

(Life) Science Funding in Switzerland (1)[§]

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Abstract: The Swiss National Science Foundation (SNSF), under mandate from the federal government, supports the high level of science research in Switzerland by funding scientific projects and scientists' careers across all disciplines.

Keywords: Science funding · Swiss National Science Foundation (SNSF)



Overview

The Swiss National Science Foundation (SNSF) focuses on two main funding schemes: scientific projects and scientists' careers, and supports all disciplines, following a bottom-up principle.

The SNF was founded in 1952 as a private foundation, and has evolved continually through several reforms, always adapting its standards to the current national and international science policy, and to legal and ethical standards. The SNF receives its mandate from the federal government. The main goal of the SNF is to promote the high level of science in Switzerland: all measures and instruments implemented by the SNF are designed to serve this purpose. The SNF is established as a self-organisation of Swiss researchers, the members of the National Research Council and the Administrative Office all being active or past researchers, respectively.

The SNF is not the only source for research funds in Switzerland. In fact, most of the research-funding budgets come from the private sector (up to 61%). Depending on the funding source, scientific independence may or may not be fully guaranteed.

The SNF is one of the smaller players in the Swiss Research and Development (R+D) area, with a mere 24% of the annual budget of federal authorities. In 2015, the SNF used a budget of approximately 877 million CHF, mostly spent on research

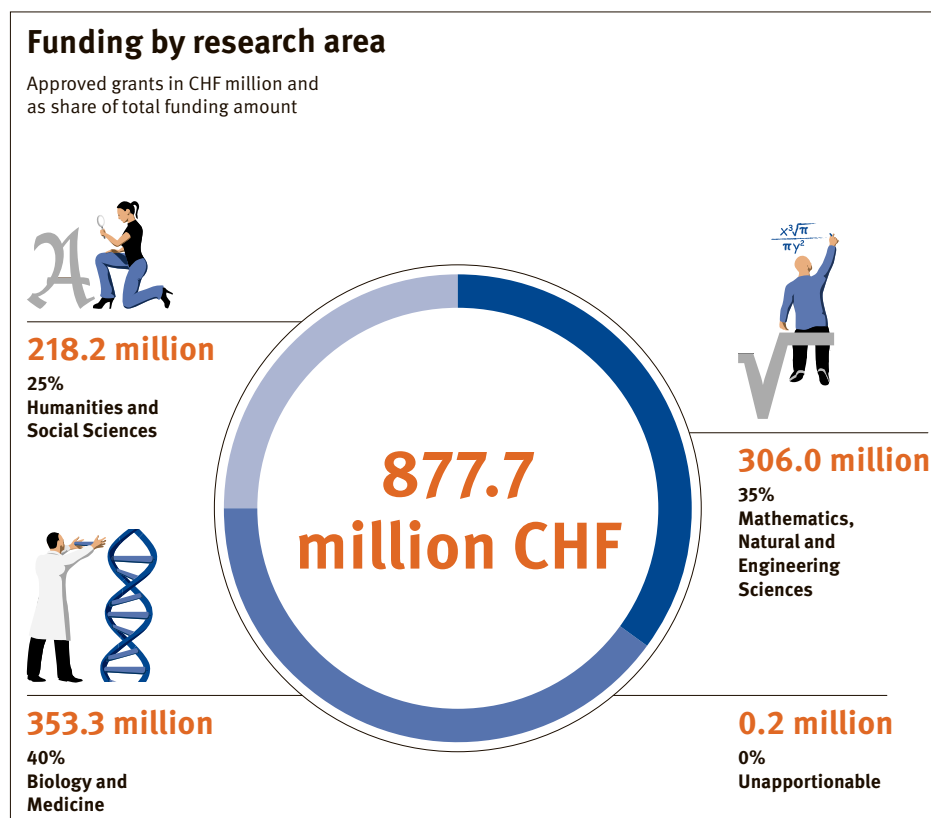
projects, the core business of the SNF. With more than 23% of its annual budget, the support allocated to scientists' careers is the second pillar of the SNF. From the total SNF budget, the largest fraction is distributed to Biology and Medicine (Fig. 1, 40%) and Mathematics, Nature and Engineering Sciences (Fig. 1, 35%).

SNF Project Funding

As mentioned, the core business of the SNF is to fund research projects of established scientists based in Switzerland. The topics can be chosen freely, and all costs associated with the project, including the scientific staff, consumables and other

costs, *e.g.* traveling, are included in the grant proposal. The evaluation criteria are conform with internationally accepted ones. Researchers should have a strong scientific record, mirrored in achievements that go beyond publications in journals with high impact factors. Ideally, the candidates have contributed remarkable accomplishments in their respective research fields. The project itself should be of high scientific relevance.

The number of applications for research projects have been increasing, together with the number of approvals. The present success rate for a grant proposal is approximately 40%, which is good when compared to other funding agencies internationally.



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Fig. 1. Funding by research area in 2015 (©SNSF http://www.snf.ch/en/theSNSF/profile/facts_figures/statistics).

Also in the future, project funding will remain the core instrument of the SNF, but some revisions have been introduced with the latest reforms. First and foremost, the funding period has been increased to four years, in particular to give PhD students the opportunity to finish their thesis within the time frame of the project in which they started.

The SNF has also increased the flexibility offered to the grantee to govern his/her funds. A global budget is allocated to the grantee, who can then distribute the funds according to her/his needs, unless there are specifications made by the Research Council. All applicants are considered like Principal Investigators (PI); they all have to be at the origin of the scientific project submitted. PIs cannot have more than two funded projects running at the same time. Furthermore, applicants have the option to include partners, *i.e.* value the collaboration with other scientists contributing to the project.

Changes will also be implemented in the *Sinergia* funding program. While previously research projects combining interdisciplinary sciences were funded, one of the major advances of the new *Sinergia* program is that only authentically and genuinely interdisciplinary projects will be funded.

SNF Career Funding

Career-funding programs aim at helping and contributing to the development of the grantees' career. Important factors that determine whether the candidate will be successful include the commitment and infrastructure of the host institute, as well as the mobility of the candidate, and his/her potential to develop a career in (academic) sciences and an independent line of research.

The SNF considers mobility as a key element of career development. As a consequence, all funding schemes are designed to support young and advanced research fellows during a postdoctoral stay abroad. One notable exception is the *Marie Heim-Vögtlin* program, which offers research grants to women who would like to continue working in science after a career break. The SNF also participates in the *MD-PhD* program, which is a career-funding initiative of the Swiss Academy of Medical Sciences. All information concerning the career development tools of the SNF can be found on the SNF web page (URL: www.snf.ch).

Further career measures include the *Ambizione* program, which supports semi-independent investigators, and the *SNF professorship* programs, which is directed at more advanced and fully independent scientists. These grants cover not only the salary of the grantee but also a small research group, including project costs. Provided that the applicant has the support of the host university, the SNF will allocate up to 600'000 CHF for *Ambizione* fellows, and 1.6 million CHF for SNF assistant professors.

Future developments of the career-funding instruments will clearly depend on the funds that will be available to the SNF. Some measures however, will certainly be implemented in the future. In particular, both early and advanced postdoctoral mobility programs will be merged. In addition, the *Marie Heim-Vögtlin* program will be replaced by a more competitive tool for young female scientists. The SNF professorship will also be improved and changed into a more competitive tool.

Evaluation Metrics, Open Access and Open Science

Another topic that is being debated and that requires a strong position of the institutions that fund research is the relationship between funding agencies and journals. The current situation is quite unsatisfactory. Researchers receive support funded by tax payers' money. The results are public. However, researchers must pay the journals to publish their work. In the end, research money is re-directed to big publishing companies, and the public does not have the means to access the research results. In addition to that, journals position themselves with their impact factors, which in turn can be increased by factors other than the scientific value of the articles published by the journal. The SNF has signed the declaration of the League of European Research Universities (LERUS), to promote open access publications and to avoid the danger that access to research is restricted and not accessible to everyone. In addition to that, the SNF signed the San Francisco Declaration of Research Assessment (DORA). The key message of DORA is that journal-based metrics, such as journal impact factors, should not be considered in funding, appointments, and promotion considerations (<http://www.ascb.org/files/SFDeclarationFINAL.pdf>).

The SNF and its research council have decided to reform the evaluation metrics.

Rather than adding up the impact factors of journals where scientists have published, other factors that help assess the scientific output and value of the applicant will be considered. This method will be more comprehensive than in the past, but will also require a more complex analysis of the applicant's achievements.

Another topic on which the SNSF will focus in future is the promotion of openness in science (open access to publication and open research data). In fact, it is already apparent that science gains in trust by making data and scientific output more available to the public. By becoming easier to reach and more transparent, the data will become more reproducible and reliable. The good news is that the younger generation of researchers wants to share and compare their data and to make it available to the public.

In summary, there is no major shift in focus at the SNF: career and project funding will remain the two main pillars; the new reforms will enable better self-organisation of researchers and increase their flexibility. The evaluation criteria will be revised and science will be more open in future.

Addendum: September 2016

The SNSF has in the meantime revised its most important regulations, the Funding Regulations and the Implementation Regulations. The Funding and the Implementation Regulations have been in force in their revised form (FR2016 and IR2016) since 1 January 2016 and provide the legal basis for all funding schemes of the SNSF. The exception is project funding, which will be governed by the old Funding Regulations (FR2007) and the old Implementation Regulations (IR2015) until 1 October 2016.

Please find an overview of the revision of Funding and Implementation Regulations and general innovations in research funding here:

<http://www.snf.ch/en/funding/directaccess/revision-funding-and-implementation-regulations/Pages/default.aspx#Overview%20of%20the%20main%20changes>

<http://www.snf.ch/en/funding/directaccess/innovations-research-funding/Pages/default.aspx>

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