



Regular Assessment of SAS Research Institutes

General Recommendations





- Training of PhD Candidates, Careers of Post-Doctoral Fellows and Empowerment of the Next Generation of Researchers**
- Relationship between SAS and the Slovak Universities**
- Diversity of Academic Staff**
- Shared Expert Support Regarding EU Funds**
- Academic Leadership and Sharing of Good Practice**
- Strategy Foresight**
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- Budget Allocation to and Management of Research Infrastructures**
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Training of PhD Candidates, Careers of Post-Doctoral Fellows and Empowerment of the Next Generation of Researchers

During the site visits, each Panel discussed with the Institutes' Directors the issue of doctoral training and met with PhD candidates and post-doctoral fellows. It was gratifying to learn that the early career researchers are generally well-motivated and are a great asset to their Institutes.

The position, training and role of PhD candidates working at SAS needs further analysis and, if needed, changes.

SAS is recommended to ensure high standards of PhD supervision and to entrust PhD supervision only to actively publishing researchers.

P SAV: odporúča riaditeľom vedeckých organizácií SAV v spolupráci s vedeckými radami vyberať školiteľov z hľadiska ich vedeckej kvality.



Training of PhD Candidates, Careers of Post-Doctoral Fellows and Empowerment of the Next Generation of Researchers

The Panels observed that the nature of the PhD work was quite traditional in format and (typically) did not benefit from good practices developed elsewhere in Europe. Most commonly, the PhD candidates had one single supervisor, and enjoyed only limited external guidance and limited mobility. Only a few PhD candidates benefited from structured training in substance issues and general (transferable) skills. The early career researchers need wider orientation to prepare them also for the job market outside of academia. It also appeared that they are not always equally entitled to some activities, such as the Erasmus program.

SAS is recommended to include to the PhD curricula teaching of general skills, such as laboratory and project management, research integrity/ethics, scientific writing and presenting and research proposal writing.

P SAV: Pripraví návrh téz doplňujúceho vzdelávania doktorandov



Training of PhD Candidates, Careers of Post-Doctoral Fellows and Empowerment of the Next Generation of Researchers

The PhD candidates as well as their supervisors are predominantly Slovakian, with some coming from neighbouring countries in the main. Therefore, a diversity of peers with different backgrounds, who would enrich the Slovakian PhD candidates' research experience, is largely lacking. Difficulties in the management of visas for non-European researchers were also observed.

It would be greatly beneficial to empower European and non-European researchers to work in Slovakia. For instance, co-supervision resulting in a double PhD degree from a Slovakian and a foreign university (*cotutelle de thèse*), should be strived for.

The SAS Research Institutes are recommended to build relationships with international doctoral schools and training programmes in order to support the SAS PhD candidates and to enlarge the international networks of SAS.



Training of PhD Candidates, Careers of Post-Doctoral Fellows and Empowerment of the Next Generation of Researchers

The Panels felt that the SASPRO Marie Skłodowska Curie CO-FUND programme started in 2014 as a first step towards internationalization is extremely important for Slovakia. The programme supports post-doctoral positions for Slovak and foreign young researchers.

The continuation of this programme is deemed by the Panels to be of utmost importance.

It would be beneficial for SAS to embrace a greater awareness of the Charter and the Code of Conduct for Researchers, and to experience the benefits of open recruitment and competitive remuneration of doctoral candidates and post-doctoral fellows. Setting up a “Young Academy” composed of a balanced selection of early career researchers across the Institutes would provide a common platform to discuss issues of mutual interest, and even to promote multidisciplinary research.

It is recommended that SAS look into international examples of good practices that promote the empowerment of young researchers.

P SAV: vypracuje návrh na vytvorenie „fóra mladých“





Relationship between SAS and the Slovak Universities

In a number of cases high quality research groups at SAS Institutes lacked PhD candidates. This was the case especially in the Institutes of Physical, Space, Earth and Engineering Sciences, and the Institutes of Life, Medical and Environmental Sciences. This appeared to be due to the fact that unless there was a qualified professor in a Slovak university in a particular scientific domain, SAS could not host a PhD candidate working in that research domain.

In a binary research system, students already in the early stages of their studies should be acquainted with the research perspectives that the SAS Institutes have to offer.

It is recommended that building of a systematically functional relationship between SAS and the universities is addressed by SAS together with the universities and the Ministry of Education, Science, Research and Sport.

P SAV:





Diversity of Academic Staff

Diversity of nationalities, cultural backgrounds, career ages and gender increases collective intelligence. As the level of internationality in SAS is very low, special measures should be implemented to increase the number of researchers from abroad.

SAS could have a balanced representation of both men and women in the Research Institutes as well as in the representative and decision-making bodies at the SAS level. The aim is not only to empower women, but to capitalize on the entire talent pool and not only on half of it. Academic female leaders would also inspire female students to embark on ambitious research careers.

Though the Panels met a number of excellent female researchers, most of the Institutes, with the exception of those representing biology, chemistry and social sciences, are dominated by males.

It is recommended that measures are taken for increasing the share of female researchers at SAS Institutes.

P SAV: vypracovať analýzu súčasného stavu profesijného rastu žien a ich zastúpenia vo vedúcich funkciách v SAV a v tomto zmysle predložiť návrh opatrení na zlepšenie existujúcej situácie.



Shared Expert Support Regarding EU Funds

Panel noted the difficulties for SAS applicants in obtaining competitive external funding from the EU research and innovation programme Horizon2020. Slovakia is paying to H2020 roughly 70 EUR million per year. In 2014 Slovakian researchers fetched back 10.5 EUR million and in 2015 29.5 EUR million. To a certain extent this under-performance has to do with the quality of the research and the limited number of eventual partners for co-applications. However, the lack of success seems also to depend on the lack of administrative support for the applicants.

It is recommended that SAS sets up a central, highly skilled shared expert support centre to support applicants of EU funding instruments.

P SAV: Uznesenie P SAV 1147: P SAV schvaľuje zámer vytvoriť na Úrade SAV Referát pre podporu projektov ERC a H2020.



Academic Leadership and Sharing of Good Practice

Leadership of research institutes takes more than just research experience. Special skills in leadership can and should be learnt in programmes.

SAS is recommended to organize management training for directors in seminars where their strategic thinking, governance and leadership skills can be improved, and prioritization, international networking and team building can be discussed and good practice shared.

P SAV: preveriť možnosti na školenia riaditeľov organizácií SAV v oblasti manažmentu vedy s využitím európskych štruktúr.



Academic Leadership and Sharing of Good Practice

The Research Institutes cover a broad range of research themes. They differ in size, research and teaching culture, history, organizational structure, in age distribution of researchers and gender balance, as well as in PhD programs and in international activities. In spite of their differences, and perhaps because of them, Institutes should share good practice. Joint discussions on PhD programs, funding opportunities at all levels, infrastructure sharing, and administrative challenges will ensure a raising of standards and opportunities.

The Research Institutes are recommended to form stronger ties between each other, beyond the directorial level, between Institutes within a Section and across the Sections.

The Institutes are recommended to enhance intra-institutional and inter-institutional flow of communication in common seminars and workshops.

P SAV: nadväzne na program „Otvorená akadémia“ vytvoriť mechanizmy na zlepšenie spolupráce organizácií SAV v rámci príslušného oddelenia vied SAV i medzi jednotlivými oddeleniami vied SAV, napr. na báze projektov, pravidelných výročných seminárov, či pôsobením funkčných rád riaditeľov.





Strategy Foresight

Each Institute should formulate a strategic plan, to be updated on a regular basis. The plan should have ambitious but realistic goals, with an action plan on how to reach these goals, including indicators to be able to track improvements over time. A strategic plan should include overall strategies regarding recruitment, internationalisation, research quality, quality of PhD training, organisation of research, distribution of resources, funding priorities including EU-funding, publication strategies, renewal of research priorities, gender balance and outreach. In doing so, the Research Institutes will be able to produce more focus and more coherence and to improve upon the present situation where the profile of most of the Institutes is a sum of individual or fragmented research interests rather than a well-founded whole.

It is recommended that all Institutes engage in a long-term (5-10 years) strategy foresight exercise.

It is recommended that the Institutes appoint an independent International Advisory Committee, or a shared one where appropriate.

P SAV: na základe všeobecných odporúčaní Meta –panelu a nadväzne na materiál „SAV 2020“ vypracovať Dlhodobú stratégiu SAV, vypracovať návrh na zriadenie Medzinárodného poradného zboru pre SAV.





Multidisciplinary Research and Collaboration between Research Institutes

Recalling the SAS Mission of focussing research to tackle global and social challenges, the Panels noted, however, that little or, in some cases, no interest was shown by the Research Institutes for multi/interdisciplinary research, especially such research that would be geared towards Societal Challenges within Horizon 2020. Strategic planning at the SAS and Institutes levels should also be aimed at raising the awareness of the existence and the possibilities that inter/multi/transdisciplinary research offers, in outputs for society as well as in the financial sense.

It is recommended that within the strategy foresight exercise, inter/multi/transdisciplinarity should be given prominence. SAS is recommended to create an enabling environment for multi/interdisciplinary research and establish a competitive budget line for this.

P SAV: na základe všeobecných odporúčaní Meta –panelu a nadväzne na materiál „SAV 2020“ vypracovať Dlhodobú stratégiu SAV.



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Close collaboration between the SAS Institutes and relevant units outside of the SAS is recommended.

P SAV: na základe všeobecných odporúčaní Meta –panelu a nadväzne na materiál „SAV 2020“ vypracovať Dlhodobú stratégiu SAV.



Redesign of Research Institutes

The Panels support the continuation of reorganisation of Institutes into larger units of critical mass. As compared to some very small Institutes existing today, larger units can perform better long-term strategic planning and fulfil their administrative tasks and manage human resources more effectively, attract outside expertise and be financially more sustainable by smoothing the yearly funding fluctuations.

SAS is recommended to support the reorganization of Research Institutes into larger units.

P SAV: odporúča riaditeľom ústavov zväžiť v strategických plánoch vedeckých organizácií SAV odporúčania Meta-panelu na spájanie vedeckých organizácií SAV do väčších celkov.



Research Institutes' Names

Some of the SAS Research Institutes have up-dated their research agendas over time and, therefore, some of their names do not correspond to their current research activities. Redesignation of some of the Institutes could increase visibility of certain research clusters nationally and at an international level.

It is recommended that the names of some of the Institutes be revisited, in order for their names to better correspond to their current research agendas, taking multidisciplinary approaches into account.

P SAV: odporúča riaditeľom ústavov zohľadniť pripomienky Meta-panelu a aktualizovať názvy vedeckých organizácií SAV a ich vedecké zameranie s reálnym stavom.



Publication Practices and Incentives

The Panels observed that some Institutes with strong publication output and impact had incentives in place to stimulate publication performance. Since this approach seemed to be correlated with a strong publication output, ***further study for mainstreaming and learning from this good practice is recommended. It is also recommended that the Institutes establish a publication, in-house journal and data dissemination strategy*** to maximize the impact of their researchers' scientific output.

Many SAS Institutes publish their own scientific journals, some of which are listed as e-journals and others being published as printed journals. ***It is recommended that the practice of running in-house journals be carefully reviewed, including analyses of costs and benefits.***

P SAV: nadväzne na pripomienky Meta-panelu vypracovať analýzu publikačnej činnosti, s osobitným zreteľom na vydávanie periodických publikácií, s návrhom riešení na zlepšenie súčasného stavu.



Use of Intellectual Property Generated by SAS Researchers

The Panels observed that SAS as well as its Institutes lack a clear, coherent and transparent strategy for handling Intellectual Property Rights (IPR). There appeared to be legal restrictions for SAS to invest in innovation and in utilization of intellectual property arising from research at the Institutes of SAS. This has created situations where the intellectual property produced in SAS has been taken over by private companies in the absence of a clear contractual basis.

SAS should formulate a policy and rules on handing over of IPR to other stakeholders.

P SAV: vypracovať pravidlá na ochranu práv duševného vlastníctva v rámci SAV.



Budget Allocation to Research Institutes

Instead of dividing the budget into fixed sub-budgets for e.g. salaries, PhD positions, post-doctoral positions, journals, etc., it would be more efficient to give all Institutes autonomy to use the resources in a more flexible way. This would provide them with opportunities to prioritize different instruments in order to increase quality. Such freedom must be accompanied by quality criteria, against which future evaluations should be undertaken.

SAS is recommended to move from fixed contribution, based mostly on history, to competitive funding, which is based on applications and evaluation/performance of the Institutes, preferentially judged by external experts if possible.

P SAV: Výkonové financovanie (uznesenie P SAV č. 1213, február 2017)



Budget Allocation to Research Institutes

The SAS salary structure should reward increased experience, mobility and merits and result in higher *de facto* salary to post-doctoral fellows as compared to PhD candidates.

SAS is recommended to support its researchers' career structure and to promote and encourage the envisioned independency of post-doctoral fellows.

P SAV: uznesenie P SAV č. 1206, február 2017)



Budget Allocation to Research Institutes

Research infrastructures are not research projects and they demand a whole new way of thinking and collaborating. In essence they provide a complete research eco-system based on “open science” principles. Those researchers who want to take part should be trained and encouraged, as this will potentially have a strong positive impact on Slovak research reputation. ***SAS should, in co-operation with universities, train researchers and managers in the operation of research infrastructures.***

Future investments in research infrastructure and equipment should be based on national priorities. ***Therefore, the Ministry of Education, Science, Research and Sport is recommended to initiate the creation of a National Roadmap for Research Infrastructures,*** a long term plan on prioritized targets for investments. ***The Ministry is also recommended to consider state membership in ESFRIs that are the most important ones for Slovak science. The development and maintenance of research infrastructure should be embedded in a national science strategy of Slovakia.***

P SAV: Informácia P. Siman



The Slovak Research Landscape

The present exercise was undertaken by the Meta-Panel and the individual Panels of Experts in a spirit of contributing to the development and further improvement of research in the Research Institutes of SAS. Hopefully, this will lead to a positive development of the entire Slovak research eco-system, better international visibility, and tighter integration of the Slovak research landscape with the European Research Area.

The Ministry of Education, Science, Research and Sport is recommended to undertake in the near future an international, improvement-led nationwide research assessment of the entire research eco-system, including the public universities and the sectoral research institutes, and based on the results, to develop a national science strategy to guide future allocation of public R&D investments.

P SAV: Informácia P. Šajgalík



Conclusions

1. P SAV vypracuje materiály pre implementáciu Všeobecných odporúčaní (General Recommendations) Meta-panelu. (uznesenie P SAV č. 1217, február 2017)
2. Ústavy: Odporúčania medzinárodného hodnotiaceho panelu, vypracované ako výsledok hodnotenia v roku 2016 (General Recommendations, Meta-panel Assessment Report) budú v rámci tzv. strategického (akčného) plánu rozpracované jednotlivými ústavmi na ročné etapy. Tento akčný plán predložia ústavy na schválenie príslušnému OV SAV do konca apríla 2017. Ich plnenie bude sledované v rámci ročných hodnotení. (uznesenie P SAV č. 1213 a č. 1217, február 2017).