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**Comparing National Academies of
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Europe:**

**The Czech Academy of Sciences
Research careers in their academic
setting – national topographies**

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**Comparing National Academies of Sciences in Central and Eastern Europe:
The Czech Academy of Sciences
*Research careers in their academic setting – national topographies*²**

The History of the Czech Academy of Sciences

The first proposal to establish an autonomous non-university scientific institution was made by Jan Evangelista Purkyn, the Czech biologist and philosopher, in the second half of the 19th century. The main purposes were to link research institutes representing the main fields of science of the time and create a space for interdisciplinary research, corresponding to the concept and structure of the present Czech Academy of Sciences. The Czech Academy of Science and the Arts was founded in 1890 with significant financial support from the Czech architect and builder Josef Hlvka, who became its first President. The beginning of the Academy is related to the effort to support Czech culture in the frame of the Austro-Hungarian Empire. The Academies were to promote the development of Czech science and literature and to support Czech arts (CAS, n.d.).

After 1948, the totalitarian communist regime dissolved all the main scientific non-university institutions and learned societies and instead the Czechoslovak Academy of Sciences was founded (1953–1992). Despite heavy ideological pressure, the Academy was able to undertake high quality³ scientific work (CAS, n.d.), especially in the natural sciences which were less ideologically controversial than the social sciences and humanities. The Academy was sometimes called the Isle of Freedom because its employees had a freer hand than academics at universities, who were under greater control due to their influence on students.

In 1990, the first internal research assessment was carried out as an instrument for rectifying past wrongs and assessing quality. Consequently, low quality institutes and departments were eliminated and only half the employees remained.

The Czech Academy of Sciences today

Status

After the fall of the communist regime, the Academy became a standard public research institution. Its specificity is that it is dedicated to basic research, which is its main and basic role. Basic research is also performed at universities, but their main role is to teach students.

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² Working paper for the workshop ‘Comparing National Academies of Sciences in Central and Eastern Europe’ held at the Centre for Social Sciences of the Hungarian Academy of Sciences, Budapest on 7–8 April 2015.

³ The quality of research was evident, for example by the awarding of the Nobel Prize to the chemist Jaroslav Heyrovsk in 1959.

Originally, the Czech Academy of Sciences was a state-funded organization. As of 1 January 2007 it was transformed into a public research institution according to Act No. 341/2005 on Public Research Institutions. This was primarily motivated by the need to change the status of the Academy vis-à-vis European Framework Programmes. Second, the change conferred the power to carry out secondary activities (besides research) for profit and transferred property into the ownership of institutes. The Academy has retained a budgetary chapter and autonomy with regard to research evaluation. It does not distribute institutional funding among its institutes according to the national evaluation methodology (dubbed the coffee-grinder) but has its own performance formula.

Following the 2014 parliamentary elections, the position of Vice Prime Minister for Science, Research and Innovation was created, with a Section for Science, Research and Innovation within the Office of the Government. This section shares the remit for research and development policy with the Ministry of Education and Ministry of Industry and Trade as the most important actors. Negotiations are under way to create a ministry which would also cover higher education, but the political will for such a change is lacking. It remains unclear whether universities, the Academy of Sciences and research funding providers would all fall within the remit of this ministry and its funding allocation. Thus far, the budget for universities has been distributed by the Ministry of Education, whereas the Academy negotiates its budget directly with the Ministry of Finance and the Council for Research and Development.

Structure and self-governance

The Academy of Sciences links 54 public research institutes (36 in natural sciences, technical sciences and chemistry, 17 in social sciences and humanities) and has the right to establish them. Directors of these institutes are elected by the research employees of the particular institute and approved by the Academy leadership. We do not know of any cases in which the leadership has overridden the results of the vote.

The supreme self-governing body of the Academy of Sciences is the Academy Assembly, two-thirds of which is composed of representatives from all Academy institutes and the remaining third being representatives of universities, the state administration, the business sector and other notable persons. Currently it has 233 members. The executive body of the Academy is the Academy Council, headed by the President of the Academy of Sciences. It can have 17 members at most and the proportional representation of the main research areas of the Academy needs to be ensured. The Council for Sciences is primarily engaged in setting the science policy of the Academy. Its members are representatives of the Institutes, universities and other research and development institutions and distinguished foreign scientists. The maximum number is 30 with at least one quarter and at most one third external members, including foreigners. Members of each of these Academy bodies are elected for a four-year period.

Academy Evaluation Committees, which correspond in their professional fields to the

respective science sections of the Academy, undertake an independent assessment of the quality of research and research objectives of individual Academy institutes. The Academy reports to the Parliament.

The Academy as a provider of degrees and education

The Czech Academy of Sciences does not grant any formal “academic ladder” degrees except honorary ones (“doctor of sciences” for special achievements in the discipline on the basis of the decision of the Academic Board of the Academy), which have high prestige but are not connected to standard academy hierarchy as doctoral and professorial degrees are granted by universities only. This means that to hold a position as a Dr or Professor, you need to teach at university.

Since the reform, the Academy has the right to train postgraduate students but cannot grant PhD degrees as it could before. The reform came after the fall of the communist regime. The decision was not based on the opinion that the Academy had misused the right to grant PhD degrees. Rather the point was to transform the academic environment according to the Western model and to introduce the standard PhD system in place of the “aspirantura” system with the final CSc degree (*candidatus scientiarum*), introduced in 1953 under the Soviet model. It was more a formality than a matter of content change because the “aspirantura” system carried similar obligations as the PhD in terms of defending the thesis. The CSc degree was granted by both the Academy of Sciences and universities. After the reform, the Academy of Sciences became purely a research institution and the degree (teaching) agenda became a university-only issue. Today, there is debate concerning whether the right to grant PhD degrees should be given back to the Academy of Sciences because the current system is unclear: some students do their PhD research at the Academy of Sciences through jointly accredited programmes, but it is the university that receives the per capita payment for students. Often, too, these students are employed by the Academy but the thesis is defended at a university with which the students tend not to have any work connection. This is a problem in the case that a student works at a workplace which is not shared with the university (see below). The Academy trains approximately 2,000 PhD students per year.

The Academy as a representative of the academic community

The Academy of Sciences speaks in the name of the entire domestic academic community in that it comments on political documents and law proposals. The Academy ensures expertise for political decision makers and is an obligatory consultation site for the Czech government. It has been successful in lobbying for its interests and those of research and development with the government.

Researchers of the Academy of Sciences represent only 18% (5,604 persons) of the public research and development staff in the Czech Republic. The majority of researchers work at universities. Researchers from the Academy of Sciences also tend to work at some

university. There are also 55 shared research centres which belong to both the Academy of Sciences and universities (e.g. new centres of excellence dedicated to natural-bio sciences). Employees of the Academy of Sciences are also members of the Council of Higher Education Institutions of the Czech Republic and the Accreditation Commission, which grant permission for individual study programmes at universities. However, the Academy itself has no control over universities. Accreditation is granted by an independent committee the members of which are nominated by the Czech government.

Even if the Academy of Sciences represents only 18% of the public research and development staff in the country, it produced 45% of publication output between 1993 and 2009 (Leeuwen & Comesana, 2011). In comparison, Charles University is in second place with 25% of publication output. This is logical because research is the Academy's main agenda in contrast to universities which are primarily teaching institutions. The Academy definitely presents itself as a leading basic research institution.

Funding

The Czech Academy of Sciences negotiates its own budget directly with the Council for Research, Development and Innovation and the Ministry of Finance. It has its own funding allocation mechanism based on its own regular five-year research assessment system. There is no direct link to the national research assessment methodology. The institutional funding received from the Academy by institutes varies according to discipline and covers different portions of the budget. In some cases, institutional and competitive funding mechanisms contribute equally; in other institutes, competitive funding makes up as much as 90% of the budget. The Academy has also been assigned financial responsibility for 71 specialized Czech scientific societies associated with the Council of Scientific Societies.

In 2008, the government proposed significantly cutting the Academy's budget; this resulted in protests and demonstrations and negotiations with the government. The budget cut was reduced. However, the institutional funding that the Academy has received over the years shows a falling trend, as does the governmental sector overall. Between 2007 and 2013 at the Academy of Sciences, institutional funding decreased from 62% to only 35%. According to the Technopolis Group (2011a) audit, the lowest possible limit for institutional funding is 50%; below this limit, the institution loses the ability to develop disciplines.⁴ The rest of the Academy's budget is covered by short-term grant projects funded by the Czech Science Foundation (dedicated to funding basic research),⁵ the Technology Agency of the Czech Republic (dedicated to funding applied research and experimental development) and by international sources, especially the European Framework Programmes and European

⁴ The total budget in 2014 consisted of EUR 450 million. Only EUR 150 million was covered by the Academy's own budget chapter.

⁵ There is no formal connection between the Academy of Sciences and the Czech Science Foundation. The Czech Science Foundation is a research funding organization for the entire country. Non-formal connections can be seen only in personal overlaps – employees of the Academy sit on decision-making bodies of the Foundation as experts.

structural funds. However, in the last few years the Academy has been put at a significant disadvantage as most of its institutes are located in Prague and are thus not eligible (or only very marginally) to apply for structural funds through the operational research and development for innovation programme which focuses on support for less developed regions.⁶

The Academy had its own Grant Agency but this was closed down in 2015. This decision was part of the 2008 reform of research, development and innovation, the goal of which was to reduce the complicated governance structure with many research funding providers. It was assumed that the budget of the Czech Science Foundation would increase accordingly. The budget distributed by the Czech Science Foundation went from CZK 1.3 billion in 2005 to CZK 3 billion in 2013, or from 8% to 11% of the state budget distributed for research and development (Úřad vlády České Republiky, 2014).

In addition to the cuts in the Academy budget chapter, there is another related problem. The current research and innovation policy places considerable emphasis on economic results and knowledge transfer. This is also reflected in the distribution of funding. The Czech Republic is a country with a high proportion of public funding going towards the business enterprise sector. This has caused ongoing tension between the governmental sector and the business enterprise sector and most clearly the Academy of Sciences, which is primarily dedicated to basic research. This means that the highest valued research outcomes are patents and knowledge transferable to industrial application and these are also the goals of a significant proportion of grant schemes. This stress on the practical application of research outcomes is especially problematic for the social sciences and humanities. Some grant schemes, for example, demand as one of the project outputs a law proposal and change in legislation, which is logically not in researchers' power in a democratic political system. The position of the institutes of social sciences and humanities within the Academy is also made more difficult by the research assessment methodology, which is based on the standards and culture of the natural and technical sciences.

Academy membership and the status of Academy researchers

In contrast to the former socialist Czechoslovak Academy of Sciences which included a "Learned Society",⁷ CAS has no non-employed members or correspondent members. The Czech Academy of Sciences has no special status as is the case in some other post-socialist countries and consequently no specific membership. It has the status of a standard public research institution.

The Academy employs core and contract research staff. Core staff members are employees on fixed-term (3–5 years long; the length of contract depends on "qualification audit" period, see below) contracts funded through institutional funding; contract research

⁶ This is creating specific bottlenecks for the state budget because of the need to maintain the sustainability of recently founded research centres.

⁷ The Learned Society of the Czech Republic was established in 1994 as a civic society of the most prominent

staff are those who are employed only on individual grant projects (mostly for three years) with no institutional funding. This means that if contract research staff members do not secure additional funding through grants, their positions at the institutes are terminated at the end of the grant and their contract. Core staff members have a guaranteed salary funded by institutional funding, even though this institutionally funded salary is very low, which makes applying for grant projects a necessity. Grant money constitutes the largest part of core staff salaries. Contract research staff can be both full time and part time, although the latter is more usual. Core employees traditionally had full-time contracts but because of the increase in competitive grant funding at the expense of institutional funding, these stable positions are decreasing.

The Czech Academy of Sciences has adopted career rules issued by the Academic Council based on the proposal of the Scientific Board of the Academy. These career rules pertain to all university-educated employees of Academy institutes. Individual researchers are assessed employing an evaluation procedure called “qualification audits” (“atestace”) as provided for in Article 23 of the Appendix to the Statutes of the Academy.⁸ This qualification audit is the basic means of ensuring the quality of the scientific activity of Academy staff, the objective being to evaluate the professional performance of individuals.⁹ This qualification audit procedure has clear rules. The only controversy might arise from the fact that employees could also have agendas other than research (e.g. infrastructure or popularizing), but the assessment criteria predominantly reflect research outcomes, i.e. publications. If the audit committee (comprising researchers both from inside and outside the institute) finds the research outcomes of individual researcher as unsatisfactory, it is at the director’s discretion if (s)he will extend the employee’s contract and if so, under what conditions. Directors may decide that the employee’s research output should be assessed less strictly because of his/her non-research agenda or that the employee will get a warning for the next qualification audit period (e.g. the obligation to gain Ph.D. or to produce more research outcomes, especially articles, before the next audit).

Czech scientists.

⁸ http://www.cas.cz/o_avcr/zakladni_informace/dokumenty/stanovy/.

⁹ http://www.cas.cz/o_avcr/zakladni_informace/dokumenty/koncepce_rozvoje_vav/index.html.

Article 23

- 1) The performance of the research workers shall be evaluated by regular qualification audits that will be performed at least once in five years.¹⁰
- 2) The evaluation shall be performed by the Qualification Audit Committee appointed by the Institute Director. The Qualification Audit Committee shall have no less than five members. At least one third of the Qualification Audit Committee members shall be external members. The Qualification Audit Committee shall submit recommendations on the outcome of the evaluation, conclusions and assigning of a qualification degree to the employee to the Director, who will make the final decision in these matters.
- 3) If the qualification audit determines that an employee lacks the required qualification, the evaluation outcome may serve – provided that all statutory conditions are met – as grounds for termination of the employment. The evaluated employee may request a review of the audit through public adversary procedure.

Based on the qualification audits, university-educated staff members are ranked in one of the following professional groups:

1. Research assistant
2. Graduate student
- 3a. Postdoctoral fellow
- 3b. Associate scientist/scholar
4. Scientist/scholar
5. Senior scientist/scholar

The Academy career rules and the ensuing Internal Directive No. 1/2013 Career Regulations, Global Change Research Centre of the Academy of Sciences of the Czech Republic, v. v. i., stipulate that the qualification audits must not discriminate based on “sex, age, origin, religion, political opinions, etc.” (Article I, Item 2). Article III, Item 3 states that:

“The attestation criteria are based on the valid criteria of interior assessment of the institutes of the Academy of Sciences of the Czech Republic with regard to the valid criteria of assessment of the results of science, research and development at the national level. The contribution of the researcher to fulfilment of the indicators monitored by the provider of the support for science and development is also assessed. A partial criterion is observance of the Code of Conduct of researchers in the Academy of Sciences by the attested worker.”

¹⁰ The Academy career rules state that the qualification audit must be performed at least once every five years. The career regulations at CVGZ came into force in 2011 and between 2011 and 2013 the qualification audits were performed once every three years. In 2013, the CVGZ career regulations were modified and today the qualification audits are performed at five-year intervals. Upon a completion of a doctorate, a qualification audit may be requested at an earlier date, and the PhD diploma is submitted together with the dossier.

Working conditions

The very low proportion of institutional funding naturally has an impact on researchers, their working conditions and professional paths. The current system creates precarious working places. Early career researchers in particular have only a small chance of obtaining more stable contracts. The majority of research staff members are employed as contract research staff on research grant projects. In 2013, 3,096 employees were paid from special purpose and extra-budgetary means. This is creating barriers to the professional development of researchers. Early career researchers on part-time, short-term contracts tend to cumulate such contracts so that they have the wage of a full-time employee. These contracts are often at different institutions or outside the academic sector (Cidlinská & Vohlídalová, 2015). Researchers also often teach, but teaching positions are also increasingly awarded on a part-time basis. Teaching at lower (assistant) positions is usually paid worse than research. There is pressure on university employees to supplement their pedagogical salary with grant (research) money. In general, the salaries of Czech research and pedagogical employees are below the European average (Technopolis Group, 2011b: 19).

The necessity of spending a significant amount of time looking for competitive sources for funding (or the need to work simultaneously outside the academic sector) takes time away from research/doing science and constrains the scientific growth of individuals. Moreover research, or more precisely research publications, is the basis for the formal assessment of researchers. This means that many time-consuming activities necessary for running the institution are not covered by formal research assessment, which makes them invisible and “punishes” researchers who have to do them.

Main achievements and problems

The main achievement of the Czech Academy of Sciences is its successful transformation into a standard research institution with no aristocratic system as is often the case in the former Soviet Union region. Another important attainment is that the Academy accounted for 45% of publication output in the country between 1993 and 2009.

However, there is serious concern about the future development of the Academy’s research production and its scientific quality (or Czech science in general) in relation to the falling funding and worsening working conditions, especially for early career researchers (and among them especially women) whose professional growth is threatened. There is a lack of proper guidance in the early stages of researchers’ careers. In addition, there are periodic debates about disbanding the Academy and merging its institutes with universities.

The National Contact Centre for Gender and Science¹¹ (of the Institute of Sociology of the Czech Academy of Sciences) has monitored the state of Czech science since 2001. Besides stimulating debates and petitioning for measures and steps to eliminate

¹¹ <http://www.genderaveda.cz/>

discrimination and gender inequalities in science, urging action from responsible institutions and popularizing activities, the Centre undertakes analysis. Our main research topics are career trajectories in science, work–life balance, the organization of research, governance and excellence. Our theoretical background lies in sociology, gender studies, public policy, science and technology studies.

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