THE NATIONAL ROUND TABLE ON SCIENCE POLICY

How to drive a positive change?

Conclusions & Recommendations

Fifty participants attended the National Round Table organised by the European initiative Alliance4Life on 22 May 2019 to discuss what the government and research institutions can do to improve the state of Czech science and contribute to a positive change. The attendees included representatives of ministries, the Office of the Government of the Czech Republic, major grant agencies, universities, scientific institutions and scientists. The event was organised by CEITEC Masaryk University, the FNUSA-ICRC Clinical Research Centre, and the Czech Academy of Sciences.

The discussion was structured around three topics: **openness, fairness, and motivation**. Questions for discussion and Alliance4Life recommendations, resulting from nearly two years of the alliance's work and reflecting the situation in Central and Eastern Europe, were presented for each topic. For the purpose of drafting this report and defining the next steps, the discussion conclusions are formulated as recommendations at the institutional and national levels.

1. Institutional Level

Open access – open access to data, publications, and results; transparency of research methods

- Define and financially quantify institutional demands for the IT infrastructure required for data storage, as well as further costs connected with open access to data as part of the institution's total budget. Maintain the existing good practice in the Czech Republic, where research infrastructure is dealt with at the national level, and add aspects related to data maintenance and data sharing to this practice.
- Take action to change the internal culture – ensure high-quality education and awareness regarding open science trends (in particular, open data) while adopting measures for intellectual property protection, respect field specifics, and introduce a system for keeping records of primary data in the institution as an initial step and for primary data verification in the future.
- Create motivation tools for the scientific community for creating and maintaining metadata (e.g., consider this for the evaluation methodology).
- Allocate funds for open access to publications and encourage scientists to become members of journal editorial boards, and reward them for this involvement.

Core facilities – open access to infrastructure and equipment

- Introduce modern management methods, economic functioning models, and European quality standards for the core facilities (CF), share information and access across borders, and join databases of open access CF.
- Leverage the CF platforms to establish cooperation with users of the results.

Openness of the scientific environment – support for career opportunities and internationalisation

- Establish conditions that will allow for the predictable and transparent career growth of scientists and that will prevent inbreeding – through career rules and clearly defined statements of expectations.

- Cultivate an internal environment that is open to internationalisation:
    - Advertise middle management scientific positions internationally, with the focus to hire PI's and research team leaders, and provide open recruitment for these positions;
    - Release institutional funds to create new groups and provide premises and equipment. New groups should be established on the basis of institutional decisions, rather than because of projects. Engage junior scientists, including junior group leaders, to ensure groups have scientists of relevant productive age. This also means changing the HR policy, compared to the conditions of the past Operational Programmes;
    - Make a crucial institutional decision, such as abandoning the practice where individuals maximise the number of their roles, positions and FTEs, and attempt to hold on to their position for as long as possible. Address the issue of group succession in the institution.
- Build a system to support incoming scientists – welcome offices that provide, among other things, organisational assistance to scientists' relatives, on boarding, and mentoring processes and services.
- Promote internationalisation, mostly at the middle management level, particularly among research group leaders.
- Introduce research quality evaluation across the institutions in the form of informed independent peer reviews with the involvement of international experts, and link the remuneration, funding system and strategic management decision-making to quality.

A fair and transparent organisation – governance of research institutions

- The existing system of governance of research institutions and universities is not sustainable in the new national evaluation system, according to the M17+ Methodology. It is crucial to give the institution a role in organising scientific activities and to ensure a fair environment by defining the performance and activities the management is expecting from scientists within their particular career stages (i.e., career system, statement of expectations).
- Introduce the changes necessary to open the R&D&I system by amending the Higher Education Act and other outdated legislation, including the rigid system of granting professorship. Empower the management of research institutions and research universities to make progressive changes and to push for a cultural change in the Czech environment.
- Ensure fairness for not only senior scientists, but also have a fair and transparent dialogue with scientists coming from abroad. Every decision made to establish a group or enter into an indefinite term employment contract must be the institution's strategic decision (in addition to being backed by a project, if applicable), as it implies infrastructure requirements and investment for many years to come.
- Ensure the predictability of (institutional) funding, and communicate the principles of budgeting and fund allocation.
- Define the institution's profile and mission. Based on this, define a set of key performance indicators that take into consideration the differences in the ambitions and roles of the primarily research institution and primarily educational institution. This aims to effectively communicate about the institution to people from both inside and outside of the institution.
- Ensure gender equality for the development of dual careers, and take concrete steps to promote a personal and professional life balance.
- Promote the ethics and integrity of science and scientists, both in publishing and in ethical and responsible communication of scientific research results to the public. Reinforce the emphasis on compliance with ethical principles that have been compromised by the former Czech fund allocation system (so-called "coffee grinder").
- Enhance the reputation, professional growth, and compensation of personnel working in the field of scientific administration, and recognise managers and administrators as equal partners that are essential for scientific achievements.

2. National Level

Open access – open access to data, publications and results; transparency of research methods

- Prepare a National Strategy for Open Access to Data in accordance with the FAIR data principles by the end of 2020. Use good practice examples, such as from Nordic countries. Understand the European Open Science Cloud and join the existing European platforms and projects (organised on a scientific field and geographical basis). Define the technical and legislative requirements for data storage in a suitable format, data traceability and further use. Consider the need to prepare metadata in the science evaluation system. Respect field specifics when formulating national policy, and support data release, preferably inside communities that are able to verify the data source and methods. Promote the adoption of open access and address the risks at the same time by using a tool to enhance science credibility that allows for traceability and reproducibility of results.
- Define the Czech Republic's policy regarding the economic aspects of open access to publications, and inform the scientific community of negotiations with major publishers. Make effective usage of the funds available in the system.

Environment fairness and openness – grant system in the Czech Republic

- Insist on a transparent evaluation system free of any conflicts of interest at all levels, including the evaluation of national grant competitions – add independent foreign evaluators to evaluator databases and evaluation panels.
- Grant providers should identify the key institution where the research result was created and direct the support to this institution, in the case of publication outputs. The reason is that grant beneficiaries often aim at diversification of resources and connect their contracts at different institutions/employers with the same work topic. Then, the research result is reported by all employers, regardless of the actual institution of the result´s origin.
- Dramatically reduce the number of grant providers, preferably by founding a single national grant agency. This will ensure uniform and stable conditions of grant competitions across the entire system and reduce overcomplicated bureaucracy.
- Amend legislation and reach agreement between providers and the Czech Rectors Conference and the Czech Academy of Sciences (the umbrella bodies) regarding the alignment of grant schemes with the career system.
- Evaluate grant competitions and administer grants at the national level in accordance with the project evaluation and administration system applicable to the EU Framework Programmes. Make the most use of the Seal of Excellence. Remove legislative barriers and link prestigious national schemes (e.g., GA CR EXPRO) more closely to excellent European schemes (e.g., EMBO, ERC).
- Introduce English as the standard language in grant applications and project reports.

Motivation to achieve the best results – the Czech Republic's science policy

- Introduce informed peer reviews for evaluations of research institutions (also at the national level) and link the remuneration and funding system to quality. Use the benefits of the M17+ Methodology, particularly modules 3 to 5.
- Increase the science funding proportion in favour of institutional funding to make the environment more stable and predictable. Decrease the proportion of purpose-tied and project-focused funding of research to alleviate the overload of scientists and students.
- Support applied research, as well as "blue sky" research that must be linked to an effective system of transferring scientific discoveries to application usage. Introduce financial tools for such pre-application transfers.
- Abandon the categorisation of research into basic and applied, and focus exclusively on high-quality research.

- Formulate national science policy based on strategic research areas in which the Czech Republic excels and have received significant investment in the past, and link these strategic areas to missions and global societal challenges. These strategic research directions should be viewed as important fields, but not as the only ones to be supported. Defining important directions at the national level will allow institutions to reflect the national objectives and priorities in their strategies.
- Strengthen the capacity of the public administration to communicate and enforce the Czech Republic's goals in science and research and innovations in Brussels, particularly with respect to the preparation of the Horizon Europe programme.
- Foster the reputation of Czech science through appropriate communication and PR activities targeted at both the international scientific community and the public.
- Remove legislative barriers and link prestigious national schemes more closely to excellent European schemes (e.g., EMBO, ERC).
- Address the lack of awareness of the important role Czech scientists have in editorial boards of scientific journals and in the European Commission's advisory expert groups – recognise scientists also for non-bibliometric contributions that are important to the entire scientific community.

3. Conclusion

The National Round Table debate among the key stakeholders in science policy showed that the Czech system of science, research, and innovations needs more transparency at both the strategic and administrative levels, which requires a dialogue between providers and the umbrella bodies of the scientific and universities´ community. The system was governed in a fragmented fashion and purpose- or project-based in the past, with a lack of strategic and long-term vision reflected at the European, national, and institutional levels.

A qualitative change applies, above all, to the standards of research institutions and universities. First and foremost, it is essential to change the method of governance based on outdated legislation that no longer meets today's conditions and requirements for openness, fairness, and motivation in science. Institutions must open up, unblock their internal career system that is based on team heritability, and allow independent researchers to become team leaders. This is associated with supporting quality at all levels to avoid discouraging the best Czech scientists.

The National Round Table on Science Policy showed that all stakeholders are keen to elevate the state of Czech science, research, and innovations. It further demonstrated that many positive changes have occurred and have begun in the last decade, and that the key players in the national system of science, research, and innovations are now able to engage in a very open and constructive dialogue.

The project "Alliance for Life Sciences: Closing Research and Innovation Divide in the European Union" received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 779303. This document reflects the view of Alliance4Life consortium and the European Commission is not responsible for any use that may be made of the information it contains.