



SLOVAK ACADEMY OF SCIENCES

# **SAS Strategy 2030**



# SAS Strategy 2030

## The Slovak Academy of Sciences in 2019

The Slovak Academy of Sciences is the top national scientific institution, which carries out research in natural, technical, medical, agricultural, and social sciences, as well as in the humanities. In this way, it focuses on the transfer of knowledge, on demand-oriented applied research, and on civil service in selected fields. SAS also raises the next generation of scientists.

For a long time, support for science and research in Slovakia, including funding for SAS, has been low in terms of both institutional budgets and the opportunity to compete for resources from the Slovak Research and Development Agency. The success of SAS in the European framework programme Horizon 2020 has not yet prompted any improvements in funding for SAS research. The performance of SAS, as measured by the number of publications and citations on Web of Science, is

comparable with that of the Czech Academy of Sciences (CAS) when adjusted for the number of research workers. However, CAS has twice the budget per capita. SAS shows markedly weaker results in indicators of excellent science, as measured in terms of publications in journals listed in the Nature index and the number of prestigious grants gained from the ERC. Taken together, this indicates that SAS is capable of maintaining research at an acceptable level under current conditions, but that it cannot yet compete at the top levels of science. Such circumstances are unlikely to contribute markedly to improving innovation in Slovakia. Only top-level science can generate profitable patents and be a basis of effective transfer of knowledge into practice. SAS also has problems attracting the newest generation of young scientists because many young workers and students go abroad.

Similar to other research and development institutions in Slovakia, SAS is severely handicapped by the absence of a functional support framework for the applied research and development. In 2018, the academy was to transform into a public research institution, which would have brought about better co-operation with the private sector, with additional research resources. We consider the failure to transform the academy a wasted opportunity, and it shows that science, research, and innovation remain a low priority



for the Slovak Republic. Indeed, Slovakia lacks a systematic approach to research and development, as well as to university education as an inseparable part of it. No audit of the whole research environment has been carried out, and there is no state science policy that addresses all aspects of the sector, including the position of SAS within research and education.

The importance of science and research in the modern age has markedly changed—so much that many have begun to speak of a “Science 2.0” characterized by digital technology and open scientific information that will likely grow exponentially. SAS could take advantage of this trend by contributing to Slovakia as a knowledge-based society, in keeping with our belief that knowledge contributes to the development of a sustainable and competitive society, as well as to individuals’ quality of life. SAS adheres to the vision and goals defined in the document Initiative – Vision for a Knowledge-based Society and a Better Slovakia, which was drawn up by the Learned Society of Slovakia. SAS wishes to contribute to a nationwide dialogue about the vision for Slovakia as a modern and prospering country with a workable strategy in the field of technological and scientific innovation. It is for this reason that SAS must redefine its vision, values, mission, and strategic goals.

# The Slovak Academy of Sciences in 2030

## SAS Vision

In 2030, SAS is a modern scientific institution, a national leader in top-level exploratory research that can quickly respond to current scientific and societal challenges. SAS develops and implements a top-level research and knowledge infrastructure, making it available to users outside of SAS. It works together with both the social and private sectors to develop long-term strategic research focused on developing a knowledge-based society that produces goods and services with high added value. SAS possesses an effective system for transferring the results of research into practice.

SAS uses modern management methods. SAS scientists are highly qualified personnel on the world stage, and SAS is a respected partner in the European research area. SAS raises young scientists for the whole country and for the EU and is a significant partner and advisor in all areas of society related to knowledge and innovation. SAS systematically popularizes science, persuading the public about the importance of education and knowledge.

## SAS Values

Excellence in research is the foundation value of SAS. It respects the diversity and individuality of persons in science. The independent SAS maintains impartiality and non-partisanship, and it supports an open democratic society. SAS adheres to the ethical principles of scientific practice and integrity, which are reliability, honesty, respect, and responsibility<sup>1</sup>. SAS fights against unethical practices in science. It communicates to society the need to objectively investigate facts against the phenomena of fake news and hoaxes. SAS supports open-access publishing, public access to scientific results, open science, and independent verification of results.

## SAS Mission – Three in One

National, non-university science and research institutions fulfil an important role in the most developed countries of the EU and the world. SAS, along with the academies of other central-European countries, has historically played an important leadership role in the research organisations of the country. The first mission of SAS is to carry out top-level basic research at the frontiers of knowledge

<sup>1</sup> [https://www.allea.org/wp-content/uploads/2018/11/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2018-Slovak\\_dig.pdf](https://www.allea.org/wp-content/uploads/2018/11/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2018-Slovak_dig.pdf)

that leads to new discoveries and concepts. The second mission of SAS is to make the scientific infrastructure for technically demanding research available to all interested parties, be it universities or other organisations of research and development. The third mission is long-term strategic and applied research and development, whereby SAS intensively and effectively co-operates with the business sector, the public sector, and civil society to transfer knowledge into practice. A modern SAS must carry out all three of these missions. Exploratory frontier research must adhere to the highest international standards. SAS is developing a system for evaluating the quality of frontier research, and this system is applicable at a nationwide level. To ensure that an open science infrastructure develops, SAS is beginning work on a roadmap of the national research infrastructure, as well as on strategic plans for building a large infrastructure of European significance. One prerequisite of long-term strategic research in co-operation with the private sector is the transformation of SAS organisations into a public research institutions, which will allow the pooling of resources and personnel, the exploitation of intellectual property, patents, and licences, and the establishment of spin-offs and start-ups.

SAS also carries out activities that are not strictly scientific and do not constitute research, but in which the expertise of SAS is



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irreplaceable. For example, such services to the state and to society include monitoring earthquakes in the national network of seismic stations, creating the Encyclopaedia Beliana, creating a dictionary series, and creating and maintaining archives.

One important role of SAS is raising the young generation of scientists. Doctoral study in SAS is implemented in co-operation with universities and strives towards the highest possible level of autonomy. SAS is involved in the creation of the entire educational process.

SAS is a platform for co-operation and development of the best scientists in Slovakia. The Learned Society of Slovakia also plays a key role in this effort.

SAS is actively involved in the creation and implementation of a state science and technology policy, in co-operation with all relevant institutions.

# Strategic tasks

## General

- Support an audit of the Slovak research environment and preparation of a state science policy.
- Define the position of SAS within the research and development sector in Slovakia, and complete its transformation into a public research institution.
- Initiate legislative, organisational, and financial support for shared workspaces between SAS and the university sector, as well as between SAS and the private sector, and support mobility between sectors.
- Support a common framework for evaluating research in SAS, at universities, and in other research organisations.
- Develop, introduce, and implement an institutional policy of open science—that is, open access to the results of SAS research.
- Create and improve working conditions for modern research.

## Research

- Optimise the management and funding systems of SAS research organisations in

accordance with best worldwide practice to ensure that SAS has a leading position in frontier basic research in Slovakia.

- Develop a roadmap of the open infrastructure of SAS, and the conditions of its use.
- Expand the remit of SAS in the area of long-term strategic research that is important for Slovakia.
- Create an effective framework for transferring knowledge and technology into practice, including effective safeguards of intellectual property and author's rights.
- Enter and effectively contribute to international research programs, such as Horizon Europe, and help workplaces to develop international co-operation by centralising support, administration, and project management.
- Systematically monitor the quality of research, develop a system for evaluating organisations that relies on independent experts and measurable indicators, and use this system to implement differential funding for scientific workplaces.
- Monitor and support the quality of research teams and top individuals.
- React to the requirements of society and the economic sphere, provide service to the state, and function as an advisory institution.

## Funding

- Put in place a system of stable, long-term funding for institutions in accordance with the principle of “money for value.”
- Ensure appropriate proportions of institutional and competitive funding.
- Support research funding from multiple sources.
- Support improvements in the quality of agencies for funding basic and frontier research (SRDA), as well as applied, problem-solving research.
- Support other forms of long-term strategic research, such as state programs and separate frameworks for all levels of technology readiness.

## Human resources and cohesion

- Define transparent methods for identifying excellent research teams and individuals, create attractive conditions for such scientists, and support them generously.
- Systematically improve the managerial skills of leading employees.
- When justified, support the integration of organisations into well-functioning centres.
- Besides a co-operation with universities, strive towards autonomy in doctoral study.

- Define and provide for the position of post-doctoral researcher.
- Standardise hiring practices for scientific workers in permanent positions.
- Support the internationalisation of SAS workplaces on all levels, from doctoral students to leading scientists.
- Support gender equality at all levels of management.
- Support complete personal development of all scientists, allowing for sabbaticals.
- Actively participate in fundamentally changing the education environment of Slovakia.
- Within SAS, actively discuss all questions regarding organisation and management.
- Support effective forms of science and research popularisation and spread results to all potential interested parties.