

ETA PROGRAMME ARTS, SOCIAL SCIENCES AND HUMANITIES AS AN INTEGRAL PART OF THE INNOVATION ECOSYSTEM OF THE 21ST CENTURY

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DOI: 10.22163/fteval.2019.375

ABSTRACT

This article refers to the implementation of the “ETA Programme for Applied Research, Experimental Development and Innovation in Art, Social Sciences and Humanities”. The programme addresses dynamic social, economic, globalisation-related, cultural or technological changes of the 21st century with allocation of 92 million EUR of state aid for 6 years, until 2023. The ETA programme introduces the so-called application guarantor, which should both increase applicability of the research results of SSH and broaden the spectrum of R&D solution users. It is also aimed at supporting the so-called innovation ecosystem of SSH consisting of interdisciplinary collaboration, combination of technical and non-technical research content and usage of basic research discoveries of SSH for application. Several supported research projects will be mentioned as well as points for the ongoing discussion on how to exploit the innovation potential of SSH.

INTRODUCTION

THE ETA PROGRAMME

R&D Programme “ETA – Programme for Applied Research, Experimental Development and Innovation in Art, Social Sciences and Humanities” (ETA programme, 2017) was developed and is implemented by the “Technology Agency of the Czech Republic” (hereinafter TACR). Based on findings of the evaluation activities carried out in 2014-2017, the final version of the programme was adopted by the Government of the Czech Republic in January 2017. At present (October 2018), the implementation of the ETA programme is in the mid of its 2nd call for proposals (see also Table 1. “General terms and conditions”). The programme supports social sciences, humanities and art (hereinafter SSH) to address the dynamic social, economic, globalisation-related, cultural or technological changes, which the human and society are currently facing. Other non-SSH fields are also welcomed in the programme mainly for interdisciplinary

synergies, but the core of every project must lie in SSH, which are listed under sections 5 and 6 in the “Fields of Research and Development classification” (FORD classification) (OECD, 2015). The principles of applied research and development are promoted in the sense described in the Frascati manual (OECD, 2015), which says the research solution must be practice oriented, novel, creative, uncertain, systematic and reproducible/transferable. The ETA programme is implemented under the Act (Act, 2002), with regard to the Regulation (GBER) (Commission Regulation, 2014) and the “State Aid Framework” (Framework, 2014). The funding is not provided in the de minimis mode.

Item	Value
Programme duration	2018-2023, 5 calls for proposals
Total expenditure	111 million EUR
Public aid (state budget)	92 million EUR
Expected average / max. amount of aid per project	190 thousand EUR / 3 million EUR
Funding intensity rates of the programme / per project	up to 80% / up to 80%
Origin of co-financing	private and other public resources
Overheads with / without HR Excellence in Research Award	up to 30% / up to 20%
Min. / expected average / max. duration of the project	12 months / 36 months / 48 months

Table 1. General terms and conditions

Reference: ETA Programme, 2017. Technology Agency of the Czech Republic

Eligible applicants for funding must have a registered office in the EU, the European Economic Area or the Swiss Confederation and fit to the definition of the following entities:

- **Research and knowledge dissemination organisations.** The research organisation can be supported up to 100% of their eli-

gible expenditure on R&D activity within the respective project. The co-financing can be ensured from private or other public sources.

- **Enterprises.** The maximum of the allowable funding intensity is set up with the respect of their size and financial performance according to the Regulation (Commission Regulation, 2014). Companies carrying out the project alone or in collaboration with other participants must demonstrate the ability to co-finance the project only from private sources.
- **Other natural and legal persons.** For the 1st and 2nd call for proposals, the other natural and legal persons are local authorities or legal entities in which local authorities take part in the role of founders or members. These are mainly **municipalities, city quarters, regions, microregions or local action groups** (hereinafter local authorities). These entities are considered as eligible for funding only if at least one research organisation or enterprise is among the project applicants. The intensity of support is based on the scheme applicable to enterprises, the maximum reaches up to 80% of their eligible expenditures. The rest can be added from public or private sources.

MISSION, VISION, OBJECTIVES AND CHALLENGES OF THE 21st CENTURY

Mission: The mission of the program is to support the application culture of academic staff and other professionals from SSH fields (R&D solution providers) and to stimulate interest in exploitation of their solutions by SSH application sphere (R&D solution users, such as ministries, municipalities, health, social or cultural organisations, schools, universities, churches, research organisations, enterprises, NGOs etc.). **Vision:** The vision of the programme is to encourage research creativity of SSH community, where SSH and non-SSH scientific fields are linked with each other and connected with R&D solutions users and/or target groups to such an extent, that SSH becomes a fully integrated part of the innovation ecosystem. **Objectives:** The objective of the programme is to support the involvement of art, social science and humanities in applied research, experimental development and innovation projects and use of their research outputs in the form of new or substantially improved existing products, procedures, processes or services in practice. **Challenges of the 21st century:** All projects shall be aimed at mitigating threats and exploiting opportunities in the context of the current and the future challenges of the 21st century. Such challenges affect the dynamic transformations of contemporary society, in the areas of:

- a. **Human and society** in the context of dynamic social and technological transformations and challenges of the 21st century: (1) the principles of the Fourth Industrial Revolution; (2) digitisation, virtual reality and artificial intelligence; (3) media and social networks; (4) social services, social work, social housing and social inclusion; (5) family policy; (6) demographic change—aging and fragmentation of society; (7) social insurance schemes; (8) migration and integration; (9) equal opportunities for men and women and principles of non-discrimination; (10) health, psychosocial development and spirituality;
- b. **Human and the environment for his / her life** in the context of sustainable development of the landscape, regions, towns and municipalities and the building culture: (11) globalisation and

regionalisation; (12) architecture, urbanism and living space; (13) sustainability and the environment; (14) physical and virtual linking;

- c. **Human and the economy** in the context of discovering new competitive advantages and competence development for the 21st century: (15) educational challenges; (16) employment; (17) health and safety at work; (18) sustainable growth and new competitive advantages; (19) innovative culture, a creative ecosystem; (20) design, design thinking and innovation; (21) new strategic non-material resources; (22) digital and creative economics; (23) media and technology; (24) business creation, business culture and business ethics; (25) clustering and strategic networking;
- d. **Human and the social system** in the context of interaction between the citizen and the state, public policies, governance and citizen-oriented public services. (26) citizen participation in government and community life; (27) protection of intellectual property rights, open innovation, big data; (28) strategic support for research, development and innovation; (29) responsible research, development and innovation and corporate social responsibility; (30) creation and evaluation of public policies and interventions; (31) citizen-oriented public services.

Each project must be focused on at least 1 of the 31 so-called challenges and opportunities of the 21st century.

INNOVATION ECOSYSTEM OF SSH

In order to foster sustainability of the intervention, the ETA programme also aims at supporting the system in which applied R&D in SSH takes place. It belongs to crosscutting current and future challenges of the 21st century not only for the human and society, but also for the SSH as such. Three aspects of the so-called innovation ecosystem of SSH have been identified:

1. **Interdisciplinarity** – breaking down the barriers between disciplines. Support of this aspect should result in a higher permeability of different knowledge of SSH and non-SSH fields and in an increased synergy effect of their innovation potential. Challenges and opportunities of the 21st century are so complex that their solutions often lie beyond the boundaries of various scientific disciplines. In addition, the innovation potential of some fields of SSH can be better exploited in conjunction with other disciplines. Thus, this aspect of the innovation ecosystem of SSH promotes the convergence of knowledge in between of SSH or between SSH and technical, life or natural sciences to acquire new knowledge and ways for applications.
2. **Responsibility** – producing more responsible research outcomes and innovation. Support of this aspect should minimise the negative undesirable effects of innovation on humans or certain social groups and strengthen the fair distribution of benefits arising from use of the R&D solutions in practice. Innovations – whether they are products, procedures, processes or services – should be developed with regard to possible side effects they may have on other groups of the population. Without sufficient reflection of their non-technical aspects, research outputs for some social groups may be potentially dangerous or exclude them from use. In addition, linking technical and

non-technical research content will enable SSH to use technology solutions to deliver their innovative potential to society. In evaluating this aspect, it is necessary to assess whether the project proposal respects the value of social justice and benefits for different target groups. Projects that practically address the overlooked dimension of social responsibility (e.g. integrate knowledge of age, ethnicity, sex, or gender) in the research content are also welcomed.

3. **Connectivity** – utilisation of innovative potential of the SSH knowledge and discoveries. Support of this aspect shall help to build a bridge between basic and applied research. The innovative potential of discoveries and knowledge of SSH for society often remains latent. Certain outcomes of basic research are not usually used in practice in respective social areas. This aspect will support projects that build up their practical research solution on an existing knowledge from basic research. During the evaluation process, it is necessary to assess whether the use of specific knowledge or discoveries for applications is justified and feasible.

Each project must be based on at least one aspect of the so-called innovation ecosystem of SSH.

PROGRAMME LOGIC MODEL

The programme logic model is based on the “Evaluation Reference Model” for “TAFTIE’s Taskforce” (Technopolis Group, 2014), which consists of four components: Inputs: To reach the mission, achieve the vision and fulfil the objectives, the Government of the Czech Republic has allocated 92 million EUR which represent up to 80% of total expenditures of the programme. The other 20% shall come from other public or private resources. Outputs: Research work – result of the funding will be measured by e.g. number of supported projects, form of collaboration, involvement of organisations in applied R&D activities or number and type of research results such as comprehensive research reports; certified methodologies, procedures and specialised maps; audiovisual works; organisation of a conference, workshop or exhibition; scientific publications; dictionaries, textbooks, teaching methods and tools, psychodiagnostic methods, mapping and planning studies, evaluation and impact studies, software; data structures and files, hardware prototypes, game simulations and simulators, ICT applications, patent; prototype; functional sample; business creation (start-ups, spin-offs) etc. Outcomes: The immediate benefits for beneficiaries or partners of the supported projects are expected not only in form of innovation coming from usage of research results in practice (innovation of products, procedures, processes or services), but also in form of stronger innovation ecosystem of R&D solution providers: interdisciplinary collaboration; combining technical and non-technical research content in one R&D project and more intensive exploitation of outputs from basic research for applications. Impact: If the produced outcomes are made within the sustainable innovation ecosystem of the SSH and used in day-to-day practice of the R&D solution users, then the positive impact of the innovation potential of the SSH will be achieved as well as new quality of life of human and society:

- a) **Impact on the human and society:** quality of human life is improved; sustainable environment for human life is supported; competitiveness of the Czech Republic is improved; efficiency and quality of public policies, public administration and public services is increased.
- b) **Impact on the SSH innovation ecosystem:** boundaries between scientific areas are permeable, research outcomes and innovation are made on the responsible way; innovative potential of the SSH discoveries is practically used.

SPECIFIC TERMS AND CONDITIONS

APPLICATION GUARANTOR

One of the main challenges of the ETA programme is to change the way of thinking, that the applied R&D only takes place between academia and businesses. The ETA programme stresses the relationship between “R&D solution providers” and “R&D solution users” in order to advance the existing support structures. In the case of SSH application sphere the natural users of the R&D solutions may not only be enterprises but any entity in public space. Therefore, the ETA programme introduces the so-called application guarantor, which represents the users of R&D solutions in the project. The main task of the application guarantor is to contribute to making the outcomes of the project fit for use in practice through verifying their reliability and usability. In addition, application guarantor can play an important role in the development of participative research methods through its proximity to the project target group. The relevant application guarantor is an entity that can use the main R&D outputs for its practice and thus fulfil the project aim. Nevertheless, not all of these entities may be eligible applicants for state aid for research (according to Act Act, 2017), Regulation (Commission Regulation, 2014) and “State Aid Framework” (Framework, 2014). Hence, the ETA programme distinguishes between two kinds of application guarantors (hereinafter AG):

- a. **Internal AG** – the entities performing the role of AG can be financially supported if they belong to the eligible applicants (research organisations, enterprises or local authorities). In order not to break the legislation related to the rules of state aid for research, when the AG is an enterprise, it must become an applicant of the project and therefore always act as an internal AG.
- b. **External AG** – if AG does not belong among the eligible applicants, it acts as an external AG in the project (e.g. ministries, public authorities, health or social organisations, schools, cultural organisations, Non-Governmental Organisations (NGOs) etc.). Eligible costs of the external AG cannot be covered from the programme resources. Yet, the representatives of the external AG might be employed by the applicants for the R&D project purposes. Entities in the role of AG in the project must have their registered office in the Czech Republic.

Each project must have at least one relevant AG for the main research outputs, regardless if it’s internal or external.

MARKET-ORIENTED AND PUBLIC-ORIENTED RESEARCH PROJECTS

SSH can be useful for the society by creating added value of market-oriented products or services by giving them e.g. an element of responsibility or social justice. However certain SSH research solutions cannot, or even should not be delivered to the benefit of human and society through market mechanisms. Thus, the ETA programme supports research solutions both, market-oriented (sell on the market to costumers) or public-oriented (provided free of charge to the target groups). While it is often difficult to separate these two types of projects, as many projects contain both components at once, the project proposals must opt for the predominant component. No priority is given to one of these two types of projects, the market-oriented and public-oriented projects are treated during the evaluation procedure in the same way.

TARGETED INVESTIGATORS AND EQUAL OPPORTUNITY FOR CAREER IN RESEARCH

The ETA programme seeks to promote the principles of equality, diversity, responsibility or social justice not only via the scale of activities and research results of selected research projects, but also in the way the projects are organised and conducted. The research teams of the ETA programme may consist of scientists and researchers, university teachers, doctoral students, post-docs, artists, designers, architects, employees of municipalities or staff of external application guarantors and other practitioners or experts (see also the figure number 1). Thus, we would like to encourage applicants to pay greater attention to the benefits of diverse research teams, and also to equal opportunities for men and women for the development of their research careers. For those reasons, several rules and recommendation have been developed, published and used for promotion, evaluation and realisation of the projects: e.g. gender diverse team is considered positive in evaluation; research references of the team members have to fit to the project aims, but we do not put any limitation in terms of time when the result was achieved – in order not to disadvantage those, who experienced some career break (maternity leave, parental leave, illness etc.); or higher flat rate for indirect costs (from 20% up to 30%) – which we recommend to spend on activities aiming at the work-life balance of the team members – but for those only who are “HR Excellence in research Award” holders.

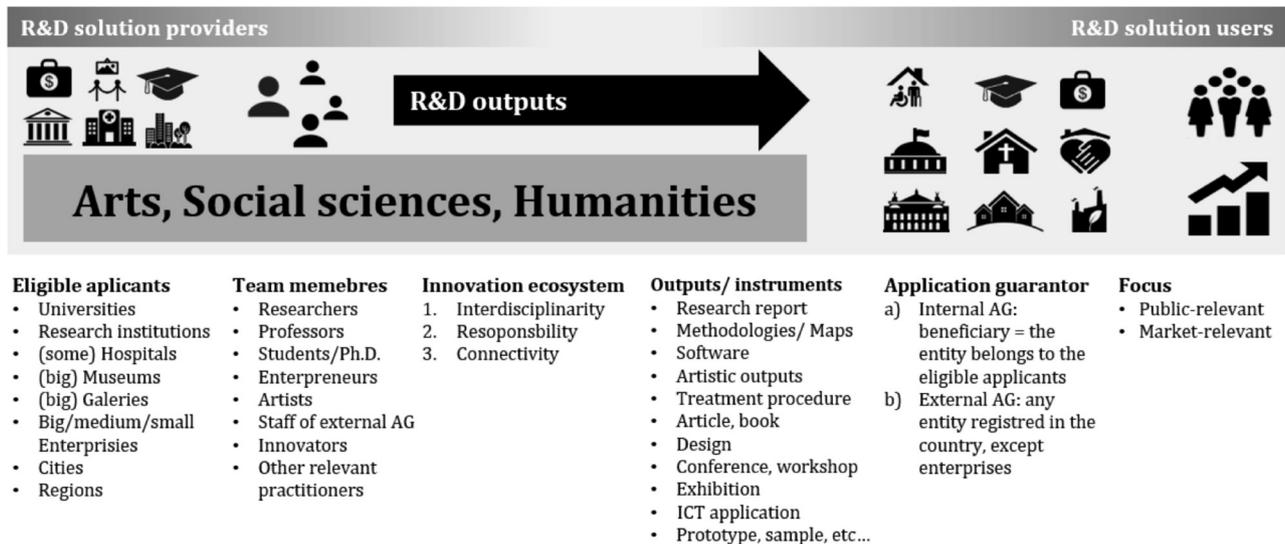


Figure 1: Project logic model.

RESPONSE AND DISCUSSION

EXAMPLES OF FUNDED PROJECTS

In the 1st call for proposals, 306 projects were submitted and 94 projects were funded (success rate 32.4%). A budget of 18 million EUR was spent, an average of 193,000 EUR per project. The supported projects involved 180 application guarantors (with duplicities) such as ministries, charities, elementary schools, small and medium-sized cities, enterprises, museums, philharmonics, regions, umbrella organisations etc., most of which are external AG. The majority of applicants are research organisations incl. universities (150 participations) and small enterprises (22).

Public-relevant projects dominate. The most frequent main scientific focus of the supported projects is "Management and Administration" (23 projects), "Sociology and Demography" (12 projects) and "Urban, Regional and Transport Planning" (11 projects) (TACR, 2018). The available allocation for the 1st call for proposals allowed to support all projects, which have been evaluated positively. Even though their distribution among the sphere of art, social sciences, and humanities is non-proportional (the majority of funded projects belong rather to social sciences, minority to humanities and only a fraction seems to belong to the fields of art), three examples of each sphere were collected (table 2).

	Scope	Name of the project	Application guarantor(s)	Total costs
ART	Audience value	Customer lifetime value in the environment of cultural institutions of live art	Philharmonic orchestra Hradec Králové; Collegium 1704; Novofest	184.000
	Big data and artistic research	Decentralised collection, analysis, visualisation and interpretation of large data in an artistic practice	Faculty of Fine Arts, Brno University of Technology	84.000
	Design of smart furniture	Development of a smart furniture prototype for the new permanent design collection of the Museum of Decorative Arts in Prague	mmcté1 a.s.	144.000
SOCIAL SCIENCES	Liveable cities and communities	Guidelines for planning of public space in digital era	Central Bohemian Innovation Center	153.000
	Earth protection from asteroids	A multidisciplinary analysis of planetary defence from asteroids as the key national policy	Ministry of Transport	392.000
	Environmental education	Solar energy, water in the countryside, vegetation: a new methodology of training municipalities and schools	Cities: Dačice and Třebíč; Gymnasium Jírovcova and J.V. Jirsíka; Nerudova Elementary School	139.000
HUMANITIES	Ethics and autonomous mobility	Ethics of autonomous vehicles	Prototypum s.r.o.; Keen Software House a.s.; Ministry of Transport	173.000
	Industry 4.0 and social change	Development of the frameworks for a social change in the reality of the industry transformation	Confederation of Industry of the Czech Republic	253.000
	Historical literacy	Historylab: using technology to foster historical literacy – software for history education	Antikomplex (NGO)	293.000

Table 2. Examples of supported R&D projects from the 1st call for proposals (total cost in EUR). Reference: Results examples of funded projects in 2018, Technology Agency of the Czech Republic

DISCUSSION

Based on experience with the designing of the ETA programme, with the implementation of the 1st and 2nd calls for proposals and feedbacks, taking into account types of submitted project proposals and their most frequent weak points and qualities – the following areas remain challenging:

- Structural level: Institutionalisation of drawing on innovation potential of SSH
- Political level: Blindness of legislation and R&D policy to the needs of SSH for innovation
- Academic level: Innovative mind-set of SSH community

The most frequent reasons for project proposals rejection, is the lack on SSH in the core of the research project. There may be several reasons

for this: The common applicants of the TACR's programme portfolio mainly come from the "Science, Technology, Engineering and Mathematics" (STEM) fields or natural sciences. The SSH academic community has been historically supported primarily in the area of basic research. Moreover, the system of knowledge transfer between SSH and application guarantors (municipalities, schools, cultural organisations, NGOs, public administration, enterprises etc.) is still emerging. Even though the third role of universities is recognised as an integral part of their mission, the assessment and institutional financing of SSH are based substantially on their publication performance, not application of their results. Thus, the demand-oriented research attention of the SSH community might be more stimulated. Vice versa, the demand on the R&D solution side of the application guarantors is rather low, as they might not have enough ca-

capacity – whether financial, time or human resources related – to innovate. It seems that the higher impact of SSH on human and society hinders the low institutionalisation of the relationship between R&D solution providers and R&D solution users, and we should ask what does it prevent?

Not all partnerships can be fully developed, since only research organisations or businesses can receive the state aid for research. Many important partners have to play the role of external AGs (without financial support), although it would be more appropriate for them to actively participate on research activities. State aid rules do not have to be applied to many research projects of SSH, however a clear methodology to recognise which project has to and which does not have to is poorly available for SSH. Compliance with the intensity of support applicable to businesses and the need to co-finance from private resources is often unrealistic for many R&D solution users of SSH. De minimis mode of support might be too dangerous for them. Neither national nor European legislation of the state aid for research is friendly to these new types of partnerships. Furthermore, considering the fields of arts, the ETA programme creates an incentive for an expanded outlook at the artistic research: focus on innovation. But the artistic research has not been fully recognised yet as an integral part of the R&D policy, much less as a part of innovation policy – neither on national, nor on European level. What is the reason for this omission?

The second most frequent reason for the rejection of the project proposal, is the lack of novelty and innovativeness of the R&D solutions. It is not clear what novelty or originality means in terms of applied-oriented SSH research: e.g. whether the project aims to move the current practice forward, offers a novel and original R&D solution that has not been used in practice yet or if it introduces existing concepts into another environment or context? It seems to be difficult to understand, how to build up a background, on which the originality of the new (or substantially improved existing) creative R&D solutions will be visible and thus better assessable. The willingness to take risk, which consist e.g. of a previously untested interdisciplinary partnership or new research methods or their combining, is still low. Many rejected project proposals have remained in the current borders of the traditional research paradigms, which negatively affected their innovativeness. Is it possible that the reason for this deficiency lies especially in the two previous questions?

CONCLUSIONS

The ETA programme is a new tool for support of innovation ecosystem through scaling-up SSH pathways in order to boost their positive impact on the human and society. Its novelty lies – at least within the national context – in the fact that, through the role of an application guarantor, it encourages the SSH community to find partners who can use their R&D solutions. And vice versa, the interest on the side of the R&D solutions users for cooperation with actors of SSH is stimulated. Even though the programme is at the start of its implementation, first experiences show that it creates an appropriate tool in harnessing the innovation potential of SSH. However, there is a need to deepen the relationship between the SSH community and the funding organisation and to constantly reflect the way the ETA programme is implemented. It should be taken into account that not only organisations, but also members of research teams might be first time applicants to the TACR programme portfolio. An important part of the success of the programme is both the parallel adjustment of legislation and policies on national and EU levels in such a

way that better reflects the specific nature of SSH, and structural exploitation of the innovation potential of SSH for society of the 21st century.

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KEYWORDS

art, social sciences, humanities, applied research, innovation, R&D programme