | Announcement date |
|---|---|
| **GA** | The next call is planned to be announced in the 1st quarter of 2018 |
| **GC** | |
| **GJ** | |
| **GF** | Another call is to be announced in November 2018 |
| **GH** | To be announced after consultation with the European Research Council (ERC) |
| **GX** | The next call is planned to be announced in the 2st quarter of 2018. |

### 3.1.9 Contacts and additional information

Grantová agentura České republiky
Evropská 2589 / 33b, 16000, Praha 6, Czech Republic
Phone: +420 227 088 841
E-mail: info@gacr.cz

Links:
www.gacr.cz
www.gacr.cz/zadavaci-dokumentace

### 3.2 Technology Agency of the Czech Republic (TA CR)

The Technology Agency of the Czech Republic is an organisational unit of the state, established in 2009 by Act No. 130/2002 Sb., which commenced its activities in 2010. TA CR provides state aid for applied research and development, which had previously been fragmented and administered by a large number of public funding providers.
In addition to the programmes described in more detail below, new programmes are under preparation, and are now going through the approval procedure. These include new sectoral programmes of the Ministry of Transport, Ministry of Labour and Social Affairs and Ministry of the Environment whose launch is conditional on the government's approval and on the state budget.

The TA CR fulfils the following tasks:

- Designs and implements applied research, development and innovation programmes, including those designed to meet the needs of the state administration, conducts public tenders in research, and awards public contracts
- Evaluates and selects project proposals in thematic programmes
- Provides specific-purpose funding for programme projects through grant agreements and grant award decisions
- Monitors the performance of grant agreements and compliance with grant award decisions, and audits the use of specific-purpose funding
- Evaluates and audits programme projects, their objectives, and the results produced
- Fosters cooperation between research organisations and the private sector, and co-funds programme projects

In TA CR programmes, the amount of funding available for individual public tenders varies substantially between the initially approved programme version, the medium-term projection for the state budget and the actual public tender. There might be some variation in the conditions as well (e.g. in the aid intensity). The version relevant to applicant entities is always the tender dossier for the public tender.

#### 3.2.1 The GAMA Programme of Applied Research, Experimental Development and Innovation 2014–2019 (TG)

This programme's objective is to promote and streamline the conversion of R&D results – those produced by research organisations (ROs) alone or in collaboration with industry – into real-world applications with a view to their commercialisation. The programme aims to stimulate innovation in enterprises (primarily small and medium-sized ones) through commercialisation of the results generated by publicly-funded ROs. **According to information from the RD&I IS, this programme has, until March 2018, supported 30 projects with state aid totalling CZK 0.537 billion.** No further calls are expected to be announced under this programme. In 2019, this programme will be replaced with the planned GAMA 2 programme. GAMA 2 will support verification of the commercial potential of research and development results in the framework of research and knowledge dissemination organisations.

#### 3.2.2 The DELTA Programme for collaboration in applied research and experimental development through joint projects of technology and innovation agencies 2014–2021 (TF)

The DELTA programme aims to increase the quantity of relevant results of applied research and experimental development in areas of shared interests with foreign partners. Such results are expected to be applied in practice and to strengthen the competitiveness of the Czech Republic. To this end, the programme supports bilateral and multilateral cooperation between leading Czech and foreign researchers. Project proposals must respond to the current or future needs of the relevant country. In the Czech Republic, these needs are outlined in the National Priorities of Oriented Research, Experimental Development and Innovation. **According to information from the RD&I IS, this programme has, until March 2018, supported 24 projects with state aid totalling CZK 0.245 billion.**

The programme was planned to end in 2019 but it was extended by two years in 2017. The programme promotes cooperation in applied research and experimental development. It supports projects conducted jointly by enterprises and research organisations and enables funding to be obtained from the TA CR and from renowned foreign technology and innovation agencies or other institutions. Before a particular public tender is announced, cooperation must exist between the TA CR and the other foreign agency. Below, such foreign agencies or institutions are referred to as “partner agencies”. Each tender dossier contains a list of relevant partner agencies for the public tender. This programme is not thematically-oriented. Topics for joint projects are selected on an ad hoc basis from disciplines preferred by both the TA CR and the partner agency. For each partner agency, there is a separate range of research topics. These reflect either the priorities or areas of excellence in applied research and experimental development in both countries. These differ not only from agency to agency but also between public tenders announced for the same agency in different periods.

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Total |
|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 13,000 | 67,000 | 109,000 | 231,000 | 200,000 | 50,000 | 50,000 | 720,000 |

**Project period**

The programme is planned for the period from 2014 to 2021.
The expected maximum project duration is 36 months. The project period must not extend beyond the period of the entire programme.

**Form and amount of funding**

Each participant receives funding from sources in their country. Funding from the state budget of the Czech Republic may be provided through the TA CR to meet the costs of only those applicants defined in section 18 of the Support of Research and Development Act No. 130/2002 Sb. (referred to as “applicants from the Czech Republic”). The funding is provided pursuant to Act No. 130/2002 Sb.

The aid intensity for individual participants from the Czech Republic must not exceed the maximum aid intensity allowed under the GBER. The maximum allowed aggregate aid intensity for all beneficiaries under a single project is defined for each public tender separately. Special bonuses can be awarded for meeting the conditions of effective collaboration in accordance with the GBER. Applicant entities are required to provide co-funding.

| Aid intensities for applicant categories | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Anticipated share of the DELTA programme’s allocated resources per entity type** | 25% | 15% | 15% | 45% |
| **Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation** | 80% | 75% | 65% | 100% |

*Table of maximum aid intensities for individual categories of enterprises in applied research*

| Aid intensities for applicant categories | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Anticipated share of the DELTA programme's allocated resources per entity type** | 30% | 30% | 30% | 10% |
| **Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation** | 60% | 50% | 40% | 100% |

*Table of the maximum aid intensity for individual categories of enterprises in experimental development*

**Aid beneficiaries**

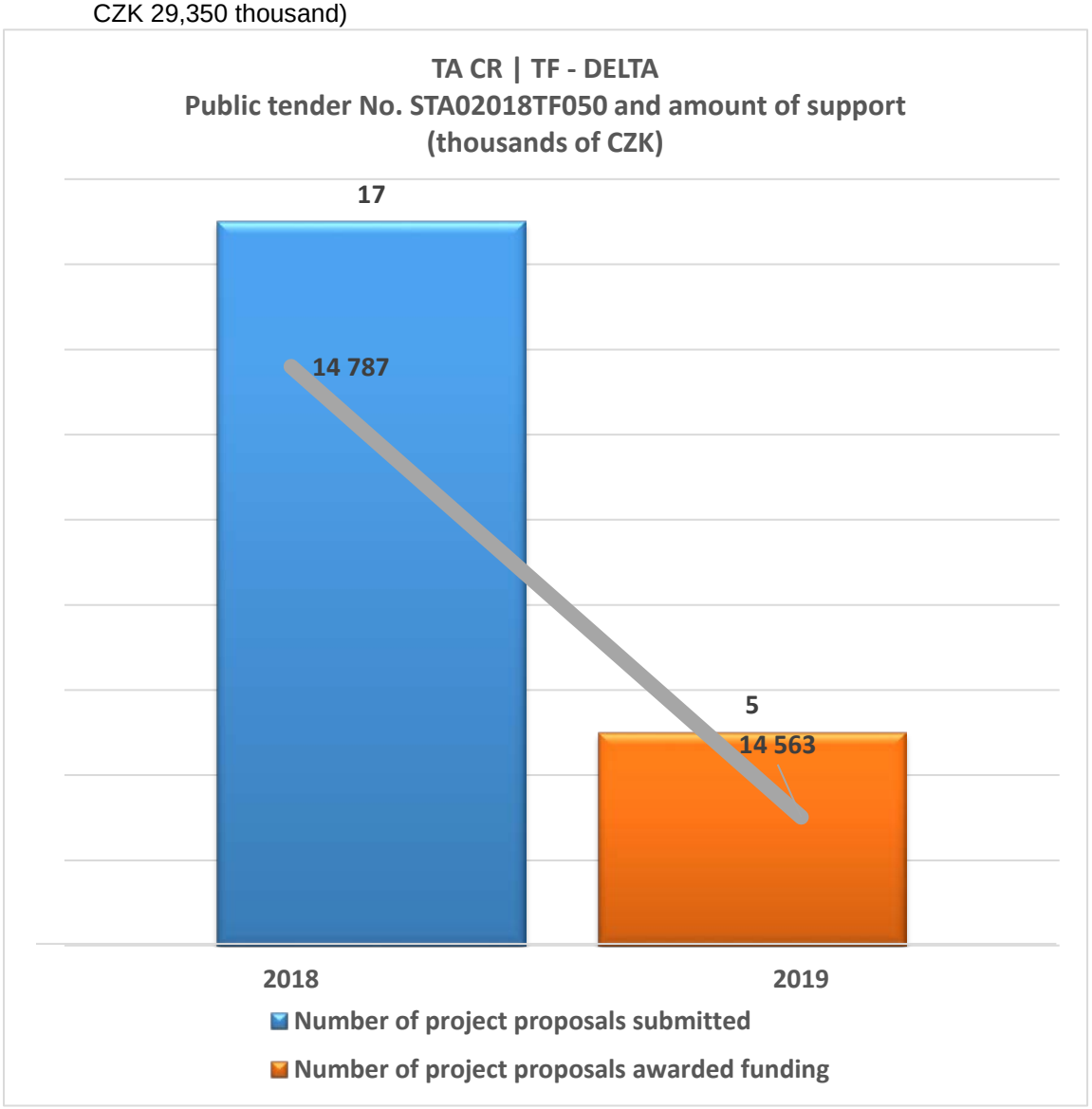
In accordance with the Support of Research and Development Act No. 130/2002 Sb., the Framework, and the GBER, eligible project aid beneficiaries include:

- **Undertakings** – legal entities which, according to Annex 1 to the GBER, conduct economic activities and carry out the project alone or in cooperation with other participants, and which prove their ability to co-fund the project from non-public resources.
- **Research organisations** – legal entities which, according to the Framework and the Support of Research and Development Act No. 130/2002 Sb., meet the definition of a research organisation, which carry out the project alone or in cooperation with other participants, and which prove their ability to co-fund the project from non-public and public institutional resources.

Funding allocated in 2017

| Period | 2018 | 2019 | Total |
|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 14,787 | 14,563 | 29,350 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders:
CZK 29,350 thousand)




*Source: Research, Development and Innovation Information System*

The first public tender for research, experimental development and innovation projects under the programme was announced in 2014. Further public tenders are expected to be announced on an annual basis between 2015 and 2018. The Delta 2 programme, now under preparation, will follow on from this programme.

### 3.2.3 The EPSILON programme for applied research and experimental development 2015–2025 (TH)

The objective of the EPSILON programme is to support projects which deliver results with a significant potential for being rapidly applied in real-world products, manufacturing routes, and services. The programme aims to fulfil the National Priorities of Oriented Research, Experimental Development and Innovation (RDI Priorities) by supporting projects that meet the research objectives of their areas and sub-areas. Its projects should therefore be aligned to the research objectives set out in the RDI Priorities and not to sector fields. They should be focused predominantly on new technologies and materials to be used in power generation, environment and transport.

**According to information from the RD&I IS, this programme has, until March 2018, supported 350 projects with state aid totalling CZK 3.392 billion.** The programme comprises 3 sub-programmes:

- Sub-programme 1 – Knowledge economy
- Sub-programme 2 – Power generation and materials
- Sub-programme 3 – Environment

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 700,000 | 1,300,000 | 1,880,000 | 1,850,000 | 1,800,000 | 1,300,000 | 720,000 | 140,000 | 9,690,000 |

**Project period**
The planned programme period is 11 years (2015–2025).
The maximum project period under this programme is 48 months. On average, the projects can be expected to run for 36 months. The project period must not extend beyond the period of the entire programme.

**Form and amount of funding**
Under the programme as a whole, the maximum available aid intensity is 60%.

The aid intensity for each beneficiary and each participant does not exceed the maximum allowed aid intensity set out in the GBER. The maximum allowed aggregate aid intensity for all beneficiaries under a single project is defined for each public tender separately. Special bonuses may be awarded for meeting the conditions of effective collaboration in accordance with the GBER. Applicant entities are required to provide co-funding. Maximum aid intensities for applied research and experimental development and for individual categories of participants are given in the following tables:

| Aid intensities for applicant categories | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Maximum allowed aid intensity reflecting the premium for small and medium-sized enterprises** | 70% | 60% | 50% | 100% |
| **Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation** | 80% | 75% | 65% | 100% |

*Table of maximum aid intensities for individual categories of enterprises in applied research*

| Aid intensities for applicant categories | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Maximum allowed aid intensity reflecting the premium for small and medium-sized enterprises** | 45% | 35% | 25% | 100% |
| **Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation** | 60% | 50% | 40% | 100% |

*Table of the maximum aid intensity for individual categories of enterprises in experimental development*

**Aid beneficiaries**

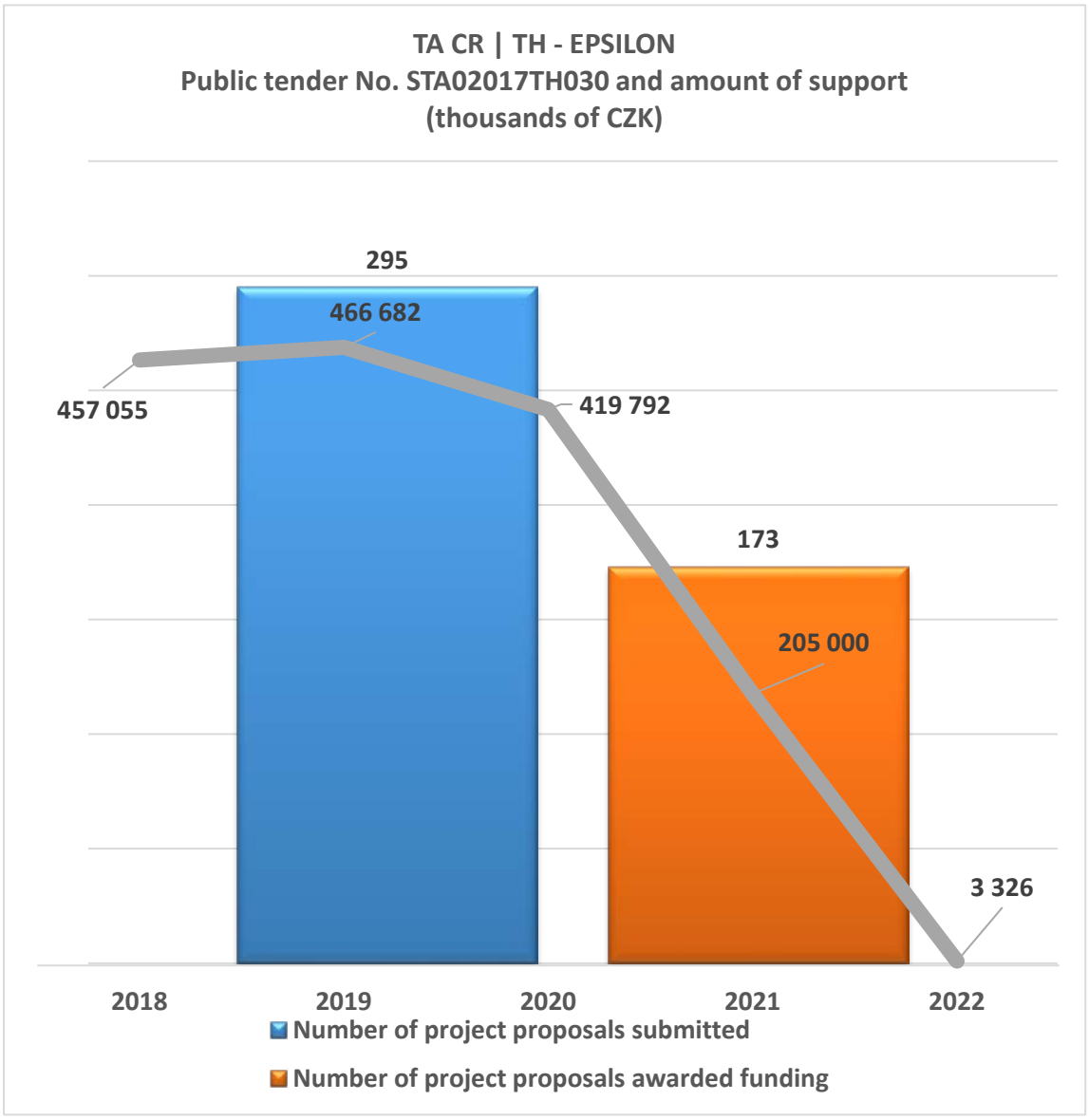
In accordance with the Support of Research and Development Act No. 130/2002 Sb., the Framework, and the GBER, eligible project aid beneficiaries include:

- **Undertakings** – legal entities which, according to Annex 1 to the GBER, conduct economic activities and carry out the project alone or in cooperation with other participants, and which prove their ability to co-fund the project from non-public resources.
- **Research organisations** – legal entities which, according to the Framework and the Support of Research and Development Act No. 130/2002 Sb., meet the definition of a research organisation, which carry out the project alone or in cooperation with other participants, and which prove their ability to co-fund the project from non-public and public institutional resources.

Funding allocated in 2017

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 457,055 | 466,682 | 419,792 | 205,000 | 3,326 | 1,551,855 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders:
CZK 1,551,855 thousand)




*Source: Research, Development and Innovation Information System*

The first public tender was announced in 2014 and the funding was released in 2015. For the second tender which was announced in 2016, funding is to be released in 2017. The third public tender was announced in 2017. The last public tender was announced on 28 February 2018. The duration of this programme was determined by the need to evaluate all projects after their completion and implementation of their results. No government funding was therefore requested for the 2023–2025 period.

### 3.2.4 The BETA2 programme of public contracts in applied research and innovation for state administration 2017–2021 (TI)

The programme aims to support the development of new or the improvement of existing procedures, regulatory mechanisms, supervisory activities, skills, services, information and control products and procedures for higher efficiency and effectiveness in the performance of state administration.

The programme mainly supports the construction and innovation of various models, and formulation of amendments to existing legislation and government policy strategies in both national and European contexts (e.g. economic or social policies). Its outputs should include new methods for evaluating the effectiveness of such policies and strategies, and background documents for shaping future policies, improving the performance of state administration, and for effective allocation of public resources.

The research and development themes under this programme are classified according to the needs of various state administration bodies. These needs should reflect the relevant priorities, e.g. those set forth in strategic and conceptual documents. The goals of each project will be clearly defined in its tender dossier.

As of 2017, the Technology Agency of the Czech Republic (TA CR) will administer projects that answer the needs of the following state administration bodies (referred to as “expert guarantors”):

- Ministry of Transport (including the Civil Aviation Authority)
- Ministry of Labour and Social Affairs
- Ministry of Regional Development
- Ministry of the Interior
- Ministry of Foreign Affairs
- Ministry of Industry and Trade
- Ministry of the Environment
- Czech Mining Authority
- Czech Statistical Office
- Czech Office for Surveying, Mapping and Cadastre
- Energy Regulatory Office
- Administration of State Material Reserves
- State Office for Nuclear Safety
- Office of the Government of the Czech Republic
- Other central state administration bodies and other providers of specific-purpose funding pursuant to section 4 of the Support of Research and Development Act.

### 3.2.5 The ZETA programme for applied research 2017–2025 (TJ)

The goals of the programme are to involve students and young researchers in research and development aimed at real-world applications, stimulate their interest in projects with concrete and practical outcomes, and promote such projects in academia while strengthening their links to business.

Its sub-objective is to promote equal opportunities for young female and male researchers in applied research projects.

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 60,000 | 120,000 | 120,000 | 120,000 | 120,000 | 120,000 | 120,000 | 720,000 |

**Project period**
The programme is planned for 9 years from 2017 to 2025.
The minimum and maximum project periods under this programme are 12 months and 24 months, respectively.

**Form and amount of funding**

The aid intensity defined as a percentage of approved project costs shall be calculated separately for each project, each beneficiary, and each additional participant according to the GBER and shall be no higher than the limit set forth in the GBER.

The maximum allowed aid intensity in a single project is 85% of the approved costs.
In accordance with the GBER, special bonuses may be awarded for meeting the conditions of effective collaboration stipulated in Article 25, section 6 (b) (i). Applicant entities are required to provide co-funding.

The maximum funding for a single project is CZK 5 million.
Maximum aid intensities for industrial research and experimental development and for individual categories of participants are given in the following table.

| Participant | Industrial research | | Experimental development | |
|---|---|---|---|---|
| | Maximum allowed aid intensity reflecting the premium for small and medium-sized enterprises | Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation | Maximum allowed aid intensity reflecting the premium for small and medium-sized enterprises | Maximum allowed aid intensity subject to demonstrated effective collaboration with a research organisation |
| **Small enterprises*** | 70% | 80% | 45% | 60% |
| **Medium-sized enterprises*** | 60% | 75% | 35% | 50% |
| **Large enterprises** | 50% | 65% | 25% | 40% |
| **Research** organisations** | 100%1) | 100%1) | 100%1) | 100%1) |

* Note: Small and medium-sized enterprises are defined in Annex 1 to the GBER.
** This aid intensity applies to other than economic activities of research organisations.
[1)]Subject to the maximum allowed aid intensity for a project which shall be determined individually for each public tender.

**Aid beneficiaries**

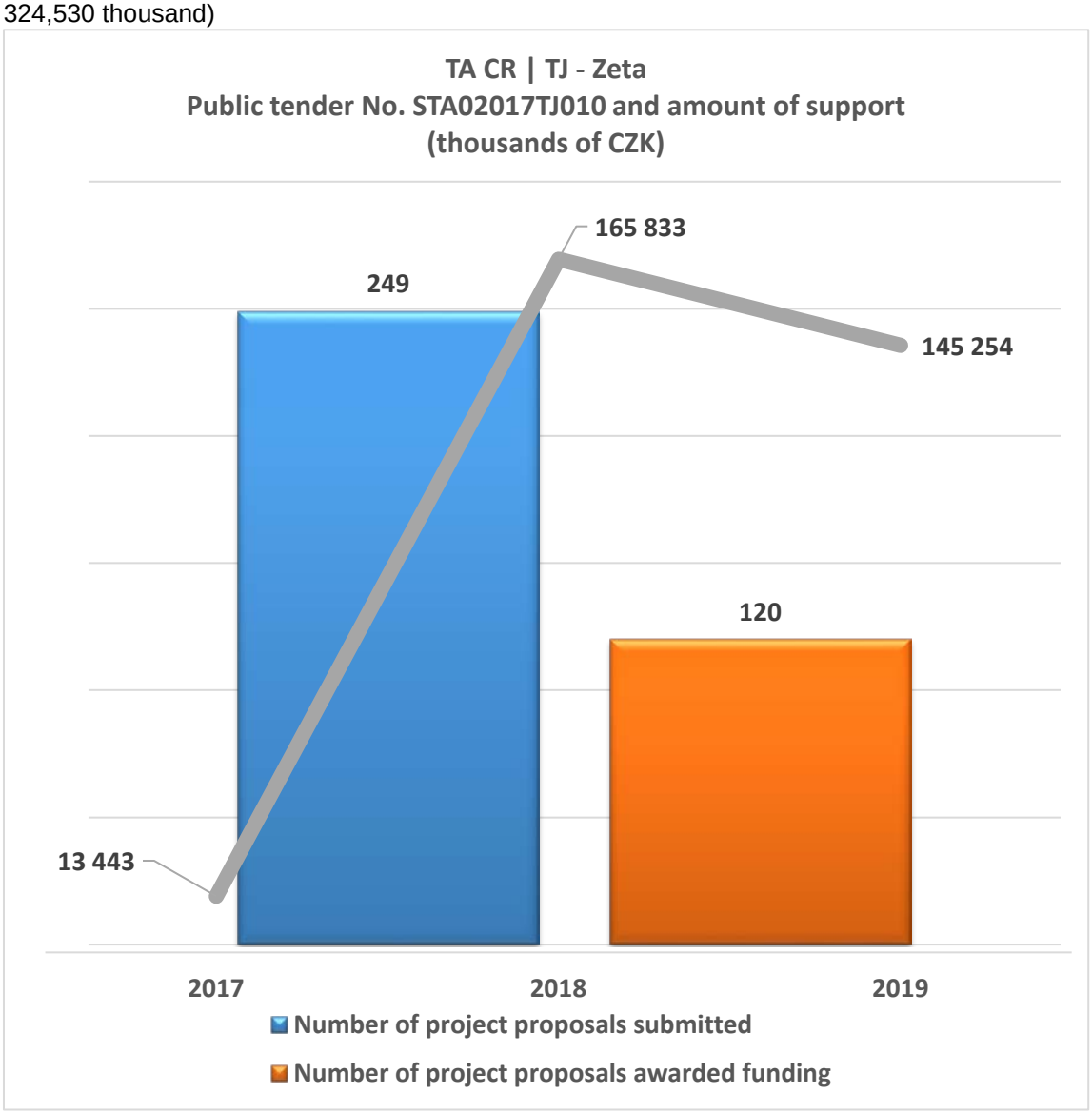
Under the Support of Research and Development Act and the GBER, the project aid beneficiaries may include the following:

- **Research and knowledge dissemination organisations ("research organisations")** – entities which, according to Article 2, section 83 of the GBER, meet the definition of a research organisation, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources or, in exceptional and justified cases defined in the public tender dossier, also from other public resources.
- **Undertakings** – legal entities and natural persons which, according to Annex 1 to the GBER, conduct economic activities, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

Funding allocated in 2017

| Period | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 13,443 | 165,833 | 145,254 | 324,530 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders: CZK 324,530 thousand)




*Source: Research, Development and Innovation Information System*

The first public tender was announced in 2017 and funding will be released in 2018. Further public tenders are to be announced on an annual basis until 2021. Their respective funding will begin between 2018 and 2022.

### 3.2.6 The ETA programme for applied research, experimental development and innovation in social sciences and humanities 2018–2023 (TL)

The programme strengthens the role of the social sciences and humanities in applied research projects, experimental development and innovation for the benefit of the quality of human life and in response to dynamic social, economic, globalisation-related, cultural and technological transformations.
The programme supports projects that focus on one or more of the following aspects:

- benefits of the multidisciplinary approach,
- integration of technical and non-technical research,
- realization of the application potential of basic research.

The aim of the programme is to strengthen the role of social sciences and humanities in applied research, experimental development and innovation in order to obtain new or substantially improved products, procedures, processes or services in the following areas:

- people and society in the context of the dynamic societal and technological transformations and challenges in the 21st century;
- people and environment for their life in the context of sustainable development of the land, regions, cities, municipalities and building culture;
- people and the economy in the context of the emergence of new competitive advantages and development of competences for the 21st century;
- people and the social system in the context of interaction between citizens and the state, public policies, administration and citizen-oriented public services.

**Amount of funding from the state budget planned for the entire programme period (according to current conditions of the programme)**

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 270,000 | 357,500 | 472,500 | 475,000 | 475,000 | 350,000 | 2,400,000 |

**Project period**
The minimum project period under this programme is 12 months. The expected maximum project duration is three years. The period of research, development and innovation projects must not extend beyond the period of the entire programme.

**Form and amount of funding**
The aid intensity defined as a percentage of approved project costs shall be calculated separately for each project, each beneficiary and each additional participant. Where funding is granted to enterprises pursuant to the GBER, the maximum aid intensities defined therein shall apply.

In accordance with the GBER, a bonus may be awarded beyond the general aid intensity to relevant participants who have met the conditions for effective collaboration. Within the definition of the GBER and the Framework, effective collaboration shall mean collaboration of no fewer than two independent parties to exchange knowledge or technology, or to achieve a common objective based on the division of labour where the parties jointly define the scope of the collaborative project and share its risks and outputs. The project costs may be borne in full by one or more parties. Collaboration is understood not to include contract research and provision of research services.
The maximum aid intensities for industrial research, experimental development and innovation for individual categories of participants are given in the following table:

| | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Industrial research** | 70% | 60% | 50% | 100% |
| **Industrial research under conditions of effective collaboration** | 80% | 75% | 65% | 100% |
| **Experimental development** | 45% | 35% | 25% | 100% |
| **Experimental development under conditions of effective collaboration** | 60% | 50% | 40% | 100% |
| **Innovation for small and medium-sized enterprises** | 50% | 50% | 0% | 0% |
| **Innovation in procedures and organisation** | 50% | 50% | 15% | 100% |

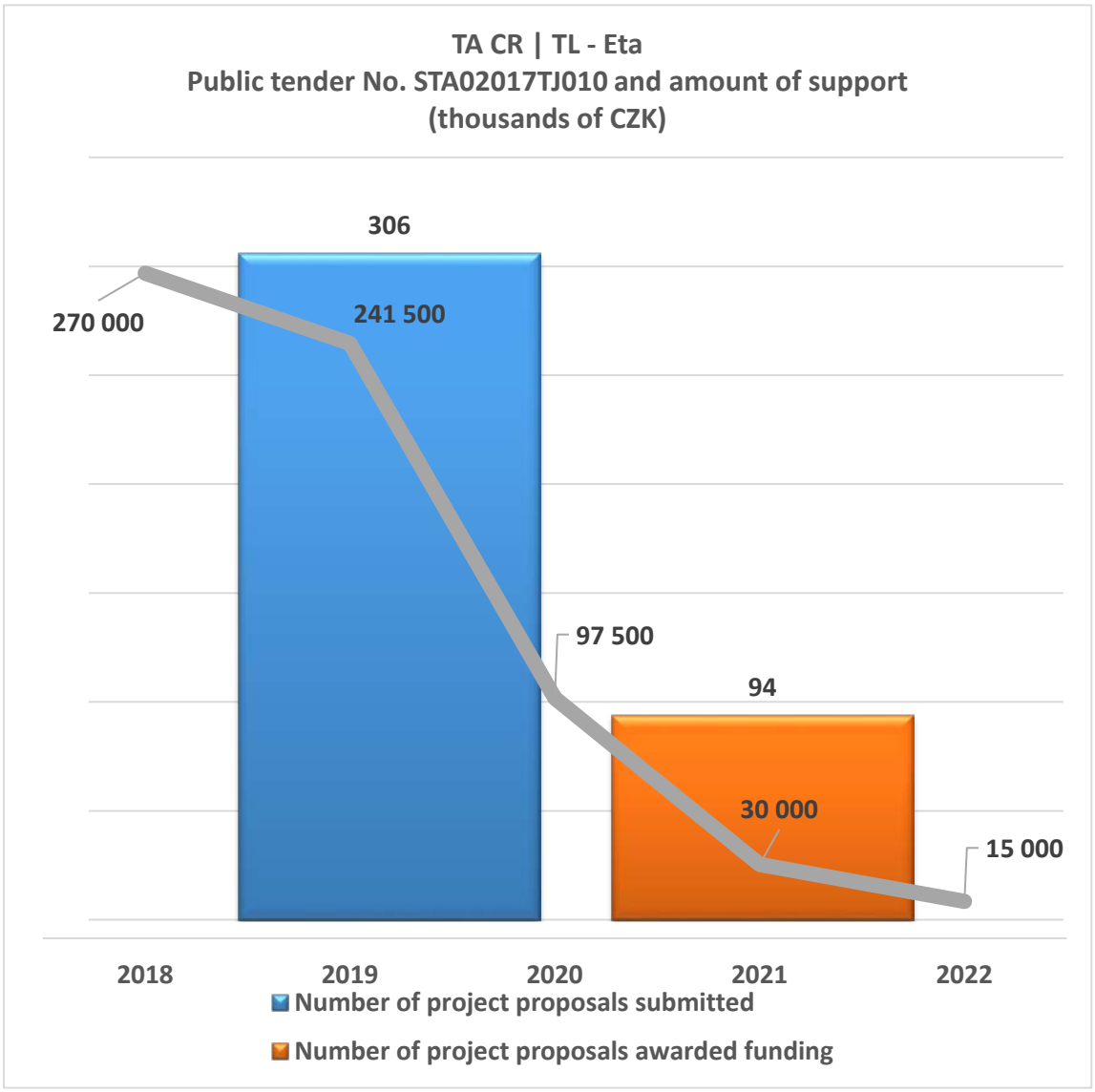
**Aid beneficiaries**
Under the Support of Research and Development Act, the Framework and the GBER, the applicant entities for project aid may include the following:

- **Research and knowledge dissemination organisations** – any entities which, according to Article 2, section 83 of the GBER and the Support of Research and Development Act, meet the definition of a research organisation ("research organisations").
- **Undertakings** – any entities which meet the conditions set out in Article 2, sections 2 and 24 of the GBER. Undertakings which carry out the project alone or in cooperation with other participants shall be required to prove their ability to co-fund the project from non-public resources.

Funding to be allocated to the last public tender (estimate)

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 270,000 | 241,500 | 97,500 | 30,000 | 15,000 | 654,000 |

Graphic representation of figures for the last public tender
(Amount of specific-purpose funding to be awarded through public tenders (estimate):
CZK 654,000 thousand)




*Source: Research, Development and Innovation Information System*

The first public tender was announced in 2017 and funding will be released in 2018. The tender evaluation is still under way. Only the number of projects is known. Further public tenders are to be announced on an annual basis throughout the 2018–2021 period. Their funding will begin between 2019 and 2022.

### 3.2.7 The new THETA programme of applied research, experimental development and innovation in the power industry 2018–2025 (TK)

The programme focus reflects the updated State Energy Policy of the Czech Republic which was adopted by the Government of the Czech Republic in May 2015. The Policy sets forth the need for supporting research and development projects for the power industry in response to adopted strategy documents, the European Strategic Energy Technology Plan and in the context of the priority area Sustainable Power Industry.
Through the outcomes and impacts of its projects, the programme aims to help fulfil the vision of transformation and modernisation of the power sector in the medium and long-term in accordance with

the adopted strategy documents. To accomplish this, the support for research, development and innovation in the power industry will focus on:

- projects in the public interest;
- new technologies and system components with high potential for rapid adoption;
- long-term technology visions.

**Amount of funding from the state budget planned for the entire programme period (according to current conditions of the programme)**

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 200,000 | 360,000 | 580,000 | 640,000 | 640,000 | 640,000 | 600,000 | 340,000 | 4,000,000 |

**Project period**

The maximum project period under this programme is 8 years. On average, the expected project duration is 36 months. The project period must not extend beyond the period of the entire programme.

**Form and amount of funding**

The expected average aid intensity over the programme period is 70%. In sub-programmes 1 and 3, the maximum allowed aid intensity in a single project is 100% of the approved costs. In sub-programme 2, it is 80%. The aid intensity defined as a percentage of approved project costs shall be calculated separately for each project, each beneficiary and each additional participant. Where funding is granted to enterprises pursuant to the GBER, the maximum aid intensities defined therein shall apply.

| | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Industrial research** | 70% | 60% | 50% | 100% |
| **Industrial research under conditions of effective collaboration** | 80% | 75% | 65% | 100% |
| **Experimental development** | 45% | 35% | 25% | 100% |
| **Experimental development under conditions of effective collaboration** | 60% | 50% | 40% | 100% |
| **Innovation for small and medium-sized enterprises** | 50% | 50% | 0% | 0% |
| **Innovation in procedures and organisation** | 50% | 50% | 15% | 100% |

**Aid beneficiaries**

Under the Support of Research and Development Act, the Framework and the GBER, the applicant entities and project aid beneficiaries in all sub-programmes may include the following:

- **Undertakings** – legal entities, regardless of their legal form, and natural persons which (according to Annex 1 to the GBER) conduct economic activities, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

- **Research and knowledge dissemination organisations** ("research organisations") – legal entities which meet the definition of a research organisation according to Article 2, section 83 of the GBER and the Support of Research and Development Act and which carry out the project alone or in cooperation with other participants.

Other eligible applicant entities relevant only to sub-programmes 1 and 3: Other natural persons and legal entities governed by public or private law, regardless of their legal form or method of funding which conduct activities eligible for funding outside public support schemes, i.e. entities other than undertakings. Under this programme, funding shall only be granted to those applicant entities which fulfil the qualification criteria set out in section 18 of Act No. 130/2002 Sb. If a project proposal is submitted by multiple applicant entities, each of them shall be required to prove their qualification. The applicant entity shall prove their qualification pursuant to the Support of Research and Development Act and as defined by the funding provider in the tender dossier.

The first public tender was announced in 2017 and funding is to be released in 2018. The public tender has not been evaluated yet. Further public tenders are expected to be announced on an annual basis between 2018 and 2023.

### 3.2.8 National Centres of Competence 1 (TN)

The programme promotes long-term cooperation between the research base and industry, and aims to strengthen institutions involved in applied research. To guarantee long-term stability, it will be followed by the National Centres of Competence 2 programme in 2020–2026. It also aims to establish synergistic links between successful centres built with support from the TA CR (the Centres of Competence), the CSF (the Centres of Excellence), and operational programmes (predominantly the RDI Centres) and other research centres and units, to build an integrated system. It will help to strengthen applied research organisations and motivate the relevant research facilities to transform into research and technology centres which can conduct high-quality applied research to meet the needs of industry. One of its purposes is to deliver synergistic and complementary effects in international schemes, such as H2020 and other EU programmes, and in international programmes with compatible orientations.

This programme aims to increase the efficiency and quality of the results of applied research and technology transfer in key areas with a growth potential, to increase the competitiveness of undertakings, and to strengthen the excellence and industrial relevance of research organisations. To achieve this, a stable and robust applied research base must be built (national centres of competence) by concentrating research capacities and focusing on the industrial application of their research.

The programme is planned for 5 years from 2018 to 2022.

**Amount of funding from the state budget planned for the entire programme period (according to current conditions of the programme)**

| Period | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 100,000 | 230,000 | 700,000 | 447,000 | 356,000 |

**Project period**
The maximum project period under this programme is 5 years. The first public tender focuses on projects planned for a period ending in 2020, with possible extension by two years, i.e., until 2022. The project period must not extend beyond the period of the entire programme.

**Form and amount of funding**
The expected average aid rate over the programme period is 80 %. The maximum available aid intensity is 90%. The aid intensity defined as a percentage of approved project costs will be calculated separately for each project, each recipient, and each additional participant. Securing a significant portion of funding from other sources (non-public sources, EU programmes and others) is expected to be a mandatory condition for providing the aid. This condition will be specified in the tender dossier.

**Aid beneficiaries**
Under the Support of Research and Development Act, the Framework and the GBER, the applicant entities for project aid, and beneficiaries, may include the following:

- **Research and knowledge dissemination organisations** ("research organisations") – legal entities which meet the definition of a research organisation according to Article 2, section 83 of the GBER and the Support of Research and Development Act and which carry out the project alone or in cooperation with other participants.
- **Other natural persons and legal entities** governed by public or private law, regardless of their legal form or method of funding which conduct activities eligible for funding outside public support schemes, i.e. entities other than undertakings. Additional project partners, i.e. those who do not receive funding from the state budget, may include:
- **Undertakings** – legal entities, regardless of their legal form, and natural persons which (according to Annex 1 to the GBER) conduct economic activities, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

A public tender will be announced in 2018 and funding will be released in the same year. Once the first public tender is evaluated, subsequent public tenders can be announced. The first public tender will accept projects planned for a period ending in 2020, with possible extension by two years, i.e. until 2022.
Building on the National Centres of Competence 1 programme, the National Centres of Competence 2 Programme will follow in 2020–2026.

### 3.2.9 Public tenders

| Programme code | Announcement date |
|---|---|
| **TH** | 28 Feb. 2018 |
| **TN** | 28 Feb. 2018 |
| **TJ** | March 2018 |
| **TF** | June 2018 |
| **TL** | To be announced in 2018 |
| **TK** | To be announced in 2018 |

### 3.2.10 Contacts and additional information

Technology Agency of the Czech Republic
TA CR Office
Evropská 1692/37
160 00 Praha 6, Czech Republic
Phone: +420 234 611 111
E-mail: info@tacr.cz

Links:
www.tacr.cz

### 3.3 The Ministry of Culture (MC)

The Ministry of Culture administers the Programme for Applied Research and Development of National and Cultural Identity 2016 – 2022 (NAKI II) (DG code) under which the third public tender is to be announced in 2019.

#### 3.3.1 The NAKI II Programme for Applied Research and Development of National and Cultural Identity 2016–2022 (DG)

The main objective of the programme is to support research and development activities in the field of national and cultural identity to deliver economic or other societal benefits. **According to information from the RD&I IS, the NAKI II programme has, until March 2018, supported 127 projects with state aid totalling CZK 2.384 billion.**
The programme's two overall objectives comprise six specific objectives.

Overall objective 1: National Identity

- Specific objective 1.1 Research and its application – Historical sciences and archaeology
- Specific objective 1.2 Research and its application – Language and literature
- Specific objective 1.3 Research and its application – Creation of art

Overall objective 2: Cultural Heritage

- Specific objective 2.1 Research and its application – Cultural heritage and territories of historical value
- Specific objective 2.2 Technologies and procedures for preserving cultural heritage
- Specific objective 2.3 Cultural heritage, education and media

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 357,804 | 373,877 | 425,000 | 425,000 | 425,000 | 425,000 | 425,000 | 2,856,681 |

**Project period**
The programme is planned for 7 years from 2016 to 2022. Projects are expected to run for at least 3 years but no more than 5 years. Projects carried out under the NAKI II programme must be completed by 31 December 2022 at the latest. In 2021 and 2022, the running projects launched before 2020 will be completed and no new projects will commence under the programme.

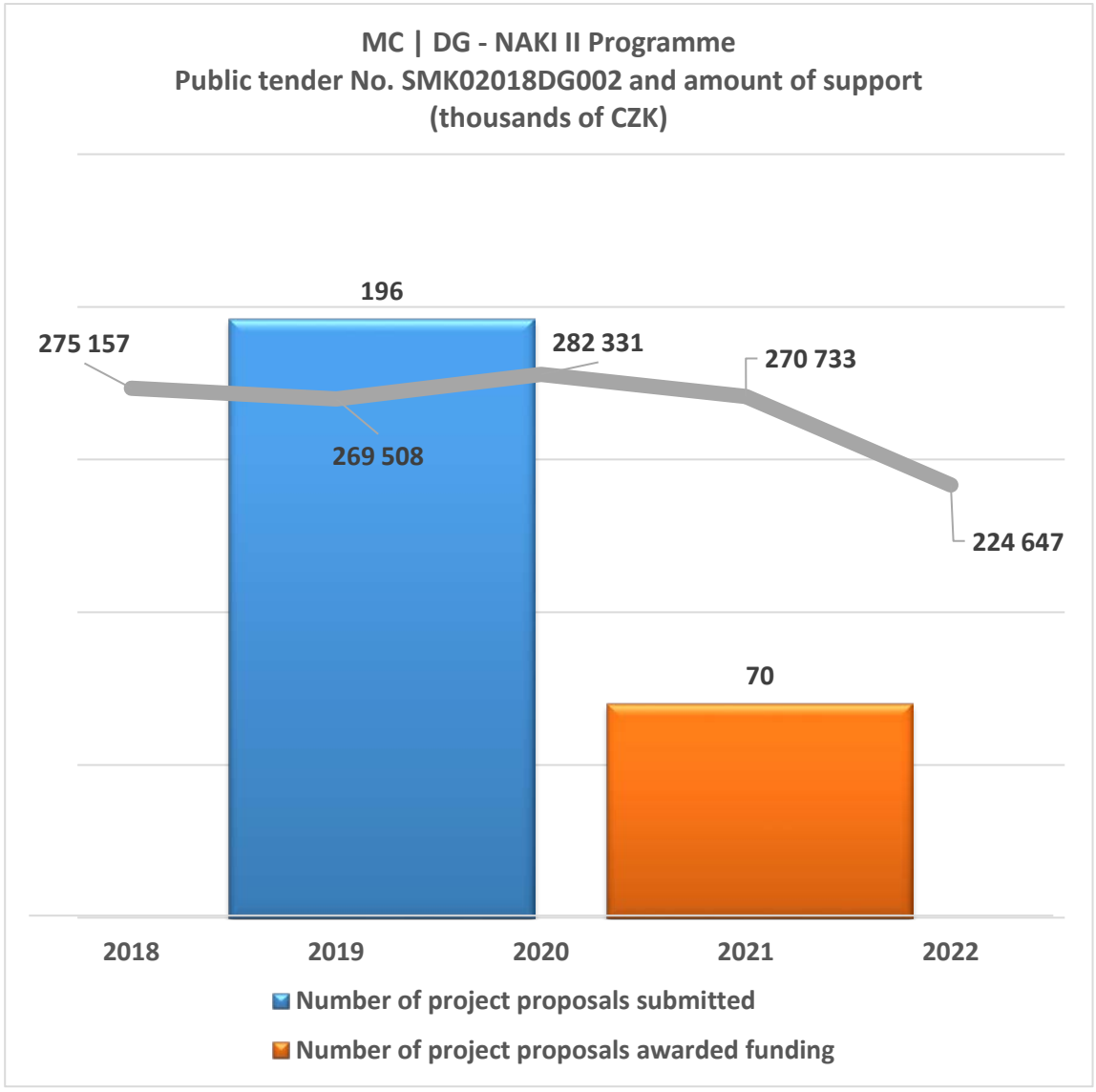
**Form and amount of funding**
Funding will be provided in the form of grants for approved costs to legal entities, and in the form of increased expenditure limits to organisational units of the state and to organisational units of ministries which are, at the same time, research organisations.
The aid intensity may reach 100%. The maximum allowed amount of project funding (without the notification requirement and detailed assessment by the European Commission) stipulated in section 6 (1) (e), point ii) of the GBER and Article 7.1 of the Framework as EUR 10 million will not be exceeded. The aid intensity defined as a percentage of approved project costs will be calculated separately for each project, each recipient, and each additional participant according to the GBER, and the Framework. The amount of funding applied for must be justified and commensurate with the objectives, the project duration and the envisaged project results.

**Aid beneficiaries**
Funding will only be provided to research organisations.

Funding allocated in 2017

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 275,157 | 269,508 | 282,331 | 270,733 | 224,647 | 1,322,376 |

Graphic representation of figures for the last public tender




(Amount of specific-purpose funding to be awarded through public tenders:
CZK 1,322,376 thousand)

*Source: Research, Development and Innovation Information System*

The first public tender was announced in March 2015, with the funding released in 2016. The second public tender took place in 2017. The third one is planned for 2019, with funding to be released in 2018 and 2020.

### 3.3.2 Public tenders

This year, no public tender will be announced under the NAKI II programme.

### 3.3.3 Contacts and additional information

Ministry of Culture
Maltézské náměstí 1, 118 11 Praha 1, Czech Republic
Department of Research and Development
Office in Prague 7: Dukelských hrdinů 47
Phone: +420 224 301 431
E-mail: martina.dvorakova@mkcr.cz

Links:
www.mkcr.cz
www.mkcr.cz/vyzkum-a-vyvoj-18.html

### 3.4 Ministry of Defence (MD)

The Ministry of Defence administers one applied research programme: Development of Armed Forces of the Czech Republic (2015 – 2022, code: OW). Another programme for research support is under preparation. It will emphasise results applicable to cooperation with the NATO and EU.

#### 3.4.1 Development of Armed Forces of the Czech Republic (OW)

The main goal of this programme is to develop the abilities of the Armed Forces of the Czech Republic in areas which are essential for the defence of the country, for achieving the country's declared political-military ambitions, and for the Armed Forces' successful performance in all other roles. **According to information from the RD&I IS, the programme has, until March 2018, supported 48 projects with state aid totalling CZK 0.842 billion.**

The programme has the following specific objectives:

- To expand the ability of the Armed Forces of the Czech Republic to uptake the outcomes of research and development and related knowledge for meeting its tasks.
- To continue the development of novel and upgraded products, services and technologies resulting from RDI programmes.
- To measure the benefits of the uptake of research results by the Ministry of Defence and to obtain feedback for decision-making at all management and command levels.

Under the programme, RDI projects will be carried out to meet precisely defined needs and requirements of the Ministry of Defence in the following areas:

<u>Development of national defence policy, command and control support in the changing security and operational environment, and the role of the Armed Forces of the Czech Republic in society</u>

- Developing and implementing tools for decision-making support at all control levels, and for modelling individual and unit planning and training processes.
- Designing methods and procedures for securing effective performance of the Armed Forces of the Czech Republic in all areas of operational art, and securing high-quality professionals for the Armed Forces.

<u>Development of new weapon and defence systems</u>

- Developing weapon systems, technologies and equipment to support the operation of the Armed Forces of the Czech Republic, to enhance the effectiveness of their combat deployment, and to improve their compatibility with NATO and European weapon systems.
- Improving the technical and technological efficiency of existing weapon systems, and enhancing the protection and effective use of the human factor.

<u>Effective protection of the forces and material</u>

- Generating new principles and designing new methods of developing materials and technology for various aspects of protection against weapons of mass destruction.
- Generating new principles and designing new methods of developing means of protection, resilience and safety of material, personnel and equipment, including ballistic protection, camouflage and deception.

<u>Preparation, mobility and effective operation of the forces</u>

- Designing and applying materials and technologies extending the lifetime and improving the reliability of material and equipment, and supporting the operation of units.
- Developing and applying materials with resistance to adverse climatic and severe wear conditions, and developing materials for the protection of individuals with suppressed thermal, radio and acoustic emissions to reduce the risk of detection.

<u>Training of personnel</u>

- Developing objective methods of selection and training for individuals for extreme physical and mental stress according to deployment standards.
- Developing and introducing simulators and simulation equipment for the training of forces.

Transport and sustainability of the forces

- Developing technologies which reduce direct hazards to personnel and which can be deployed, for instance, in remote chemical reconnaissance and artillery reconnaissance, and for recovery of individuals from hazardous locations.
- Implementing advanced integrated logistic support technologies throughout the life cycle comprising procurement, operation, maintenance and disposal.

Medical support

- Developing healthcare equipment and material for specialized military medicine and for field conditions, emergency medicine and disaster medicine, including technologies for detecting the health condition of individuals.

Development of command and control systems, communication and information systems and cyber defence

- Introducing unified interoperable tools for decision-making support in operations and exercises of multinational allied and alliance forces. Acquiring and using a shared picture of the operational situation.
- Developing and implementing procedures and methods that improve the security of communication and information systems.
- Developing ISTAR support systems (Intelligence, Surveillance, Target Acquisition and Reconnaissance).
- Construction and development of radio reconnaissance systems capable of detection (monitoring), direction-finding and jamming modern radio systems.
- Finding theoretical solutions for and implementing new methods of signal classification, and rapid analysis of complex signals within current frequency bands.

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 20,000 | 110,000 | 240,000 | 350,000 | 350,000 | 334,000 | 226,000 | 103,000 | 1,733,000 |

**Project period**

The programme is planned for 8 years from 2015 to 2022. Projects under this programme with a minimum project period of 1 year and a maximum of 4 years are to be completed by 31 December 2022 at the latest.

The first public tender was announced in 2014 and its funding began to be provided in 2015. Further public tenders will be announced as required, depending on the amount of funds available.

**Form and amount of funding**

The criteria for cost eligibility and further information will be stipulated in each tender dossier. The funding is provided for approved costs of the project, as defined in section 2, subsection l of the Support of Research and Development Act No. 130/2002 Sb. Approved costs must be used for activities directly related to project implementation and match the specific RDI categories.

**Aid beneficiaries**

In accordance with the Support of Research and Development Act No. 130/2002 Sb., the aid beneficiaries and other project participants can be any entity that meets the applicant organisation definition given in section 1, subsection 2, paragraph b) of Act No. 130/2002 Sb., and the supplier definition given in section 17, subsection 1, paragraph a) of Act No. 137/2006 Sb. Under this programme, funding can be awarded only to those applicant entities which fulfil the qualification criteria set out in sections 50–57 of Act No. 137/2006 Sb. If a project proposal is submitted by multiple applicant entities, each of them will be required to prove their qualifications separately. The method of proving qualifications is defined by the public funding provider in the tender dossier.

### 3.4.2 Public tenders

The first public tender for defence research, development and innovation projects of the Ministry of Defence was launched on 19 February 2018:

### 3.4.3 Contacts and additional information

Ministry of Defence of the Czech Republic
Tychonova 1
160 01 Praha 6, Czech Republic
Phone: + 420 973 201 111
E-mail: posta@army.cz

Links:
www.vyzkum.army.cz
www.army.cz

## 3.5 Ministry of Industry and Trade of the Czech Republic (MIT)

At the Ministry of Industry and Trade, the TRIO programme is running which is planned for the period from 2016 to 2021. Preparation of a follow-on programme is under way.

### 3.5.1 The TRIO Programme for Applied Research and Experimental Development (FV)

The programme's mission is to support applied research and experimental development of Key Enabling Technologies (KETs). These are knowledge-intensive technologies, which are associated with high research intensity, rapid innovation cycles, and require highly-skilled personnel. KETs can find use in new products and services with added value, and can contribute to economic growth and enhanced competitiveness of the Czech Republic and the European Union. **According to information from the RD&I IS, this programme has, until March 2018, supported 255 projects with state aid totalling CZK 3.231 billion.**

The programme aims to support projects focused on the following KETs:

- Photonics
- Micro and nanoelectronics
- Nanotechnology
- Industrial biotechnologies
- Advanced materials
- Advanced manufacturing processes

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Total |
|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 300,000 | 710,000 | 1,070,000 | 920,000 | 530,000 | 170,000 | 3,700,000 |

**Project period**
The planned programme period is 6 years (2016–2021). The first public tender was announced in 2015 and the funding was released in 2016. The second tender was announced in 2016 and funding is to be released in 2017. The last public tender was announced in 2017, with the funding to be released in 2018. Project duration is expected to be no more than 48 months.

**Form and amount of funding**
Under the programme, the maximum allowed aggregate aid intensity is 80% of the approved costs. In accordance with the GBER, a bonus may be awarded beyond the general aid intensity to participants who have met the conditions for effective collaboration. Within the definition of the GBER and the Framework, effective collaboration means collaboration of no fewer than two independent parties to exchange knowledge or technology, or to achieve a common objective based on the division of labour where the parties jointly define the scope of the collaborative project and share its risks and outputs. The project costs may be borne in full by one or more parties, which can thus relieve the other parties of financial risk. Collaboration is understood not to include contract research and provision of research services.

Maximum aid intensities for various activity categories and participants:

| Activity category / participant | **Small enterprise** | **Medium-sized enterprise** | **Large enterprise** |
|---|---|---|---|
| **Industrial research** | 70% | 60% | 50% |
| **Industrial research under conditions of effective collaboration** | 80% | 75% | 65% |
| **Experimental development** | 45% | 35% | 25% |
| **Experimental development under conditions of effective collaboration** | 60% | 50% | 40% |

Research organisations may receive up to 100% aid but only for their non-economic activities pursuant to Article 2.1.1, section 19 of the Framework, and provided that all related provisions of the GBER and the Framework are met, and the maximum allowed aid intensity for a single project under the programme does not exceed 80%.

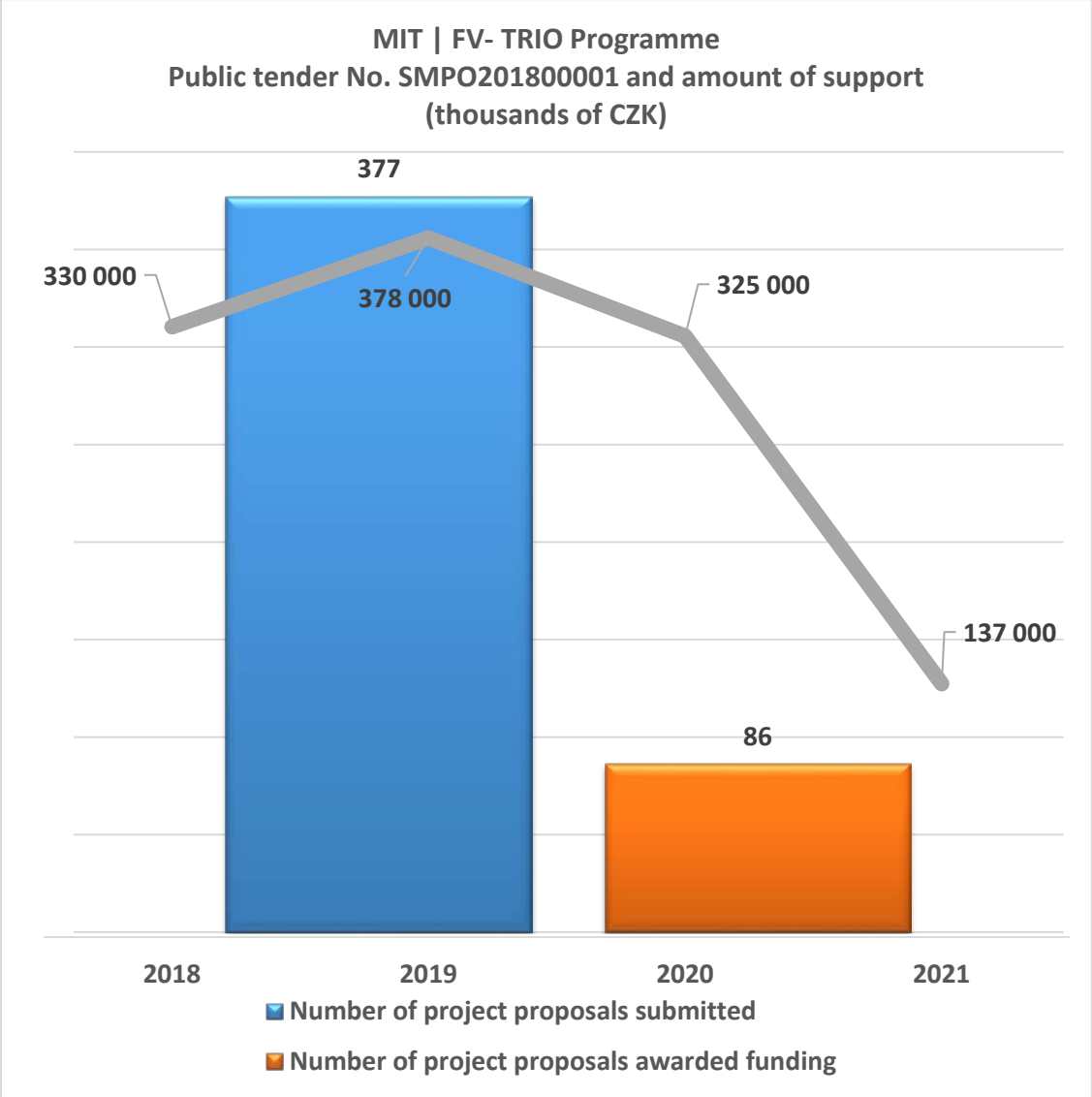
**Aid beneficiaries**
In accordance with the Support of Research and Development Act No. 130/2002 Sb., the applicant entities may include enterprises, and legal and natural persons which, in line with Annex 1 to the GBER, conduct economic activities and carry out the project in effective collaboration with at least one research organisation. A research organisation may apply for funding as well but it will be considered as an enterprise, i.e. it will have to prove its ability to provide co-funding for the project from non-public resources, demonstrate implementation of project results in practice, and accept the conditions applicable to enterprise with respect to the rate of public aid. Under such circumstances, the project need not be carried out with effective collaboration between multiple entities.

Other participants may include enterprises and research organisations, where the latter are understood as legal entities which meet the definition of a research organisation as given by law, the GBER and the Framework. Screening, to ascertain whether an entity meets the definition of a research organisation, will be carried out by the public funding provider on an individual basis, as part of the project proposal evaluation, and by a procedure approved by the Research and Development Council.

Funding allocated in 2017

| **Period** | **2018** | **2019** | **2020** | **2021** | **2022** | **Total** |
|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 275,157 | 269,508 | 282,331 | 270,733 | 224,647 | 1,322,376 |

Graphic representation of figures for the last public tender




(Amount of specific-purpose funding to be awarded through public tenders: CZK 1,170,000 thousand)
*Source: Research, Development and Innovation Information System*

### 3.5.2 Public tenders

The last public tender was announced in 2017, with the funding to be released in 2018. Preparation of a follow-on programme is under way.

### 3.5.3 Contacts and additional information

Ministry of Industry and Trade of the Czech Republic
Na Františku 32, 110 15 Praha 1, Czech Republic
Department of Research, Development and Offset Programmes
Phone: +420 224 853 200
E-mail: faltus@mpo.cz

Links:
www.mpo.cz
www.mpo.cz/cz/podnikani/podpora-vyzkumu-a-vyvoje

### 3.6 Ministry of Education, Youth and Sports (MEYS)

Today, the MEYS operates two RDI support programmes (in addition to the international cooperation programmes described in chapter 7). They are the NPU I and NPU II programmes.

#### 3.6.1 National Sustainability Programme I (NSP I) 2013–2020 (LO)

The programme strengthens the development and sustainability of new European centres of excellence, regional research centres, and other research centres built in the Czech Republic in 2007–2013/2015 with funding from the European Regional Development Fund, whose building costs were less than EUR 50 million, and which currently receive no further support from Structural Funds. These centres were funded from the Research and Development for Innovation Operational Programme (RDIOP), Priority Axis 1 (Centres of Excellence) and Priority Axis 2 (Regional Research Centres in Regions outside the Capital City of Prague), and from Prague – Competitiveness Operational Programme (PCOP). **According to information from the RD&I IS, this programme has, until March 2018, supported 60 projects with state aid totalling CZK 7.149 billion.** No further calls will be announced under this programme.

#### 3.6.2 National Sustainability Programme II (NSP II) 2013–2020 (LQ)

NSP II contributes to the sustainability of those centres of research, experimental development and innovation which house large infrastructures, were built in the Czech Republic in 2007–2013/2015 under the operational programmes of European Structural Funds, had building costs of more than EUR 50 million, and currently receive no further support from Structural Funds. These centres were funded from the RDIOP – Priority Axis 1 (Centres of Excellence) and Priority Axis 2 (Regional Research Centres in Regions outside the Capital City of Prague), and from the PCOP. **According to information from the RD&I IS, this programme has, until March 2018, supported 6 projects with state aid totalling CZK 3.528 billion.** No further calls will be announced under this programme.

#### 3.6.3 Public tenders

The Ministry of Education will not organise public tenders under this scheme.

#### 3.6.4 Contacts and additional information

Ministry of Education of the Czech Republic
Karmelitská 7, 118 12 Praha 1, Czech Republic
E-mail: posta@msmt.cz

Links:
www.msmt.cz
www.msmt.cz/vyzkum-a-vyvoj

### 3.7 Ministry of the Interior (MD)

The Ministry of the Interior provides aid under two programmes. Follow-on programmes entitled IMPAKT (planned from 2019) and TRANSFER (from 2020) are under preparation.

#### 3.7.1 Programme for Security Research of the Czech Republic 2015–2020 (VI)

The main objective of the programme is to deliver better national security through new technologies, knowledge, and other outcomes of applied research, experimental development and innovation in the identification of, the prevention of, and protection against unlawful behaviour, and natural and industrial catastrophes that may harm the citizens, organisations, property, and infrastructures of the Czech Republic. The complexity of threats and risks, and the need for relevant changes to the security system of the Czech Republic continue to increase. Concatenation of potential security threats to the country and multiplication of their consequences are conceivable occurrences. **According to information from the RD&I IS, this programme has, until March 2018, supported 110 projects with state aid totalling CZK 1.852 billion.**

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 200,000 | 400,000 | 400,000 | 400,000 | 400,000 | 400,000 | 2,200,000 |

**Project period**
The programme is planned for the period from 1 January 2015 to 31 December 2020. Projects are expected to run for at least 2 years but no more than 6 years. Projects implemented under the programme must be completed by 31 December 2020 at the latest.

The first public tender for research under the programme was announced in 2014 and the funding was released in 2015. For the public tenders held in 2015, funding is to be released in 2017.

**Form and amount of funding**
The aid intensity defined as a percentage of the approved project costs shall be calculated separately for each project, each beneficiary, and each additional participant according to the Community Framework. It will depend on the applicant organisation type, the category of research and development, and the nature of project activities. The aid intensity is determined with respect to a basis defined by the total approved costs of the project.

The average amount of funding (from the state budget) for individual years is expected to equal 75% of the total approved costs of a project.

The maximum aid intensities for applied research and experimental development, for individual categories of beneficiaries, and for other participants are given in the following table:

| | Small enterprise | Medium-sized enterprise | Large enterprise | Research organisation |
|---|---|---|---|---|
| **Applied research** | 70% | 60% | 50% | 100% |
| **Applied research with premium** | 80% | 75% | 65% | 100% |
| **Experimental development** | 45% | 35% | 25% | 100% |
| **Experimental development with premium** | 60% | 50% | 40% | 100% |

**Aid beneficiaries**
In accordance with the Support of Research and Development Act No. 130/2002 Sb., and the Framework, those eligible for funding include:

- **Research organisations** – legal entities which meet the definition of a research organisation given in the Support of Research and Development Act No. 130/2002 Sb. and in the Framework, which carry out the project alone or in cooperation with other participants.
- **Undertakings** – legal entities and natural persons which, according to Annex 1 to Regulation of the Commission No. 800/2008, conduct economic activities, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

### 3.7.2 Programme for Security Research for National Needs 2016–2021 (VH)

The main objective of the programme is to deliver better national security by supporting research that meets the needs of state administration and enables those responsible for national security to acquire, master, maintain and develop specific abilities for performing effectively.

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Total |
|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 100,000 | 140,000 | 140,000 | 140,000 | 140,000 | 140,000 | 800,000 |

**Project period**
The VH programme is planned for the period from 1 January 2016 to 31 December 2021. Calls for tenders for public contracts began to be announced in 2015 and project start date is 1 January 2016. 2020 will be the last one for awarding new contracts. Given the focus on research and development, and the variety of needs, the minimum public contract period is to be 12 months. The maximum contrast period is 60 months. All projects must be completed before the end of the programme period.

**Form and amount of funding**
As this programme is to be conducted through public contracts according to current legislation, and the sole user of their results is the state, the maximum allowed aid intensity is 100%.

**Aid beneficiaries**
Pursuant to section 2, subsection 2, paragraph b) of the Support of Research and Development Act No. 130/2002 Sb., eligible applicants for the specific-purpose funding include organisational units of the state, organisational units of ministries engaged in research and development, as well as legal and natural persons.

### 3.7.3 Public tenders

Public contracts are expected to be awarded in 2018.

### 3.7.4 Contacts and additional information

Ministry of the Interior of the Czech Republic
Education and Police Academy Administration Section
Department of Research and Development
Nad Štolou 3, 170 00 Praha 7, Czech Republic
Phone: +420 974 833 268,
E-mail: vyzkum@mvcr.cz

Links:
www.mvcr.cz
www.mvcr.cz/bezpecnostni-vyzkum.aspx

### 3.8 Ministry of Health (MH)

The Ministry of Health runs the Programme to Support Applied Medical Research and Development for 2015–2022

### 3.8.1 Programme to Support Applied Medical Research and Development 2015–2022 (NV)

The decisive precondition for economic, social and individual-oriented success of a society is healthy population. Essential to what is understood as health is the dynamics of changes and various processes which, however, show considerable inertia. As a result, numerous discrepancies arise, the most notable of which are those between the advances of medicine and the economic capacities of the country. Medicine must focus must on the most widespread and most severe threats: chronic non-infectious diseases, such as cardiovascular and cerebrovascular diseases, cancer, dementia and other mental diseases, or chronic diseases of the musculoskeletal system, and others. Attention must be paid to effects of the environment, which are changing profoundly. It is important to support the creation and evolution of new treatments and techniques (such as genetics and nanotechnology). New infectious diseases and the ever increasing resistance of new agents must be monitored. In response, virology and other disciplines must be supported. Fighting chronic non-infectious lifestyle diseases caused mostly by the unhealthy behaviour of a large part of the population will be a major challenge. The mission of the health care system is to adapt to the changing environment, knowledge, and society in order to provide all citizens with guaranteed access to health support and protection, to encourage healthy lifestyle, and enforce the rules of effective disease prevention. **According to information from the RD&I IS, this programme has, until March 2018, supported 384 projects with state aid totalling CZK 3.878 billion.**

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 450,000 | 1,050,000 | 1,050,000 | 1,050,000 | 1,050,000 | 1,050,000 | 800,000 | 600,000 | 7,100,000 |

**Project period**
The programme is planned for 8 years from 2015 to 2022. The first public tender was announced in 2014, and the subsequent ones were held in 2015 and 2016.
Projects are expected to run at least 3 years but no more than 5 years. Projects implemented under the programme must be completed by 31 December 2022 at the latest. Five-year projects should focus on very demanding and complex issues, and their authors will be required to meet the strict criteria of excellent research imposed by the Project Evaluation System. Details are given in the relevant tender dossiers.

**Form and amount of funding**
Funding is provided to legal entities and natural persons in the form of grants for approved costs. By contrast, the support for organisational units of the state and organisational units of ministries takes the form of increased expenditure limits.

The aid intensity defined as a percentage of approved project costs will be calculated separately for each project, each recipient, and each additional participant according to the GBER, and the Framework. Pursuant to Support of Research and Development Act No. 130/2002 Sb., the Framework and the GBER, the maximum allowed aid intensity in a single project conducted by only research organisations can reach 100% of the approved costs.

For projects which are co-investigated by enterprises, the maximum allowed aid intensities for applied research

and experimental development and categories of beneficiaries and other participants will be stipulated in the tender dossier, in accordance with applicable regulations of the European Union.

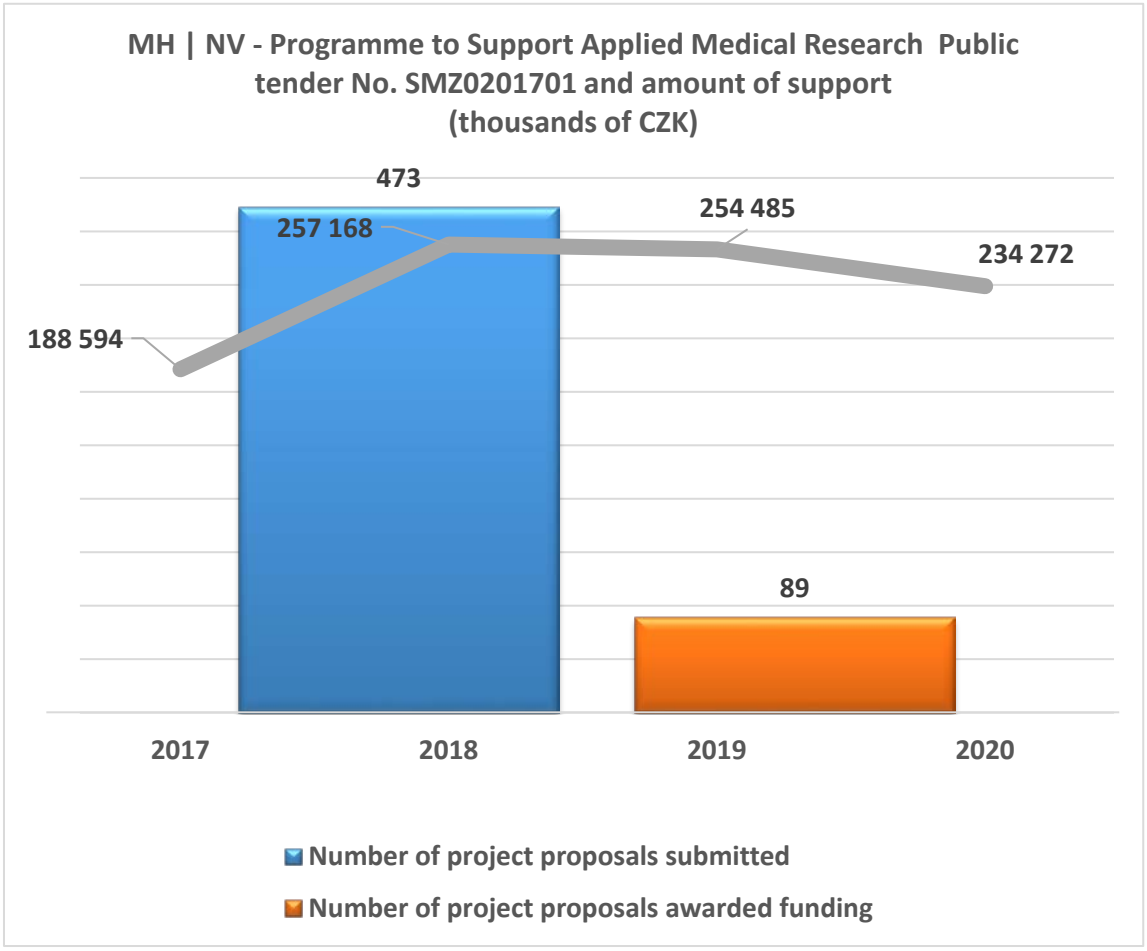
**Aid beneficiaries**
According to Support of Research and Development Act No. 130/2002 Sb., the GBER and the Framework, eligible applicant entities, aid beneficiaries, and other participants are the following:

- **Research organisations** – legal entities which, according to the GBER, meet the definition of a research organisation, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.
- **Undertakings** – legal entities and natural persons which, according to Annex 1 to the GBER, conduct economic activities, carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

Funding allocated in 2017

| Period | 2017 | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 188,594 | 257,168 | 254,485 | 234,272 | 934,519 |

Graphic representation of figures for the last public tender




(Amount of specific-purpose funding to be awarded through public tenders: CZK 934,519 thousand)

*Source: Research, Development and Innovation Information System*

### 3.8.2 Public tenders

The public tender is due in 2018.

### 3.8.3 Contacts and additional information

Czech Agency for Healthcare Research (AZV CR)
Ministry of Health of the Czech Republic
Department of Science and Research
(Czech Agency for Healthcare Research)
Ruská 2412/85, 100 05 Praha 10, Czech Republic
Martina Lišková, Secretariat
Phone: +420 271 019 257
E-mail: martina.liskova@azvcr.cz

Links:
www.mzcr.cz
www.azvcr.cz

### 3.9 Ministry of Agriculture (MA)

A programme entitled Comprehensive Sustainable Systems in Agriculture 2012–2018 (QJ) is currently coming to an end at the Ministry of Agriculture. This programme is continued in the form of a new programme entitled Programme for applied research of the Ministry of Agriculture for 2017–2025, "Earth".

#### 3.9.1 Comprehensive Sustainable Systems in Agriculture 2012–2018 (QJ)

The objective of the programme is to contribute to the food security of the Czech Republic through increasing the agricultural crops and livestock production capacity. To fulfil this objective, the programme expects to follow multiple steps: facilitate sufficient production of high quality and safe foodstuffs of domestic origin for feeding the population; introduce new methods, process routes and systems for greater competitiveness of Czech agriculture in the EU; foster sustainable development of the agricultural sector, rural areas and regions; exploit new knowledge for sustainable utilisation of natural resources with minimized environmental burden; introduce farming systems which help reduce negative impacts of climate change on the functions of ecosystems in agriculture, forestry and water management; and increase the potential of non-production aspects of agriculture, forestry, and water management. **According to information from the RD&I IS, this programme has, until March 2018, supported 211 projects with state aid totalling CZK 2.109 billion.** No further calls will be announced under this programme.

#### 3.9.2 Programme for applied research of the Ministry of Agriculture for 2017–2025, EARTH (QK)

The programme supports applied research projects in agriculture, the food sector, water management and forestry which promise high innovation potential and improvement in the stability, volume and quality of production and are aimed at new products, technologies and production processes. The programme will stimulate the advancement of existing disciplines and technologies and inspire creation of new knowledge, methods and procedures, boosting the competitiveness of the Czech agricultural sector and expanding the use of renewable resources for the benefit of the society.
It also aims to improve the effectiveness of public funding of agricultural research and the general recognition of the importance of research. **According to information from the RD&I IS, this programme has, until March 2018, supported 52 projects with state aid totalling CZK 0.672 billion.**

**Amount of funding planned for the entire programme period (according to current conditions of the programme)**

| Period | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 50,647 | 156,062 | 490,000 | 490,000 | 600,000 | 600,000 | 600,000 | 300,000 | 270,000 | 3,556,709 |

**Project period**
The programme is planned for 9 years from 2017 to 2025.
Under the programme, the first public tender for research, experimental development and innovation ("public tender") was announced in 2016 and the funding is to be released in 2017. Further public tenders will be announced in 2017, 2018, 2020, 2021 and 2022. Overall, six public tenders will be announced with their funding released in the years 2017, 2018, 2019, 2021, 2022 and 2023. The projects for the public tenders announced in 2021 and 2022 shall have periods of maximum 4 and 3 years, respectively.

**Form and amount of funding**
Funding will be provided in the form of grants for approved costs to legal and natural persons, and in the form of increased expenditures to organisational units of the state, organisational units of regional self-government units or organisational units of ministries engaged in research and development.
The aid intensity shall be calculated separately for each project, each beneficiary and each additional participant in accordance with specifications for individual sub-programmes. No funding shall be

provided to undertakings in difficulty, as defined in Article 2, section 14 of the ABER or Article 2, section 18 of the GBER, and to enterprises that are subject to an outstanding recovery order following a previous Commission decision declaring an aid illegal and incompatible with the internal market (Article 1 (5) (a) of the ABER and Article 1 (4) (a) of the GBER). Under these projects, it is prohibited to use additional funding to cover the same eligible costs from other national or European resources. Applicant entities are therefore required to report any public funding they have received for an identical or similar project or part of project.

The aid intensity for each beneficiary and other project participants shall be no higher than stipulated in the ABER and GBER. In accordance with Article 25, section 6 of the GBER, surcharges may be provided on top of this basic aid intensity. The maximum surcharge levels are given in the programme conditions and this information shall also be included in the tender dossier for public tenders. The funding provider shall determine the maximum aid intensity for research organisations and for research in specific areas of the agricultural sector in accordance with European regulations and the rules of the programme. Pursuant to Article 9 of the GBER, the required information about the aid amount and the beneficiary, as defined in Annex III to the GBER, shall be published for each individual aid amount in excess of EUR 500,000.

Under the programme, the aid intensity stipulated for research and development in agriculture, forestry, fishery and aquaculture may be used in accordance with the above-listed European regulations. The maximum aid intensity determined by the funding provider may reach 100% of the approved costs under conditions applicable to every beneficiary and other project participants (Article 31 of the ABER and Article of the GBER).

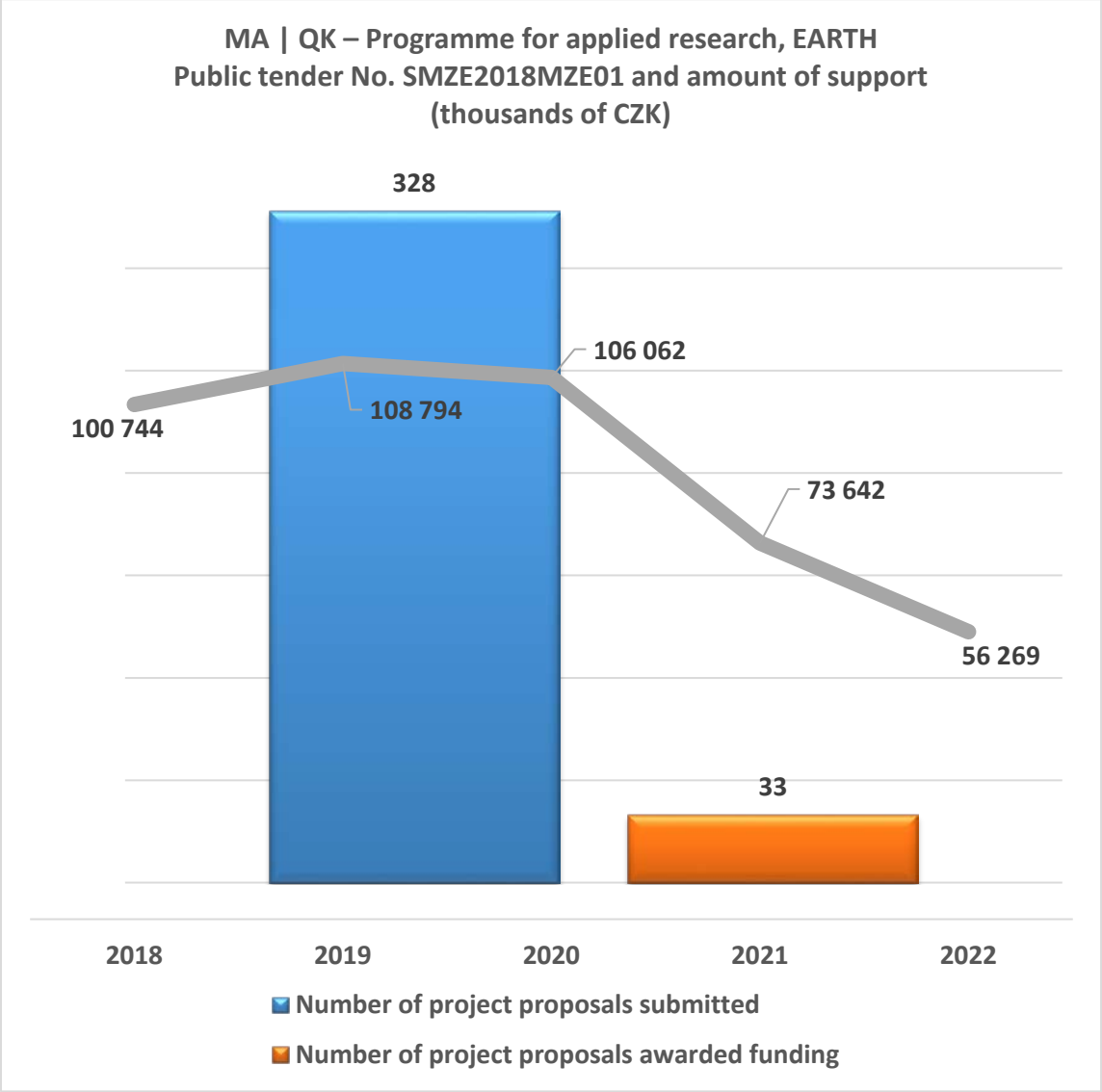
**Aid beneficiaries**
According to Czech and EU legislation (identified in the programme conditions), eligible applicant entities and aid beneficiaries are research organisations and, in the role of additional participants, undertakings (as specified in the conditions for individual sub-programmes).

**Research organisations** which are defined in the ABER and GBER as “research and knowledge dissemination organisations” include entities regardless of their legal standing and method of funding, whose principal aim is to conduct independent basic research, industrial research or experimental development or publicly disseminate the results of such activities through instruction, publications and knowledge transfer. Where such entities also pursue economic activities, the funding, costs and revenues relating to these economic activities must be accounted for separately. Undertakings that can exert influence upon such entities, for example, shareholders or members, cannot enjoy preferential access to their research capacities or to the results generated by those entities.
**Undertakings** are those legal entities (legal and natural persons), regardless of legal form, which (according to Annex I to the ABER and GBER) carry out the project alone or in cooperation with other participants, and prove their ability to co-fund the project from non-public resources.

Funding allocated in 2016

| Period | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---|---|---|---|---|---|---|
| **Amount of aid (thousands of CZK)** | 100,744 | 108,794 | 106,062 | 73,642 | 56,269 | 445,511 |

Graphic representation of figures for the last public tender




(Amount of specific-purpose funding to be awarded through public tenders: CZK 445,511 thousand)

*Source: Research, Development and Innovation Information System*

### 3.9.3 Public tenders

A public tender under the Earth programme is planned for 2018 as well.

### 3.4.9 Contacts and additional information

The Ministry of Agriculture of the Czech Republic has established the National Agency for Agricultural Research. The Agency is part of the Research, Education and Consultancy Department of the Ministry. In cooperation with programme committees appointed by the Deputy Minister of Agriculture, it conducts public tenders for R&D projects according to the conditions and criteria identified by the Ministry. On an annual basis, the Agency organizes the evaluation of interim and final project reports.

Ministry of Agriculture of the Czech Republic
Research, Education and Consultancy Department
National Agency for Agricultural Research
Těšnov 65/17, Praha 1, 110 00, Czech Republic
E-mail: info@mze.cz

Links:
www.eagri.cz
http://eagri.cz/public/web/mze/poradenstvi-a-vyzkum/vyzkum-a-vyvoj/narodni-agentura-pro-zemedelsky-vyzkum/

### 3.10 Overview of calls under current support programmes

| Public funding provider | Programme code | Name of activity | Start | End | Call in 2017 | Future calls |
|---|---|---|---|---|---|---|
| CSF | GA | Standard projects | 1993 | - | Y | Y |
| CSF | GC | International projects | 1994 | - | Y | Y |
| CSF | GJ | Junior grants | 2014 | - | Y | Y |
| CSF | GF | LA grants | 2014 | - | Y | Y |
| CSF | GH | ERC grants | 2017 | - | Y | Y |
| CSF | GX | EXPRO, excellence in basic research | 2018 | - | Y | Y |
| | | | | | | |
| TA CR | TG | GAMA | 2014 | 2019 | N | Gama 2 |
| TA CR | TH | EPSILON | 2015 | 2022 | Y | N |
| TA CR | TF | DELTA | 2014 | 2021 | Y | Delta 2 |
| TA CR | TI | BETA 2 | 2017 | 2021 | Y | Y |
| TA CR | TJ | ZETA | 2017 | 2025 | Y | Y |
| TA CR | TL | ETA | 2018 | 2023 | Y | Y |
| TA CR | TK | THETA | 2018 | 2025 | Y | Y |
| TA CR | TN | National Centres of Competence 1 | 2018 | 2022 | Y | Y |
| | | | | | | |
| MC | DG | Applied Research and Development for National and Cultural Identity Programme II | 2016 | 2022 | N | Y |
| | | | | | | |
| MD | OW | Development of Armed Forces of the Czech Republic | 2015 | 2022 | Y | Y |
| | | | | | | |
| MIT | FV | TRIO | 2016 | 2022 | N | N |
| | | | | | | |
| MI | VH | Programme for Security Research for National Needs | 2017 | 2021 | Y | N |
| | | | | | | |
| MH | NV | Programme to Support Applied Medical Research and Development 2015–2022 | 2015 | 2022 | Y | Y |
| | | | | | | |
| MA | QK | Programme for applied research, EARTH 2017–2025 | 2017 | 2025 | Y | Y |

## 4. RESEARCH AND DEVELOPMENT IN THE CZECH REPUBLIC IN THE CONTEXT OF THE EUROPEAN UNION

This chapter is devoted to the Enterprise and Innovation for Competitiveness Operational Programme 2014–2020 (EICOP), and the Research, Development and Education Operational Programme (RDEOP).

### 4.1 Enterprise and Innovation for Competitiveness Operational Programme 2014–2020

The objective of the Enterprise and Innovation for Competitiveness Operational Programme 20142020 is a competitive and sustainable economy based on knowledge and innovation. The word "competitive" refers to the ability of local enterprises to succeed in global markets and create enough jobs. The word "sustainable" highlights the long-term horizon of competitiveness, and therefore also entails environmental aspects. The programme follows the rules of the Cohesion Policy for the 2014–2020 programme period and draws on key strategic documents adopted by the European Union and by the Czech Republic. Priority Axis 1, Promotion of research and development for innovation, is of major importance for R&D. Entities engaged in R&D can use the other priority axes only to a limited extent and for their subsidiary activities.

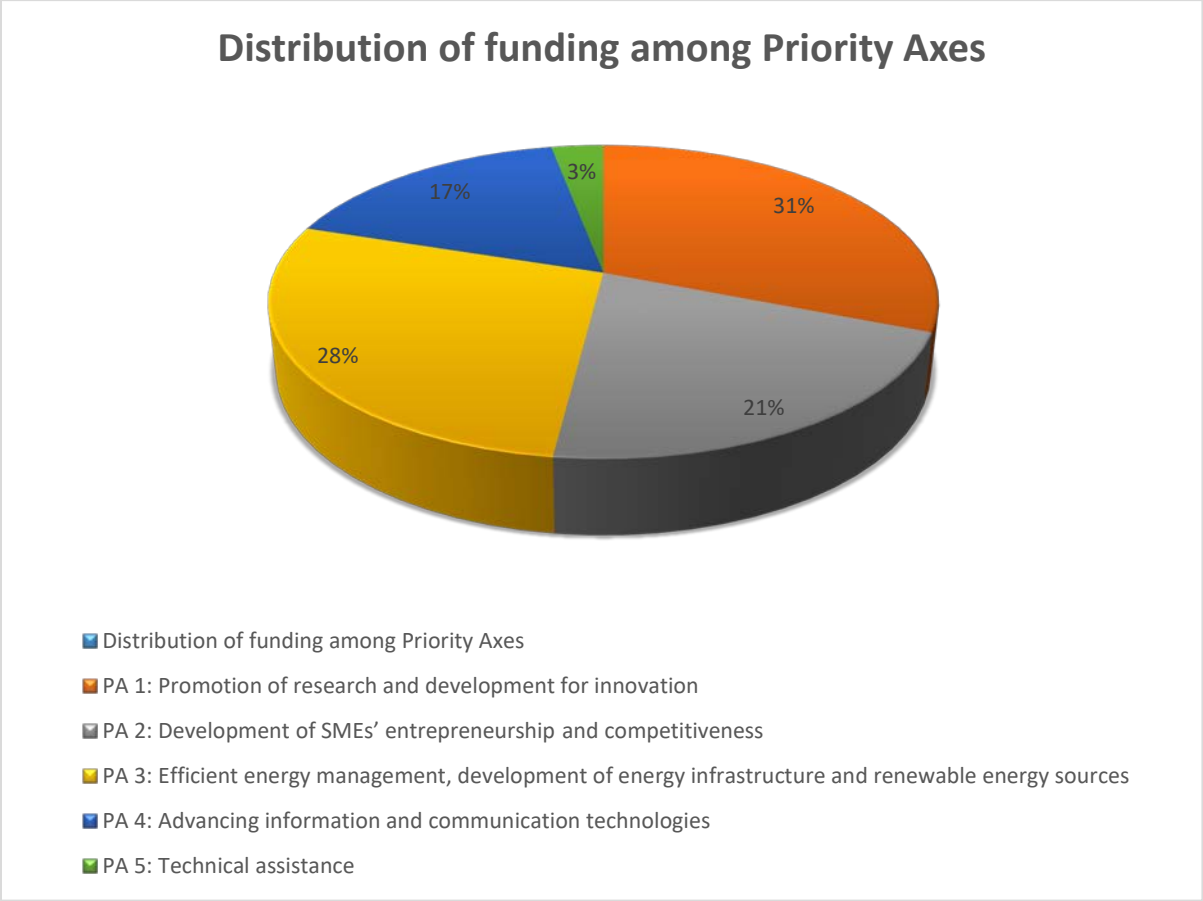
EICOP objectives:

1. **Supporting Czech companies which are capable of reaching and pushing the technological boundaries of their fields**, with the emphasis placed on developing their in-house research, development and innovation capacities and their external links.
2. **Advancing entrepreneurship and innovation in small and medium-sized enterprises in sectors of lower knowledge intensity**, where support focuses primarily on the realization of new business plans, and promoting services which improve SMEs' competitive advantage on an international scale.
3. **Taking steps towards an energy-efficient and low-carbon economy** by improving the energy efficiency of the business sector, using renewable energy sources, upgrading the power infrastructure, and introducing new technologies in energy and secondary raw material management.
4. **Promoting advances in entrepreneurship, services, and access to government services via high-speed Internet access** and a wider choice of information and communication technology (ICT) services, as the competitiveness of an information society stems from the efficient use of advanced ICT services.

#### 4.1.1 Funding

All support programmes under EICOP are co-funded from the resources of the European Regional Development Fund. For each of these programmes, objectives have been defined together with eligible aid beneficiaries and activities, as well as the conditions for submitting project proposals, and other aspects. Detailed information can be found in relevant files for all support programmes approved by the government. Based on these government-approved support programmes, calls for proposals are being announced. A total of approx. CZK 120 billion has been allocated for these projects (the European Regional Development Fund). A major portion of this (almost 60%) goes to Priority Axes 1 and 3, which are directly related to some of the key objectives of the Europe 2020 strategy.
Grants for small, medium-sized and large enterprises may account for no more than 45%, 35%, and 25% of the approved costs, respectively. Exceptions are allowed in industrial research, experimental development or energy saving projects. The nature of the planned investment and the rules of the particular call for proposals will play a role as well.
Geographical location plays a role in the grant award as well. Eligible beneficiaries are entrepreneurs from all regions of the Czech Republic, except Prague, the capital city. If, despite that, Prague-based entities decide to invest outside the capital's borders, the same rules as those for entrepreneurs from other regions will apply to them.

Graph: Distribution of funding among Priority Axes




*Source: EICOP*

### 4.1.2 Priority Axis 1: Promotion of research and development for innovation

**Investment priority 1:** Promoting business investment in research and innovation, and developing links and synergies between enterprises, research and development centres, and the higher education sector. Emphasis will be placed on promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, the formation of clusters, and achieving open innovation through smart specialisation. Support will be provided for technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities, and primary production, in particular in key enabling technologies, and in the dissemination of technologies for general use.

- **Specific objective 1: Increasing innovation performance of enterprises**
  The main goal is to advance entrepreneurship which relies on the intensive creation and exploitation of unique knowledge in all sectors relevant to the specialisation of the Czech Republic. The intended expansion of advanced manufacturing and R&D infrastructures will strengthen the innovation capacity of enterprises, enable their own R&D activities, and boost demand for the services of research organisations, including technologies promising the largest growth. Fulfilment of strategic objectives will pave the way to the market for higher-order innovations, and improve the technical stages of the innovation process.
- **Specific objective 2: Improving the intensity and efficiency of cooperation in research, development and innovation**
  By improving the quality of services of supporting infrastructures, joint RDI activities of enterprises and public and business sectors will be accelerated. Fulfilment of this specific objective will promote knowledge and technology transfers, mobility, cross-sectoral

cooperation, growth of innovative firms, and strengthen competitive advantages, the vital element of the country's innovation system.

### 4.1.3 Priority Axis 1: Development of SMEs' entrepreneurship and competitiveness

**Investment priority 1:** Promoting entrepreneurship by fostering the commercialisation of new ideas, and the creation of new firms, whether independently or through business incubators.

- **Specific objective 1: Enhancing competitiveness of start-ups and emerging SMEs**
  Small and medium-sized enterprises are important elements for the country's prosperity and employment. They generate a decisive share of new jobs and contribute to the competitiveness of large enterprises, and to innovations which transform product sub-markets. The main objective is enhanced competitiveness of the SME segment by stimulating new and innovative start-ups and business plans with high growth potential, as well as those with value chains at lower levels, and supporting entrepreneurs in the service sector who contribute to employment.

### 4.1.4 Priority Axis 3: Efficient energy management, development of energy infrastructure and renewable energy sources, and support for the introduction of new technologies in the management of energy and secondary raw materials

**Investment priority 4:** Promoting research and innovation in, and adoption of, low-carbon technologies.

- **Specific objective 4: Application of innovative low-carbon technologies in energy management and the use of secondary raw materials**
  The technological change which is fundamental to achieving the goals of the Czech Republic and the EU in terms of energy and raw materials is conditional upon upgrades to the technological basis of Czech enterprises. However, a wider uptake of innovative low-carbon technologies is precluded by the business interruptions that their adoption entails. The competitiveness of enterprises and sustainability of the Czech economy should be promoted through implementing new technology solutions in the field of management of energy and secondary raw materials.

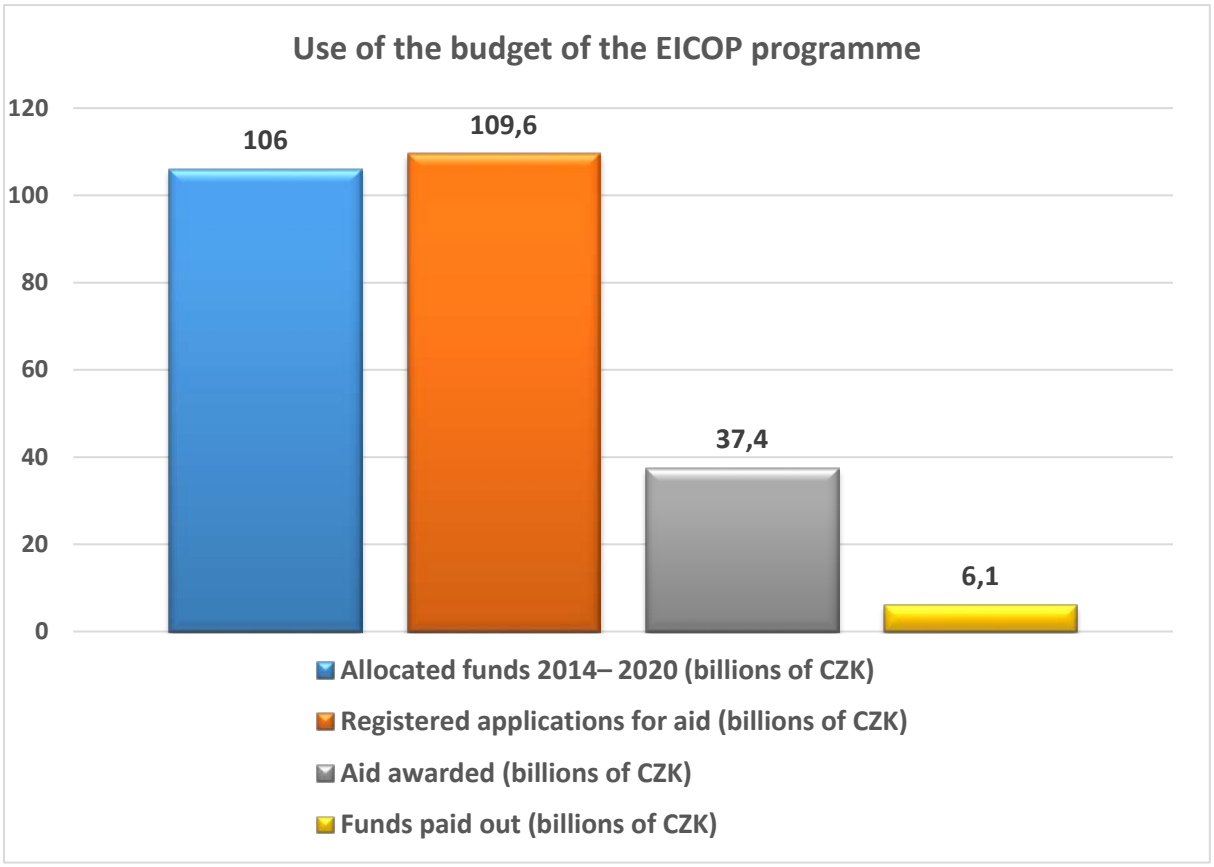
### 4.1.5 Priority Axis 4: Development of high-speed internet access networks, and information and communications technologies

**Investment priority 2:** Developing ICT products and services, e-commerce, and enhancing the demand for ICT.

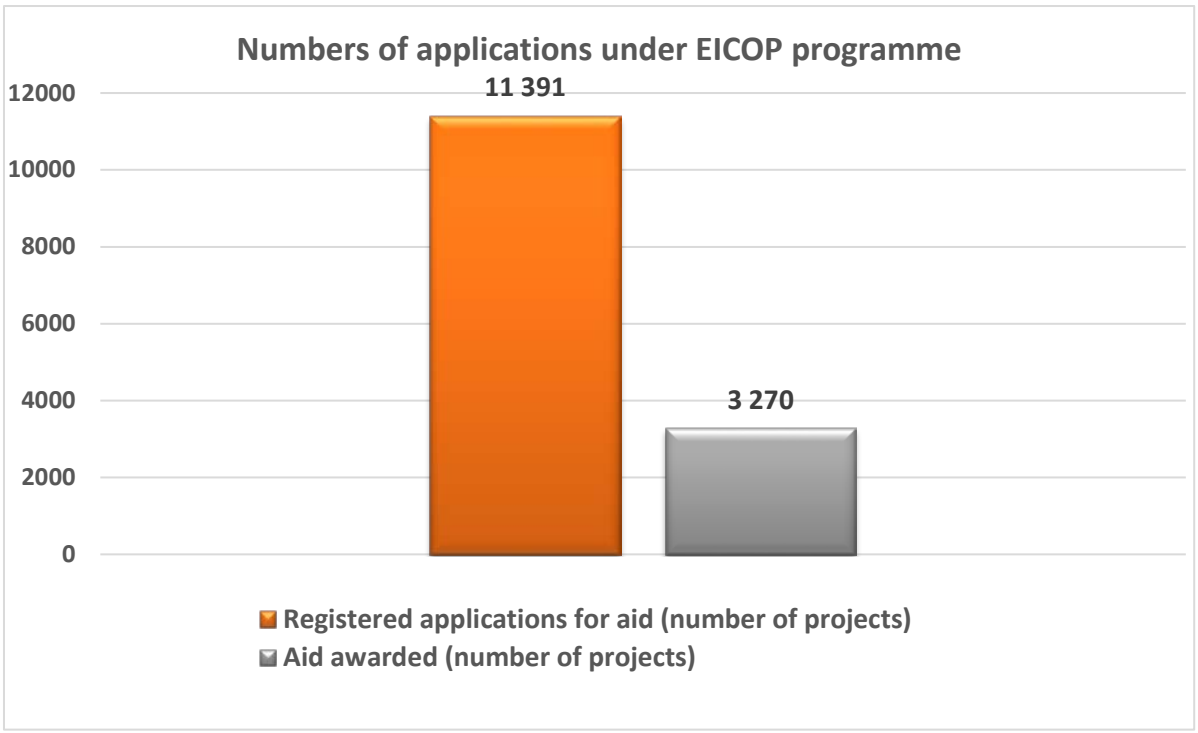
- **Specific objective 2: Improving realization of the potential of the ICT sector boost the competitiveness of the economy**
  Sophisticated ICT products and related services are essential for all sectors, for the effective realization of business plans, and improving the quality of life of society. The Czech ICT sector has a major potential which has not yet been utilized in full. By meeting this specific objective, this potential will translate into tangible results. The aim is to enhance competitiveness through developing and exploiting highly-innovative ICT.

### 4.1.6 Current use of programme funds

Until 10 November 2017, a total of 3,270 grant agreements have been made under the programme, worth CZK 37.4 billion. This represents 35.2% of the programme's allocated funds. CZK 6.1 billion has been paid out.




*Source: Ministry of Regional Development*




*Source: Ministry of Regional Development*

### 4.1.7 Schedule of programme calls

This information is valid as of March 2018.

| Priority Axis | Name of call | Planned call announcement date | Planned deadline for applications for aid |
|---|---|---|---|
| **Round calls:** | | | |
| PA 1 | 5th call of the Potential Programme | 1/2018 | 6/2018 |
| PA 1 | 4th call of the Infrastructure Services Programme – activity a) | 1/2018 | 5/2018 |
| PA 1 | 5th call, Cooperation – Clusters 4/ | 5/2018 | 9/2018 |
| PA 1 | 4th call of the Knowledge Transfer Partnership Programme | 5/2018 | 9/2018 |
| **Continuous calls:** | | | |
| PA 1 | 3rd call Innovation – Innovation Project – ITI Plzeň | 2/2018 | 12/2018 |
| PA 1 | 3rd call of the Potential Programme – ITI Plzeň | 1/2018 | 12/2018 |
| PA 1 | 1st call of the Infrastructure Services programme – ITI Brno 4/ | 1/2018 | 12/2018 |
| PA 1 | 1st call of the Infrastructure Services programme – ITI Ostrava 4/ | 1/2018 | 12/2018 |
| PA 1 | 1st call of the Cooperation – Clusters programme – ITI Plzeň | 1/2018 | 12/2018 |
| PA 1 | 1st call of the Proof of Concept programme – financial tool 3) | 1/2018 | 5/2018 |
| PA 1 | 1st call of the Infrastructure Services programme – ITI Plzeň 4/ | 1/2018 | 12/2018 |
| PA 1 | 1st call of the Application programme – ITI Ostrava – with effective collaboration | 7/2018 | 6/2019 |

*Source: Ministry of Industry and Trade of the Czech Republic*

### 4.1.8 Contacts and additional information

**Ministry of Industry and Trade of the Czech Republic**
Na Františku 32, 110 15 Praha 1, Czech Republic
Phone: +420 224 851 111
E-mail: posta@mpo.cz

Links:
https://www.mpo.cz/cz/podnikani/dotace-a-podpora-podnikani/oppik-2014-2020/

### 4.2 The Research, Development and Education Operational Programme (RDEOP)

Administered by the Ministry of Education of the Czech Republic, this multi-year programme offers funding from the Structural Funds of the European Union for the 2014–2020 programme period.
It helps shift the structure of the Czech economy towards a competitive economy based on a qualified, motivated and creative labour force, high-quality research results and their use. The programme will thus fulfil one of the three priorities of the Strategy for Smart, Sustainable and Inclusive Growth (Europe 2020 strategy), the Smart Growth priority. The objective of the Programme is to enhance the quality of research, and the focus on societal challenges, market needs, and the knowledge domains relevant for smart specialisation according to the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic (the National RIS3) and its regional annexes.

The key principle is to develop human resources for a knowledge-based economy and for sustainable development in a socially-cohesive society using interventions under multiple priority axes. Qualified personnel is a key factor in high-quality research. Interventions in education under this programme will be accompanied by systemic changes to improve the entire education system.

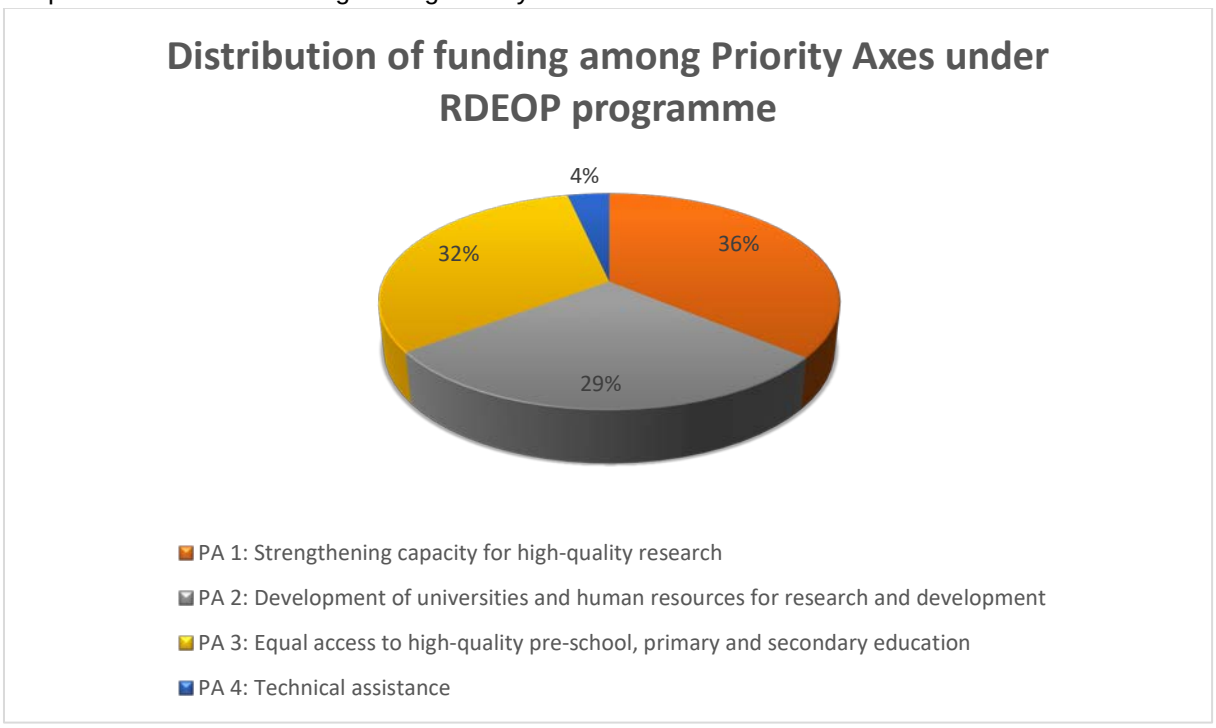
The areas of action include:

- Supporting equal access to quality education
- Developing competences needed for the labour market and for long-term needs of the society
- Strengthening the capacity for high-quality research and its impact on the society

#### 4.2.1 Funding

The Operational Programme Research, Development and Education is planned to receive an aid amount of EUR 3.44 billion (the contribution from the European Fund for Regional Development is EUR 1.52 billion; the one from the ESF reaches EUR 1.25 billion).

Graph: Distribution of funding among Priority Axes




*Source: RDEOP*

**Under RDEOP, the following project types are supported:**

- Major project – a project defined by Articles 100–103 of the Common Provisions Regulation.
- Simplified project – a project consisting exclusively of standardised activities with outputs or results defined by the Managing Authority. For individual activities (or outputs or results), the

Managing Authority specifies precise amounts of funding in line with rules for simplified reporting.

- Individual project – these projects may differ in their nature and focus. They may include conceptual projects addressing fundamental issues, delivering overall solutions, and verifying them in practice. They may complement systemic projects. They do not address their topics at the level of isolated institutions. In conceptual projects, emphasis is placed on monitoring, regular evaluation, and reporting to the Managing Authority. They are not subject to approval by the Monitoring Committee. Other types of projects include regional projects which take a comprehensive approach, covering entire regions, areas or territories. Projects of Thematic Partnerships and Networks involve establishing partnerships and networking of institutions and other entities e.g. in a certain territory or region. Other projects deal with their topics at the level of individual institutions. Individual Systemic Projects represent a specific category. They address the matter comprehensively across a certain area or territory.

### 4.2.2 Priority Axis 1: Strengthening capacity for high-quality research

Interventions under this axis focus on fostering internationally-recognised state-of-the-art research in the Czech Republic, developing research collaboration, improving the infrastructure for training future researchers, advancing the management of research, and societal benefits of research. Priority Axis 1 responds to deficiencies identified in the Czech research system and its research infrastructures, their equipment, utilisation and sharing, the infrastructures for training researchers, multi-disciplinarity of research teams, the involvement of research teams in international collaboration, cooperation between public and private sectors on long-term research themes, the strategic management of research, and the national research policies. All these deficiencies are addressed in four specific complementary objectives.

Under this priority axis, funding is provided for systemic projects, individual projects, and major projects.

**Investment priority 1:** Strengthening research and innovation infrastructure and capacities for research and innovation excellence, and supporting centres of competence, in particular those of European interest.

- **Specific objective 1: Bringing research and its results to the international level**
  By providing better conditions for excellent research, the aim is to increase the number of research teams that achieve international quality in terms of the originality and real-world impact of their research. Funding is provided to those research teams and the infrastructure they use which demonstrate qualities that promise research excellence (e.g. publications, applied results, participation in international projects). Emphasis is placed on utilizing the existing modern infrastructures, greater internationalisation of research teams, and channelling human and financial resources for excellent research into global societal challenges, in line with RIS3 priorities. The aim is to reinforce, expand and utilize existing research capacities to provide conditions for world-class research. No funding will be provided to establish new research centres outside the City of Prague.
- **Specific objective 2: Building capacities and strengthening long-term cooperation of research organisations with industry**
  The objective is to make research more effective in addressing societal challenges and benefiting society through building and expanding capacities for effective cooperation in pre-commercial research between research and industry. The outcomes will contribute to addressing the major themes of society, and delivering a better quality of life. The research will meet the strategic long-term needs of the market by making use of the existing research infrastructures. Synergies with this objective will be delivered by those interventions under the Enterprise and Innovation for Competitiveness Operational Programme which focus on technology transfer between and joint industrial research of research organisations and enterprises.

- **Specific objective 3: Improving the infrastructure for research-educational purposes**
  The objective is to expand high-quality infrastructure for research-oriented curricula in line with the needs identified in the RIS3. Infrastructure-focused interventions will be aligned to support research-oriented curricula under specific objective 5 of Priority Axis 2.
- **Specific objective 4: Improving strategic management of research at the national level**
  The aim is to improve strategic management of research, development and innovation at the national level, and to introduce incentive elements into the evaluation and funding of research organisations. Better strategic management will rely on feedback concerning the real-world impact of programmes and policies, and on more efficient coordination of research policy management across all hierarchical levels

### 4.2.3 Priority Axis 2: Development of universities and human resources for research and development

Priority Axis 2 aims to improve the quality and output of higher education institutions, contributing to one of the Europe 2020 priorities, Innovation Union. Quality-oriented measures focus on the relevance of higher education for the labour market and societal needs. Priority Axis 2 also focuses on developing human resources in R&D and the related improvement in conditions for research-linked training. Under this priority axis, funding is provided for individual projects.

**Investment priority 1:** Improving the quality and impact of, as well as access to tertiary and equivalent education with a view to increasing participation and attainment levels, especially for disadvantaged groups. Under this investment priority, funding is provided for individual projects. Simplified projects mainly focus on mobility. No major projects within the definition of Articles 100–103 of the Common Provisions Regulation ((EU) No. 1303/2013) are planned.

- **Specific objective 1: Improving the quality of higher education and its relevance to the labour market**
  The aim is to improve the quality, focus and relevance of higher education to the labour market, including entrepreneurship and other modern competences in students.
- **Specific objective 2: Increasing the participation of students with specific needs, from socio-economically disadvantaged groups and from ethnic minorities in higher education, and decreasing the drop-out rates of students**
  The aim is to increase the participation of students with special needs from socio-economically disadvantaged groups and from ethnic minorities in higher education, and to reduce the drop-out rates of students, through relevant, higher quality support.
- **Specific objective 3: Improving the conditions for lifelong learning at higher education institutions**
  The aim is to enable higher education institutions to respond flexibly to the demand for lifelong learning from adults and from partners from industry.
- **Specific objective 4: Setting up and developing an evaluation, quality and strategic management system at higher education institutions**
  The aim is to increase the focus of the evaluation system and the system of funding of higher education institutions on quality. Internal quality evaluation and assurance should be introduced to and embedded in higher education institutions to identify and respond to deficiencies in internal management processes, including staffing levels and professional capacity.
- **Specific objective 5: Improving the conditions for research-linked training and for developing human resources in research and development**
  The aim is to develop the qualifications of researchers and other staff in R&D, provide a sufficient number of highly-skilled higher education graduates with hands-on research experience, enhance the inflow of top experts from abroad and from the private sector into research organisations, and improve personnel qualification for effective implementation of the RIS3. Funding will go towards establishing and developing strategic partnerships between the public and the private sector at regional and international levels via new instruments contributing to realisation of the RIS3. Interventions under this specific objective will also

support female researchers and stimulate interest among students and the public in research and its outcomes.

**Investment priority 2:** This relates to the investment in general and vocational education and professional training to promote skills and lifelong learning by developing the education and training infrastructure. Funding is provided for so-called individual projects.

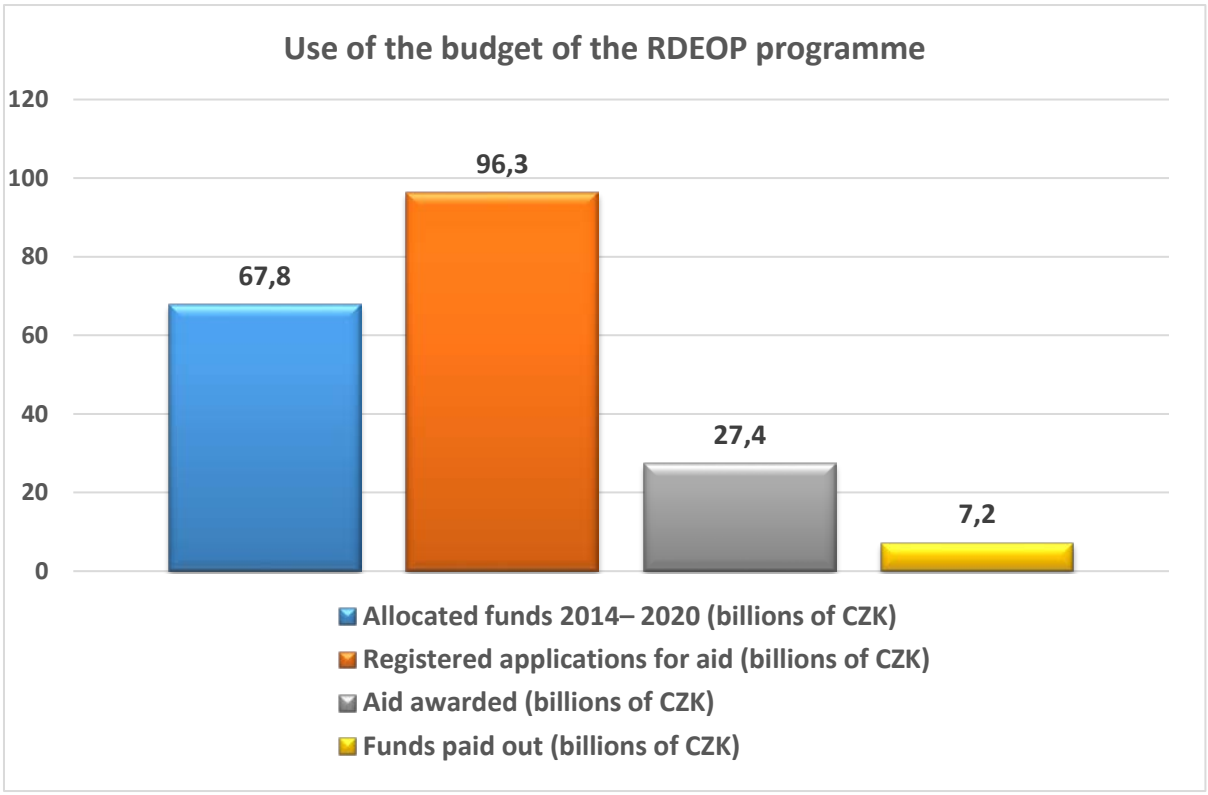
- **Specific objective 1: Improving the higher education infrastructure for better education, improved access for disadvantaged groups, and opening higher education institutions**
  The purpose of the funding will be to complement the investment from the ESF in specific objectives 1, 2, and 4 with investment in infrastructure and investment-intensive equipment. In 2007–2013, only limited investment in the educational infrastructure (unrelated to research activities) was provided through cross-financing under the ECOP. The ERDF interventions under Priority Axis 2 aim to prepare conditions for upgrading the infrastructure for undergraduate and post-graduate instruction. The infrastructure of research-oriented programmes is addressed in specific objective 1 under Priority Axis 1.

### 4.2.4 Priority Axis 3: Equal access to high-quality pre-school, primary and secondary education

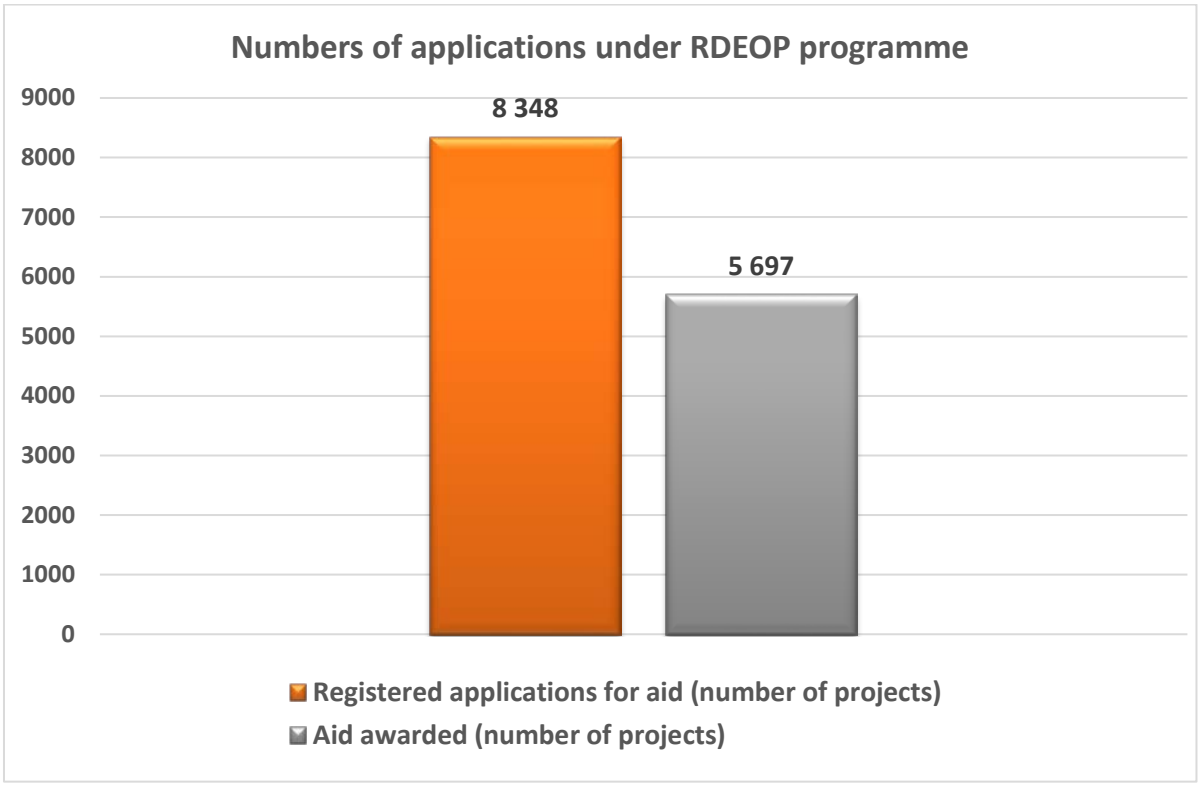
Instead of R&D, Priority Axis 3 focuses on pre-school, primary and secondary education. Its objectives include achieving excellence at all levels of education, supporting every child's and student's potential to develop their competences throughout their life, developing key competences, communication in mother tongue and foreign languages, mathematical competences and basic competences in science and technology, digital competence, learning to learn, social and civic competences, a sense of initiative and entrepreneurship and cultural awareness and expression. Other objectives include improvement in the quality and effectiveness of education and training with the emphasis on their relevance to the long-term needs of graduates, the labour market and society.

### 4.2.5 The use of programme funds

Until 10 November 2017, a total of 5,697 grant agreements have been made under the programme, worth CZK 27.4 billion. This represents 40.4 % of the programme's allocated funds. CZK 7.2 billion has been paid out.




*Source: Ministry of Regional Development*




*Source: Ministry of Regional Development*

### 4.2.6 Schedule of programme calls

Schedule of programme calls

This information is valid as of March 2018.

| Priority Axis | Activities supported | Planned call announcement date |
|---|---|---|
| PA1 | **Research Infrastructures II** | May 2018–February 2019 |
| PA2 | **International mobility of researchers** | October 2018–August 2019 |
| PA2 | **Development of capacities for research and development** | October 2018–March 2019 |
| PA2 | **Smart Accelerator** | May 2018–August 2019 |

*Source: Ministry of Education of the Czech Republic*

### 4.2.7 Contacts and additional information

**Ministry of Education of the Czech Republic**
Managing Authority, OP VVV
Karmelitská 7, 118 12 Praha 1, Czech Republic

Links:
www.msmt.cz/strukturalni-fondy-1/op-vvv
www.msmt.cz/strukturalni-fondy-1/harmonogram-vyzev-op-vvv

## 5. INTERNATIONAL COOPERATION OF THE CZECH REPUBLIC IN RESEARCH AND DEVELOPMENT

The Czech Republic sees as one of its key priorities in international cooperation its engagement in the research and development structures of the European Union (European Research Area). This means, above all, effective participation in EU framework programmes of research and development, and in the EURATOM programme.

Other priorities include developing, structuring and strengthening the European Research Area (Ljubljana Process), realizing the Europe 2020 strategy (achieving competitiveness comparable with the USA and Japan), and meeting the Barcelona objective (European R&D expenditures of 3% of GDP). Other important efforts include multilateral and bilateral projects, and participation in international governmental and non-governmental organisations and activities. Formulation of the country's policy of international cooperation in research and development must reflect not only the situation in developed European countries but also the legislation in the Central European region, and the research and development policies in the USA, Canada and developed Asian countries.

In 2011, the Ministry of Education of the Czech Republic saw major changes in the way international cooperation in R&D was managed and the way the country participated in the European Research Area. The Department of International Cooperation in R&D was established with responsibility for the Czech Republic's membership in the ERA (including participation in and evaluation of framework programmes). In addition, the Department of Funding Research and Development Projects was formed to oversee the implementation of bilateral and multilateral R&D international cooperation agreements, and the funding of the applicable cooperation programmes. Since 2013, the Research and Development Department and the Department of Support of Higher Education Institutions and Research of the Ministry have been operating. They are responsible for international cooperation, funding, and participation of the Czech Republic in the ERA.

### 5.1 Horizon 2020

The Seventh Framework Programme of the EU, the predecessor of Horizon 2020, ran from 2007 to 2013 (some of its projects can continue until 2017). In the 2011–2013 period, the draft of the Horizon 2020 framework programme was being prepared and discussed. It was approved by the EU Council on 3 December 2013. Its budget is EUR 77 billion.

Horizon 2020 (H2020) was proposed in November 2011. Its overall objectives were defined together with their rationale, the value added by the common approach, i.e. one shared across the European Union, was identified, as well as the financial framework, the management of the programme and its monitoring and evaluation. This became a working draft for the European Parliament and the European Council. In spring 2012, the Danish Presidency of the EU Council organised events aimed at clarifying the issues raised by the national administrations and national and European institutions after studying the draft. In spring 2013, under the Irish Presidency, comitology procedures in regard of the Horizon 2020 programme took place, in particular concerning the organisation and the programme committee procedure. Thanks to thorough preparation of H2020, no major changes were required. The first working programmes under H2020 and the first calls were announced on 13 December 2013.

H2020 is open to all entities regardless of their legal form. Some calls may require the participation of a concrete legal entity type in the consortium (e.g. an SME). In order to foster international cooperation, projects in most areas of the H2020 programme are to be proposed by a consortium consisting of several entities. The minimum participation condition (minimum number of project consortium members) requires that at least three independent entities from three different EU-28 countries, or countries associated to H2020, take part in a project. If this requirement is met, entities from other countries eligible for funding may become participants as well (the call for proposals may in some cases specifically prescribe the consortium members' countries of origin). Partners from developed countries (e.g. the USA, Canada, and Japan) and other wealthy countries (e.g. countries of

the Arabian Peninsula) are an exception to the minimum participation condition, but they will not be eligible for EU funding in most cases. Some project types are exempted from the minimum participation condition as well (ERC grants, coordination and support actions, Marie Skłodowska-Curie actions and SME tools), and their proposals can therefore be submitted by a single applicant.
Several types of actions are defined under H2020, which may differ in form, the amount of funding, the minimum number of consortium members, the administration process, and in other aspects.

### 5.1.1 Main priorities of H2020

H2020 focuses on three priorities:

- Excellent science
- Industrial leadership
- Societal challenges

The H2020 budget also covers these efforts and initiatives:

- Non-Nuclear actions of the Joint Research Centre
- European Institute of Innovation and Technology
- Science with and for society
- Spreading excellence and widening participation

### 5.1.2 The H2020 budget

The budget of the H2020 programme was approved at EUR 77.028 billion with the structure given in the following table: Complementary to H2020 is the EURATOM programme, whose overall budget for the 2014–2018 period is EUR 1.603 billion.

Approved H2020 budget in millions of EUR

| **Priority** | **Budget in millions of EUR** | **Proportion allocated** |
|---|---|---|
| A. Excellent science | 24,441 | 31.73% |
| B. Industrial leadership | 17,016 | 22.09% |
| C. Societal challenges | 29,679 | 38.53% |
| EIT | 2,711 | 3.52% |
| Science with and for society | 462 | 0.60% |
| Spreading excellence and widening participation | 816 | 1.06% |
| Non-nuclear direct actions of the Joint Research Centre | 1,903 | 2.47% |

### 5.1.3 H2020 priorities

**A. Excellent science (total of EUR 24,441 million)**. The Excellent Science priority focuses on activities that push the current boundaries of knowledge or technical limitations. It comprises the following parts:

a) European Research Council (EUR 13,095 million)
b) Future and emerging technologies (EUR 2,696 million)
c) Marie Skłodowska-Curie Actions (EUR 6,162 million)
d) European research infrastructures, including e-infrastructures (EUR 2,488 million)

a) The **European Research Council (ERC)** supports world-class frontier research, the topics of which are proposed by researchers themselves from around the world. The condition is that the grant holder carries out research at a European research facility. The Council was established by the European Commission in March 2007 as the first European organisation to support state-of-the-art basic research. The only criterion for evaluating the proposals it receives is scientific excellence – of both the project proposal and the investigator. The projects must show the potential for an impact on their fields, pushing the boundaries of

knowledge, and opening up new research perspectives. The European Research Council supports all science disciplines and does not set any thematic priorities. Its grants can be transferred because they are linked to the principal specialist investigator. The investigator can therefore join a new host institution.

b) **Future and emerging technologies (FET)** comprise three programmes:
   - FET Open – this programme supports the early stages of high-risk research. It focuses on young researchers and innovative high-tech SMEs. Project proposals are submitted and evaluated on a continuous basis.
   - FET Proactive – this programme focuses on encouraging the pursuit of auspicious emerging research topics. It aims to deliver adequate numbers of interrelated and cooperating projects that represent different perspectives on their topic.
   - FET Flagships – this programme supports extensive interdisciplinary research. It also supports the Graphene Flagship and Human Brain Project initiatives.

c) **Marie Skłodowska-Curie Actions** focus on developing human resources in research by promoting mobility, education and professional growth with an emphasis on professional skills for innovation. Importance is also placed on communicating the outcomes of EU-funded research to the general public. The grants for individual scientific and research projects have recently become transferable. The previous eight types of Marie Curie actions have also been merged into four focus areas: accelerating the professional growth of early-stage researchers, mainly doctoral students; fostering excellence of experienced researchers through international and interdisciplinary mobility; stimulating innovation through interconnection of knowledge; and increasing structural impact by co-financing the relevant activities.

d) **European research infrastructures** aim to build world-class research infrastructures accessible not only to research facilities but also enterprises. The focus is on developing European infrastructures in the period until 2020 and beyond, as well as on stimulating the innovation potential of research infrastructures and their human capital, and on promoting the policy of building European infrastructures, and international cooperation.

**B. European Industrial Leadership (total EUR 17,016 million)**. The European Industrial Leadership priority aims to strengthen the position of European industry in the global context. The priority focuses on enabling (driving radical, step changes) and industrial technologies. It supports the innovation activities of small and medium-sized enterprises (SMEs). It comprises the following parts:

a) Enabling and industrial technologies (EUR 13,557 million)
b) Access to risk finance (EUR 2,842 million)
c) Innovation in SMEs (EUR 616 million)

a) **Enabling and industrial technologies** supports enabling and industrial technologies in six focus areas: information and communication technologies, nanotechnologies, advanced materials, biotechnology, advanced manufacturing and processing, and space applications. Emphasis is placed on reducing energy consumption, new materials, security, interoperability of systems and development of standards, and on validating research results in pilot applications.

b) **Access to risk finance** has the goal of expanding and intensifying the use of debt and capital financial tools, which simplify access to risk capital. The financial facilities of the Horizon 2020 programme (the debt facility and the equity facility) complement the financial facilities of the COSME programme. The European Investment Bank and the European Investment Fund play an important role in their implementation.

c) **Innovation in SMEs (small and medium-sized enterprises)** sets the objective of creating a single tool for supporting all innovative SMEs which have a strong ambition to develop, grow, and follow a transnational orientation. The support will apply to all types of innovation and all stages of its introduction. It will cover the three stages of the innovation cycle listed below with seamless transitions between them, provided that the applicant meets all the requirements.
   - Stage 1: The input to this stage is a brief outline of an innovation idea-based business plan. Successful applicants receive funding in the form of a lump sum of EUR 50,000. This stage only takes 6 months, during which a feasibility study should be developed to verify

the technological/practical, as well as the economic viability of the innovation idea/concept. The results of this study are used to developing an initial business plan for Stage 2.

- Stage 2: At this stage, the idea/concept is to be converted into a tangible product or service as the next step towards commercial exploitation. The input to Stage 2 is an elaborated business plan and a description of innovation (and, if relevant, research) activities planned for this stage. The entry to Stage 2 is not conditioned on completing Stage 1. The time frame for this stage is 12–24 months and the typical EU grant is between EUR 0.5 million and 2.5 million. At Stages 1 and 2, applicants can also benefit from indirect support: coaching and mentoring services available through the Enterprise Europe Network.
- Stage 3: Stages 1 and 2 should translate the innovative idea/concept into a competitive outcome prepared for market launch. Stage 3 is expected to involve commercialisation of innovative products and services. At this stage, no direct funding is provided. Nevertheless, SMEs can make use of the financial facilities available under the second priority of Horizon 2020, access to risk finance.

**C. Societal challenges (total EUR 29,679 million).** It is assumed that the European Institute of Innovation and Technology (EIT) will play a central role in addressing these challenges.

a) Health, demographic change and wellbeing (EUR 7,472 million)
b) Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bio-economy (EUR 3,851 million)
c) Secure, clean and efficient energy (EUR 5,931 million)
d) Smart, green and integrated transport (EUR 6,339 million)
e) Climate action, environment, resource efficiency and raw materials (EUR 3,081 million)
f) Europe in a changing world: inclusive, innovative and reflective societies (EUR 1,309 million)
g) Secure societies: protecting the freedom and security of Europe and its citizens (EUR 1,695 million)

a) **Health, demographic change and wellbeing** has the goal of improving the life-long health and wellbeing of all EU citizens. In the H2020 draft, “Health, demographic change and wellbeing” is outlined in these themes: understanding health, ageing and diseases; better diagnostics; innovative treatments and technologies; supporting active and healthy ageing; integrated, sustainable care, patient-centred care; better health information, use of data and input to health policies and regulations; coordination activities. Attention is paid to gender issues, ethical rules, the use of animals in research, and others. An important aspect is continuous, lifelong and adequate health education not only in the population and groups of citizens with certain disabilities, but also the lifelong education of healthcare professionals at all levels.
b) **Food security, sustainable agriculture, marine research, and bio-economy** aims to provide a sufficient supply of safe and high-quality foods and bio- products obtained with the aid of advanced biotechnologies, to develop support services for interrelated ecosystems, and promote competitive low-carbon production chains, accelerating the transition to a sustainable European bio-economy. In the H2020 draft, the area of Food security, sustainable agriculture marine research and bio-economy is outlined in these four themes: sustainable food production; nutrition and foodstuffs, Blue Growth – tapping the potential of fishery, aquaculture and marine biotechnologies; innovative, sustainable and inclusive bio-economy.
c) **Secure, clean and efficient energy** has the objective of making the transition to a reliable, sustainable and competitive energy system in the face of increasingly scarce resources, increasing energy needs, and climate change. In the H2020 draft, “Secure, clean and efficient energy” comprises the following seven themes: reducing energy consumption and the carbon footprint by the smart and sustainable use of energy; low-cost, low-carbon electricity supply; alternative fuels and mobile energy sources; a single, smart European electricity grid; new knowledge and technologies; robust decision making and public engagement; market uptake of energy innovation – building on the Intelligent Energy Europe (IEE) programme.

d) **Smart, green and integrated transport** aims to build a transport system in Europe which efficiently uses resources, is environmentally friendly, secure, and provides citizens, the economy and society with the connectivity they need. In the H2020 draft, “Smart, green and integrated transport” involves four themes: efficient and green transport; better mobility, less congestion, more safety and security; leading position for the European transport industry in the global context; and socioeconomic research and development scenarios for policy making.
e) **Climate action, environment, resource efficiency and raw materials** aims to build a resource-efficient economy which is resilient to climate changes. Another objective is to provide a sustainable supply of raw materials to meet the demand of the world’s growing population in the face of limited natural resources on our planet. These activities will contribute to the competitiveness of Europe, improved living conditions, environmental balance and sustainability, and keeping average global warming below 2°C. Ecosystems and society will thus be able to adapt to climate change. In the H2020 draft, “Climate action, resource efficiency and raw materials” involves six themes:
    - Fighting and adapting to climate change
    - Protecting the environment, and implementing sustainable management of natural resources, water, biodiversity and ecosystems
    - Ensuring a sustainable supply of non-energy and non-agricultural raw materials
    - Enabling the transition towards a green economy and society through eco-innovation
    - Developing comprehensive and sustained global environmental observation and information systems
    - Cultural heritage
f) **Europe in a changing world: inclusive, innovative and reflective societies** supports research into and seeking solutions to numerous burning issues of European societies, namely in economy, European integration and societal trends, such as ageing, and unemployment among young people, and in the foreign relations of the EU. In the H2020 draft, “Europe in a changing world: inclusive, innovative and reflective societies” involves four areas: overcoming the crisis: new ideas, strategies and structures of governance; the young generation in an inclusive, innovative and sustainable Europe; reflective societies: cultural heritage and European identities; Europe as a global actor; and new forms of innovation.
g) **Protecting freedom and security of Europe** aims to prepare for potential threats through prevention and coordination of action in real-world situations of natural or man-made disasters and dealing with their aftermath. The programme also aims to increase cyber security, improve border protection, and fight terrorism and organized crime. The H2020 draft outlines the area of protecting the freedom and security of Europe in four themes: DRS: Resilience to disasters; FCT: Fighting terrorism and crime; BES: Protection of borders and foreign security; DS: Cyber security, trust and privacy.

### 5.1.4 Financial Rules of Participation in H2020

In H2020, project funding is only available for eligible costs, whose forms may however differ in various types of actions.
Where the total eligible costs of a project are quantified, the maximum amount of aid from the EU must be determined. Generally, and in the most frequent actions, the EU contribution can cover 70–100% of the total eligible costs, depending on the type of action.

An overview of funding for the main types of actions is given in the following table:

<table>
<tr><th>Type of action</th><th>Overhead costs</th><th>Payment of total eligible costs</th></tr>
<tr><td>Research and innovation actions</td><td rowspan="4">flat rate of 25% *</td><td rowspan="4">100%</td></tr>
<tr><td>Innovation actions (where the recipient is a not-for-profit entity)</td></tr>
<tr><td>Coordination and support actions</td></tr>
<tr><td>European Research Council grants</td></tr>
<tr><td>Marie Skłodowska-Curie actions</td><td>unit costs outlined in the work programme</td></tr>
<tr><td>Innovation actions (where the beneficiary is a for-profit entity)</td><td rowspan="2">flat rate of 25% *</td><td rowspan="2">70%</td></tr>
<tr><td>Tool for SMEs</td></tr>
</table>

** of direct costs without subcontracts and non-financial contributions from third parties, which are not performed on the beneficiary's premises*

In H2020 projects, the EU contribution is provided gradually over individual reporting periods. Immediately after the project start, the beneficiary receives an advance to provide for adequate cash-flow to launch the project activities. In the subsequent periods, the beneficiary receives regular payments provided against complete interim reports (including financial statements). After the project completion and once the last interim report and a final report of adequate quality are submitted, the beneficiary receives the balance of the contribution.

### 5.1.5 Schedule of calls

Czech calls under the H2020 programme are available at:
www.h2020.cz/cs/seznamy/vyzvy

Further information can be found at these addresses:
www.evropskyvyzkum.cz/cs/nastroje-spoluprace/ramcove-programy/horizont2020
www.h2020.cz/cs
www.h2020.cz/files/svobodova/TCAV-brozura-Horizont-2020-web.pdf

### 5.2 Horizon 2020-related initiatives

The H2020 budget is used for additional horizontal activities – Spreading excellence and widening participation; Science with and for society – as well as non-nuclear activities of the Joint Research Centre EK and the European Institute of Innovation and Technology.

### 5.2.1 Spreading excellence and widening participation

The objective of these actions is to help overcome significant disparities between Member States or regions in terms of fostering and exploiting the research and innovation potential, and to promote participation in the H2020 programme to uniformly spread excellence in research across the European Research Area. "Spreading excellence and widening participation" is based on four measures: Teaming; Twinning; ERA chairs; and the Policy Support Facility.
A new feature of Horizon 2020 is the Seal of Excellence principle, according to which the outcomes of evaluation under individual implementation schemes of Horizon 2020 are adopted by another funding provider and funding is awarded to those proposals which have received favourable rating but no funding from the European Commission due to Horizon 2020 budget constraints. Although the Ministry of Education of the Czech Republic has been following this principle for a long time for European Research Council projects and will begin to adopt it in 2017 for individual international mobility projects under Marie Skłodowska-Curie Actions, it is still an exception in the Czech Republic where it has not

been widely used (e.g. the SME Instrument). Yet, its benefits are considerable. More widespread application of the Seal of Excellence principle may even increase the frequency of Horizon 2020 proposals from Czech applicants. Funding providers who have the potential to adopt the Seal of Excellence principle should therefore make effort to use it in their grant programmes.

### 5.2.2 Science with and for society

The aim of this activity, which directly builds on Science in Society, a priority under the 7th Framework Programme, is to build a fruitful relationship between science and society, to recruit new talent for science, and to pair scientific excellence with social awareness and responsibility.
"Science with and for society" comprises the following themes: scientific and technological careers (EURAXESS); gender equality; formal and informal science education; open access and the use of results; governance and ethics; responsible research and innovation; and science communication

### 5.2.3 Teaming – a specific measure under Horizon 2020 EU framework programme for research and innovation

The tool for international collaboration in R&D entitled "Teaming" is one of the implementation schemes under Horizon 2020, the EU framework programme for research and innovation (Horizon 2020), which plays a role in the area "Spreading excellence and widening participation". Teaming is one of the measures which aim to reduce persistent disparities in the research and innovation performance of various EU member states and should unlock R&D potential and excellence across the European Union.
Teaming complements other Horizon 2020 measures in this category of support actions: Twinning (strategic collaboration between a research organisation from an EU member state with substantially lower innovation performance and at least two leading foreign research institutions from EU member states with higher innovation performance), ERA Chairs (development of a research institution through the transfer of good practice from visiting leading experts) and the services provided by the European Commission via the Policy Support Facility, involving the support for creation, implementation and evaluation of RDI policies.
The ultimate goal of Teaming is to establish or substantially upgrade R&D facilities in EU states with considerably lower innovation performance than that of the EU states which are home to excellent foreign R&D institutions acting as partners under this measure. Teaming projects are an excellent opportunity to improve the effectiveness of the R&D system in the Czech Republic through the adoption of good practice from abroad. Teaming projects may even boost the participation and success rate in international funding schemes, most notably Horizon 2020, and internationalise the research and innovation system of the target EU member state.

Teaming projects comprise two consecutive phases. The 12-month phase 1 involves preparation of a business plan for upgrading the target R&D facility. Financial aid is provided by the European Commission. In phase 2, the actual Teaming project is implemented, using the combined funding from Horizon 2020 and from the state in which the R&D facility is established.

In the Czech Republic, funding synergies will be achieved using ESIF funds provided through the Research, Development and Education Operational Programme. These will cover infrastructure investment, equipment and, if relevant, other costs which are ineligible under Horizon 2020. To this end, a specific dedicated call will be announced. The European Commission will then provide aid from the Horizon 2020 budget for non-investment costs of relevant projects (those which succeed in the second round of evaluation).

In the first Teaming call under Horizon 2020, three projects that involved research organisations from the Czech Republic succeeded in the first round of evaluation. As Teaming is a highly exclusive scheme and less than ten projects across the EU will receive aid (in part due to their high cost), the proposals which passed in the strict first round of evaluation by the European Commission have clearly demonstrated high quality. The grants awarded for producing the business plans were relatively high (up to EUR 500,000).

In view of this fact, the Ministry of Education of the Czech Republic has taken measures to back up these projects under certain conditions in the event they do not pass the second round of evaluation. If they fail to pass there but their rating is “over the threshold” for individual criteria and their aggregate, these projects should be funded from the ESIF under the Research, Development and Education Operational Programme (the RDEOP). The purpose is to recover the investment which the European Commission has made in their business plan involving excellent foreign R&D institutions. Hence, if the above Teaming projects receive the “over the threshold” rating for individual criteria and their aggregate, and meet the evaluation criteria of the thematically relevant call under the RDEOP, they will receive aid from the Ministry of Education.

Depending on the capacity of the RDEOP, the Ministry of Education will continue to support successful Teaming projects involving Czech participants in the second Teaming call as well. Nevertheless, only those projects which succeed in both rounds of evaluation by the European Commission are expected to receive aid, due to the implementation plan of the RDEOP.

### 5.2.4 Programmes under Art. 185 initiatives

Following ERA-NET and ERA-NET Plus, the initiatives based on Article 185 of the Treaty on the Functioning of the European Union (ex Article 169 of the Treaty establishing the European Community) represent a higher level of coordination of research programmes. They integrate entire national research programmes, including their management and funding, and even generate joint calls for proposals. In order to jointly realize such an initiative, a new implementation structure must be created to deal with the responsibility for managing the joint programme and its financial matters. Under Horizon 2020, four Art. 185 initiatives are currently running (AAL2, EMPIR, Eurostars2, EDCTP2). These already existed under FP7. A fifth one, BONUS, is under preparation. The Czech Republic is only involved in Eurostras2 and EMPIR.
Upon consultation with competent stakeholders, the entry of the Czech Republic into other Art. 185 programmes will be considered:

- **AAL** (Active and Assisted Living) research programme
- **EDCTP** (European and Developing Countries Clinical Trials Partnership)
- **PRIMA** (Partnership for Research and Innovation in the Mediterranean Area, provided that it is launched by the European Commission).

When considering its participation in new R&D programmes under Horizon 2020 conducted in accordance with Article 185 of the TFEU, the Czech Republic will take into account several criteria: the interests and potential of competent stakeholders, the budget of the Ministry of Education as the funding provider, the evaluation scores of these programmes by the European Commission and the benefits of their implementation.

Among the Art. 187 TFEU initiatives, there is one which has a specific status, as it requires direct financial participation of EU member states. It is the **ECSEL** (Electronic Components and Systems for European Leadership) initiative which supports R&D projects relating to microelectronics, nanoelectronics, embedded computer systems and intelligent systems. Under this initiative, the Ministry of Education of the Czech Republic will continue to provide funding for the involvement of Czech research organisations and undertakings in relevant projects.

## 5.3 European Research Area (ERA)

The European Research Area (ERA) was established by the European Council to create a unified European environment for research and development, to improve cohesion in this area, and to improve European competitiveness with the United States and certain Asian countries. It was a response to the steadily decreasing spending on European research and development, namely private investment in research, the low attractiveness of careers in science or research, the declining or inadequate share of women in research, the insufficient use of research resources for the benefit of society, and the low mobility of European research workers. An added factor was the absence of coordinated support of large research infrastructures, which contribute to excellence of science in

Europe, and recurrent problems related to science ethics (e.g. stem cell research). The European Research Area was a step towards tackling these issues.

The ERA includes EU Framework Programmes, national policies and research programmes of EU Member States, and their coordination, as well the operation of European research organisations and their infrastructure. Framework programmes are therefore designed and launched with the objective to promote the formation and structuring of the ERA. The aim is to improve quality of life in the EU and Europe through efficient use of investment in R&D (public and private investment, and private/public partnerships – PPP), improved performance of research and development, and better research infrastructure.

Information on and documents concerning the European Research Area can be found at the European Research portal http://www.evropskyvyzkum.cz

### 5.3.1 ERA-NET PLUS

The ERA-NET and ERA-NET PLUS programmes are jointly implemented by participating countries with contributions from the EU, e.g. through harmonized work programmes, joint or coordinated calls for proposals, joint evaluation procedures and joint implementation of projects. The purpose of projects of the ERA-NET-type is to link national and regional research programmes to bring them closer, and to develop and pursue joint activities. The ERA-NET scheme was launched already as part of the 6th Framework Programme (FP) as one of the tools strengthening the coordination of national and regional research policies in the EU. In the 7th Framework Programme, the scheme continued successfully, both in the form of new ERA-NET activities, the existing ones that started in the 6th FP and as their upgraded versions on the ERA-NET Plus level. The ERA-NET scheme is now one of the tools of the Horizon 2020 programme.

The ERA-NET Plus scheme started under FP7 as a support tool for selected projects which receive an additional bonus from the European Commission to announce joint calls. ERA-NET Plus supports initiatives that deepen the collaboration in given fields through joint research programmes, and enables them to translate into initiatives within the definition of Article 185 of the Treaty on the Functioning of the European Union. As in ERA-NET projects, the eligible participants of ERA-NET Plus projects are only programme managers and programme owners. However, under this scheme, they must have already created their own research programme.

The Ministry of Education will support the participation of Czech organisations in ERA-NET Cofund partnerships (in alignment with other specific-purpose funding providers as eligible participants in these partnerships) but the emphasis in terms of budget will be laid on the Czech participation in Art. 185 and 187 TFEU initiatives and Joint Programming Initiatives, as those have the greatest degree of integration and coordination in the sphere of R&D programmes funding in the EU.

### 5.3.2 QUANTERA

QuantERA: ERA-NET Cofund in Quantum Technologies is a network of 32 agencies from 26 countries coordinated by the National Science Centre in Poland. It aims to support European research consortia involved in long-term research into quantum technologies under the ERA-NET Cofund system of the European Union. Quantum technologies have become a new and rapidly developing area of research which opens up radically new modes of quantum information processing and communication. They promise to give rise to new approaches in many fields of science and technologies by using specific quantum effects. QuantERA is supported by the European Union in the scope of FET (Future and Emerging Technologies), whose mission is to exploit the potential of an excellent European research base to gain a technological head start thanks to technological breakthroughs. QuantERA aims to unlock the widely-recognized industrial potential of quantum technologies to meet current societal needs and deliver benefits for the general public.

As with other EU-level tools, the main goal of QuantERA: ERA-NET Cofund in Quantum Technologies is to strengthen international cooperation, define a Europe-wide approach and initiate transnational co-

funding of quantum technology research. Furthermore, the network strives to support international research projects co-funded by the European Commission, boost European research, develop reliable technologies, identify new opportunities and strengthen Europe's competitive advantage and its leading position in the field. In addition, it aims to support various research facilities which can demonstrate capabilities in the most demanding novel areas of research.

QuantERA: ERA-NET Cofund in Quantum Technologies is one of the initiatives which promote excellent research in the European Research Area. In November, the European Commission issued the communication "QuantERA ERA-NET Cofund in Quantum Technologies" with detailed information on quantum technology projects (i.e., the objectives, coordinator, the countries involved and other relevant information). Countries can get involved on the basis of their preferences and capacities.

Further information can be found at this address:
http://www.msmt.cz/vyzkum-a-vyvoj-2/quantera-1

### 5.3.3 E-RARE

The Ministry of Education of the Czech Republic will take part in the joint transnational call on rare diseases under ERA-Net Cofund (E-Rare-3: 2014-2019), which will be launched by the E-Rare consortium in 2017. A rare disease, according to the EU definition, is one which affects fewer than 5 in 10,000 people. The Czech Association for Rare Diseases estimates that there are between 600 thousand and 800 thousand rare disease patients in the Czech Republic, whereas the number for the European Union is more than 30 million.

There are over 8,000 rare diseases and new ones continue to be discovered. Special healthcare is required to fight rare diseases. It is strategically desirable for healthcare policies to support this concept because knowledge sharing between research teams in Europe can provide rare disease patients with access to high-quality healthcare. The main purpose of the E-Rare initiative is to plan and publish transnational calls for this research field on a regular basis.

Further information can be found at these addresses:
http://www.msmt.cz/vyzkum-a-vyvoj-2/e-rare-3-era-net-cofund-vyzkumny-program-zamereny-na-vzacna

http://www.erare.eu/

## 5.4 European Metrology Programme for Innovation and Research (EMPIR)

The European Metrology Programme for Innovation and Research (EMPIR) was made part of the Horizon 2020 framework programme by the applicable Commission Regulation. The EMPIR programme follows on the successful European Metrology Research Programme (EMRP) under FP7. Like EMRP, EMPIR is managed by EURAMET, the European Association of National Metrology Institutes whose membership comprises metrology institutes from 28 Member Countries. EURAMET focuses on consolidating research activities in the field, preventing their overlaps, and achieving the critical mass for research progress. There is an increased focus within EMPIR on specialized modules concerning industrial research and utilisation, the support of technical standardisation, and creation of essential elements of the metrology infrastructure. On EMPIR and EURAMET, the Czech Republic is represented by the Czech Metrology Institute. Associate members are the Czech Hydrometeorological Institute, the Institute of Photonics and Electronics of the Academy of Sciences of the Czech Republic, and the Research Institute of Geodesy, Topography and Cartography.

Further information can be found at these addresses:
www.msmt.cz/vyzkum-a-vyvoj-2/empir-8b
www.h2020.cz/cs/eit-jrc-horizontalni-aktivity-euratom/souvisejici-iniciativy/clanek-185

### 5.5 EUROSTARS 2

Under this scheme, support is provided according to the rules of EUREKA programmes. Its predecessor, the EUROSTARS programme was officially announced on 2 October 2007. The EUROSTARS2 programme, part of Horizon 2020, began in 2014.

Together with other European Community programmes, it targets small and medium-sized enterprises which pursue research and development alongside their principal activity. This programme supports new projects carried out by international consortia for the benefit of small and medium enterprises collaborating among themselves of with research institutions and large companies. It aims at European SMEs, especially those with high growth potential. The purpose is to generate new market opportunities and activities based on R&D results. The programme supports new products, technologies and services to enable their fast launching.

The EUROSTARS2 programme currently associates 33 Member Countries. The Czech Republic was one of the founder states. The primary contact and information point for the EUROSTARS2 programme is the EUREKA National Programme Coordinator.

Further information can be found at these addresses:
www.eurostars-eureka.eu
www.msmt.cz/vyzkum-a-vyvoj-2/program-eurostars-2-7d

### 5.6 EURATOM

The EURATOM programme was launched for the 2014–2018 as a research programme complementary to and integrated into Horizon 2020, having a total budget of EUR 1,603 million. It sets out objectives of research and development activities and specifies their support tools. The overall aims of the programme include research into, and specialist training in continuous improvement in nuclear safety, security and radiation protection, as well as safe decarbonisation of the energy system.

Specific objectives of indirect actions focus on nine areas:

- Support of safety of nuclear systems
- Solutions for the long-term disposal of final nuclear waste
- Development and maintenance of expert knowledge
- Radiation protection and medical applications of radiation
- Demonstration of the feasibility of fusion
- Development of materials, technologies and conceptual design for future fusion power plants
- Promoting innovation and industrial competitiveness through technology transfer
- Availability and use of key research infrastructures
- European nuclear fusion programme

The nuclear-fusion portion of the programme is carried out as a co-fund action under the **European Joint Programme** by the EUROfusion consortium which brings together leading European research organisations engaged in nuclear fusion R&D and aims to develop and build a demonstration fusion power plant. The coordinator is the Max-Planck-Institut für Plasmaphysik, IPP in Garching. In the current programme period, the participation of Czech organisations in the EUROfusion consortium is supported by co-funding from the Ministry of Education of the Czech Republic. The Ministry of Education of the Czech Republic will continue to support Czech participation in the EUROfusion consortium, and therefore contribute to the European Joint Programme.

### 5.7 Joint Research Centre (JRC)

The JRC is a Directorate-General of the European Commission under the responsibility the Commissioner for Education, Culture, Youth and Sport. It consists of seven research institutions based in five Member States: Belgium, Germany, Italy, Netherlands and Spain.

The Joint Research Centre was established in 1957 to disseminate European expertise in nuclear energy. Over time, it has become an extensive, diverse and multifunctional research institute integrated into the European Commission. It is at the frontier between technology research and real-world applications of this research in Community policies. As part of preparation of FP7, new rules were developed for JRC activities. JRC pursues basic research and supports EU policies with scientific and technical consultancy. In close cooperation with the EU's Directorate-Generals, the JRC addresses major societal issues by stimulating innovation, advancing new methods, tools and standards, and sharing know-how with Member States, the scientific community and international partners. The Joint Research Centre can take part as a partner in calls for proposals for implementing its policies under Horizon 2020. Non-nuclear direct actions of the Joint Research Centre are supported with EUR 1,903 million, which equals 2.47% of the budget of Horizon 2020.

### 5.8 European Institute of Innovation and Technology (EIT)

The EU established the EIT in 2008. The Institute does not provide any project funding. It builds and co-funds a knowledge and innovation community to establish links between universities, research, and business. The EIT helps overcome structural deficiencies in the EU, which are reflected in the poor innovation performance and generation of new products, services and processes. Although the Institute currently has its own budget, the H2020 programme anticipates it will contribute to tackling EU's societal challenges.
The EIT's objective is to integrate the "knowledge triangle" of research, innovation and education, and thus strengthen the innovation capacity of the Union and seek solutions to Community challenges. The EIT concentrates on seven focus areas: transfer and use of activities in higher education, research and innovation for starting new businesses; cutting-edge research focused on innovation in areas of economic and societal interest; bringing up talented, qualified and enterprising people through education and vocational training; disseminating proven procedures and systematic knowledge sharing; the international dimension; strengthening Europe-wide impa ct through innovative funding schemes; opening European opportunities to regions. Knowledge and innovation communities, which were launched in 2010, focus on the following: climate change (Climate-KIC); sustainable energy (KIC InnoEnergy); and information and communication technologies (KIC EIT ICT Labs).
Under Horizon 2020, calls will be announced and funding provided for the following five new KICs: Innovation for healthy living and active ageing; Raw materials – sustainable exploration, extraction, processing, recycling and substitution; Food4Future – sustainable supply chain from resources to consumers; Added-value manufacturing; and Urban mobility.

### 5.9 Related initiatives

#### 5.9.1 P2Ps and Cofund

Under Horizon 2020, partnerships within the public sector (Public-Public Partnerships, P2Ps) are assisted through a new tool, the programme cofund action. The rules for participation and dissemination in Horizon 2020 define this as an action funded through a grant, the main purpose of which is supplementing individual calls or programmes funded by entities other than Union funding bodies. A programme cofund action may also include complementary activities of networking and coordination between programmes in different countries.

Further information can be found at this address:
www.era-learn.eu

#### 5.9.2 Contractual Public-Private Partnerships (cPPPs)

Together with Joint Technology Initiatives (JTIs), the contractual public-private partnerships foster cooperation between the public sector, research, and the business sector for the benefit of research, development and innovation. Eight cPPPs were launched by the European Commission on 17 December 2013, and a ninth one on 13 October 2014. Their areas are of strategic importance to

European industry. Unlike JTIs, the cPPPs do not announce their own calls. Instead, the funding – the allocated amount is no less than EUR 6 billion – is provided through the Horizon 2020 calls. Every euro from public resources is expected to be matched with 310 euros provided by the private sector for developing new technologies, products and services which secure for the European industry a leading position on global markets.

Further information can be found at this address:
www.europa.eu/rapid/press-release_MEMO-13-1159_en.htm

### 5.9.3 Joint Technology Initiatives – Institutional PPPs

Joint Technology Initiatives are one of the forms of public/private partnerships (PPPs) launched early in FP7 with strong support from the European Commission and European industry, known as institutional PPPs. They built on several industry-relevant European Technology Platforms and were the first example of industry, the research community and public authorities jointly funding ambitious common research objectives on a European scale. Joint undertakings were set up to achieve the objectives of JTIs in accordance with article 187 of the Treaty on the Functioning of the European Union (ex Article 171 of the TEC).
The JTIs continue under Horizon 2020 and bring together the needs and resources of the European Union and industry. They set out commitments, including financial commitments, over a seven-year period from both the EU and from the industry partners. They each have clear objectives and establish their own strategic research and innovation agendas, on the basis of which they fund projects evaluated and selected through calls for project proposals.

Further information can be found at this address:
www.h2020.cz/cs/eit-jrc-horizontalni-aktivity-euratom/souvisejici-iniciativy/jtis

### 5.9.4 European Technology Platforms

European Technology Platforms (ETPs) bring together key actors (industrial companies, trade associations and unions, higher education institutions and other research organisations, financial institutions, public administration bodies and user and consumer associations) in technology fields of strategic importance. Their purpose is to define and realize visions for medium-term and long-term research, development and innovation (Strategic Research and Innovation Agenda). ETPs should mobilize the research and innovation capacities of their members and other partners, and strengthen the position of their fields on both European and global markets by implementing their strategic research agenda. European Technology Platforms play a role in the functioning of the European Commission as well, as part of the external advice and societal engagement needed to implement Horizon 2020. ETP members establish consortia and develop project proposals to be submitted to H2020, which is why active participation is crucial for the relevant Czech institutions and organisations.

Further information can be found at this address:
https://ec.europa.eu/research/innovation-union/index.cfm?pg=etp

### 5.9.5 European Innovation Partnerships

European Innovation Partnerships (EIPs) are a new approach to research and innovation identified by the EU in one of the flagship initiatives of the Europe 2020 strategy – the Innovation Union. EIPs are not a new programme or tool but joint platforms for partnership and cooperation, focusing on key tasks in areas which are crucial to the economic growth of Europe. Their primary objectives are to define joint tasks, coordinate activities across sectors and policies, link European and national levels, strengthen private/public sector collaboration, eliminate persistent hurdles from innovation and research processes, and accelerate the uptake of innovative ideas by the market. EIPs streamline, coordinate, encompass and complement existing tools and initiatives, wherever relevant. Funding for EIPs is provided from public resources, typically through grants from running programmes at European, national or regional levels. The private sector contributes to these partnerships as well.

An important aspect of EIPs is the coordination between member states to prevent duplicating efforts and facilitate effective use of funds. In essence, EIPs are a coordination rather than a financial facility, as they do not provide new funding for research and innovation activities. The EU framework programme for research and innovation Horizon 2020 (2014–2020) comprises the following EIPs:

**EIP on Active & Healthy Ageing**
EIP on Active & Healthy Ageing ("EIP on AHA") focuses on Europe's one of the most pressing societal challenges: the ageing of its population. It links various activities related to healthy and active ageing and independent living of EU citizens, development and production of relevant products and efforts that aim to improve the efficiency and sustainability of social and healthcare systems. An important aspect is strengthening the competitiveness of European industry through business and expansion to new markets.

**EIP on Agricultural Sustainability and Productivity**
EIP on Agricultural Sustainability and Productivity ("EIP-AGRI") strives to make European agricultural and forestry sectors competitive and sustainable. Its goal is to secure stable supply of foodstuffs, animal fodder and existing and new biomaterials. It also focuses on sustainable and environmentally sound management of basic natural resources for crop growing. To meet its goals EIP-AGRI strengthens the links between the research and production sectors (farmers, food processing plants, consultancy and non-profit organisations).

**EIP on Smart Cities and Communities**
The aim of EIP on Smart Cities and Communities ("EIP-SCC") is to provide innovative answers to environmental, societal and health challenges faced by today's cities. It relies on the interaction between information and communication technologies, advanced transport management and environmentally-sound energy management. EIP-SCC strives to remove barriers to the creation of "smart cities", facilitate co-funding of pilots and coordinate existing initiatives by promoting sharing of funding resources.

**EIP on Water**
EIP on Water supports innovative solutions to major European and global water management challenges. It also strives to market the resulting innovation within and outside the EU. To this end, the partnership initiates and stimulates collaboration between public and private sectors, non-government organisations and the general public. It establishes new action and working groups to achieve its purposes.

**EIP on Raw Materials**
EIP on Raw Materials reflects two flagship initiatives of the European Commission: "Innovation Union" and "Resource Efficient Europe". Its aim is to help raise industry's contribution to the EU GDP to around 20% by 2020. As part of this ambition, it should also lead to reduced Europe's dependence on raw material imports, stimulate European production and exports, make Europe one of the leading players in raw materials worldwide, and reduce the impacts on the environment and society.

Further information can be found at this address:
https://ec.europa.eu/research/innovation-union/index.cfm?pg=eip

### 5.9.6 Joint Programming

Joint Programming is based on voluntary partnership between EU member states and associated countries and aims to define and carry out joint strategic research and development to address the grand societal challenges. As with other EU-wide tools, the purpose of Joint Programming is to coordinate existing national research and development programmes or establish new ones for all participating countries to share knowledge and experience and effectively coordinate the use of national aid. Selection of optimal tools and monitoring, implementation and evaluation of research programmes take place at the joint level as well.

As one of the initiatives that bring to life the European Research Area, Joint Programming involves both basic and applied research and development. It takes place under 10 initiatives which are open to all EU member states based on their preferences. Primarily, Joint Programming should lead to coordination of existing research budget funds allocated by EU member states to grand societal challenges. It may also involve establishment of new international R&D programmes to integrate the budget funds of EU member states. The underlying motive of Joint Programming is to prevent duplication and/or fragmentation of the efforts of EU member states and their research organisations in addressing the grand societal challenges.

The Czech Republic acts a member or observer in five initiatives of Joint Programming:

- Neurodegenerative Disease Research
- Agriculture, Food Security and Climate Change
- A Healthy Diet for a Healthy Life
- Cultural Heritage
- Antimicrobial Resistance

Further information can be found at this address:
http://www.msmt.cz/vyzkum-a-vyvoj-2/spolecne-programovani-1-1

### 5.10 European Research Council - ERC

The European Research Council (ERC) was founded to support investigator-driven frontier research.

The main objective of the ERC is to stimulate scientific excellence by supporting the best, truly creative scientists. Scientists are motivated to push the current boundaries of knowledge and limits of scientific disciplines. The ERC complements other EU funding schemes (established as part of FP7 and continuing under Horizon 2020), such as national research-funding agencies, and is a flagship of the Ideas programme of FP7. The ERC follows the bottom-up approach in selecting its projects, and therefore enables researchers to identify new opportunities and directions in science disciplines of their interest.

ERC grants are awarded in open competitions to projects led by early-stage as well as experienced scientists, regardless of their nationality, who either work in Europe or are about to relocate to Europe. The only criterion for selection is scientific excellence.

More information, including contacts, can be found at:
http://erc.europa.eu

### 5.11 European Programme for the Competitiveness of Enterprises and SMEs (COSME)

This multi-year programme of Competitiveness of Enterprises and Small and Medium-Sized Enterprises 2014–2020 is a European Community scheme. Its focus areas include: simpler access to financing for small and medium-sized enterprises, easier creation and development of enterprises, business education in Europe, strengthening the competitiveness of European companies in the long term, and supporting the internationalisation of small and medium-sized enterprises and their access to foreign markets. COSME complements both Horizon 2020 and the Cohesion Policy of the EU, where the latter is supported from the Structural Funds under national Operational Programmes in Member States.

The programme was allocated EUR 2.5 billion for the 2014–2020 period, and is expected to contribute more than EUR 1 billion to the European GDP every year.

More information about the programmes, including contacts, can be found at the following addresses:
https://www.mpo.cz/cz/podnikani/dotace-a-podpora-podnikani/programy-eu-na-podporu-msp/cosme/program-pro-konkurenceschopnost-podniku-a-malych-a-strednich-podniku-2014-2020-cosme--146656/
http://ec.europa.eu/cip/index_en.htm

www.enterprise-europe-network.cz
https://ec.europa.eu/growth/smes/cosme_cs

### 5.12 The Research Fund for Coal and Steel – RFCS

When the Czech Republic joined the European Union, it also became a member of what used to be the European Coal and Steel Community. The revenues generated from the assets of the European Coal and Steel Community (established by the 1952 Treaty for a period of 50 years, which expired on 23 July 2002) were gradually transferred to the European Union and are used to support activities under the RFCS research programme. The administrator of the Czech membership is the Ministry of Industry and Trade and the co-administrator is the Ministry of Education. The Research Fund for Coal and Steel funds projects conducted by all types of undertakings, as well as research organisations. Grants are awarded for research, pilot and demonstration projects outside the EU Framework Programmes.

The main objective of the programme is to support competitiveness of the coal and steel-related sectors. Its priorities in the coal section include strengthening the EU's competitive position, the health and safety in mines, and better use of coal as a clean source of energy. A total of 12 Coal and Steel Technical Groups have been formed to monitor and evaluate projects; three of them focus on coal. The European Commission administers the remaining assets of the European Coal and Steel Community and uses the annual interest to fund RFCS research projects. This amounts to approximately EUR 55 million a year.

The Research Fund co-finances successful project proposals from its budget in the following proportions: 27.8% for coal and 78.2% for steel. The RFCS co-funding potential in coal-related projects is not fully used by the organisations in the Czech Republic.

Applicants for funding are mostly SMEs, undertakings, and research institutes. They may come from the former ECSC countries (European Coal and Steel Community), from candidate countries, or even from third countries, on condition that they meet the programme objectives. The applicants' activities need not be directly related to coal and steel, but their research and technical development plans must be in accord with the programme.

The programme supports research work that leads to streamlined production, provided that the equipment to be installed as part of the effort is adequately sophisticated.

For research projects, the maximum financial contribution is 60% of the eligible costs. For pilot and demonstration projects, it is 40%, and for accompanying measures and preparation activities it is 100% of the eligible costs. The public grant may only be used for the purpose and activities specified in the contract, and only to cover the necessary costs related to the project. The programme's typical annual budget is about € 53 million. The call for proposals is continuous, with an annual deadline on 15 September.

The conformity of each proposal's objectives with the interests of the EU is examined. The preferred proposals are those characterized by coordinated interaction, complementarity, and synergies between various research programmes, and by information exchange between projects funded from this programme, FP7, and Horizon 2020.

More information about the programme, including contacts, can be found at the following addresses:
http://ec.europa.eu/research/industrial_technologies

### 5.13 Copernicus

Copernicus (formerly GMES) is a European programme for monitoring the environment and security situation in order to deliver early and accurate information for decision-making. It represents the Europe's own capacity for monitoring the Earth, and is considered the European contribution to the GEOSS system. It provides its users with free, full and open access to data and information. Its initial

stage in 2011–2013 involved the preparation of the programme's data policy. In 2014, Copernicus became fully operational.

Copernicus and its service components are coordinated by the European Commission. Its Space Component is the joint responsibility of the European Space Agency (ESA) and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT). The In Situ Component is coordinated by the European Environment Agency. Separate Copernicus services are delivered by authorized European institutions in cooperation with the European Commission.

In 2014–2020, public tenders, mainly for construction of infrastructure, are announced by the European Commission and the European Space Agency. Applicable conditions are set out in each case in the call for tenders. Small-scale projects can receive additional funding from Horizon 2020 as part of the Industrial Leadership – Space section (for data utilisation, COPERNICUS applications, and other topics). Eligible applicants include entities from EU Member States (in public tenders announced by the European Commission), and ESA Member States (in public tenders announced by the ESA). The participation in Horizon 2020 projects is governed by the rules of this programme. The COPERNICUS programme was approved for the 2014–2020 period with a budget of EUR 4.3 billion.

More information about the programme, including contacts, can be found at the following addresses:
http://copernicus.gov.cz/
http://copernicus.eu

## 6. INTERNATIONAL COOPERATION

In the Czech government, the department responsible for international cooperation in research and development is the Ministry of Education. International cooperation in research and development follows a long-term strategy. Its basis and the key part are joint research and development projects and participation in international multilateral projects or activities. Some bilateral cooperation agreements are limited to researcher mobility. Details of such arrangements are described below with reference to individual countries.
In the Czech Republic, the legal framework for bilateral cooperation in R&D comprises three types of agreements: those on cooperation in science and technology, the cultural agreements, and the agreements on economic, industrial and science and technology cooperation. The first are negotiated by the Ministry of Education. The second are the joint responsibility of the Ministry of Education, the Ministry of Culture, and the Ministry of Foreign Affairs. The last-named agreements are prepared by the Ministry of Education, and the Ministry of Industry and Trade.

International mobility in the Czech Republic is facilitated by EURAXESS, a network of centres coordinated by the Centre of Administration and Operations of the AS CR with long-term financial support from the Ministry of Education. The network offers comprehensive information services regarding international mobility to foreign and Czech researchers (and their families).

### 6.1 INTER-EXCELLENCE Programme

Previous aid programmes are now integrated into an umbrella programme entitled INTER-EXCELLENCE.

The programme stimulates international collaboration in R&D and participation of Czech entities in European and global research networks. It aims to promote the participation of Czech facilities in European collaborative projects and the cooperation with non-EU countries. For Czech research teams, it should facilitate access to international knowledge, findings and skills.

It supersedes multiple programmes of international collaboration in R&D administered by the Ministry of Education of the Czech Republic (COST CZ, EUPRO II, EUREKA CZ, INGO II, CONTACT II and GESHER / MOST) which end in the 2016–2017 period. The new INTER-EXCELLENCE programme seamlessly follows on from these projects and provides financial aid for the period from 2016 to 2024.

It comprises six interactive sub-programmes grouped into three logical units aimed at fulfilling three complementary and interrelated objectives.

- Objective 1: Advancement of international bilateral and multilateral collaboration in research and development
- Objective 2: Provision of services for participation of the Czech Republic in the ERA and other multilateral activities through indirect support for research and development
- Objective 3: Engagement of Czech entities in applied research under the EUREKA international programme

The sub-programmes INTER-A(CTION), INTER-C(OST) and INTER-T(RANSFER) associated with OBJECTIVE 1, which replace the programmes CONTACT II, GESHER/MOST, COST CZ and the sub-programme INFRA of the programme INGO II, are intended to help Czech research facilities join international projects carried out by foreign centres of excellence, engage in the European programme COST, and develop their collaboration with EU member and non-member states on the basis of bilateral intergovernmental or interdepartmental agreements.
The sub-programmes INTER-I(NFORM) and INTER-V(ECTOR) associated with OBJECTIVE 2, which supersede the EUPRO II programme and the POPLATEK sub-programme of INGO II programme, promote the accessibility of strategic information, and other activities related to the integration of Czech research organisations into international research and development initiatives or organisations.
The sub-programme INTER-E(UREKA) associated with OBJECTIVE 3, which supersedes EUREKA CZ, helps those Czech enterprises which engage in research and development to join the international

EUREKA programme, supports the links between Czech research facilities and international entities, and thus promotes the production of high-quality R&D results with industrial and service potential. The purpose of the programme is to advance and strengthen Czech research and development efforts via international collaboration, achieve synergies through combination with other aid mechanisms, leverage the supported activities and establish effective links with the international research community.
The programme is a tool for strategic focusing of international collaboration aid. It stimulates international collaboration in R&D and participation of Czech entities in European and worldwide research networks. It aims to promote the participation of Czech facilities in European collaborative projects and the cooperation with non-EU countries. For Czech research teams, it should facilitate access to international knowledge, findings and skills. By laying emphasis on strengthening international collaboration, the programme will help improve the quality of research and development output and establish effective links between the research in priority areas in the Czech Republic and the international activities.

The programme period is 2016–2024 and its projects should be no longer than five years. Over this period, the funding provider will launch several public tenders for research, development and innovation (PTRDI) under individual sub-programmes or their combinations. In addition, some projects may be chosen for funding by international bodies.

State budget expenditure by sub-programmes and years (mil. CZK)

| | ACTION | COST | TRANSFER | INFORM | VECTOR | EUREKA | Total |
|---|---|---|---|---|---|---|---|
| 2017 | 96 | 43 | 34 | 26 | 2 | 39 | 240 |
| 2018 | 200 | 94 | 84 | 57 | 6 | 84 | 525 |
| 2019 | 301 | 141 | 127 | 86 | 8 | 127 | 790 |
| 2020 | 355 | 166 | 150 | 101 | 9 | 149 | 930 |
| 2021 | 355 | 166 | 150 | 101 | 9 | 149 | 930 |
| 2022 | 301 | 141 | 127 | 86 | 8 | 127 | 790 |
| 2023 | 200 | 94 | 84 | 57 | 5 | 85 | 525 |
| 2024 | 92 | 45 | 44 | 26 | 3 | 40 | 250 |
| Total | 1,900 | 890 | 800 | 540 | 50 | 800 | 4,980 |

Under the programme, PTRDIs will normally take place in the 1st or 2nd (or 3rd if needed) quarter of the calendar year. Their results will normally be announced and contracts with aid beneficiaries will be entered into during the 4th quarter of the same year. The aid will be released in the 1st quarter of the next calendar year. This does not apply to PTRDIs under INTER-A(CTION) whose times will depend on agreements with partner countries. The aid has the form of specific-purpose grants.

According to budget rules, these grants must be used for the specified purpose in the calendar year in which they were awarded. The schedule therefore complies with current budget rules. At least one PTRDI is announced in each sub-programme every year. (INTER-E(UREKA) is an exception where projects are selected by international bodies and no public tenders are announced.) Up to four PTRDIs may take place under INTER-A(CTION) and up to two public tenders in all other sub-programmes (except INTER-E(UREKA)). Across the entire programme, the funding provider may therefore carry out up to 12 public tenders for research, development and innovation, which makes 72 PTRDIs over the whole programme period.

Maximum amounts of aid in individual research and development categories and sub-programmes

| | ACTION | COST | EUREKA | TRANSFER |
|---|---|---|---|---|
| Fundamental research | 100% | 100% | | 100% |
| Industrial research – research organisation | 100% | 100% | 50% | |
| Industrial research – undertaking | 50% | 50% | 50% | |
| Experimental development – research organisation | 100% | 100% | 25% | |
| Experimental development – undertaking | 25% | 25% | 25% | |

More information can be found at: www.msmt.cz/vyzkum-a-vyvoj-2/inter-excellence

**6.1.1 INTER-(A)CTION sub-programme**

Successor to CONTACT II and GESHER/BRIDGE programmes
The programme supports the collaboration between Czech research facilities and their partner sites in relevant countries with which an agreement or another implementation document, such as a bilateral intergovernmental or interdepartmental agreement for research and development has been made. The list of these countries valid on the date of the announcement of the PTRDI shall apply.
The Czech Republic has entered into bilateral intergovernmental or interdepartmental agreements for collaboration in research and development with several prominent non-EU countries. Without direct support, such bilateral collaboration would be no more than an empty proclamation, which would hamper the advancement of research and development as well as the bilateral relations. The motivation is to exploit the potential for collaboration with natural partners of the Czech Republic, i.e. those countries within and outside the EU with certain links to the Czech Republic's location, cultural background and traditions.

Similar financially-based aid mechanisms for joint projects of international cooperation in research and development can also be found in neighbouring states. The need for such schemes arose with the evolution of the ERA (European Research Area) and internationalisation of research and development involving third countries (outside the ERA). In such cases, bilateral cooperation is built on international agreements (much like in the Czech Republic). Funding providers from each country typically reimburse only the costs of entities which are based in their country. They coordinate the public tenders in order to prevent difficulties which the aid beneficiaries might face when allocating and coordinating their research activities under the joint project. Some aid mechanisms involve direct funding for registered joint projects, others require the participants to apply for aid with national agencies which provide funding for research and development. In some schemes, state-owned or public research organisations cover the costs of joint research with foreign partners from the funding provided by their home state as institutional funding (i.e. from their own operational funding). Typically, in those schemes, no additional grants are obtained from central resources for such projects (specific-purpose funding).

Good examples of aid programmes for bilateral or multilateral international cooperation with third countries which may serve as models for creating an analogous scheme in the Czech Republic are those in the Swiss Confederation or those administered by the Danish Council for Strategic Research.

The bilateral programmes of the Swiss Confederation focus on supporting and strengthening scientific cooperation with Brazil, China, India, Russia, the South African Republic and South Korea. Typical projects under those programmes last three years. The grants cover procurement of equipment and operating costs arising from research activities, including salaries. Most public tenders aim at research themes which are seen as priorities by both countries.

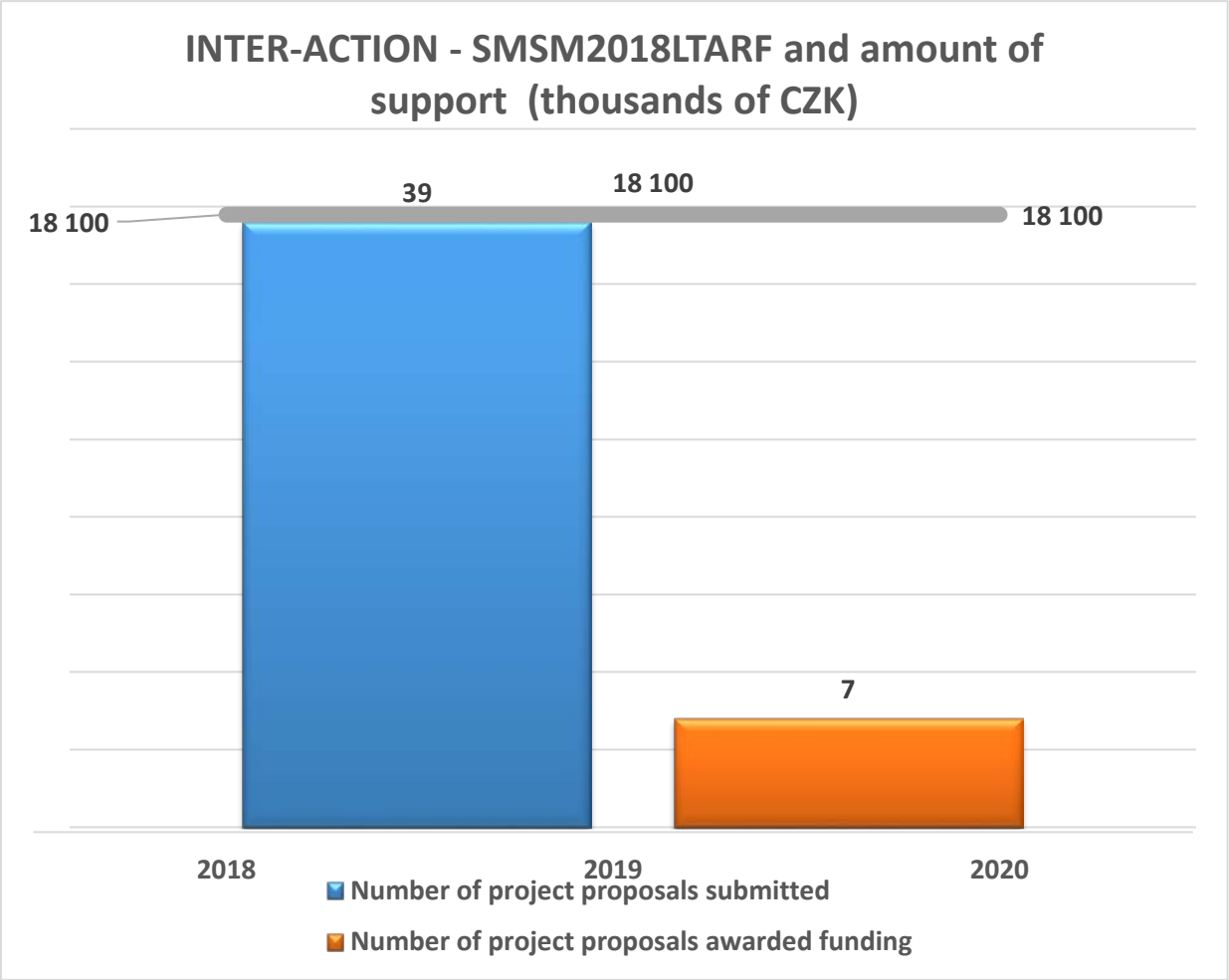
The Danish Council for Strategic Research has entered into bilateral agreements for support of science and research in selected disciplines with China, Brazil, India and South Korea.

From the viewpoint of the Czech Republic, balanced support across all partner states is important because aid must be provided to projects from all countries where an agreement for collaboration in research and development was activated by either party.

INTER-A(CTION) is expected to improve the competitiveness of Czech research facilities by strengthening international collaboration, mainly with countries outside the EU.

Applicant entities may include small, medium or large enterprises based in the Czech Republic engaged in research.

Several public tenders have already taken place. In the last one, CZK 54 million was distributed among projects, most of which had a 3-year duration.




*Source: Research, Development and Innovation Information System*

### 6.1.2 INTER-(C)OST sub-programme

The sub-programme supports the participation of Czech research teams in the COST multilateral European collaboration platform in the field of basic or applied research. It may involve new actions (themes selected for aid by COST bodies) proposed by Czech teams, or joining existing actions (themes) proposed by other research teams.
The Czech research and development continues to be very isolated. Every opportunity should therefore be used to connect it with the international community and developments. INTER-C(OST) directly follows on from the international programme COST.

COST offers a platform for interaction and exchange of information between scientists from COST member countries and cooperating states. INTER-C(OST) supports projects arising from the COST programme.

Methods of funding national COST projects differ in member countries (which need not be EU members). The participants may submit their applications to national funding providers (in the UK it is

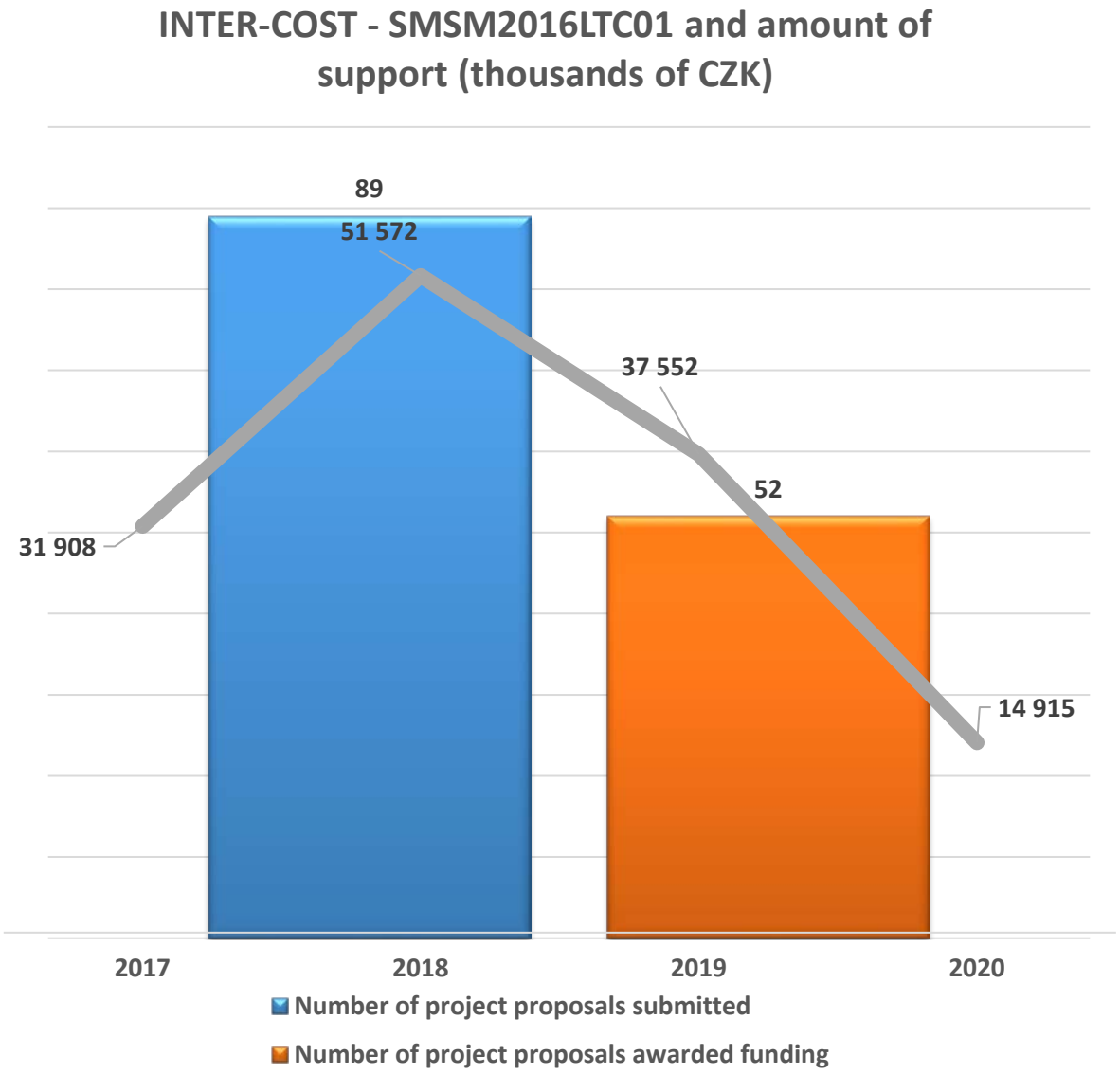
the Engineering and Physical Sciences Research Council; in Turkey it is the Scientific and Technological Research Council of Turkey). The amounts of aid vary as well, depending on the budget and priorities of the particular COST programme (up to EUR 155,000 per project in Turkey and EUR 177,000 in Switzerland). The Benelux Union, Scandinavian countries, Germany and Israel maintain a joint science fund which supports both national and international activities.

Schemes that combine the international support of networking activities and national support in the form of funding for research and development initiated by personal contact and exchange of information deliver effective synergies. The COST international programme is expected to help gradually break Czech research and development from its isolation and broaden international cooperation through contacts with notable European research facilities. The INTER-C(OST) sub-programme is expected to support the participation of Czech researchers and facilities in international projects and programmes, such as the H2020.

Participation in COST is a prerequisite for taking part in this sub-programme.

Applicant entities may include research organisations and small and medium enterprises based in the Czech Republic that are engaged in research.

Two public tenders have already taken place. In the last one, CZK 136 million was distributed among projects planned for up to four years.




*Source: Research, Development and Innovation Information System*

### 6.1.3 INTER-(T)RANSFER sub-programme

This sub-programme's objective is to support the participation of Czech scientists in international research and development projects. To this end, the sub-programme facilitates Czech scientists' membership in leading international research teams or in projects based in foreign research centres, international organisations and government institutions. This includes cases where applicants are eligible to become members, as well as cases where participation has not yet been enabled by the membership of and membership fees paid by the Czech Republic.

Highly-specialized centres of excellence exist and continue to be established to offer unique and expensive cutting-edge instruments, which are typically funded via contributions from member countries/founding members. The centres attract scientists from across the globe who build international research teams which in turn make these exclusive centres even stronger and more exceptional.

The Czech Republic pays membership fees in the form of contributions towards sustainability of some international organisations/government institutions which run centres of excellence. These fees are a precondition for the participation of Czech scientists.

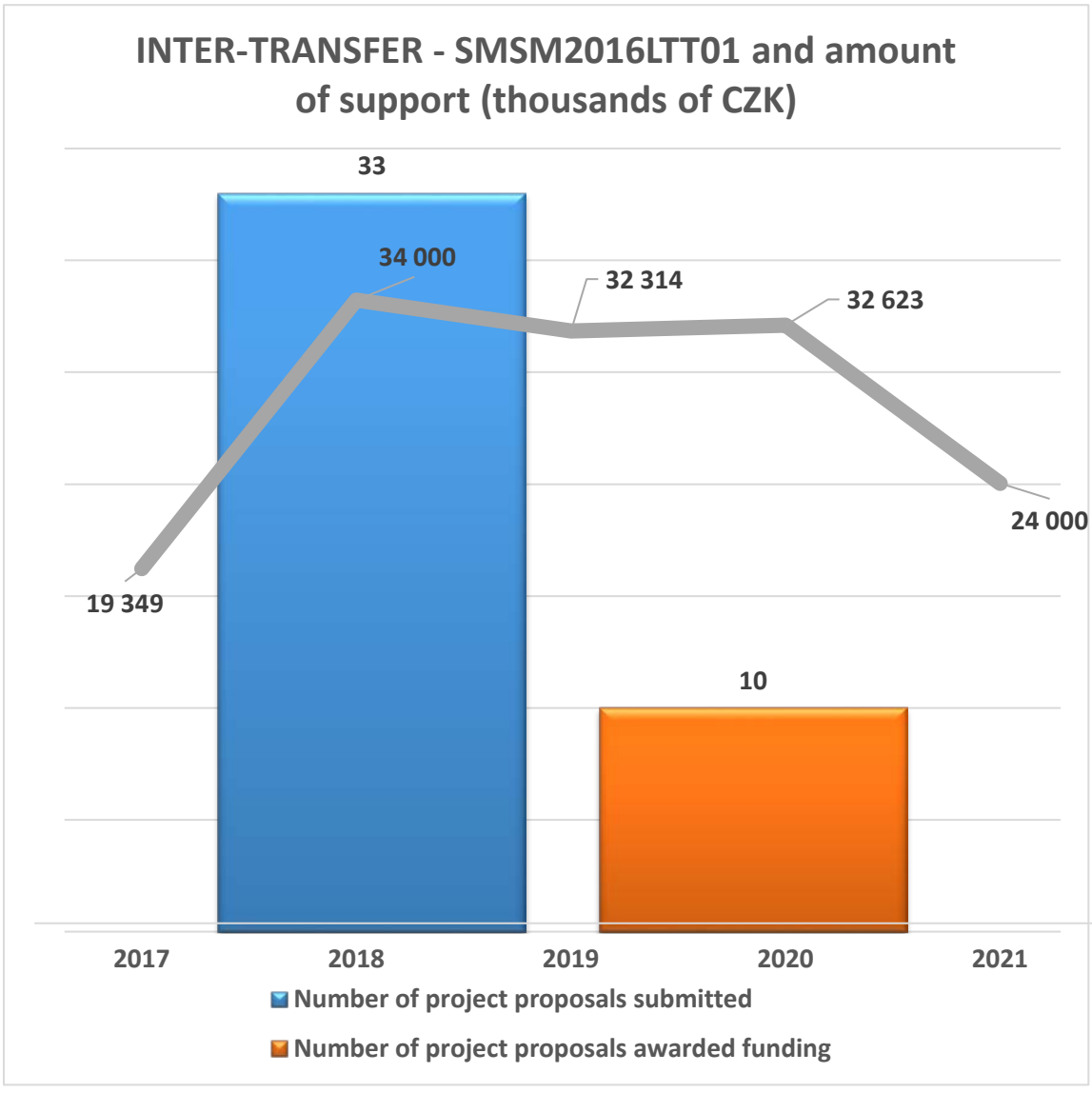
This kind of potential must not be wasted. The access of Czech researchers to these outstanding facilities (in terms of both equipment and human resources) must be supported in cases where applicants are eligible to become members, as well as in cases where participation has not yet been enabled by the membership of them and membership fees paid by the Czech Republic.

The expected outcomes of INTER-T(RANSFER) include the professional growth and development of Czech scientists through gathering international experience, and increased research output in the form of scientific knowledge and measurable results.

INTER-T(RANSFER) delivers synergies mainly with INTER-V(ECTOR).

The applicant entity must be a research organisation.

Two public tenders have already taken place. In the last one, CZK 142 million was distributed among projects planned for up to five years.




*Source: Research, Development and Innovation Information System*

### 6.1.4 The INTER-(I)NFORM sub-programme

The sub-programme supports the creation and sustainability of information networks and services in research and development in order to expand the participation of Czech research facilities in international research and development programmes.

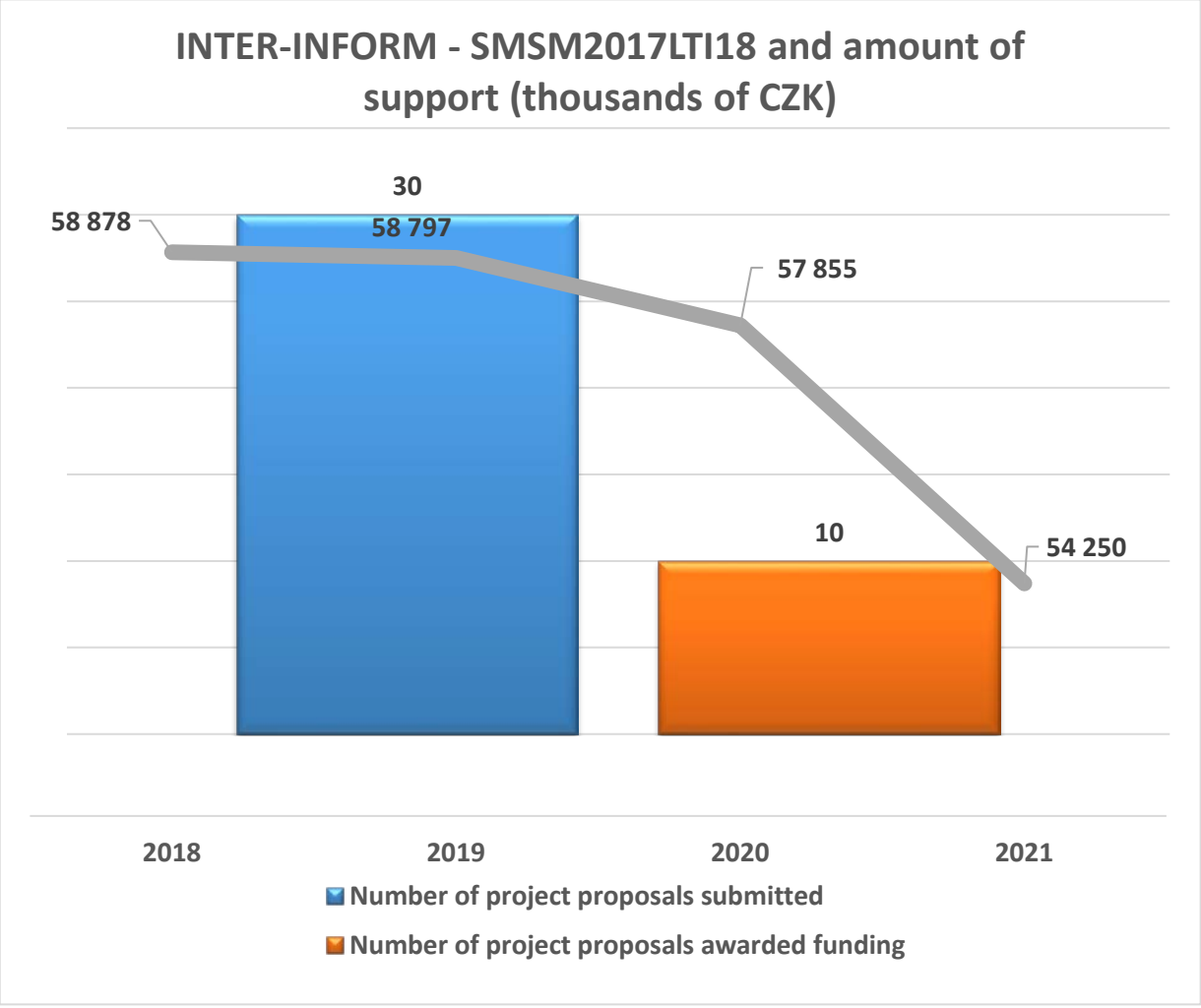
In terms of the use of funds from framework programmes, the Czech Republic is one of the less successful EU countries. The level of internationalisation of research at both national and institutional levels is insufficient. In order to change this, the existing information transfer infrastructure must be mobilised and broader service support must be provided to Czech entities to facilitate their engagement in the activities of international research teams and international cooperation in general.

The sub-programme will help disseminate information about available international aid programmes, provide consultancy, and thus facilitate the funding of research projects which promise to succeed in the international competition for limited funds.

INTER-I(NFORM) is expected to increase the engagement of Czech research facilities in international R&D programmes and their success in obtaining funding and producing high-quality research output.

Eligible applicant entities are research organisations; the aid intensity may reach 100%.

Two public tenders have already taken place. In the last one, CZK 230 million was distributed among projects planned for up to four years.




*Source: Research, Development and Innovation Information System*

### 6.1.5 The INTER-(V)ECTOR sub-programme

This sub-programme aims to strengthen the active role of Czech researchers in the managing authorities of leading international non-governmental organisations engaged in research and development.

The voice of the Czech scientific community in these bodies does not reflect its capacity and potential. As a result, the country lacks the opportunity to steer the development of science and research on an international scale.

Other countries are active in this respect as well, funding their efforts to secure their representation in the managing authorities of international institutions where the environment is considerably more competitive than on the national scene. Typically, institutional and specific-purpose funding are combined for this purpose (e.g. the sending institution meets the costs of its employees using funds for science and research provided from the central budget). Not all countries, however, have established special programmes to this end. The Czech Republic has decided to do so and has included the programme in the national aid system in order to standardize the decision-making rules regarding the participation of Czech representatives in individual projects, to conduct periodic reviews of the funded projects and to simplify the evaluation of their quality and outcomes.

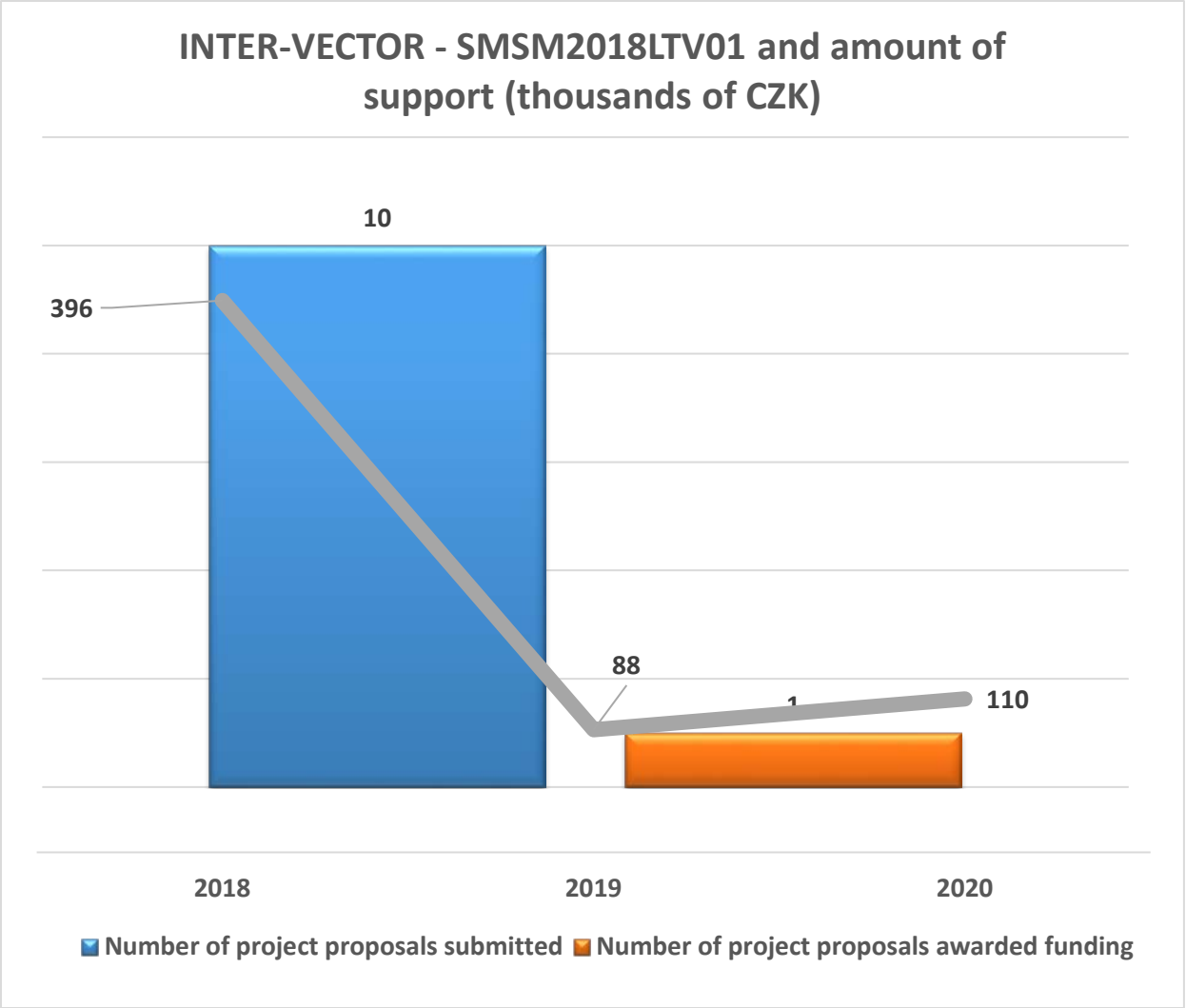
The funding that aims to strengthen the role of Czech researchers in the managing authorities of leading international non-governmental organisation engaged in research and development will contribute to the potential for shaping the decisions and strategic plans on an international scale by Czech scientists.

INTER-V(ECTOR) is expected to strengthen the Czech representation, the ties between Czech and foreign research communities and the awareness and prestige of Czech science.

INTER-V(VECTOR) exhibits synergies mainly with INTER-T(RANSFER).

Eligible applicant entities are research organisations; the aid intensity may reach 100%.

Two public tenders have already taken place. In the last one, CZK 0.6 million was awarded to one three-year project.




*Source: Research, Development and Innovation Information System*

### 6.1.6 The INTER-(E)UREKA sub-programme

This sub-programme supports international cooperation between industrial companies and research organisations, building on the EUREKA international programme.

In terms of labour productivity growth, Czech industry lags behind other countries of the former Eastern Bloc. At the same time, the gap between labour productivity growth in Western Europe and Central and Eastern European countries keeps widening.

To counter these undesirable trends, the collaboration between industry and research organisations/higher education institutions needs to be improved, together with the attractiveness of the Czech Republic to investors, while the country must offer qualified labour force available for developing high-added-value industry sectors. Synergistic effects can be achieved by applied research collaboration between Czech companies, namely small and medium-sized enterprises, Czech research organisations and foreign partners. INTER-E(UREKA) directly builds on the EUREKA international programme.

EUREKA promotes closer relationships between industrial companies of all sizes and research organisations by labelling selected projects with the “EUREKA status”, a “quality label” which enables proposers to apply for co-funding from public specific-purpose funds in their home countries. Co-funding EUREKA projects is a necessary precondition for a country to become a member of EUREKA. Every member state defines its own methods and financial aid rules for supporting its investigator entities

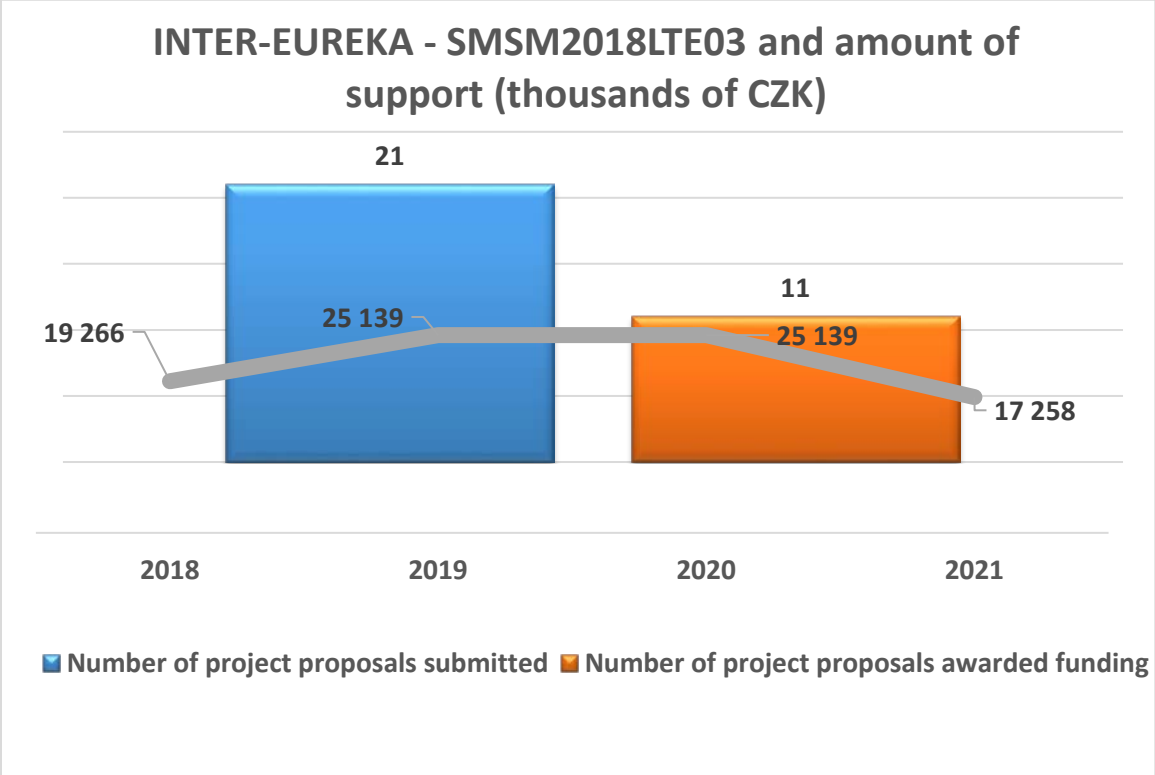
under the programme, depending on their national priorities and available budget.

INTER-E(UREKA) is expected to boost the research and development output in the form of patents, utility designs and equivalent results of applied research, where the Czech Republic lags behind the rest of Europe.

Participation in EUREKA and the award of the “EUREKA status” is a necessary precondition for participating in the sub-programme.

Eligible applicant entities include small, medium-sized and large enterprises based in the Czech Republic and engaged in research. Research organisations may join as additional participants.

Four national calls have taken place. In the last one, CZK 89 million was distributed among projects planned for up to four years.




*Source: Research, Development and Innovation Information System*

### 6.2 Large infrastructures for research, development and innovation

The operation of excellent research infrastructures in the EU was identified in the previous period as one of the key preconditions for effective growth of R&D, the competitiveness of national research and innovation systems in EU countries, and the European Research Area and European economy. Addressing today’s increasingly technologically complex and intricate socio-economic challenges becomes more feasible when expertise is shared across research infrastructures coordinated on an international scale.

“Research infrastructure” means facilities, resources and related services that are used by the scientific community to conduct research in their respective fields and covers scientific equipment or set of instruments, knowledge-based resources such as collections, archives or structured scientific information, enabling information and communication technology-based infrastructures such as grid, computing, software and communication, or any other entity of a unique nature essential for conducting research. Such infrastructures may be 'single-sited' or 'distributed' (an organised network of resources). Czech legislation specifies the large research infrastructure as “a research facility necessary for

comprehensive and financially and technologically-intensive research and development activities as approved by the government, which is established for use by other research organisations."

When research infrastructures are operated within an integrated international space – in accordance with principles of the open access policy – their users can achieve results which they might not be able to produce as individual actors in their home institutions. In this respect, research infrastructures contribute to the effective use of public spending on R&D, and prevent fragmentation and duplication of the efforts of isolated research organisations. Users or international research infrastructures gain access to state-of-the-art equipment, instruments and expertise for excellent R&D.

Over recent years, the Czech Republic has recognized the increasing importance of research infrastructures to its national research and innovation system and has taken a number of steps to facilitate their building, operation, funding, development and integration into international structures.

In the previous period, the operation of large research infrastructures was supported with funds from the state budget of the CR. In addition, equipment upgrade and establishment of new infrastructures has been carried out using large investments from EU Structural Funds. This involved the Operational Programme Prague – Competitiveness. In the current programme period, investment in large research infrastructures will be funded from the ESIF through the Operational Programme Research, Development and Education (RDEOP) and within its focus and limits. Operating costs will be met from the state budget for RDI.

The Ministry of Education of the Czech Republic is working towards integration of large research infrastructures into international structures, both in the EU and outside the ERA.

In legal terms, the increased emphasis on pan-European research infrastructures led in 2009 to the creation of a new EU legal framework defining special management principles and funding methods. A new type of legal person was defined – **European Research Infrastructure Consortium (ERIC)** – which offers various flexible management models for pan-European research infrastructures and exemption from value added tax for their operators. The ERIC is set up by a decision of the European Commission upon an application by potential ERIC member states. ERIC members may include states and international organisations. Besides the legal framework for establishment, ERIC differs from international organisations in the way their member states contribute to the operating and investment costs of the research infrastructure.

Whereas the only obligation of a member state of an international organisation established according to international public law is typically the payment of a mandatory contribution, the obligations of ERIC member states may take various forms. The contribution to the operation of ERIC may take the form of a mandatory membership fee, a contribution to direct operating or investment costs, activities involving operation of part of the research infrastructure (e.g. a national "node" of a distributed research infrastructure) or a combination of the above, and may be provided in-cash or in-kind.

The ERIC framework is beneficial in that the ERIC legal person, while a legal person is a typical necessary precondition for international research infrastructures, is simpler to set up than international R&D organisations governed by international public law.

In the previous period, the Czech Republic has become a member state of 8 ERIC infrastructures.

- **BBMRI** (*Bio-banking and Bio-molecular Resources Research Infrastructure*);
- **CERIC** (*Central European Research Infrastructure Consortium*);
- **CLARIN** (*Common Language Resources and Technology Infrastructure*);
- **EATRIS** (*European Infrastructure for Transitional Medicine*);
- **ESS** (*European Spallation Source*);
- **ESS Survey** (*European Social Survey*);

- **ICOS** (*Integrated Carbon Observation System*);
- **SHARE** (*Survey of Health, Ageing and Retirement in Europe*).

The Ministry of Education will continue to support the integration of large research infrastructures of the Czech Republic into international research infrastructure organised according to the ERIC framework. The Czech Republic is expected to join new ERIC structures that involve those pan-European research infrastructures to which the Czech ones have been contributing on a long term basis in terms of funding or important capacities.

The competent decision-making body is the Ministry of Education (which is responsible for international collaboration in R&D and large research infrastructures). In the process, the MEYS will continue to take into account the outcomes of international evaluation of the Czech large research infrastructure which is to join the pan-European infrastructure. The Ministry will only accept the obligation if funding is allocated to the infrastructure by a resolution of Czech government.

Similarly, large research infrastructures in the Czech Republic funded by MEYS join other international research infrastructures established according to national regulations. The Czech infrastructures contribute to their development and provide the access to their capacities or to the capacities of their Czech regional partners. The Ministry of Education of the Czech Republic financially supports direct engagement of Czech large research infrastructures in international large research infrastructures. Those include, for instance:

- **BNL** *(Brookhaven National Laboratory – United States of America)*;
- **CTA** *(Cherenkov Telescope Array – Chile, Spain)*;
- **FAIR** *(Facility for Antiproton and Ion Research – Germany)*;
- **Fermilab** *(Fermi National Accelerator Laboratory – United States of America)*;
- **ILL** *(Institut Laue-Langevin – France)*;
- **JHR** *(Jules Horowitz Reactor – France)*;
- **LSM** *(Laboratoire Souterrain de Modane – France)*;
- **Pierre Auger Observatory** *(Argentina)*;
- **SPIRAL** *(Système de Production d'Ions Radioactifs Accélérés en Ligne – France)*.

The Ministry of Education of the Czech Republic will continue to support the integration of Czech large research infrastructures into ERIC infrastructures, as well as those infrastructures established according to national regulations. The support will be part of the support for large research infrastructures of the Czech Republic, based on the outcomes of international evaluation and will depend on funding allocated by Czech government resolutions.

Specific-purpose funding will be provided to large research infrastructures in 2020–2022 by the MEYS on condition of their favourable rating in the first interim evaluation round in the first half of 2017 under the auspices of MEYS.

Further information can be found at this address:
http://www.msmt.cz/vyzkum-a-vyvoj-2/velke-infrastruktury-vyzkumu

### 6.3 Other actors in international cooperation

#### 6.3.1 CZERA

Since 2013, comprehensive support for participation of Czech organisations in the ERA has been provided under the CZERA (Czech Republic in ERA) infrastructure project, specifically under its Module II. As part of its CZERA efforts, the Technology Centre AS CR runs the National Contact Point for FP7, organizes FP7 and Horizon 2020 information and training events, and provides consultancy to teams involved in preparation and implementation of projects under Horizon 2020. Special attention is devoted to small and medium-sized enterprises. The outputs of the project include ECHO, a magazine that brings information about ERA, various publications concerning European research and framework programmes, and a web portal on the ERA and the Czech participation – www.evropskyvyzkum.cz

In 2000, the national information infrastructure for the 6th Framework Programme of the EU, NINET (National Information Network) was established to facilitate international cooperation of the Czech Republic in research and development. Its activities continued under FP7 and are still running under Horizon 2020. NINET serves as the Czech national information network for framework programmes, bringing together regional organisations and trade associations. NINET's task is to provide information and consultancy services regarding framework programmes. The network is funded by the Ministry of Education (EUPRO and EUPRO II programmes).

More information, including contacts, can be found at:
www.ninet.cz

The team of the Technology Agency of the Academy of Sciences of the Czech Republic maintains contact with the European network of National Contact Points, the National Information Network (NINET) and other contact points in the Czech Republic, and thereby strengthens links between Czech national facilities and the ERA. It also cooperates with the European Commission and Czech representatives on the committees of Horizon 2020. The team organises annual Czech Days for European Research (CZEDER) – a conference on Czech participation in framework programmes, and on current events in European research. In 2013, this conference was devoted to Teaming and the launch of the Horizon 2020 programme in the Czech Republic. It was attended by a member of the EU Commission responsible for research, science and innovation. In 2014, the topic of the Czech Days for European Research was "Synergies between selected tools of H2020 and operational programmes".

#### 6.3.2 Czech Liaison Office in Brussels – CZELO

The Czech Liaison Office (CZELO) was established in Brussels in 2005. It is run by the Technology Centre of AS CR, and supported from a grant of the Ministry of Education. The office facilitates the information exchange between the European Commission and the Czech research community.

It aims to involve Czech partners in the European research cooperation through framework programmes. The office provides its services to researchers in all disciplines and to research organisations in the Czech Republic free of charge. Similar offices in Brussels are run by many other Member States. All of them are associated in the informal IGLO network.

More information about the programme, including contacts, can be found at the following addresses:
www.iglortd.org
www.czelo.cz

## 7 OTHER ACTIVITIES OF INTERNATIONAL COOPERATION

The Czech Republic is a member of numerous international organisations which support research and development. It also pursues collaboration through bilateral programmes. The core of these activities is administered by the Czech Ministry of Education.

### 7.1 Czech-Bavarian R&D cooperation (8E)

The Ministry of Education of the Czech Republic and the Bavarian State Ministry for Education, Science and the Arts announce joint calls for proposals of joint Czech-Bavarian research projects. The basis for these calls is the Joint Declaration of Intent of Scientific Cooperation between the Ministry of Education of the Czech Republic, and the Bavarian State Ministry for Education, Science and the Arts signed on 3 July 2014 in Prague.

Further information can be found at this address:
www.msmt.cz/vyzkum-a-vyvoj-2/cesko-bavorska-spoluprace-ve-vav

### 7.2 Czech-Chinese RDI cooperation

International cooperation between research facilities in the Czech Republic and People's Republic of China is based on the intergovernmental Agreement for Cooperation in Science and Technology signed on 1 June 1995, and on the Memorandum of Understanding for Joint Research and Development between the Ministry of Education of the Czech Republic and the Ministry of Science and Technology of the People's Republic of China, which was signed on 23 March 2016 in Prague.

Further information can be found at this address:
www.msmt.cz/vyzkum-a-vyvoj-2/cesko-cinska-spoluprace

### 7.3 Czech-Israeli RDI cooperation (8G)

On 25 November 2014, the Joint Declaration of Cooperation in Research and Development of the Czech Deputy Prime Minister for Science, Research and Innovation, and the Ministry of Science, Technology and Space of the State of Israel was signed in Jerusalem. On its basis, the Ministry of Education of the Czech Republic announce calls for proposals of Czech-Israeli projects in basic research or industrial research. The themes of these projects were set as the "environmental protection technology: pollution prevention and removal of contaminants from the air, soil and water sources" and "information and communication technologies with emphasis on data processing, transfer and storage".

The proposal of a joint research project must be submitted simultaneously by the Czech part of the team in the Czech Republic and by the Israeli part of the team in Israel and must comply with the criteria set by the respective support provider. The topics and contents of the proposals submitted separately by both teams in their countries must match. The aid intensity is 100% for basic research and 50% for applied research.

Further information can be found at this address:
www.msmt.cz/vyzkum-a-vyvoj-2/cesko-izraelska-spoluprace-ve-vavai

### 7.4 Czech-Norwegian research programme (7F)

The European Free Trade Association (EFTA) has introduced a financial mechanism through which its countries (Iceland, Liechtenstein and Norway) provide funding contributions to new EU Member States, and to EFTA itself, for projects within the expanded internal market area. Furthermore, Norway contributes under the bilateral Norwegian Financial Instrument (Norsk Finansieringsordning). On the basis of both mechanisms, European Economic Area (EEA) countries and Norway committed to support the less economically developed countries in the EEA by providing grants for investment and development projects in priority areas, such as the protection and restoration of cultural heritage, environment protection, judicial system, healthcare and infant care, research and development in priority areas, and others.

The research support fund covers the area of “Bilateral Cooperation in Research and Development” and has been allocated EUR 17,078,091. Of this amount, 85% is the funding from Norway Grants. The remaining 15% is provided by the Czech Ministry of Education. At least 20% of the budget is allocated to projects in social sciences and humanities.

Across all thematic areas, the funding for a single project ranges from EUR 100,000 to 1,000,000. The priority areas in the bilateral trans-national cooperation include:

- Social sciences and humanities
- Health
- Environment

Further information can be found at these addresses:
www.eeagrants.org/
www.msmt.cz/vyzkum-a-vyvoj-2/norske-fondy

### 7.5 Cooperation between the EU and the Russian Federation (ISTC) and Ukraine (STCU)

International cooperation pursued by the EU in research and development includes the support of research and development in the Russian Federation and Ukraine. This effort aims to help reorientate military research towards civilian purposes. As part of this effort, the International Science and Technology Centre (ISTC) in the Russian Federation, and the Science and Technology Centre in Ukraine (STCU) have been established.

They organize cooperation in science and technology between the facilities in the EU Member States, and in the Russian Federation and Ukraine. ISTC and STCU are intergovernmental organisations founded in 1992 based on an agreement between the EU, USA, Japan, and the Russian Federation (and Ukraine).

Their objective is to offer highly-qualified scientists in military research programmes in the former Soviet Union an opportunity to apply their talent to civilian activities.

Further information can be found at these addresses:
www.istc.int
www.stcu.int

### 7.6 The Fulbright Commission

The Fulbright Commission is a state institution established by the Czech Ministry of Education and funded by contributions from the state budget. The work of the Commission is co-financed by the governments of the United States and the Czech Republic. The American side bears all personnel costs (wages, costs, and benefits) and the operating costs of the Advising Centre, which provides information about study in the United States. The Czech side bears the operating costs of the office space. Scholarship programmes are co-financed by both partner states.

The main objective of the Fulbright Commission is to support educational, scientific and cultural exchanges between the Czech Republic and the United States of America. The Commission offers scholarships, grants and other programmes for study, teaching and research in the Czech Republic and the United States. It receives and processes proposals, organises selection procedures and assists Czech scholarship holders with their study in the United States, and selects and supports American scholarship holders in the Czech Republic.

Further information can be found at this address:
www.fulbright.cz

### 7.7 NATO Science Programmes – Civilian Research

**Science for Peace and Security Committee (SPS)**
The Science for Peace and Security (SPS) Committee formed by a merger of the Science Committee and the Committee on the Challenges of Modern Society in order to support international cooperation in science and innovation. The objective of the SPS Committee is to contribute to the security, sustainable development, stability and solidarity among nations through cooperation, infrastructure expansion, democratic development, and fostering economic growth. The SPS Programme is funded from the NATO budget. Applications are submitted by scientists or developed by the SPS secretariat or, on the national level, drafted by individual countries.

The SPS Programme awards grants to scientists from NATO and partner countries, and the Mediterranean Dialogue countries. Grants are also provided to academic institutions in partner states for the development of computer infrastructure and optimisation of electronic communication. As a rule, there must be cooperation between scientists from NATO countries and scientists from partner states or Mediterranean Dialogue countries. Applications are submitted to the NATO headquarters for evaluation. For individual disciplines, there are committees of international experts, which convene three times a year to evaluate the applications.

Those eligible for grants are scientists from the NATO countries, partner states and Mediterranean Dialogue countries. Each application must be submitted jointly by an applicant from a NATO country and an applicant from a partner or Mediterranean Dialogue country. The proposals often involve partners from other NATO and partner countries, and Mediterranean Dialogue countries, depending on the subject.

Applications can be submitted at any time. The dates of individual rounds are 1 March, 1 July and 1 November.
Applications for funding from national resources must be developed by individual states in accordance with the guidelines. They should focus on the key priorities defined by the SPS Committee.

The priorities have three main categories: counter-terrorism, meeting other security challenges, and priorities of partner countries.

The grant mechanisms under the programme include: Pilot studies for 3–5 years, short-term projects with a specific focus taking 12–24 months, and topical workshops. Support grants facilitate the participation of foreign experts in national projects.

**NATO – Russia Council (NCR)**
This is a specific programme aimed at supporting cooperation between scientists from Russia and NATO countries in seven priority areas: detection of explosives, psychological and social ramifications of terrorism, disaster prediction and prevention, CBRN defence, cyber security, transportation security, including border security, and issues related to environment protection. No deadlines were set for submitting applications, with individual rounds taking place on the following dates: 1 March, 1 July and 1 November.

Further information can be found at this address:
www.nato.int/science/about_sps/introduction.htm

### 7.8 European Space Agency (ESA)

The European Space Agency (ESA) is an intergovernmental organisation for space research and technologies, and their applications. The ESA's mission is to coordinate and harmonise the European astronautic strategies and policies, expand the scientific knowledge about our planet, the Solar System and space, and about materials and living organisms using the International Space Station, satellites and interplanetary probes, and mobilize a broad technical base and support of the European industry to produce and operate space systems and ground infrastructure, and use technical knowledge and skills to meet the ever increasing demands of the society and the market.

The ESA activity programme and its scope is defined by the ESA Ministerial Council, depending on available funding. The Council convenes once in every two or three years, attended by designated ministers from the Member Countries. The meetings took place in 2012 and on 2 Dec. 2014 (the latter in Luxembourg).

The ESA's activity is managed by the ESA Council and its Committees (Industrial Policy Committee, Scientific Programme Committee, Administration and Finance Committee, and International Relations Committee). ESA optional programmes are managed by Programme Committees. All these bodies are composed of delegates of Member Countries and, where relevant, countries involved in the optional programme. The Czech Republic became an ESA member on 12 November 2008. The ESA activities are divided into mandatory and optional ones.

The mandatory activities include the General Studies Programme, Science Programme, Science Core Technology Programme, and the Technology Transfer Programme. Then there are the Innovation Triangle Initiative (ITI), the Basic Technology Research Programme, Centre Spatial Guyanais, and programmes of Experiments for University Students (BEXUS and REXUS).

The Czech Republic takes part in the optional programmes of scientific research (PRODEX), technology programmes (GSTP), programmes of life sciences studying microgravity conditions (ELIPS), Earth observation (EOEP), development of meteorological satellites and satellites for Earth observation (MTG and MetOp-SG), Mars robotic exploration (MREP), space weather and near-Earth objects (SSA-SWE and SSA-NEO), development of launchers and space vehicles (FLPP), navigation (EGEP), and research in telecommunications (ARTES 1, ARTES 5, ARTES 14, ARTES 20).

Further information can be found at these addresses:
www.czechspace.cz
www.esa.int/esaCP/Czech.html

### 7.8.1 Programme for development of scientific experiments (PRODEX)

PRODEX (PROgramme de Développement d'Expériences scientifiques) is an optional programme of ESA intended primarily for funding the development and construction of scientific instruments and experiments designed by research facilities in ESA member states for research into outer space and celestial objects and for research in other relevant domains, such as microgravity, remote sensing and others. The idea behind PRODEX was to enable costly experiments of this kind to be funded in small ESA member states and to promote collaboration between research facilities and industrial companies. PRODEX is managed by the Netherlands-based ESA PRODEX Office (ESTEC). The Head of the PRODEX Office reports to the Director of Science at ESA and communicates directly with delegates from individual member states. Czech participation in a project is subject to approval by the Czech delegation in the ESA, i.e., by the Ministry of Education of the Czech Republic (MEYS). The annual contribution from the MEYS for 2017– 2021 is EUR 2.2 million.

Further information can be found at this address:
http://www.msmt.cz/vyzkum-a-vyvoj-2/evropska-kosmicka-agentura-program-vyvoje-vedeckych

### 7.9 The European Science Foundation (ESF)

The European Science Foundation (ESF) is an association of European national organisations responsible for support of scientific research. It was founded in 1974 with headquarters in Strasbourg and had 66 member organisations from 29 countries. These included scientific institutions, academies, and grant agencies. The Czech member was the Czech Science Foundation. The ESF is an independent non-profit organisation whose members were receiving contributions from government budgets of individual member states. The ESF was the administrator of the COST programme. Czech Science Foundation officially resigned from the ESF as of 31 December 2015. On the same date,

another 52 organisations withdrew, and 5 organisations applied for a change from the full member status to that of associate member.

Further information can be found at this address:
http://www.gacr.cz/mezinarodni-aktivity/esf

**7.10 EMBC, EMBO, EMBL and the ELIXIR project**

The European Molecular Biology Conference – EMBC is an intergovernmental organisation supporting activities in molecular biology and related fields.

The European Molecular Biology Laboratory (EMBL) is an international research organisation established in 1973 by EMBC member countries. With its headquarters in Heidelberg, Germany, it brings together 21 European countries which are also members of the EMBC. It has built the most important and technologically most advanced European research infrastructure for molecular biology and genetics. Its research activities are pursued in five sites: Heidelberg, Cambridge, Grenoble, Hamburg, and Monterotondo. In June 2013, the EMBL Council approved an official application of the Czech government for membership. Full membership was granted to the country in 2014 after a ratification procedure. The motivation for joining the organisation was the prospect of integrating the Czech research centres Central European Institute of Technology (CEITEC), Biotechnology and Biomedicine Center of the Academy of Sciences and Charles University in Vestec (BIOCEV) and the International Clinical Research Center of St. Anne's University Hospital Brno (FNUSA-ICRC) into broad international cooperation. The access is, however, very valuable for a number of other research facilities as well (the Institute of Molecular Genetics of the Academy of Sciences of the Czech Republic, the Institute of Macromolecular Chemistry of Academy of Sciences of the Czech Republic, the Institute of Biophysics of the Academy of Sciences of the Czech Republic, Masaryk University in Brno, Charles University, and the Institute of Chemical Technology Prague). More detailed information on EMBL can be found at http://www.embl.org.

The European Molecular Biology Organisation (EMBO) is a non-governmental organisation whose members are leading European scientists from the various fields of molecular biology. EMBO is in charge of implementing the EMBC General Programme. Therefore, the individual activities under the General Programme carry the EMBO name.

Each year, EMBC and EMBO jointly award more than 600 scholarships for research, and organise more than 70 courses and conferences. There are two deadlines for applications, 15 February and 15 August.

The EMBO Young Investigators programme aims at excellent young scientists in the first years of establishing their research laboratories. Being selected for this programme equals a prestigious recognition of the quality of one’s scientific work. Those selected receive a three-year grant of EUR 15,000 per year, and have a unique opportunity to meet previous awardees and EMBO members. The application deadline is 1 April.

A special Installation Grant programme was launched in selected EMBC Member States, including the Czech Republic, to support research in molecular biology and related sciences. The grants are intended for research team leaders who plan to establish their own laboratory, have an excellent publication record, and had received an offer from an organisation to host such laboratory. In addition, the applicants must have worked for at least two consecutive years outside the planned host country. The application deadline is 15 April each year.

The EMBC also supports the EMBO Science for Society programme, which promotes dialogue between scientists and the society, and the Electronic Information Programme which provides web-based services for the EMBO science community.

EMBC funds various prestigious Europe-wide meetings to foster cooperation, exchange of experience, and advances in molecular biology. Their annual attendance is more than 5,000 scientists. Hands-on courses enable them to acquire new skills for state-of-the-art techniques, and workshops provide a discussion forum for various fields.

In 2011, the ELIXIR infrastructure project was launched under the auspices of EMBL. Its objective is to build and maintain a Europe-wide distributed infrastructure for acquisition, classification, storage, and dissemination of data from molecular biology research projects across a range of life sciences: biology, chemistry, medicine, pharmacy, and others. The project headquarters are in Hinxton, UK. Today, a total of 12 countries are taking part in the project, and another 6 have signed the Memorandum of Understanding. The project has been included in the ESFRI Roadmap, as well as in the Roadmap of Large Infrastructures for Research, Experimental Development and Innovation of the Czech Republic. Having signed the ELIXIR Consortium Agreement in November 2013, the Czech Republic has become one of the five founding members of the consortium. The Czech national Node entitled “ELIXIR-CZ” is now being established under the coordination of the Institute of Organic Chemistry and Biochemistry of the Academy of Sciences of the Czech Republic.

Further information can be found at these addresses:
www.elixir-europe.org
www.embo.org

### 7.11 Organisation for Economic Cooperation and Development (OECD)

The Organisation for Economic Cooperation and Development is an intergovernmental organisation of 34 countries from around the world. The Czech Republic has been a member since 1995.
The Czech Ministry of Education (MEYS) represents the Czech Republic on the Committee for Scientific and Technological Policy, and in its working groups: Technology and Innovation Policy, Working Party on Biotechnology, and Working Party on Nanotechnology. MEYS contributes to the cooperation in research and development by drafting reports and processing extensive questionnaires which serve as source documents for OECD analyses and studies and, most notably, the Science, Technology and Industry Outlook, which offers a comparative analysis of policies and tools across the OECD and many developing countries. In addition, the MEYS contributes to thematic projects of the working groups (most recently the “Innovation-driven Growth in Regions: The Role of Smart Specialisation” project, and “Financing, Transferring and Commercialising Knowledge”) as well as OECD’s horizontal projects (e.g. the Innovation Strategy, and the Green Growth Strategy). The objective is to use the outputs and concrete recommendations from these projects to shape national policy and strategy. The MEYS is working on matters related to research organisations in horizontal thematic projects of new technologies, which are seen as the basis of economic growth and collaboration between the public and private sectors (e.g. the Innovation Strategy, and the Green Growth Strategy). Other topics include recruiting human resources, acquiring knowledge, skills, and fostering career growth, as well as international cooperation in the context of the growing importance of exploitation and sharing of R&D experience among OECD Member States.

OECD’s committees employ the analytical and multidisciplinary approach for formulating qualified recommendations for dealing with today’s problems. The nature of these challenges requires closer collaboration with some non-member countries and international organisations as well.

Further information can be found at this address:
www.oecd.org

### 7.12 European Southern Observatory (ESO)

Since 2007, the Czech Republic has been a regular member of the European Organisation for Astronomical Research in the Southern Hemisphere, also known as the European Southern Observatory. This international organisation, whose mission is ground-based astronomy research, is supported by 16 Member States, along with the host state of Chile. Poland and Brazil are in the process of ratifying their membership. ESO operates multiple sites, including the technologically most

advanced astronomical observatory on the Paranal Mountain in Chile. Together with partners from the USA, Canada, Brazil, South Korea and Japan, it is a member of the ALMA consortium which operates the largest ground-based array of antennas for observation outside the visible light range on Llano de Chajnantor in the Atacama Desert in Chile. ESO's current effort focuses on building the European Extremely Large optical/infrared Telescope (E-ELT) by 2021, the largest mirror-based telescope in the world. The ESO headquarters are located in Garching, near Munich, Germany. It is the scientific, technical and administrative centre of ESO. Astronomers in the Czech Republic can benefit from the ESO membership through using unique ESO observation technologies in their projects, and Czech doctoral students have an opportunity to complete internships in state-of-the-art observatories. Finally, enterprises from the Czech Republic can compete for the organisation's contracts in mechanics, optics, software and other fields.

Further information can be found at this address:
www.eso.org/public

### 7.13 European Organization for Nuclear Research (CERN) and the Joint Institute for Nuclear Research (JINR) in Dubna

The Czech Republic is a regular member of CERN and JINR Dubna, international organisations for research in nuclear and subnuclear physics and high-energy physics. The cooperation is maintained by the Committee for Cooperation with the CERN and the Committee for Cooperation with the JINR Dubna. The matters of both memberships are managed and funded by the Ministry of Education (O31 – The Department of Research and Development of the MEYS). Projects involving partnership with CERN and JINR are co-funded from the INGO II programme.
Specific-purpose funding is provided by the Ministry of Education for the participation of Czech institutions in major CERN programmes, such as ATLAS, ALICE, COMPASS, TOTEM, and others. The collaboration of Czech facilities with JINR in joint projects is funded from the Czech contributions to JINR.

Further information can be found at these addresses:
https://home.cern/
www.particle.cz/vyborcern
www.jinr.ru
www.sujv.cz

### 7.14 The Danube Region Cooperation

The Strategy for the Danube Region is one of the most recent macro-regional strategies in Europe. It was formed in regions of extreme historical and political diversity during a prolonged economic and political crisis. The macro-regional strategy promotes intensive collaboration, particularly in education, research and innovation. The Strategy for the Danube Region is an EU strategy which also involves non-member states in the catchment area of the Danube River. As this area covers more than 800,000 square kilometres with more than 100 million inhabitants, the support for the Strategy has been growing continuously in recent years.

The scope and content of the Strategy for the Danube Region and its Action Plan concern all major fields of natural and social sciences. A coordinated approach to common issues of the Danube Region and adjacent areas based on clarity and communication among all stakeholders leads to effective solutions which unlock the immense potential of the region. In recent months, the Ministry of Education of the Czech Republic joined the DANUBE-INCO.NET coordination network under its PA7 project. Priority Axis 7 focuses on developing the knowledge society through research, education and utilisation of information technologies. Its ambition is to deliver on the priorities of the Danube Region Strategy.

Coordinators promote collaboration on preparing international projects aimed at improving the quality of life in the region. The steering committee evaluates project proposals which aim to support the development of the knowledge society in the Danube Region. These flagship and pilot projects build

on the themes of the H2020 framework programme for research and innovation. The EU Strategy for the Danube Region has the potential to become an extensive European project.

Further information can be found at these addresses:
https://danube-inco.net/
http://www.msmt.cz/mezinarodni-vztahy/makroregionalni-strategie-eu
www.evropskyvyzkum.cz/cs/nastroje-spoluprace/iniciativy-ek/danube

### 7.15 Other institutions in international cooperation

#### 7.15.1 Central European Initiative

The Central European Initiative (CEI) is a regional cooperation organisation with 18 member states, which supports non-EU members in their integration into the EU. It fosters their transformation and regional cooperation in a number of thematic areas, including research and development. CEI focuses on strengthening cohesion and solidarity in Europe and preventing new dividing lines on the continent.

Further information can be found at this address:
www.ceinet.org

#### 7.15.2 Visegrad Group

The Visegrad Group reflects the effort of the countries of the Central European region to work together in a number of fields of common interest. The cooperation takes place through meetings on many levels. The working group of ministers or deputy ministers (often including the Slovenian Republic as well) convenes on an annual basis in one of the Member States to exchange experience and align policies for participating in EU programmes and projects.

Further information can be found at this address:
http://www.msmt.cz/vyzkum-a-vyvoj-2/visegradska-skupina
http://www.msmt.cz/vyzkum-a-vyvoj-2/visegradsky-fond

#### 7.15.3 Salzburg Forum

The Salzburg Forum is an initiative of ministers of the interior of 9 countries meeting annually in Salzburg, Austria to promote political cooperation. Some discussions to harmonise views of the members also take place during the Competitiveness Council meetings. In the Salzburg Declaration (8/2009), the Member States pledged to maximise the benefits of the European Research Area. Another objective of the Salzburg Forum is to offer expertise and political support to future presidencies of the Salzburg Forum.

Further information can be found at this address:
www.evropskyvyzkum.cz/cs/nastroje-spoluprace/mezinarodni-programy-podpory/salcburska-skupina

#### 7.15.4 Von Kárman Institute for Fluid Dynamics

The international association that conducts research and provides education for experts in fluid dynamics was founded in 1956. Its objective was to develop the qualification and skill levels of experts in the construction of aircraft and aircraft propulsion and experts in liquid mechanics. The association also disseminates recent findings in fluid mechanics, and findings from its own theoretical and experimental research into numerical methods in internal and external aerodynamics.

Further information can be found at this address:
www.vki.ac.be

### 7.15.5 ARTEMIS, ENIAC and ECSEL partnerships

By co-funding the costs of participation of domestic research organisations and enterprises in projects of the Joint Technology Initiatives known as the former ARTEMIS joint undertaking and the current ENIAC initiative, the Ministry of Education of the Czech Republic (MEYS) supports cooperation between the public research sector and enterprises, and their involvement in international R&D projects concerning embedded computing systems, microelectronics and nanoelectronics.

ARTEMIS (Advanced Research & Technology for Embedded Intelligence and Systems) and ENIAC (European Nanoelectronics Initiative Advisory Council) have been established as long-term public-private-partnerships with the support of the European Commission. To make these partnerships real, new legal entities, so-called joint undertakings, were established in 2008 in accordance with Article 187 of the Treaty on the Functioning of the European Union. Unlike in the IMI (Innovative Medicines Initiative) JTI, the FCH (Fuel Cells and Hydrogen) JTI, and the Clean Sky (Aeronautics and Air Transport) JTI, where the majority of the public funding is provided by the European Commission, ENIAC and ARTEMIS projects are co-funded to a great extent by the Member States, an the contribution from the European Commission is no more than 16.7% for ARTEMIS and 15% for ENIAC projects.

MEYS has been supporting the involvement of Czech research organisations and enterprises in ARTEMIS and ENIAC projects since 2009. The MEYS contribution is governed by the Community Framework for State Aid for Research, Development and Innovation (2006/C 323/01). Research organisations can receive up to 83.3% of the total approved costs for ARTEMIS projects and 85% for ENIAC projects. SMEs are eligible for contributions up to 63.3% of the total approved costs under ARTEMIS and 65% under ENIAC. The funding for large enterprises can reach 33.3% of the total approved costs for ARTEMIS projects and 35% for ENIAC projects. The aid intensity depends on the research and development category. Overhead costs are reimbursed to a level of 30% of the total approved costs (flat rate).

The ECSEL JTI (Electronic Components and Systems for European Leadership) is an integral part of the Horizon 2020 (2014–2020) framework programme and is carried out by a Brussels-based joint undertaking bearing the ECSEL name. The ECSEL joint undertaking was established according to the applicable Council regulation. Its members include the EU, represented by the European Commission, and the Member States which have joined the undertaking. It supports research, development and innovation of embedded computing systems, microelectronics and intelligent systems through annual calls for project proposals.

Further information can be found at these addresses:
http://www.msmt.cz/vyzkum-a-vyvoj-2/spolecne-technologicke-iniciativy-5-1
www.msmt.cz/vyzkum-a-vyvoj-2/artemis-a-eniac
www.msmt.cz/vyzkum-a-vyvoj-2/ecsel

### 7.15.6 Antarctic Cooperation

**Argentina**
The Czech implementation bodies of the relevant Agreement are the Ministry of Foreign Affairs and the Ministry of Education, Youth and Sports. On the Argentinian side, this role is filled by the National Antarctic Directorate of the Ministry of Foreign Affairs, International Trade and Worship. The Agreement provides legal framework for both parties to develop cooperation on the Antarctic territory in the areas of science, technology, logistics and environment protection. The Agreement enables exchange of scientific and technical personnel, participation in joint science programmes, joint use of scientific facilities and research laboratories, and the exchange of scientific information.

**Chile**
The implementation bodies for the Agreement are the Ministry of Education, Youth and Sports on the Czech side, and the Ministry of Foreign Affairs, working through the Chilean Antarctic Institute, on the Chilean side.

Under the Agreement, the parties pledged to cooperate in the following main areas: preparation of joint scientific and technical projects, exchange of information in areas of common interest, support of education and professional human resource training, and improvement of transport in Antarctic areas.

The parties envisage that the cooperation will develop on the basis of the Agreement primarily in areas such as physics of the atmosphere, cosmic rays, meteorology, geology, geophysics, palaeontology, oceanic and terrestrial ecology, glaciology, biology and medical science, with a focus on uncovering changes of global importance which can be observed in Antarctica, and observation and monitoring of such changes.

## CONCLUSION

This publication presents up-to-date information about the system of public support for research and development in the Czech Republic. As in previous years, we attempt to guide you as clearly as possible through the schemes of the country's public funding.

Deficiencies persist in the production of R&D results. Whereas their numbers have been rising in terms of both publications and applied results, truly excellent work is still rare. One of the major weaknesses of Czech research, development and innovation continues to be the inability to translate results into actual innovation, practice, and commercialisation. Low numbers of implemented results, when compared to the investment, are thus reflected in the small overall contribution of R&D to the Czech economy. This proves to be an area for improvement.

The system of support for research, development and innovation is continuously changing. Some of the changes are desirable, eliminating the consequences of ineffective interventions made in the past, whereas others arise from external circumstances. The latter include the transposition of European regulations into Czech legislation. Other changes are due to the still turbulent political scene, where each change in government has automatically led to the transformation of long-term R&D strategies. As a result, the system lacks the stability needed for planning for several years ahead, although long-term spending projections have been compiled for many years. This lack of certainty has an adverse impact on the management and results of research organisations and other organisations linked to research, development and innovation. This is one of the major obstacles that continue to hinder Czech research and its progress towards the European and global levels.

Despite all the shortcomings in the RDI system, there are opportunities to secure funding for high-quality research projects and other research activities in the Czech Republic, to sustain and raise the standard of Czech research and development, and thus to close the gap on competitive European economies. The Czech Society for New Materials and Technologies and COMTES FHT are hopeful that this publication will become your guide on this path.

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **2013 Update to NRDIP** | Update to the National Research, Development and Innovation Policy of the Czech Republic for 2009–2015 and Projections until 2020 |
| **Act No. 130/2002 Sb.** | Act No. 130/2002 Sb., on the support for research, experimental development and innovation from public funds and on changes to certain related acts, as amended |
| **AIE CR** | Association of Innovative Entrepreneurship CR |
| **AV CR** | Academy of Sciences of the Czech Republic |
| **CEI** | Central European Initiative |
| **CEP** | Central Register of Research, Experimental Development and Innovation Projects |
| **CEZ** | Central Register of Research Plans |
| **CIP** | Framework Programme Competitiveness and Innovation 2007 – 2013 |
| **COSME** | Competitiveness of Enterprises and Small and Medium-sized Enterprises |
| **COST** | European Cooperation in Science and Technology |
| **CSF** | Czech Science Foundation |
| **CSO** | Czech Statistical Office |
| **DFG** | Deutsche Forschungsgemeinschaft (German Science Foundation) |
| **EC** | European Commission |
| **ECOP** | Education for Competitiveness Operational Programme |
| **EEA** | European Economic Area |
| **EICOP** | Enterprise and Innovation for Competitiveness Operational Programme 2014–2020 |
| **EIOP** | Operational Programme Enterprise and Innovation |
| **EIP** | Sub-programme Enterprise and Innovation of the EU Framework Programme for Competitiveness and Innovation (CIP) |
| **EIT** | European Institute of Innovation and Technology |
| **Eligible expenditure** | Expenditure which may be claimed for reimbursement. Other expressions: approved expenditure |
| **EMBC** | European Molecular Biology Conference |
| **EMBO** | European Molecular Biology Organisation |
| **ENO** | European Northern Observatory |
| **ERA** | European Research Area |
| **ERC** | European Research Council |
| **ERCEA** | ERC Executive Agency |
| **ESA** | European Space Agency |

| | |
|---|---|
| **ESF** | European Science Foundation |
| **ESFRI** | European Strategy Forum for Research Infrastructures |
| **ESO** | European Southern Observatory |
| **EU** | European Union |
| **EU-28** | All 28 EU member states (EU-25 + Bulgaria and Romania/2007/ Croatia /2013/) |
| **Eurostat** | European statistical office |
| **FP6** | 6th Framework Programme for Research and Technological Development |
| **FP7** | 7th Framework Programme for Research and Technological Development |
| **Framework** | Framework for State Aid for Research, Development and Innovation (2014/C 198/01) |
| **FTE** | Full Time Equivalent |
| **GBER** | General Block Exemption Regulation, Commission Regulation (EU) 651/2014 |
| **GDP** | Gross Domestic Product |
| **H2020** | Horizon 2020 |
| **ICT** | Information and Communication Technologies |
| **ID** | Identification number |
| **ISOP** | Information system of the Operational Programme of the Ministry of Industry and Trade of the Czech Republic |
| **ISTC** | International Science and Technology Center in Russia |
| **ITER** | International Thermonuclear Experimental Reactor |
| **JRC** | Joint Research Centre |
| **JTI** | Joint Technology Initiative |
| **LSDRO** | Long-Term Systematic Development of Research Organisations |
| **LTPRD** | Long-Term Principal Research Directions |
| **MA** | Ministry of Agriculture of the Czech Republic |
| **MC** | Ministry of Culture of the Czech Republic |
| **MD** | Ministry of Defence of the Czech Republic |
| **ME** | Ministry of the Environment of the Czech Republic |
| **MEYS** | Ministry of Education of the Czech Republic |
| **MFA** | Ministry of Foreign Affairs of the Czech Republic |
| **MH** | Ministry of Health of the Czech Republic |
| **MI** | Ministry of the Interior of the Czech Republic |

| | |
|---|---|
| **MIT** | Ministry of Industry and Trade of the Czech Republic |
| **MLSA** | Ministry of Labour and Social Affairs |
| **MRD** | Ministry for Research and Development (planned but not established) |
| **MT** | Ministry of Transport of the Czech Republic |
| **NICER** | National Information Centre for European Research |
| **NINET** | National Information Network |
| **NRDIP** | National Research, Development and Innovation Policy of the Czech Republic |
| **NRDIP 2016** | National Research, Development and Innovation Policy of the Czech Republic for 2016–2020 |
| **NRF** | National Research Foundation of Korea |
| **NSC** | National Science Council of Taiwan |
| **NUTS-2** | Nomenclature of Territorial Units for Statistics Level “2” |
| **OECD** | Organisation for Economic Co-operation and Development |
| **OG CR** | Office of the Government of the Czech Republic |
| **OP** | Operational Programme |
| **PTRDI** | Public Tenders in Research, Experimental Development and Innovation |
| **R&D** | Research and Development |
| **R&DC** | Research and Development Council, R&D Council |
| **RD&I IS** | Research, Development and Innovation Information System |
| **RDEOP** | Research, Development and Education Operational Programme for 2014–2020 |
| **RDI** | Research, experimental development and innovation |
| **RDI Analysis** | Analysis of the Situation in Research, Development and Innovation in the Czech Republic and Comparison with the Situation Abroad |
| **RDI Priorities** | National Priorities of Oriented Research, Experimental Development and Innovation |
| **RDIOP** | Research and Development for Innovations Operational Programme |
| **RFCS** | Research Fund for Coal and Steel |
| **RIS3** | National Research and Innovation Strategy for Smart Specialisation |
| **RIV** | Information Register of R&D Results |
| **RO** | Research organisation |
| **SB** | State budget of the Czech Republic |
| **SME** | Small and medium-sized enterprise |
| **SPS** | Science for Peace and Security |

| | |
|---|---|
| **STCU** | Science and Technology Center in Ukraine |
| **TA CR** | Technology Agency of the Czech Republic |
| **TC AV** | Technology Centre of the Academy of Sciences of the Czech Republic |
| **VAT** | Value Added Tax |

Edition: 20th updated and expanded edition, 2018, also published electronically at http://www.comtesfht.cz/ke-stazeni
Number of pages: 147
Text editing and typesetting: VAVPRO CZ s.r.o. Praha
Publisher: COMTES FHT a.s.
Printed by:
ISBN