

# **Programme to Support Applied Research and Innovation SIGMA**

## **1. Name of the Programme**

Programme to Support Applied Research and Innovation SIGMA (hereinafter also referred to as the “Programme”).

## **2. Legal Framework of the Programme**

The programme shall be implemented pursuant to:

- Act No. 130/2002 Coll., on the support of research, experimental development and innovation from public funds and on the amendment of some related laws (hereinafter also referred to as the “Act on the Support of Research, Experimental Development and Innovation”), as amended;
- Treaty on the Functioning of the European Union 2012/C 326/01, (Article 107);
- 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, in particular Articles 25, 28, 29 (hereinafter also referred to as the “Regulation”)<sup>1</sup>, as amended;
- Commission Regulation (EU) No. 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid, as amended;
- Framework for state aid for research, development and innovation - Official Journal of the European Union C 198, 27 June 2014 (hereinafter also referred to as the “Framework”).

In the event that the funding of the project constitutes state aid pursuant to Article 107(1) of the Treaty, then the terms of the Regulation shall apply.

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<sup>1</sup> A new Regulation is currently under preparation, but adjustments in the parts related to the programme are not expected. Should any significant changes occur in these parts, the programme will be brought into compliance with the new legislation after consultation with the Office for the Protection of Competition.

Beneficiaries that are enterprises shall receive funding according to the Regulation. Beneficiaries that are research organisations<sup>2</sup> shall receive funding for activities according to point 19 of the Framework.

In the event that the beneficiary does not meet any of the definitions of an enterprise (does not carry out economic activity)<sup>3</sup> or a research organisation and any funding provided in its favour is in accordance with the objectives of the programme, it is possible to provide funding outside the regime of state aid, i.e. outside the regime of Article 107 of the Treaty on the functioning of the European Union, in the event that one of its defining features is not fulfilled, in particular the funding will not be directed to the economic activities of the beneficiary.

The programme is exempt from the notification obligation pursuant to Article 108(3) of the Treaty on the Functioning of the European Union, as it meets the conditions of the Regulation.

The programme excludes the payment of individual funding in favour of an enterprise:

- Following a decision of the European Commission, on the basis of which the funding received from the provider from the Czech Republic was declared illegal and incompatible with the internal market, a debt collection order was issued, which is unpaid;
- Meeting the definition of an undertaking in difficulty specified in Article 2(18) of the Regulation.

For enterprises receiving state aid exceeding 500,000 EUR under the programme, information about the beneficiary and the funding awarded to it (to the extent according to Annex III of the Regulation) shall be published on the central website as provided in Article 9 of the Regulation.

In the event of a change in the budget allocation between sub-objectives by more than 20% of the maximum amount stated in Table 1, the Provider shall proceed according to Article 5(3) of Act 130/2002 Coll., as if it were a sub-programme of the Programme.

### **3. Provider**

The provider of funding is the Technological Agency of the Czech Republic (hereinafter also referred to as “TA CR”).

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<sup>2</sup> According to the definition of point 15(ee) of the Framework.

<sup>3</sup> Economic activity means offering goods/services on the market regardless of the (un)profitability of this activity.

## 4. Identification Code of the Programme

For the purposes of registration in the research, experimental development and innovation information system, the code “TQ” is assigned to the programme.

## 5. Duration of the Programme

The duration of the programme is set for the period from 2022 to 2029, i.e., 8 years. The first call for proposals in research, experimental development and innovation (hereinafter also referred to as the “call for proposals”) for the selection of projects is expected to be announced in 2022, with funding starting in 2023. Several calls for proposals will be announced every year.

The duration of the projects will be determined by the parameters of the specific call for proposals, and their completion may not exceed the duration of the programme.

The provider expects the SIGMA programme to be extended after 2029. The extension of the programme will be prepared based on the result of the interim evaluations so that it can be approved at the latest in accordance with the budget preparation schedule for the year 2030, i.e., in 2029. The extended SIGMA programme will mainly reflect the experience from the 2<sup>nd</sup> interim evaluation of the programme, which will take place in 2027.

## 6. Focus of the Programme

The SIGMA programme is a comprehensive long-term instrument for supporting applied research projects<sup>4</sup> pursuant to Article 25(2)(b) and (c) of the Regulation and Article 1.3(15)(e) of the Framework and innovation according to Articles 28 and 29 of the Regulation and Article 1.3(15)(b) and (y) of the Framework. It is focused on fulfilling and solving several objectives and measures set out in key strategic documents<sup>5</sup> for research, development and innovation (hereinafter also referred to as “R&D”), including their future updated forms, in particular from:

- Innovation Strategy of the Czech Republic 2019–2030;
- National priorities of oriented research, experimental development and innovation (referred to as the “RDI Priorities”)<sup>6</sup>;
- National research, development and innovation policy of the Czech Republic 2021+;

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<sup>4</sup> Including industrial research, experimental development, or a combination thereof.

<sup>5</sup> Currently valid for the duration of the SIGMA programme.

<sup>6</sup> Area 6: RDI Priority Safe Society will not be supported in the programme, as it falls under the competence of the Ministry of the Interior.

- National research and innovation strategy for smart specialisation of the Czech Republic 2021–2027 (hereinafter referred to as the “National RIS3 Strategy 2021+”);
- Regional development strategy of the Czech Republic 2021+ (hereinafter referred to as “RDS 21+”);
- Strategic framework of the Czech Republic 2030;
- Principles of the Industry 4.0 Initiative;
- Departmental strategies; and
- Other relevant strategies approved by the government.

The SIGMA programme is a programme that allows for a flexible response to the needs of society and the economy, which may arise based on unexpected situations.

The purpose of the programme is to bring more stability and predictability to the applied research and innovation support system, simplify administrative procedures and requirements, on the one hand, and to increase flexibility, and the ability to rapidly respond to current needs and challenges, on the other. The intention is also to consolidate part of the programmes of TA CR into a single programme, while leaving room for funding in areas/themes that will be identified during the implementation of the programme. The SIGMA programme will ensure the implementation of activities from the current ZÉTA, ÉTA, GAMA, and DELTA programmes, and EU instruments (in which the provider will be involved). The SIGMA programme will not interfere with the provision of funding based on the concept of research, development and innovation of government departments of the Czech Republic pursuant to Article 34 of Act No. 130/2002 Coll.

## **7. Main Objective of the Programme**

The main objective of the programme is to support applied research and innovation leading to the creation of new results that can be applied in practice, to address the challenges and needs of society and the economy, and to support the solution of systemic measures of the research and innovation environment.

Achievement the main objective of the programme will contribute to the effective functioning of the market, in particular by i) ensuring opportunities for mutually beneficial collaboration between research organisations and enterprises; ii) mitigating the effects of asymmetric information; and iii) developing the positive secondary effects of research, development and innovation in the form of societal impacts.

The main objective of the programme will be achieved through five sub-objectives.

## 8. Sub-Objectives of the Programme

### **Sub-objective 1 – Activities of so-called pre-application research (SO1)**

**Definition of the objective:** To increase the effectiveness of transferring knowledge and results of research and development from research organisations into practice, and to accelerate the creation of new innovative products and services.

The sub-objective follows on from the activities that are supported within the GAMA and GAMA 2 programmes.

By ensuring the stable functioning of the system of technology transfer in research organisations, this sub-objective will support the verification of the results of applied research from the point of view of their practical application and the preparation of their subsequent commercial use or use for the needs of society. The intention is also to support the creation of new R&D results in the medium term leading to innovations with a high probability of their practical application.

By its focus, the sub-objective contributes to the fulfilment of measures defined by the National Research, Development and Innovation Policy of the Czech Republic 2021+, and in particular measure 23.

### **Sub-objective 2 – Early-stage researchers<sup>7</sup> and equal of opportunities in applied research projects (SO2)**

**Definition of the objective:** To increase the involvement of early-stage researchers and to provide equal opportunities for men and women in the competition of applied research.

The collaboration of early-stage researchers in performing specific projects directly with subjects from applied practice will be supported in all areas of applied research. In projects achieving this sub-objective, conditions will be set for applicants and beneficiaries, which will lead to the provision of equal opportunities for men and women in applied research. The sub-objective follows on from the activities of the ZÉTA programme.

By its focus, the sub-objective contributes to the fulfilment of the measures defined by the National Research, Development and Innovation Policy of the Czech Republic 2021+, in particular measure 10.

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<sup>7</sup> Early-stage researchers are students of higher secondary or tertiary education, including doctoral programmes or persons whose successful completion of Master's or doctoral studies was a maximum of 5 years ago.

### **Sub-objective 3 – Support of the innovation potential of social sciences, humanities, and arts (SO3)**

**Definition of the objective:** To increase the innovative potential and effectiveness of research in the social sciences, humanities, and arts.

The intention is to strengthen social sciences, humanities and arts in applied research and innovation activities and to apply the outputs of these activities in the form of new or substantially improved products, procedures, processes, or services. The sub-objective follows on from the activities of the ÉTA programme. When applying the outputs from this sub-objective, methods of application outside of market mechanisms will also be relevant (the main user may also be a public administration that shows an interest in the outputs).

The sub-objective supports the use of the innovation potential of social sciences, humanities and arts and their involvement in applied research and innovation projects that are beneficial for maintaining and increasing the quality of human life in response to dynamic social, economic, globalisation, cultural, or technological changes. The focus of research themes will not fulfil the selected strategic objectives and areas of the RDI Policies, which will be fulfilled by the NAKI III programme of the Ministry of Culture (in particular area 4.3 Culture, Values, Identity, and Tradition), which are stated in Annex 2 of the programme.

By its focus, the sub-objective, together with the NAKI III programme, contributes to the fulfilment of the measures defined by the National Research, Development and Innovation Policy of the Czech Republic 2021+, in particular measure 18.

### **Sub-objective 4 – International collaboration (SO4)**

**Definition of the objective:** To increase the number of applied research results created within the framework of international collaboration projects and to expand the volume of collaboration between domestic and foreign enterprises and research organisations.

The intention is to strengthen international collaboration, which will lead to an increase in the attractiveness of the Czech Republic as a place for cutting edge applied research. At the same time, the integration of teams of Czech research organisations and enterprises into international activities will be supported. The sub-objective follows on from the activities of the DELTA and DELTA 2 programmes and the support of EU instruments (e.g., ERA-NET Cofunds Horizon 2020 and the Horizon Europe Partnership)<sup>8</sup>, but also the support of specific themes in the field of international collaboration. It aims at those areas of international collaboration that

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<sup>8</sup> This will support the involvement of Czech entities in the Horizon Europe Framework Partnership Programme. If necessary and in agreement with the department, Partnerships that thematically fall under the so-called departmental programmes of the Ministry of the Interior, the Ministry of the Environment, and Ministry of Transport can also be supported. This does not apply to already concluded grant agreements.

TA CR can provide in accordance with the agreement with the Ministry of Education, Youth and Sports.

This sub-objective will be achieved by funding joint projects of applicants from the Czech Republic and applicants from abroad in areas that have potential for the respective countries. Activities facilitating the achievement of synergistic and complementary effects with instruments emerging in EU and operational programmes will be further supported in the sub-objective. The support will improve the access of teams from the Czech Republic to international knowledge and know-how, and foreign research capacities, and will facilitate the penetration of foreign markets.

By its focus, the sub-objective contributes to the fulfilment of the measures defined by the National Research, Development and Innovation Policy of the Czech Republic 2021+, in particular measure 14.

### **Sub-objective 5 - Cross-sectional support (SO5)**

**Definition of the Objective:** To strengthen support for new opportunities in applied research and innovation projects.

The support will be directed towards the measures stated below in areas that do not fall under the focus of the programmes for supporting applied research and innovation of other providers. The themes of the focus of the calls for proposals in this sub-objective will be systematically discussed with interested parties. At the end of the discussion process, the Research Board of TA CR will comment on them. Specifically, it will be a measure that will address:

- Current R&D needs – the measure creates a mechanism in the programme that will enable a quick and effective response to accelerating economic development and turbulent changes in the environment of applied research and innovation. Using this instrument, targeted support can be provided to projects currently responding to the emerging needs of Czech society and the economy (e.g., themes related to population health, population aging, etc.) in accordance with the priorities of the National RIS3 Strategy 2021+.
- Long-term research plans – long-term projects that focus on setting up and developing systemic solutions to current and future R&D issues in various fields (e.g., in the field of social sciences, where there is currently a growing need to implement longer-term projects). Types of projects that are not expected to have immediate application or rapid implementation of results on the market, due to characteristically long development cycles, can also be supported. Elements of basic oriented research will also be eligible for these projects.

- Strengthening/development of regional innovation ecosystems – support for projects that will be in line with the needs of the regions and will be implemented in collaboration with individual regions. The thematic focus will be based on the National RIS3 strategy or relevant regional RIS3 strategies and will also take into account RDS 21+. During their implementation, the principle of co-funding will be applied, i.e., supported projects linked to regional development will be partly financed from TA CR and partly from the region in question.
- Support for systemic measures and the use of new opportunities that will lead to the improvement of applied research and innovation projects. For example, emphasis on the support of multidisciplinary approaches in projects, funding of high-risk/high-gain projects, exploitation of the potential of basic research outputs for applications, introduction of the principles of responsible research and innovation – open access, equal opportunities in the content of research, public consultations, ethics in research. etc.

By its focus, sub-objective 5 contributes to the fulfilment of the measures defined by the National Research, Development and Innovation Policy of the Czech Republic 2021+. As a cross-cutting sub-objective covering various different themes, it contributes to the fulfilment of several measures at the same time, but in particular measures 7, 8, 21, and 26.

All sub-objectives of the SIGMA programme will contribute to the fulfilment of the priorities of the National RIS3 Strategy 2021+, and also to the fulfilment of measure No. 21 of the National Research, Development and Innovation Policy of the Czech Republic 2021+

## **9. Method of Implementing the Programme**

The themes and technical parameters of the support, including the form and rules of providing funding, the definition of eligible applicants, the expected duration of the projects, etc., will be the subject of the preparation of individual calls for proposals. These will be announced for the purpose of achieving the sub-objectives according to the current needs and requirements of the Czech research and innovation environment, the Czech economy, and society. A brief overview of the indicative basic parameters for announcing calls for proposals is summarised in Table 1 below. The thematic focus of the calls for proposals will take into account any requirements of the Research, Development and Innovation Council (hereinafter also referred to as the “Council”), will be in accordance with strategic documents approved by the government of the Czech Republic, and will be commented on by the Research Board of the TA CR.

### **Description of the function of the coordination group**

A Programme Council will be established as an expert advisory body pursuant to Article 21(4) of the Act on the Support of Research, Experimental Development and Innovation. Furthermore, the provider will set up a coordination group that will have a consultative role for the Research Board and other bodies of the TA CR and that will prepare an outlook for the focus of the calls for proposals. This outlook will be used to plan the schedule of the calls for proposals for the period of the following year. The coordination group will consist of representatives of the TA CR Board, the Research board of TA CR, the Section for Science, Research and Innovation of the Office of the Government of the Czech Republic, the Academy of Sciences of the Czech Republic, the Grant Agency of the Czech Republic, governmental departments (in particular the Ministry of Industry and Trade, Ministry of Education, Youth and Sports, Ministry of Transport, Ministry of the Environment, Ministry of Culture, Ministry of Regional Development, and Ministry of Justice) and others. The coordination group is headed by the Chairman of the Coordination Group (a representative of the TA CR Board). Representatives of the Council and the Association of Regions of the Czech Republic will be invited to the coordination group as permanent guests. Other guests may be invited to the meetings of the coordination group.

The statute and rules of procedure of the coordination group will be approved by the Research Board and the TA CR Board.

Calls for proposals will be set up and implemented in such a way that there will be no overlaps with other programmes for the support of research, development and innovation funded from public sources. During the implementation of the programme, the provider will take into account new methods and knowledge that may enter the R&D support system.

**Table 1: Basic parameters for announcing calls for proposals<sup>9</sup>**

Parameters	SO1 Pre-application research	SO2 Early-stage researchers	SO3 Support social sciences, humanities, and arts	SO4 International collaboration	SO5 Cross- sectional support
Estimated frequency of calls for proposals	Once per year	Once per year	Once per year	Once per year, EU instruments 3x per year	Once per year
Duration of projects	6 months – 4 years	1 year – 2 years	2 years – 4 years	6 months – 5 let	1 year – 7 let
Expected aid intensity per project	Up to 100%	85%	80%	75–80%	Up to 100%
Thematic focus	No	No	Yes	Yes	Yes
Total expenditures from the SB (in CZK)*	930 mil.	1 580 mil.	2 230 mil.	1 030 mil.	1 370 mil.
Other specifications	-	Provision of equal opportunities for men and women	-	Synergy with EU programmes	Partial regional co-financing

\* Adjustment of the financial allocations of the individual sub-objectives is possible. Transfers of funding above 20% of the given sub-objective will be governed pursuant to Article 5(3)(a) of Act No. 130/2002 Coll.

## 10. Expenditure on the Programme

Expenditure on the SIGMA programme amounts to 8,925 million CZK. The amount from the state budget (SB) is 7,140 million CZK. The amount of expenses from other sources (including other public sources) is 1,785 million CZK.

**Table 2: Expenditure on the SIGMA programme (in mil. CZK)**

Year	2023	2024	2025	2026	2027	2028	2029	Total
Amount from the SB	240	900	1200	1 200	1 200	1 200	1 200	7 140
Other sources	60	225	300	300	300	300	300	1 785
<b>Total</b>	300	1 125	1 500	1 500	1 500	1 500	1 500	8 925

<sup>9</sup> These parameters may be updated based on the evaluation of the progress of each call for proposals.

## **11. Aid Intensity**

The highest permitted aid intensity in the programme is 100%. The expected average aid intensity in the programme is 80%. The provider will further specify this aid intensity in the call documentation for the relevant call for proposal. The aid intensity, determined as a percentage of eligible project costs, will be calculated for each project and for each beneficiary and other participant separately. If funding will be provided to businesses, it is necessary to respect the maximum aid intensity pursuant to the Regulation.

The following table lists the highest permitted aid intensity for industrial research, experimental development and innovation, and individual categories of participants:

**Table 3: Maximum aid intensity for individual categories of activities and individual categories of participants according to the Regulation**

Activity category	Beneficiary			
	Small enterprise*	Medium-sized enterprise*	Large enterprise*	Research organisation**
Industrial research	70%	60%	50%	100%
Industrial research using an increase in aid intensity****	80%	75%	65%	100%
Experimental development	45%	35%	25%	100%
Experimental development using an increase in aid intensity****	60%	50%	40%	100%
Innovation intended for small and medium-sized enterprises	50%	50%	-	-
Innovation of processes and organisational innovation	50%	50%	15%***	-

\*A small and medium-sized enterprise is defined according to Article 2(2) and Annex I of the Regulation, and a large enterprise is defined according to Article 2(24) of the Regulation.

\*\*Research organisation is defined according to Article 2(83) of the Regulation. The indicated aid intensity is intended for non-economic activities of research organisations, which are activities according to point 19 of the Framework.

\*\*\*Support for large enterprises for innovation of processes and organisational innovation is compatible only under the conditions stated in Article 29(2) of the Regulation.

\*\*\*\* An increase in the aid intensity may be used if one of the conditions of Article 25(6)(b)(i) and (ii) of the Regulation. The provider will state the specific definition in the tender documentation for the relevant call for proposals.

## 12. Applicants for Funding

Applicants or beneficiaries of funding for a project pursuant to the Act on Support for Research, Experimental Development and Innovation, the Framework and Regulations may be:

- **Research and knowledge-dissemination organisations** – legal persons meeting the definition of a research organisation pursuant to Article 2(83) of the Regulation and pursuant to the Act on the Support of Research, Experimental Development and Innovation. These organisations may implement the project individually or in collaboration with other participants. If research organisations perform economic activities in addition to non-economic activities, they are obliged to maintain separate accounting for the expenditure and income from these economic activities.
- **Enterprises** – legal and natural persons engaged in economic activity, regardless of legal form (Annex I of the Regulation), who implement the project

individually or in collaboration with other participants and demonstrate the ability to co-finance the project from non-public sources.

- **Organisational components of the State** according to Article 3(1) of Act No. 219/2000 Coll., on the property of the Czech Republic and its conduct in legal relations, and contributory organisations established by them according to Article 54 of the same act.
- **Territorial self-governing units including organisations established by self-government.**

Call documentation for the relevant call for proposals may narrow down the range of applicants stated above. The preferred model of collaboration is the participation of an enterprise in collaboration with a research organisation.

### **13. Eligibility of Applicants for Funding**

Funding of a project implemented under the programme may only be obtained by applicants who meet the eligibility conditions laid down in Article 18 of the Act on the Support of Research, Experimental Development and Innovation and the Regulation. If several applicants apply together to perform a single project, then the obligation to demonstrate eligibility shall apply to all of these applicants.

Eligibility is demonstrated by the applicant with documents in accordance with the Act on the Support of Research, Experimental Development and Innovation in the manner specified by the provider in the call documentation.

### **14. Eligible Costs**

Funding will be provided for eligible project costs, i.e., for those eligible costs that are justified, are to the extent necessary for the purposes of the project and are approved by the provider. The applicant may propose as eligible costs only the costs defined in accordance with the Act on the Support of Research, Experimental Development and Innovation, and in the case of funding under the state aid regime according to the aid category, i.e., in accordance with Article 25, Article 28, and Article 29 of the Regulation. More detailed specifications of the eligible costs will be provided of the call documentation for the relevant call for proposals.

## 15. Incentive Effect

In order to achieve the objectives of the programme and the conditions of the Regulation, the provider will assess the incentive effect of the funding pursuant to Article 6 of the Regulation as part of the evaluation process of project proposals. In order to achieve the incentive effect pursuant to Article 6 of the Regulation, the start of works on the project/activity must not be<sup>10</sup> prior to the application for funding being submitted. Each project and each applicant will be dealt with individually in this regard.

## 16. Expected Results of the Programme

The programme will make it possible to achieve all kinds of outputs in the form of results according to the methodology for the evaluation of research organisations and evaluation of targeted support programmes valid at the time of evaluation of the programme (hereinafter also referred to as the “methodology”). Only projects that reasonably assume the achievement of at least one main output in the form of a result according to the methodology will receive funding. The list of supported outputs in the form of results will be specified during the preparation of the individual calls for proposals and will be specified in the given call documentation. The provider will require a meaningful provision of open access to the results created with co-funding from public resources. The specific conditions will be included in the call documentation for the relevant call for proposals.

There are several types of knowledge and skills pursuant to Article 2(2)(k) of the Act on the Support of Research, Experimental Development and Innovation, which are expected as results of applied research and innovation. For this reason, the programme will be evaluated not only on the basis of the outputs in the form of results according to the currently valid methodology, but also according to the knowledge, skills, and impacts achieved. These evaluations will take place as part of the final impact evaluation of the programme.

Outputs in the form of results according to the methodology and the Register of Result Information of type “O”, must meet the condition of applicability in practice, and subsequently the provider will monitor their application in practice as part of the monitoring of implementation plans. Assessment of the planned outputs or results is part of the evaluation of project proposals.

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<sup>10</sup> Pursuant to Article 2(23) of the Regulation, ‘start of works’ means the earlier of either the start of construction works relating to the investment, or the first legally binding commitment to order equipment or any other commitment that makes the investment irreversible. Buying land and preparatory works such as obtaining permits and conducting feasibility studies are not considered start of works. For take-overs, ‘start of works’ means the moment of acquiring the assets directly linked to the acquired establishment.

The use of the achieved outputs in the form of results must in practice contribute to the achievement of the set objectives of the programme and to positive societal (social and economic) impacts and must be demonstrably beneficial. The results of the SIGMA programme leading to these impacts are considered to be, for example, an increase in private spending on R&D, an increase in the number of collaborations between enterprises and research organisations, and an increase in the number of implemented innovations. This will result in the higher productivity of enterprises, an increase in added value and, for example, better quality working conditions.

## **17. Expected Benefits of the Programme**

The expected benefits of the SIGMA programme may be divided into three basic, interconnected areas: economic; social; for R&D support in the Czech Republic.

The economic benefits may be expected mainly in the development of technologies and procedures and their related impacts, such as an increase in sales, company exports, labour productivity, higher prestige of enterprises and research organisations, or facilitation of penetration into foreign markets. An increase in the number of collaborations and the applicability of the results of research organisations and enterprises, and an increase in the number of established start-ups and spin-off companies may also be assumed. At the same time, activities in the SIGMA programme will help to strengthen the functioning of regional innovation systems, and to strengthen the number of entities collaborating with the regional innovation centre.

In terms of social benefits, an increase the quality of life in society may be expected (for example, in the form of improved education, more efficient social apparatuses and services, increased wages, or easier access to new technologies in the form of open access). From the point of view of international overlap, we may also expect greater interconnectedness of international research collaboration, sharing know-how, and an increase in participation in international consortia. Wide use of the acquired knowledge is expected due to technology transfer and making R&D results available to the public to the greatest extent possible. The programme will contribute to removing barriers and solving social challenges in the innovation system and in society.

The SIGMA programme is set up to flexibly support current themes, to implement new needs of the government, public administration, regions, and society, and to provide solutions to research needs arising in crisis situations. Therefore, a new programme does not need to be prepared for these cases, which significantly increases efficiency and reduces time and administrative demands. The provider will be able to respond quickly from the identification of

a newly created research theme to its funding, thereby contributing to the efficiency of R&D support in the Czech Republic. In this regard, TA CR emphasises the development of systemic measures, including the introduction of the principles of responsible research and innovation into the performance of applied research and innovation projects. The benefit of implementing these principles is the production of R&D results that are in line with the needs, values, expectations of society, and consideration of the impacts of research and innovation activity in a wider context. The SIGMA programme will also contribute to increasing the number of research results applied in practice and increasing the commercial potential of the results of the supported projects. The synergistic effect of the programme will be the transfer of “good practice” and best practices between collaborating partners.

## **18. Method and Criteria for the Evaluation of Project Proposals**

In accordance with the rules established by the Act on the Support of Research, Experimental Development and Innovation, the provider shall appoint a committee for the acceptance of project proposals. This committee shall evaluate compliance of the project proposals with the conditions of the call for proposals given in the call for proposals announcement and proof of the eligibility of the main applicant and other participants. The provider shall decide whether or not to accept a project proposal for a call for proposals pursuant to Article 21(3) of the Act on the Support of Research, Experimental Development and Innovation, based on a protocol prepared by the committee for the acceptance of project proposals, or an expert advisory body.

The provider will establish an expert advisory body for the evaluation of project proposals accepted for call for proposals. The expected criteria used for the selection of projects shall be:

- Fulfilment of the conditions of the call for proposals;
- Necessity of the project;
- Feasibility and progress of project implementation;
- Expected results and impacts of the project.

More detailed information on the conditions of the specific call for proposals and other requirements, including the evaluation process, are provided in the call documentation for the relevant call for proposals.

When evaluating project proposals, the provider shall focus on establishing an efficient and cost-effective evaluation process. The evaluation of project proposals shall also include

the evaluation of possible duplications with other applied research and innovation projects, as part of the expert evaluation of the project proposal.

## **19. Criteria for Achieving the Objectives of the Programme**

The achievement of the main objective and sub-objectives of the programme will be evaluated in accordance with Methodology 2017+ (and its future updates) for the evaluation of the results of research organisations and the evaluation of the results of completed programmes valid at the time of the programme evaluation and other conditions set by the provider as part of the interim and final evaluation of the programme. Achievement of the objectives of the programme will be evaluated based on a set of indicators of inputs, outputs, and results intended for monitoring the progress of the programme (interim and final evaluation). Also, according to the impact of the overall performance and success of the programme (impact assessment). This evaluation will be performed with a certain time interval so that the provider can comprehensively evaluate the set intervention logic of the programme. The indicators of the main objective and sub-objectives will be monitored based on both quantitative and qualitative data. The addition of qualitative studies will clarify the results of the evaluation of the achievement of objectives. Quantitative indicators linked to the main objective of the programme will also be monitored at the level of all sub-objectives.

**Table 4: Indicators for the SIGMA programme**

<b>Indicator</b>	<b>Link</b>	<b>Number</b>
<b>Volume of funding provided from the SB</b>	Main objective	7 140 mil. CZK
<b>Number of supported projects</b>	Main objective	1 330
<b>Number of supported employees</b>	Main objective	1 100 FTE per year
<b>Achieved outputs/results</b>	Main objective	6 875
<b>Qualitative indicator “Social Relevance”</b>	Main objective	Study conclusions
<b>Qualitative indicator “Solution of Systemic Measures of the Research and Innovation Environment”</b>	Main objective, SO5	Study conclusions
<b>Number of verified outputs/results</b>	SO1	1 075
<b>Number of research organisations involved in SO1 projects</b>	SO1	35
<b>Qualitative indicator “Transfer of Technology”</b>	SO1	Study conclusions
<b>Qualitative indicator “Early-stage Researchers”</b>	SO2	Study conclusions
<b>Number of early-stage researchers in SO2 projects</b>	SO2	180 FTE per year
<b>Number of outputs/results of social sciences, humanities, and arts projects used in practice</b>	SO3	200
<b>Qualitative indicator “Strengthening Social Sciences, Humanities, and Arts Activities”</b>	SO3	Study conclusions
<b>Number of international links created between project participants</b>	SO4	85
<b>Qualitative indicator “International Collaboration”</b>	SO4	Study conclusions
<b>Number of involved organisations (uniquely) per region (with an innovation centre)</b>	SO5	25
<b>Numbers of involved regions</b>	SO5	14
<b>Qualitative indicator “Support for Cross-Cutting Measures”</b>	SO5	Study conclusions

## **20. Evaluation Framework of the Programme**

The basic assumption for the evaluation of the programme is the continuous monitoring of all the funded projects. Monitoring will take place throughout the implementation period and will serve for a one-time descriptive overview of the course and progress of the programme. At the same time, it will be an important input for the individual types of evaluations/assessments.

The following types of evaluations are expected to be performed during the course of the programme:<sup>11</sup>

- **Interim evaluation of the programme** will serve to implement the programme more efficiently. Considering the financial scale and content of the programme, this evaluation may be considered very beneficial. Its essence will be the interim evaluation of the implementation, the established processes, as well as the continuous achievement of the programme objectives and the targeting of calls for proposals. Emphasis will be placed on providing relevant and feasible recommendations, which will be taken into account when announcing further calls for proposals and overall in the programme implementation phase. In terms of timing, two types of interim evaluation will take place:
  - Simplified interim evaluation (monitoring) performed after the end of each call for proposals;<sup>12</sup>
  - Full interim evaluation (i.e., more complex) performed at least once every three years during the implementation of the programme. The first evaluation will take place after three years of programme implementation. During the 2<sup>nd</sup> interim evaluation, the evaluator shall assess the possibility of performing a counterfactual analysis.
- **Final evaluation of the programme** will focus on the achievement of the objectives of the programme after its completion. In addition, the final evaluation should provide methodological recommendations for the ex-post evaluation of the impact of the programme, which will be performed over a longer period of time and will focus on revealing the benefits and impacts for supported enterprises as well as the impact of the programme within the innovation ecosystem of the Czech Republic.
- **Evaluation of the impact of the programme** will deal with revealing the benefits and impacts of the programme and all its interventions during the implementation period. The purpose will be to reveal expected and unplanned benefits and impacts for the supported entities and the economy as a whole. Due to the nature and size of the programme, it is possible to assume the use of a wide range of applied methods and analyses, including econometric approaches.

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<sup>11</sup> A more detailed description of the mentioned types of evaluation is included in the document entitled "Analysis of the solved issue", which was prepared for the needs of the programme.

<sup>12</sup> The effectiveness of the simplified monitoring will be assessed during the first interim evaluation of the programme. Based on the results of the assessment, the frequency of the interim monitoring may be revised.

## 21. Comparison of the Current Situation in the Czech Republic and Abroad

A framework programme for R&D support was previously implemented by the Ministry of Education, Youth and Sports (hereafter also referred to as MAYS). The purpose of this programme was to link various areas of R&D support into one National Research Programme (NRP, 2004–2009), which was then divided into five thematic programmes and three cross-cutting programmes. Each of the thematic programmes contained several sub-programmes according to a more specific thematic focus. Each sub-programme fell under the responsibility of the relevant department, which administered it and was also the provider of funding. The cross-cutting programmes were focused on R&D support areas, in particular the support of human resources for research, integrated research and international and regional collaboration, which were under the responsibility of MEYS.<sup>13</sup> The implementation of the programme did not start from the beginning in full, in order to avoid possible duplication of funding with previous programmes of individual departments. The original and ongoing programmes of the departments were transferred gradually. In total, 36 calls for proposals were announced in the NRP, 1,014 projects were performed with the funding of providers amounting to almost 11 billion CZK. With its multi-level structure, the NRP resembles the structure of the SIGMA programme. The SIGMA programme is based on these experiences. However, it is set up so that all support areas will be administered by a single provider. Therefore, the administration of the entire programme will be more user-friendly, including the establishment of a unified support environment for applicants and beneficiaries.

The framework programmes of the European Union are suitable for an international comparison with the SIGMA programme. These programmes support international collaboration in solving pan-European important research themes, mobility of researchers, and the development of research capacities. The Czech Republic joined FP5 in 1999.<sup>14</sup> The Horizon 2020 (FP8 for the period 2014-2020) and Horizon Europe (FP9 for the period 2021-2027) programmes focus on supporting breakthrough innovations and increasing the impact of their focus by strengthening international collaboration and involving Member States in the process of their creation.

The character of the framework programme may also be perceived in operational programmes. The general regulation for aid establishes mandatory thematic concentrations, which all Member States must reflect when preparing their operational programmes. Individual

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<sup>13</sup> With the exception of one sub-programme under the responsibility of AS CR.

<sup>14</sup> FP = Framework Programme.

objectives and priorities are then determined by each Member State in a given area in the current programme period. In the SIGMA programme, the general framework is established, and the areas of support are defined based on the practice of creating instruments of the European Commission.

TA CR drew inspiration from member agencies of the TAFTIE European network of innovation agencies. The Austrian agency FFG is a national agency that functions as a basic point of contact on the principle of a “one-stop shop” for the support of research and development. The most important source of R&D funding in the country is the FFG General Programme. The aim of the programme is to strengthen the competitiveness of enterprises based in Austria. It supports research and development in all sectors of the economy, technology, and enterprises of all sizes in various stages of development. It is based on a bottom-up approach, using a combination of grants and financial instruments. Applications are submitted continuously. The programme supports projects, including various activities - from brainstorming and feasibility studies, through projects of start-up companies, business development, and commercialisation. Another of the FFG programmes called “Bridge” is mainly focused on collaboration between science and industry. The “Beyond Europe” programme brings to life Austria’s national strategy to become an innovation leader. The “Frontrunner” programme focuses on expanding the market positions of enterprises with high potential in all areas of industry and research themes.

The Swedish agency Vinnova uses a strategic innovation framework programme called “Production 2030”. The programme is focused on areas that require investment to strengthen the competitiveness of the country. The aim is to create a national base for research, innovation, and education for competitive Swedish products in 2030 and the development of Industry 4.0. The programme emphasises the efficient use of resources, cooperation of people, flexible production, virtual development, circular production systems, and integrated production systems.

The TAFTIE network has proven to be very effective even in times of crisis. The COVID-19 pandemic revealed how creative and reactive some agencies can be if they have the necessary flexibility and a range of funding options. Despite the at times rigid legal framework, the agencies were able to find solutions and support promising projects. European agencies moved quickly to change working models, adjusting the order of priorities, budget allocations, procedures for submitting applications, their evaluation, and the rules for payment procedures. They focused on immediate direct support to small and medium-sized enterprises, but also on consultancy with the aim of supporting research, development, and innovation after overcoming the crisis. They also verified the ways of engaging creative thinking to achieve a sustainable society.

## Annex 1

### **Executive Summary of the Analysis of the Solved Issue of the SIGMA Programme**

The SIGMA programme is a new, comprehensive, and long-term instrument prepared by the Technology Agency of the Czech Republic to support applied research projects in accordance with the current Framework for State Support of Research, Development and Innovation and Commission Regulation (EU) No. 651/2014. It focuses on achieving and solving several objectives and measures established by key strategic and conceptual documents in the field of research, development and innovation (hereinafter also referred to as “R&D”) in the Czech Republic. The intention to provide funding through the SIGMA programme is already stated in the RDS 21+<sup>15</sup> and in the National Recovery Plan.<sup>16</sup> The SIGMA programme shall be implemented in the years 2022–2029, while the anticipated extension of the programme aims to stabilise support for applied research and innovation in the Czech Republic, and the amount of programme funding corresponds to the current trajectory of spending on applied research and innovation.

The main vision of the newly intended broad support instrument is the consolidation of several current TA CR programmes into one programme, enabling regions to be supported according to their innovation potential, and support for cross-cutting and systemic measures, while leaving space to support areas/themes not identified at the time of programme preparation. The SIGMA programme will ensure the implementation of activities from the current ZÉTA, ÉTA, GAMA 2, and DELTA 2 programmes, and EU instruments (in which the provider will be involved). The agenda of the consolidated programmes is divided into the individual sub-objectives of the programme, of which there are five.

The SIGMA programme brings more stability and predictability to the applied research and innovation support system. At the same time, it simplifies administrative procedures and requirements, and last but not least, it is a flexible programme that allows for a flexible response to the needs of society and the economy that may arise based on current and unexpected situations. It aims to combine activities that complement the established support of applied research and innovation in departmental programmes.

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<sup>15</sup> The action plan of the Regional Development Strategy of the Czech Republic 2021–2022 (approved by Government Resolution No. 23 of 11 January 2021) foresees the monitoring of the indicators of the SIGMA programme.

<sup>16</sup> Specifically, in component 4.5 Development of the Cultural and Creative Sector (approved as part of the National Recovery Plan by Government Resolution No. 467 of 17 May 2021).

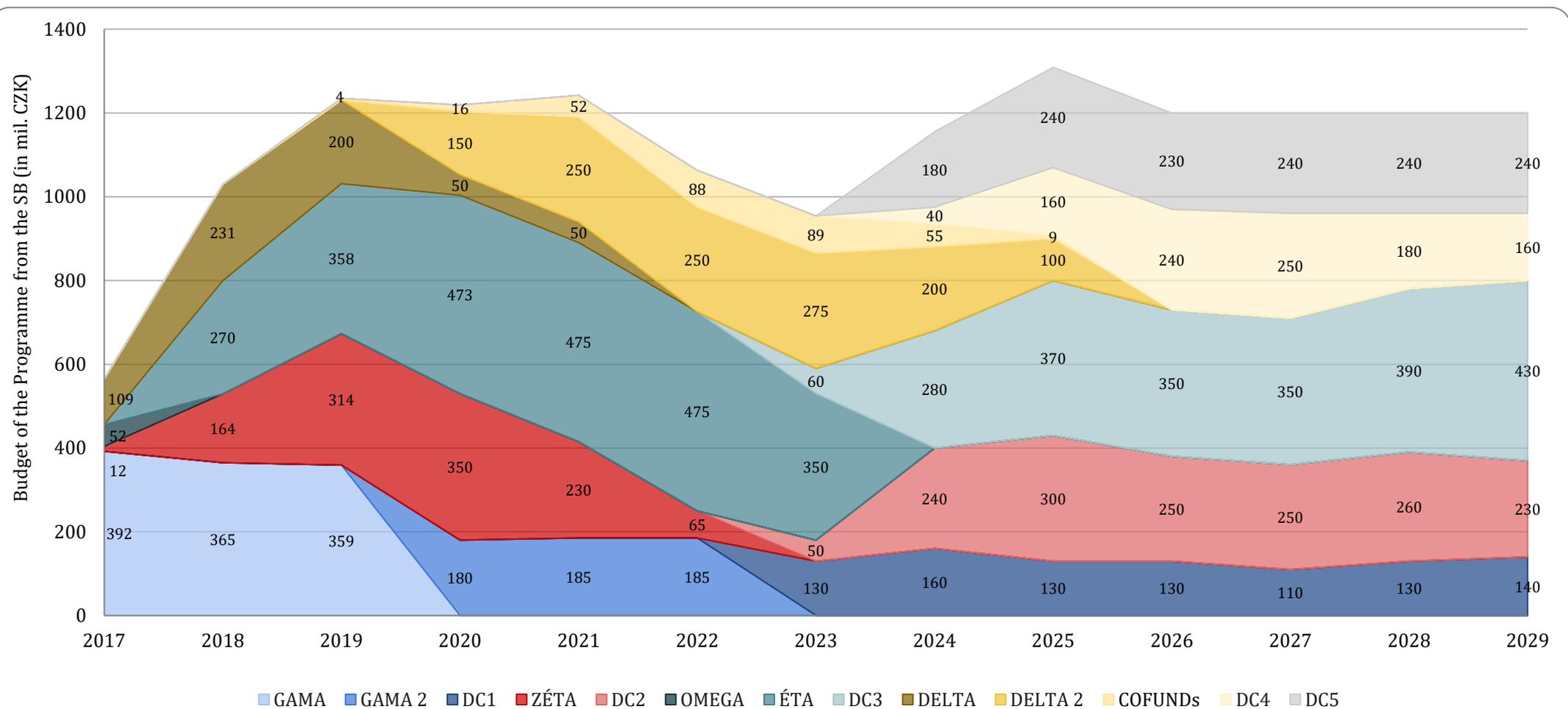
The SIGMA programme is designed in general, providing the framework parameters for R&D support for the next eight years. With the existence of this type of programme, the Government/Council obtains an instrument within which it can flexibly and more simply respond to research needs that will arise in the course of the following years, and which will not be covered by any existing targeted support programme. TA CR also offers a better opportunity to reflect the priorities of the departments within the sub-objectives of the SIGMA programme. In order to properly design the programme, the current interim evaluations of TA CR programmes were also used, which confirm that the support adopted and offered by the SIGMA programme is meaningful and necessary.

The calls for proposals will be monitored throughout the implementation period and will serve for a single descriptive overview of the course and progress of the programme. At the same time, it will be an important input for individual evaluations of the programme.

SIGMA will also be continuously evaluated based on the following evaluations: (1) interim programme evaluations. Their aim will be to continuously evaluate the implementation, the set processes, but also the continuous achievement of the programme objectives and the targeting of the calls for proposals. In terms of time, two types of interim evaluation will take place: (1.1) simplified interim evaluation (monitoring) performed after the end of each call for proposals; (1.2) full interim evaluation (i.e., more complex) performed at least once every three years during the implementation of the programme. (2) The final evaluation of the programme will focus on the achievement of the objectives of the programme after its completion. (3) The evaluation of impacts of the programme will reveal the benefits and impacts of the programme and all its interventions during the implementation period. During each evaluation of the SIGMA programme, both quantitative and qualitative data will be taken into account, which guarantees its comprehensive evaluation and enables a realistic approach to the use of the programme based on these results. The processing of qualitative data provides the opportunity to further reflect the specific needs and initiatives of solvers, which cannot be obtained through the evaluation of quantified system data. At the same time, counterfactual analysis will be used for the interim evaluation of the programme, starting from the 2<sup>nd</sup> interim evaluation of the programme in relation to the current and available data.

When setting the budget, TA CR made use of the above-mentioned previous programmes and the available interim and final evaluations, which demonstrate the absorption capacity, potential, and meaningfulness of their scope. The planned budgets of the programmes whose activities will be implemented through the SIGMA programme amount to a total of 7,068 million CZK in the years 2017–2023. For the years 2023–2029, the provider plans a virtually identical amount for the SIGMA programme, a total of 7,140 million CZK from the state budget. Of which, 20% will be used to support cross-cutting measures, through which it will be possible to immediately respond to an improved economic situation or to new needs of the State or government (grey section of the graph).

Graphic representation of the budgets of TA CR programmes<sup>17</sup> and linkage to the budget of the SIGMA programme



<sup>17</sup> Programmes whose activities will continue in the SIGMA programme. The data are current as of 31 August 2020.

The existence of an R&D support programme conceived in this way will make it possible to much more effectively achieve the main objectives of the strategic documents of the Czech Republic focused not only on the domestic situation, but also on increasing the position of the Czech Republic internationally.

## Annex 2

Strategic objectives, specific objectives, and thematic priorities of the NAKI III programme, which will not be addressed in SO3 of the SIGMA programme

Strategic objective		Specific objective		Thematic priorities	
No.	Wording	No.	Wording	No.	Wording
1.	Focus the support provided under the Programme in the area of national and cultural identity	1.	National and cultural identity in history and archaeology	1.	National and cultural identity in archaeological, historical, and socio-cultural continuity or discontinuity and their reflection on the historical territory of the Czech state
				2.	National and cultural identity, and the origin and development of residential areas
				3.	National and cultural identity in changes and exploitation of the cultural landscape
				4.	National and cultural identity in the cultural memory of the nation
				5.	National and cultural identity in the maintenance and development of historical and cultural awareness
				6.	National and cultural identity in relation to the external European cultural environment
				7.	National and cultural identity in the culture of minorities in the historical territory and beyond the borders of the Czech state, and their cohesion in a European context
		2.	National, regional, and local aspects in linguistic, literary, and cultural identity	8.	National, regional, and local aspects in the Czech language and literature
				9.	National, regional, and local aspects in the linguistic, literary, and cultural specificities of regions, and the formation of regional and local identities
				10.	National, regional, and local aspects in linguistic, literary, and cultural aspects, and the consequences of the processes of European integration and globalisation
		3.	National and cultural identity in the research of artistic creation	11.	National and cultural identity in the preservation, documentation, and registration of cultural heritage in the fields of folk culture and tradition, music, theatre, and film
				12.	National and cultural identity in regional and local cultural and artistic activities, revealing the risks of further development, including research of the consequences of measures aimed at supporting cultural activities and the care of intangible cultural heritage

Strategic objective		Specific objective		Thematic priorities	
No.	Wording	No.	Wording	No.	Wording
				13.	National and cultural identity in the assessment of social and cultural impacts of contemporary living culture and art on the development of a democratic society and improving access to cultural assets
				14.	National and cultural identity in monitoring and evaluating the multiplier economic effects of cultural and artistic activity and the use of cultural heritage
		4.	National and cultural identity in the care of cultural heritage and land with historical value	15.	Protection, conservation, restoration, and prevention of national immovable and movable cultural heritage for its preservation and for the improvement of the system of care for monuments and collection funds, including museums, galleries, libraries, and archives
				16.	Methods of identification, documentation, registration, and interpretation of national immovable and movable cultural heritage
				17.	Protection of the most endangered typological groups of national immovable and movable cultural heritage with the use of tools for their identification, documentation, and registration, and for their systematic saving and use
				18.	Care of the national architectural heritage and historical and urban structures and their development (including the assessment of the impact of modern architecture) on the quality of the cultural and historical values of the territory, including an evaluation of the importance of undeveloped and built-up areas
				19.	Care of national movable cultural heritage in collection-building institutions using tools and applications of modern methods of storage, preservation, and presentation
				20.	Identification of the cultural values of the landscape, for the preservation of the legacy of Czech garden art and landscaping, for the specification of development strategies and the regime of care for historic gardens and significant objects of landscaping
				21.	Mapping the condition, documentation and registration of national monuments,

Strategic objective		Specific objective		Thematic priorities	
No.	Wording	No.	Wording	No.	Wording
					development, and application of systems for connecting information networks and databases between institutions
				22.	Historical, cultural, economic, and social development of the historical territory of the Czech state
				23.	System of increased protection of collections including equipment and systems for remote sensing and surveillance of objects of national cultural heritage
				24.	Saving national cultural heritage endangered by global anthropogenic or natural risks and threats
		5.	Use of knowledge of cultural heritage to support research in the field of arts and crafts	25.	Applied research and the use of its results to support arts and crafts
				26.	Applied research and the use of its results to support conservation technologies, restoration, and crafts

Source: Ministry of Culture.