

Profile

2019–2020

**Who should receive
what social benefits?
Silja Häusermann paves
the way for reforms
capable of winning a
majority (see reverse).**

profile

2019-2020



SWISS NATIONAL SCIENCE FOUNDATION

Passion for research

14

From the lab to the world – with a good business plan



“The questions you have to deal with range from your business plan and intellectual property to logistics and taxes.”

Franziska Mathis-Ullrich, Ophthorobotics



“If we can get our product onto the market, we’re helping build a better world.”

Michail Kyriazopoulos, Cocoboards

News

10

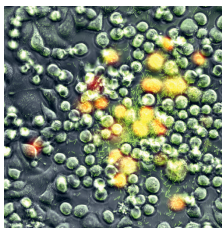
Women in leadership positions

Video campaign for basic science



13

Boosting top-flight research



In focus

6

A 1,000 times digital

7



A simulator for better surgery

8

Gothic pointed arches in the flooring

9

Inventive local media buck the trend



17

Strengthening
Swiss research

**“We have
four priori-
ties for the
2021–2024
period.”**

11

**“Repositories are
no competition”**

**“Now it has to be
part of the publi-
cation process by
default.”**

Matthias Egger, President of
the National Research Council
of the SNSF

12

**To foster trust must
be a goal of science**



**“Scientific freedom
comes with responsi-
bility – an aspect that
is rarely mentioned
by scientists.”**

Agneta Bladh, president of the SNSF's
International Advisory Board

4

At the helm

At the helm for the SNSF in 2019
“A Swiss success story”

6

In focus

A 1,000 times digital
A simulator for better surgery
Gothic pointed arches in the flooring
Inventive local media buck the trend

10

News

Video campaign for basic science
Lighting a spark
Women in leadership positions

11

Point of view

“Repositories are no competition”
To foster trust must be a goal of science

13

News

Boosting top-flight research
Faster PhDs
On the right path

14

Passion for research

From the lab to the world – with a good business plan

17

Outlook

Strengthening Swiss research

22

Activity report

Highlights 2019
Facts and figures
Financial statement 2019
Bodies of the SNSF

34

Information

Abbreviations and glossary
Publishing information/Further information

**In addition to the review of the past year, the “Profile 2019–2020”
of the SNSF presents faces and opinions, perspectives and forecasts.
Our aim is to highlight developments in research funding and
foster debate.**

At the helm for the SNSF in 2019



From left:

Felicitas Pauss, President ad interim of the Foundation Council of the SNSF
Matthias Egger, President of the National Research Council of the SNSF
Angelika Kalt, Director of the Administrative Offices of the SNSF

Many thanks to Felicitas Pauss

From April 2018 to December 2019, Felicitas Pauss led the Foundation Council and its Executive Committee ad interim with great commitment. Milestones during this phase included the important planning document “Multi-year programme 2021–2024”, which was approved and forwarded to the government on completion. Felicitas Pauss represented the Swiss Academies of Arts and Sciences on the Foundation Council and was its Vice President as of 2014. The SNSF would like to thank her for her tireless work on behalf of Swiss research.

“A Swiss success story”

In January 2020, the Foundation Council of the SNSF elected Jürg Stahl as its President. The former president of the National Council replaces Felicitas Pauss, who led the Foundation Council ad interim.

After a successful career in politics, you have now been elected President of the SNSF Foundation Council.

What fascinates you about research?

I'm fascinated by its open-mindedness and foresight. Exploring new topics with passion, precision and creativity, and thereby benefiting society, is an enormously important task! I am happy to bring my wide experience to the SNSF to lead this smoothly running organisation into the new decade – hand in hand with the Foundation Council, the National Research Council and the Administrative Offices.

How important is the SNSF for our country?

The SNSF is unique and its research funding is a Swiss success story that deserves to be continued with the necessary farsightedness and flair. In a rapidly changing society, established organisations should not rest on their laurels but keep on developing. The SNSF is a case in point.

Do you think that international scientific cooperation is threatened by the current political situation?

No, as a neutral country Switzerland has a longstanding history as a global player and the ability to engage with different partners, both in Europe and around the world. Research will continue to champion internationality and find suitable partners. But arguments in favour of international cooperation need to be put forward in a way that is both understandable and plausible in the political arena.

New leadership



The Foundation Council has constituted itself for the 2020–2023 period of office and elected its President and Executive Committee. The new President, Jürg Stahl, is one of the seven members appointed by the Federal Council. Maria Schönbachler from the Swiss Academies of Arts and Sciences is the Vice President.

From 2011 to 2015, Jürg Stahl was a member of the Commission for Science, Education and Culture of the National Council and presided over the Council in 2017. For the past three years, he has been the President of Swiss Olympic.

How do you interpret your role as President of the Foundation Council?

I am a team player and will take on this role with passion and commitment, just as I have done – or indeed am still doing – in other bodies. My role is clearly defined and doesn't need re-inventing. But it isn't the roles and the individuals filling them who are at the heart of all of this, but rather the SNSF community as a whole! Nevertheless, it is important that everyone knows their role and respects those of the others.

How will you leverage the fact that you are very well connected?

As a conduit between the SNSF and the political realm, I will of course bring my network of contacts into play.

Where I can support the SNSF and open doors on its behalf, I will do so. As a former President of the National Council, in particular, I can facilitate access to a whole host of actors.

Your election also raised a few eyebrows.

I'm used to that, and in no way does it diminish my passion for the job. Quite on the contrary, I prefer to be underrated or criticised to start with, and then deliver a good performance that convinces the doubters.



A drone by Flyability, a start-up that has emerged from NCCR Robotics.

A 1,000 times digital

State-funded research is a driver of economic and social innovation. On behalf of the Swiss government, the SNSF provides funding for selected research projects – on digitalisation, for instance.

In 2019, approximately 1,000 SNSF-funded projects were carrying out research on various aspects of digitalisation. How could we reinvent architecture based on electronic computing? Philippe Block is looking for answers to this question. How do local media come to terms with the digital age? Nathalie Pignard-Cheynel is analysing some of their responses. How could movement disorders in children be diagnosed and treated more quickly? Stéphane Armand is developing an online simulator (pages 7 to 9).

NCCRs and digitalisation

Key knowledge about digitalisation is generated by the National Centres of Competence in Research (NCCRs) conducted by the SNSF. For example, the NCCR QSIT has been investigating technologies that rely on quantum-physical effects. The NCCR Robotics is developing drones and four-legged robots. Several start-ups emerging from this NCCR won a prize in 2019. The NCCR Digital Fabrication aims to give digital technology a key role in construction. All NCCRs of the 5th series, approved by the Federal Council in December 2019, will contribute to strengthening basic research in computer sciences (page 13).

These and a host of other examples illustrate how indispensable state funding is – whether for basic research or use-inspired research. SNSF grants enable scientists to conduct independent projects: that do not directly pursue any commercial purpose; on topics that are relevant to society and the economy; and at costs that most companies could not bear or justify economically.

Open to new ideas

The SNSF allocates approximately 80 per cent of its budget to basic research. Such research, which does not aim to impress in the short term, is a precondition of innovation. “When doing basic science, you are more open to new, sometimes even revolutionary ideas,” says Mathilde Bouvel, a mathematician at ETH Zurich, in one of the videos produced by the SNSF in 2019 (page 10).

In the 2021–2024 period, the SNSF will also provide more support specifically for use-inspired research (page 17). This research category translates scientific knowledge into innovation, thereby leading not only to new applications but also to start-up companies – a process that adds value and creates jobs (page 14).

Mastering challenges

Switzerland’s competitiveness and standard of living are, to a large degree, founded on its strong scientific research. What is more, ecological, societal and technical challenges can only be met if science provides the necessary insights. This applies to climate change, public health or, as mentioned, digitalisation. The Swiss government has helped pave the way by giving the SNSF a mandate to promote Swiss science.

A simulator for better surgery

Cerebral palsy impairs children's ability to walk. Choosing the right treatment can be a challenge. Stéphane Armand is developing a simulator which doctors can use to test different surgical procedures.



At University Hospital Geneva, Stéphane Armand collects data on the gait of children with a walking impairment. The tools he uses include optoelectrical cameras.

Medical imaging is basically static. Our research aims to make it more dynamic. Armand's specialist field is the study of walking. Most people simply take walking for granted, but if you are affected by cerebral palsy, nothing is simple. Every year, approximately 200 children in Switzerland are diagnosed with the disease. "There are numerous motor systems and they cover a broad spectrum," says Armand, a biomechanist at the University of Geneva. "Some children walk on tiptoe, with knees bent and hips turned inwards. The precise reasons for this are very hard to discern. We hope that our research will lead to better diagnoses and help doctors choose the best treatment."

Modelling gaits

With this aim in mind, Stéphane Armand started developing an online gait simulator together with a biorobotics team at EPF Lausanne and an AI team from Haute école de gestion de Genève (HEG). His work is funded under the SNSF's Sinergia programme, which promotes interdisciplinary projects. In the future, doctors should be able to enter information about their patients' impaired mobility, simulate the effects of different operations and choose the most suitable intervention.

To develop the simulator, the researchers need data from children affected by the disease. Armand conducts his gait analyses in a corridor of the orthopaedic wing of Geneva University Hospital. Optoelectronic

cameras record the patients as they walk and digitalise all their movements. Small circles attached to the skin reflect infrared light and facilitate a permanent and precise positioning – a technique also used by creators of special effects in films. Sensors at the muscles measure the electrical currents that indicate muscular activity. At the same time, a platform records how the patients' feet touch the ground while walking.

Need for large datasets

All of these data are combined to generate a profile of the patients' impairments. "We want to better understand how musculoskeletal problems affect walking and at the same time make it possible to diagnose motor deficits based on our measurements," says Stéphane Armand.

He is working with hospitals abroad to collect more data. A large volume of data is crucial for machine learning, a method of artificial intelligence. Creating reliable links between lab measurements and impaired movement is otherwise impossible. With this work, the Geneva research group is setting new standards that will enhance the analysis of impaired movement across the board.

Gothic pointed arches in the flooring

How can engineers make concrete floors lighter and more environmentally friendly? By taking cathedrals as their inspiration, says an ETH professor who wants to reinvent architecture.

The methods used in the building sector have barely changed in the last 100 years," says Philippe Block, Professor of Architecture and Structure at ETH Zurich. "Because of population growth, about as many buildings as there are in Manhattan will be built worldwide every month in the next 40 years." Therefore, raising productivity levels and, in particular, drastically reducing resource consumption are of central importance. "The building industry is responsible for more than a third of all carbon emissions. Until now, it has made only very limited use of the possibilities offered by digitalisation. Our work will help change this."

As an architectural engineer, Block specialises in concrete floors. That in itself may not sound very exciting – until one learns that floors account for 40 per cent of the total weight of a tall building. Philippe Block's team is creating floors with three times less concrete, and cement that is only half as pollutive. The carbon footprint is six times smaller.

Filled with voids

The secret behind it? The arches of Gothic cathedrals. A network of pointed arches stretches across the concrete floors, calculated and optimised by a computer. These arches spread the compression forces with-

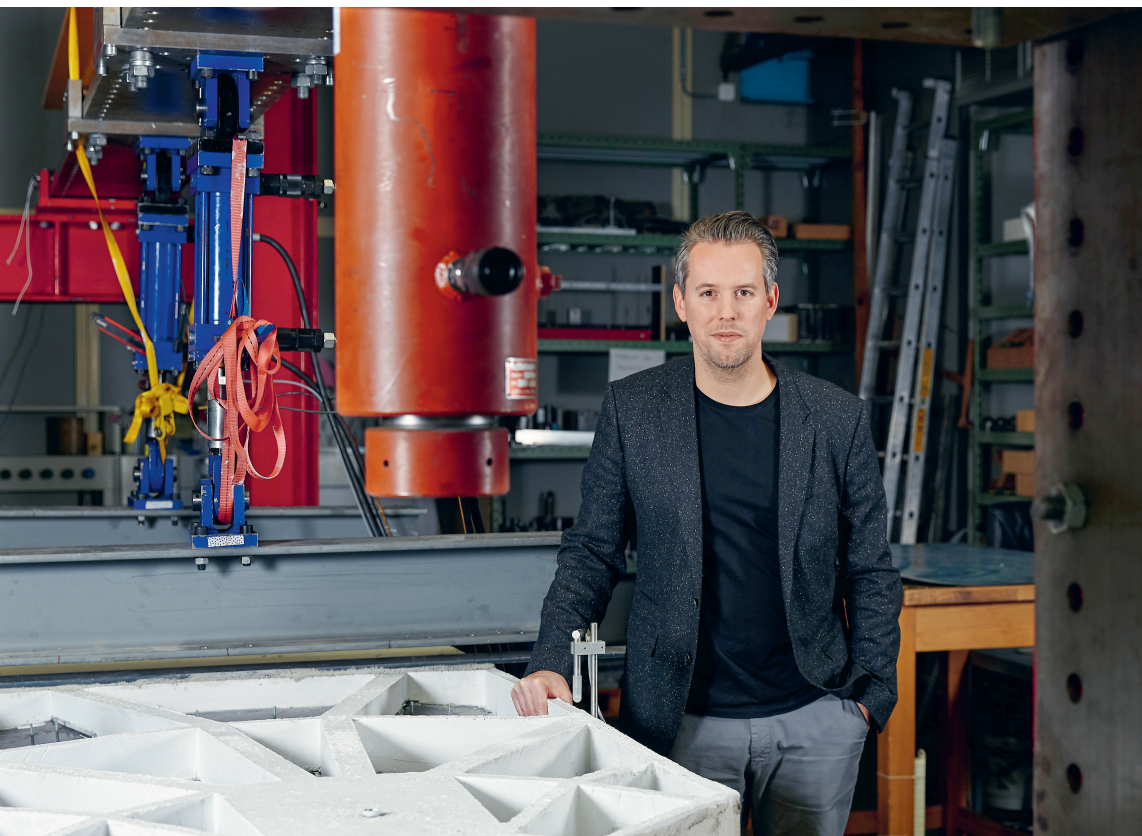
in the material more effectively. You could say that the concrete floors are "filled with voids" and therefore a lot lighter.

"A homogeneous floor always bends in the middle," Block explains. "This creates tensions in the concrete that can only be held in check through steel reinforcements. Thanks to the integrated arches, our floors are rigid. This reduces the pressure and we can achieve the same solidity using 70 per cent less material." In his laboratory stands a 3D-printed prototype that is two centimetres thick and can carry a load of 1,000 kilogrammes. Its thin arches, however, can be broken by hand.

400 visitors per year

Philippe Block is the director of the National Centre of Competence in Research (NCCR) "Digital Fabrication", launched by the SNSF in 2014. His work on concrete floors is being funded in this context. "This NCCR is a global first. It allows us to conduct long-term research which the building industry itself would never do." Together with his team, he is developing the COMPAS platform, which facilitates digitalised processes – from the architect's plan through to fabrication.

"We're getting more than 400 visitors per year, many of them from the industry. If we want it to adopt our solutions, we need to ensure they are affordable. This is the only way things can change. I'm confident we will succeed."



Thanks to computer-calculated arches, the floors devised by Philippe Block use 70 per cent less concrete.



Nathalie Pignard-Cheyne collected and analysed over 300 digital activities by local media. Many of these activities are combined with an analogue aspect.

Inventive local media buck the trend

The internet has plunged the press into a grave crisis. Nathalie Pignard-Cheyne investigates how local media use digital channels to get closer to their readers.

The researcher Nathalie Pignard-Cheyne is in no doubt: “The media are a key element in our democracy. They inform, but they also shape public opinion.” However, these are challenging times for the press, as they face the combined threat of plummeting earnings, dwindling trust and competition from social media. How are the local media using digital means to keep their readership on board? This is the main focus of Pignard-Cheyne’s research project, which is funded by the SNSF within the scope of the initiative “Digital Lives”. “Science has chiefly studied large media companies and neglected local media. Despite the fact that local media play an important role in shaping a shared identity. And some of them are very innovative,” says Pignard-Cheyne, assistant professor of digital journalism at the University of Neuchâtel.

Digital and analogue measures

Together with other research teams, Nathalie Pignard-Cheyne has analysed over 300 activities by local media in Switzerland, France and Belgium since 2019. The editors themselves enter the details in an online form. All data are freely accessible. “This openness increases the project’s visibility and gives the media an incentive to participate.”

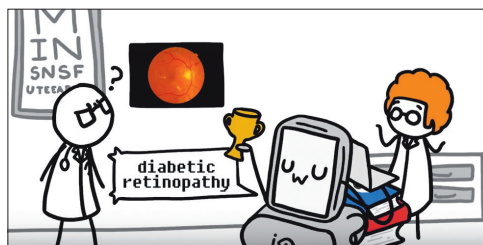
Some of the activities are purely digital, for example the chatbot launched by “La Liberté” in Fribourg, the hashtag #BalanceTonTaudis – a response by “La Marseillaise” to decaying buildings – or Facebook groups on the topic of zero waste.

However, the numerous traditional measures were a surprise: editorial board meetings in cafés, public talks or a mobile newspaper stall on the market square. In such cases, digital media serve as an add-on, a means of continuing the debate online.

Long-term strategy?

In the second part of the project, Pignard-Cheyne will analyse different aspects in depth, based on extensive conversations with a dozen local media outlets. Are their activities an isolated reaction? Or are they part of a sustainable change in editorial strategy? “I also want to find out if this is simply a new version of participatory journalism. Or are these media developing a socially responsible journalism that seeks solutions and wants to play an even more active role in society?”

Pignard-Cheyne’s team have been presenting the results of their use-inspired research at scientific conferences. “We are mainly looking at the current situation and the effects of these actions,” says the researcher. “But we also want to help develop some of the better ones and make them more widely known. Local journalism has scant resources at its disposal for innovation. If we can provide support and strengthen our democratic society at the same time, I will be delighted.”



Basic research campaign

Video campaign for basic science

The SNSF invested approximately 80 per cent of its budget in basic research in 2019. Such research seeks to gain insights into human beings and nature. Insights that provide a basis for the technical and social innovation to which we owe our prosperity. To make the public more aware of the value of basic research, the SNSF launched a digital campaign in June 2019. In a series of videos, scientists talk about their reasons for conducting basic research. Four explanatory videos present knowledge which – when applied in practice – benefits society. For instance, how a gaming computer became a “super physician”. Or how to prevent truancy. The videos from the campaign had been viewed around 24,000 times by the end of 2019. “Basic research is an investment,” says Matthias Egger, President of the National Research Council. “But sometimes, it only pays dividends years or even decades later.”

Pilot scheme for original ideas

Lighting a spark

The Spark pilot scheme launched by the SNSF finances unconventional projects that run for a maximum of twelve months. It is the originality of the idea that counts. How experienced the researchers are or how often they have published is of secondary importance.

757 applications were submitted in response to the first call in summer 2019. Most of the 950 researchers involved in the projects were under 40. Roughly three out of four had never applied for an SNSF grant before. “With Spark, we are primarily reaching out to young researchers and new applicants,” says Director Angelika Kalt. “This is in line with our goal to promote diversity in research.” In November 2019, the SNSF awarded 27 million francs for 284 projects, 17 million more than originally planned.

PRIMA leadership programme

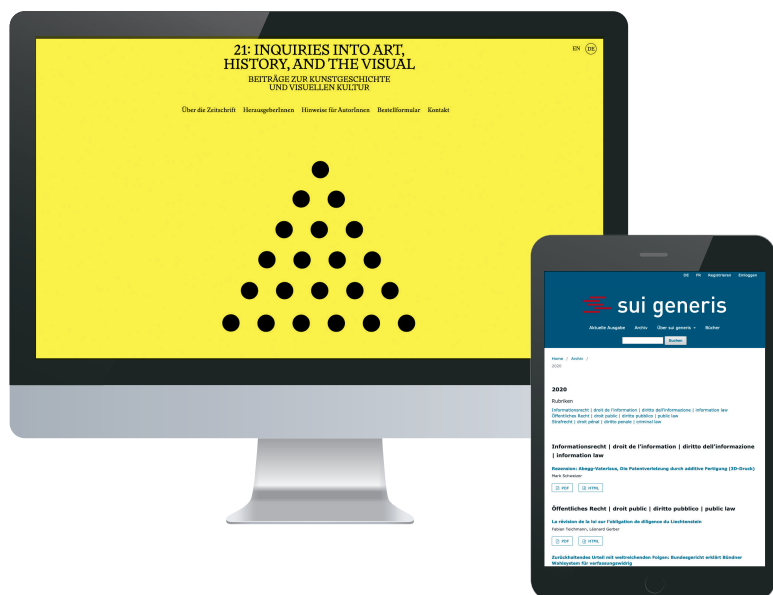
Women in leadership positions

Pursuing a career in academia is more difficult for women. With the new PRIMA leadership programme, the SNSF is promoting gender equality and innovative approaches to leadership. The programme is open to all women researchers funded under the PRIMA scheme. The programme includes workshops as well as counselling and networking opportunities.

Women in leadership positions could play an important role in problem-solving, stressed the leadership expert Margaret J. Wheatley at the programme launch in April 2019. “Without considering a wide range of different perspectives on the scientific and social issues of today, we will not make any progress.” How can we achieve adequate representation of women researchers? The participants in the panel discussion were unanimous: it was the institutions and the academic culture that had to change. It wasn’t the fault of the women if they couldn’t manage to reach the top.



Before the kick-off event of the PRIMA leadership programme, the grantees of the PRIMA scheme came together for a workshop.



“Repositories are no competition”

As of 2020, 100 per cent of all publications from SNSF-funded research were meant to be available in open access mode. The SNSF will not achieve this goal. The President of the Research Council, Matthias Egger, sets out some of the reasons.

In 2019, only 50 per cent of the publications were open access. Hasn't the SNSF been active enough?

We have been promoting open access for a long time and made it a requirement for researchers in 2008. We have informed regularly and created favourable conditions, but that isn't enough.

Why?

One important reason concerns scientific journals. Some journals do not allow authors to provide open access to their article after six months at the latest. That is why the SNSF sent an open letter to the larger publishers at the end of 2019. There is no reason why articles should not be available in a digital repository within this six-month timeframe. A repository is merely an archive, whereas a journal is a platform on which researchers share their knowledge – I can't see any competition there.

There is no such problem with open access journals. Their articles are immediately available free of charge. But what to do if there are no journals of this kind?

That might be the case in a few subdisciplines. But our experience shows that applicants are able to find an open access journal in every discipline. Of course, there isn't always the same amount of choice. And for this reason, one ought to promote alternative forms of publishing under the national open access strategy. One example of this is the conversion of subscription-based journals into open access journals.

Are there any other reasons why the SNSF is falling short of its goal of 100 per cent?

Many researchers forget to make their article publicly accessible even if the journal allows it. They don't include open access in their plans from the outset. Now it has to be part of the publication process by default.

Some open access journals came into being because researchers took the initiative, for example “sui generis” for law. Its editor, Daniel Hürlimann, is one of the SNSF's open access ambassadors. Another example is “21: Inquiries into Art, History, and the Visual”. Co-editor Beate Fricke is also an SNSF ambassador.
www.sui-generis.ch
www.21-inquiries.eu

How can the SNSF contribute?

We are expediting this change of thinking with different measures. They include publication grants for articles in open access journals, as well as for open access books and book chapters. What's more, in summer 2019, we began contacting researchers whose publications were not freely accessible and findable.

The EU's Plan S is also aimed at achieving 100 per cent open access. But the SNSF didn't sign it.

We support Plan S, but we offer our applicants more options. They have six months to store their publication in a public repository. The goal of Plan S, however, is to make all publications available immediately.

What changes with open access to government-funded research?

Private and public sector players are able to implement the results more rapidly. Thanks to the published information, the public can participate in scientific debates; and there is more critical reflection of research. This in turn leads to new questions and methods. All this makes science more impactful.

Grants for open access publications

By keeping administration lean and providing comprehensive funding, the SNSF makes it easy for researchers to publish their results in an open access format. For more information, please refer to the open access website: <https://oa100.snf.ch>

Agneta Bladh's view

To foster trust must be a goal of science

Many people in Europe and around the world are doubtful of research findings – be it on climate change or on other topics. What can scientists, research institutions and funders do to win their trust?



Agneta Bladh, a former Swedish State Secretary, is the president of the International Advisory Board of the SNSF. She also chairs the board of the Swedish Research Council.

Delivering high-quality research is of course a central requirement. However, it is just as important that people have a basic trust in science. How can such trust be nurtured?

Good communication

I'd like to start by taking a look at communication. How many researchers are able to provide an interesting glimpse of their work in a few easily understandable sentences? Many would like to communicate, but can't manage to find the time – or maybe the merit system does not sufficiently incentivise communication.

The European Researchers' Night is an initiative aimed at improving communication. Another such initiative is the Swedish Researchers' Grand Prix; to win it, researchers need to present their work not only understandably, but also as crisply and inspirationally as possible.

Should funding organisations also finance good interaction between people in academia and in society at large? Yes, of course. Funding promising communication projects, as the SNSF does, is an important step forward. As are the networks between researchers and potential users envisaged in its multi-year programme 2021–2024. But we are open to other ideas as well.

Responsibilities, both internal and external

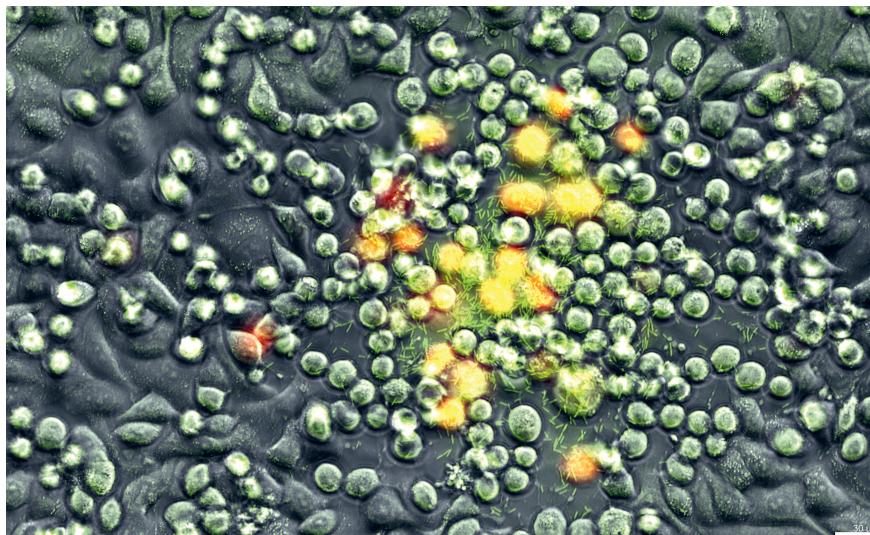
Trust can also be fostered if the research community respects certain values. Scientific freedom comes with responsibility – an aspect that is rarely mentioned by scientists. The Magna Charta Universitatum, which embodies the basic values guiding higher education and research, has been the yardstick for the past 30 years. It is due to be updated in September 2020 in Bologna. Integrity and responsibility will be among the subjects contemplated in the new document.

For me, academic responsibility has two aspects. On the one hand, there is the responsibility that we have towards the outside world. This involves science responding to society's needs and engaging in dialogue with the public. On the other hand, we are responsible to ourselves. For pursuing excellence and preventing misconduct, for example, or striving for openness and equality.

The SNSF expects the projects it finances to meet the highest standards of quality and integrity. It conducts finely tuned selection procedures involving panels of respected experts and thousands of peer reviewers around the world. This enhances credibility. In spite of this, my view is that more effort is needed inside and outside academia to foster trust.

Generating ideas for the SNSF

Since 2018, the International Advisory Board has provided ideas and recommendations aimed at helping the SNSF develop its role and strategy in the long term. Alongside Agneta Bladh, the other members of the Advisory Board are: Caroline Bassett (University of Sussex), Pearl Dykstra (University of Rotterdam), Frank Miedema (University of Utrecht) and Willi Paul (Consenc). Together, they possess a wealth of experience of different aspects of science.



5th series of NCCRs

Boosting top-flight research

In December 2019, the Swiss government initiated six more National Centres of Competence in Research (NCCRs) as part of the SNSF's funding portfolio. They will sustainably strengthen research on antibiotic resistance, automation, language development, microorganisms, sustainable chemistry and quantum technology. "The thematic scope of the new NCCRs shows there is a huge potential for cutting-edge research and innovation at Swiss higher education institutions," says Federal Councillor Guy Parmelin. Between 2020 and 2023, the SNSF will be investing 100 million francs in the six NCCRs for a maximum duration of twelve years.

More than 50 proposals were received for the 5th series of NCCRs. After scientifically evaluating the proposals, the SNSF submitted a shortlist of eleven potential NCCRs to the government for final selection.

Study to evaluate Doc.CH

Faster PhDs

Doc.CH is an efficient funding scheme that meets a real need. This was the conclusion drawn by a study conducted at the University of Bern in April 2019. The SNSF annually awards a grant to around 50 doctoral students in the humanities and social sciences. Fritz Schlunegger, President of the Specialised Committee for Careers: "On average, doctoral students with a Doc.CH grant need less time to complete their thesis."

But the study also pinpoints some aspects that could be improved. For example, the grant allows doctoral students to devote more time to research, but does not provide enough support for other tasks, such as teaching. "The study gives us some valuable insights," says Schlunegger. "We will take them into account when we next review the scheme."

Data sharing

On the right path

75% of the researchers based in Switzerland provide open access to their research data. However, only around 44% do so using public databases, known as repositories. 38% publish the data in journals or on their own websites, the remaining 18% provide the data on request. These figures are taken from a report* published by the SNSF and swissuniversities in May 2019. The report is based on a survey conducted among more than 2,000 researchers.

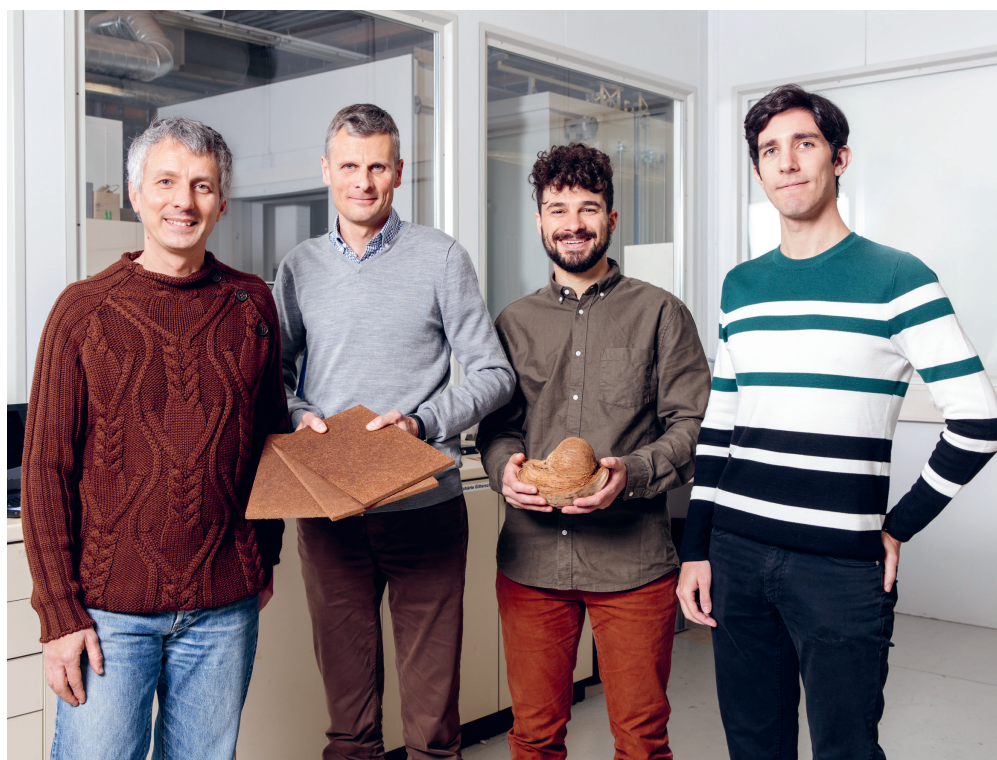
Why are some of the data still not freely accessible? Many researchers want to publish their work first. Some have their doubts regarding rights of use and confidentiality. The SNSF understands and respects their standpoint. Researchers funded by the SNSF are not required to share data before publishing their work. And the requirement is waived entirely in the event of any sensitive legal or ethical issues.

***Von der Heyde, M. (2019). Open Research Data: Landscape and cost analysis of data repositories currently used by the Swiss research community, and requirements for the future**



From the lab to the world – with a good business plan

In addition to advice and money, anyone who plans to set up their own company on the springboard of a research project will need boundless enthusiasm. The following three examples of SNSF grantees illustrate this.



Cocoboards: Sauro Bianchi (scientific adviser, Berner Fachhochschule, BFH), Frédéric Pichelin (technical adviser, professor at the BFH), Michail Kyriazopoulos (project manager/inventor, BFH) and Matias Cavero Herrera (product developer, BFH) present their new building material made from coconut fibre.

To begin with, the subject was just one of many I was interested in," says Michail Kyriazopoulos. "But when it became clear what the real-world social benefits of our research could be, I got really fired up." For several years, Michail Kyriazopoulos has been researching a novel, coconut fibre-based building material. He started out as a Master's student working on a project sup-

ported by the r4d programme of the SNSF and the Swiss Agency for Development and Cooperation (SDC). The programme promotes scientific cooperation with developing and emerging countries. The research at Bern University of Applied Sciences produced good results, and there seemed to be practical applications for it. "The material we have developed is perfect for building affordable housing in countries in the

South," explains Michail Kyriazopoulos. "In the Philippines, for example, it can be manufactured locally and at very low cost using agricultural waste."

BRIDGE grant to fund next steps

Making the transition to real-world use is not that straightforward though. No discovery makes its way from the lab to real life by itself. That takes people who can create awareness of the discovery and adapt it for very specific purposes. Manufacturing and distribution also have to be organised. In short, the scientific basis has to be augmented by entrepreneurial action.

This is why Michail Kyriazopoulos is currently working on a business plan, setting up a production facility in the Philippines with local partners and presenting the idea to potential Swiss industry partners, while at the same time optimising the building boards, which have been launched under the name of Cocoboards. He is being supported by funding from the BRIDGE programme run by the SNSF and Innosuisse, the Swiss Innovation Agency. BRIDGE enables young scientists to test their idea for a limited period of time and develop it for the market.

Angelika Kalt, Director of the SNSF says: "If researchers use their findings to set up their own company, they are transferring scientific results direct to the economy and society. In this respect university start-ups and spin-offs play an important bridging role." But the road is a challenging one, and navigating it successfully needs more than the money that safeguards the fledgling enterprise's survival for a while. "That's why coaching sessions and courses on business-related issues are a fixed part of BRIDGE



Ophthorobotics: Franziska Mathis-Ullrich (adviser, professor at Karlsruhe Institute of Technology) and Roland Dreyfus (CEO) with a prototype of the fully automated device for giving eye injections.

funding,” explains Angelika Kalt. “This is where Innosuisse’s expertise and experience are essential.”

The pivotal question

Jagdish Achara knows exactly how important this real-world expertise is. He and his company Gridsteer have reached the point that Michail Kyriazopoulos is trying to get to – that of founding a company. Gridsteer combines software and hardware in intelligent systems that regulate electricity flow in regional distribution grids. The need arose from the growing number of new renewable energy sources – such as wind or solar – being integrated into local grids. Gridsteer’s technology is derived from two projects carried out at EPF Lausanne as part of the SNSF’s National Research Programme “Energy Turnaround” (NRP 70). Jagdish Achara was involved as a postdoc. “We’d never even considered using the technology commercially until a company contacted us one day,” he says. “They told us they were interested in our system and asked if they could use it.”

But even with this basis, a functional business model was not immediately apparent.

“The problem for which you have the solution generally doesn’t exist in that form.”

Jagdish Achara, Gridsteer



“As a scientist, I found that gearing our technology to the market forced me to look at it from a completely new perspective,” says Jagdish Achara. “Because the most important question in business is ‘how will our product generate money?’ And not just once, but time and time again.”

Focus, focus, focus

Just like Michail Kyriazopoulos, Jagdish Achara asked himself this question during the start-up training provided by Innosuisse. He found that it was less than straightforward to answer. “Because the problem for which you have the solution generally doesn’t exist in that form,” he explains. Instead, clarity on how to configure the solution for real-life use is only obtained after market needs have been analysed in detail. Franziska Mathis-Ullrich had the opposite experience. She is a co-founder of Ophthorobotics, a start-up that is creating a fully automated system for performing medical injections in eyes. The robotics scientist, who was working at ETH Zurich at the time, first developed the idea in discussions with ophthalmologists. The specialists approached her with a very clearly defined real-world

problem. Since patient numbers are growing as a result of an ageing population, they were looking for a way to automate the procedure which guaranteed at least the same level of quality as at present. “So we – the robotics engineers and the doctors – worked together to find a solution.”

Promise on the horizon

Ophthorobotics also found that entering the market successfully required a lot of time and effort. “The questions we had to deal with ranged from our business plan and intellectual property to logistics and taxes,” says Franziska Mathis-Ullrich. “Fortunately, since we were supported by BRIDGE funding from the SNSF and Innosuisse, we were able to gain a better understanding of the business side and avoid mistakes further down the line at the same time as working on technical development.”

Programmes such as BRIDGE are an important helping hand for many research-based start-ups and spin-offs. Nevertheless, the boundless commitment and enthusiasm of the company founders will always be the factor determining success on both the scientific and business sides. Michail Kyriazopoulos,



“The questions you have to deal with range from your business plan and intellectual property to logistics and taxes.”

Franziska Mathis-Ullrich, Ophthorobotics

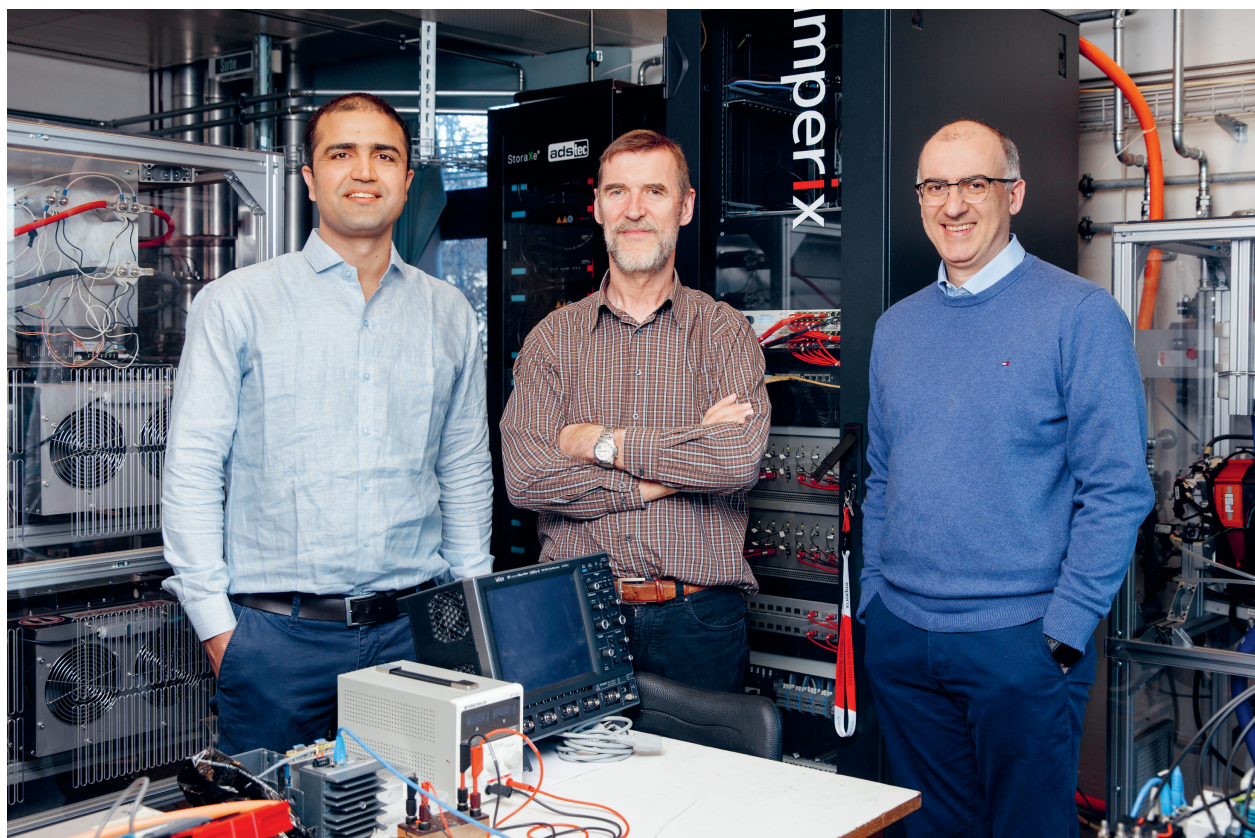
Jagdish Achara and Franziska Mathis-Ullrich know full well how much work is involved in getting a start-up off the ground. They are all too familiar with the intensive periods when it is necessary to keep countless strands together while playing many different roles simultaneously and looking ahead to an un-

certain future. But they are also aware just how fulfilling the adventure is. “The workload is huge,” says Michail Kyriazopoulos. “You have to devote yourself 100 per cent to your project. But if we can get our product onto the market, our research will have helped build a better world.”



“If we can get our product onto the market, we’re helping build a better world.”

Michail Kyriazopoulos, Cocobboards



Gridsteer: Jagdish Achara (CEO), Jean Yves Le Boudec (researcher, professor EPF Lausanne) and Mario Paolone (researcher, professor EPF Lausanne). The Gridsteer system regulates electricity flow in regional distribution grids.

Strengthening Swiss research

In its multi-year programme 2021–2024, the SNSF sets four priorities. By pursuing them, the SNSF will be helping Swiss research to overcome challenges and maintain its leading position.

Challenges

Women are still underrepresented in research. Use-inspired research at universities of applied sciences is not equally well established in all disciplines. Intense pressure to publish has an adverse effect on research culture.

Priority 1: Foster excellence through diversity

We will focus even more strongly on promoting gender equality as well as research at universities of applied sciences. When selecting projects for funding, we want to attach less importance to publications and more to other research achievements. In addition, we want to reward researchers who show a readiness to collaborate across disciplines and take risks.

1

Challenge

Infrastructure requirements for open science are increasing.

Priority 3: Promote data infrastructures and services for an open science system

Research produces, stores, administers and analyses ever-increasing amounts of data. With our funding, we aim to ensure that easily accessible, state-of-the-art infrastructures and services are available for these processes in Switzerland. This is essential for achieving results of high quality and a big step towards open science.

3

2

Challenge

Research cooperation needs to be increased.

Priority 2: Strengthen competitiveness through collaboration

We are making it easier for researchers to generate new knowledge in collaborative projects. This strengthens their international standing. We also encourage the involvement of various social groups. For instance, patient associations could participate in discussions to determine new medical research topics.

4

Challenge

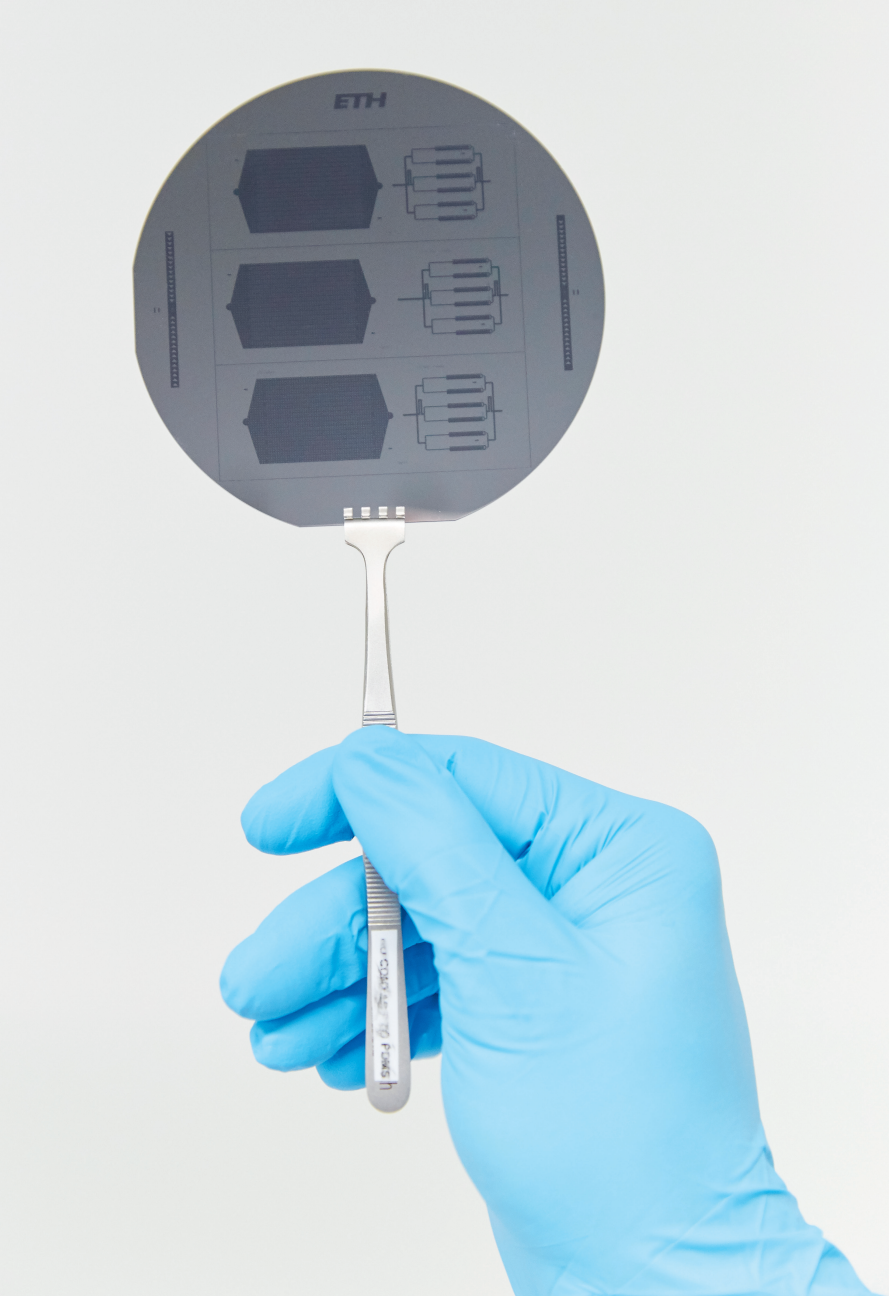
The potential of research findings is not being fully exploited.

Priority 4: Enhance the value of science for the economy, politics and society at large

Together with Innosuisse, we are expanding the BRIDGE programme. It aids the transformation of research results into innovation. In addition, we want to help researchers build networks with users, organisations and public authorities. We will also continue to fund Agora projects that foster dialogue between science and society.

Basis for the budget

Every four years, the SNSF submits a multi-year programme to the Swiss government. It serves as a basis for the research funding budget which we receive from parliament. The new measures addressing our four priority areas complement our existing portfolio. The SNSF developed the measures in consultation with the Swiss Academies of Arts and Sciences, the ETH Board, Innosuisse and swissuniversities, the umbrella organisation of higher education institutions.

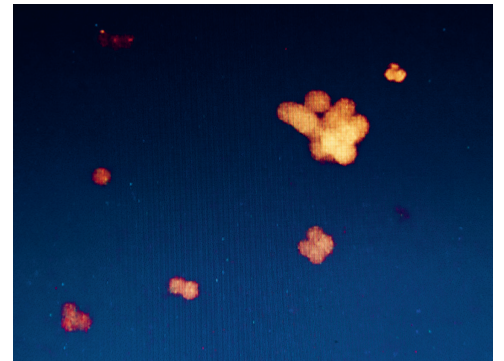
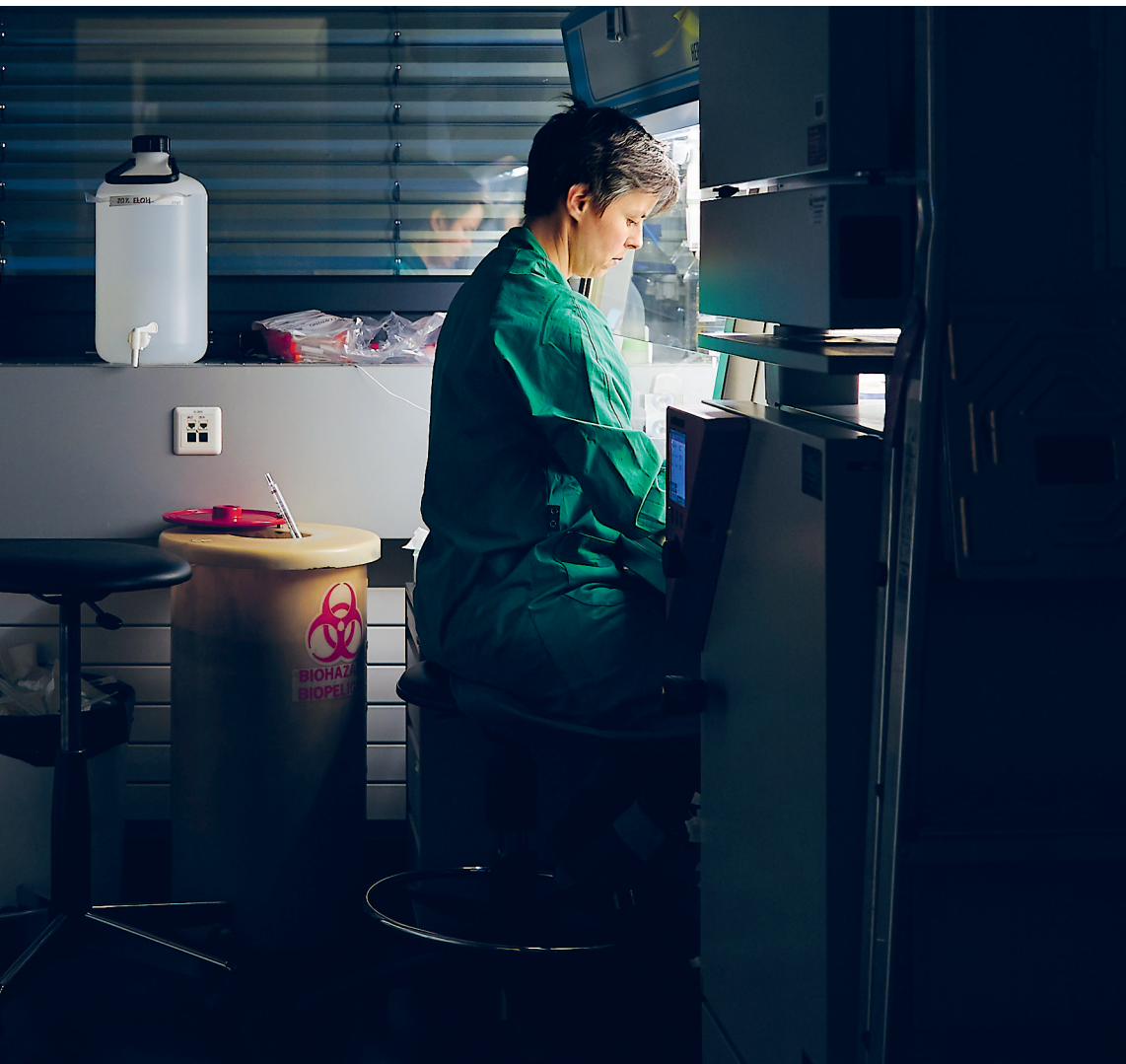


→ Stop metastases

“With the aim of deepening our understanding of cancer biology, I combine molecular biology, bioinformatics and genetics in my research. This has enabled us to show that clusters of cancer cells circulating in the blood play an important part in the development of metastases. We are now looking for new treatments for metastasising types of cancer. One approach is to identify drugs that exploit the vulnerabilities of cell clusters.”

Nicola Aceto, biomedical scientist,
University of Basel

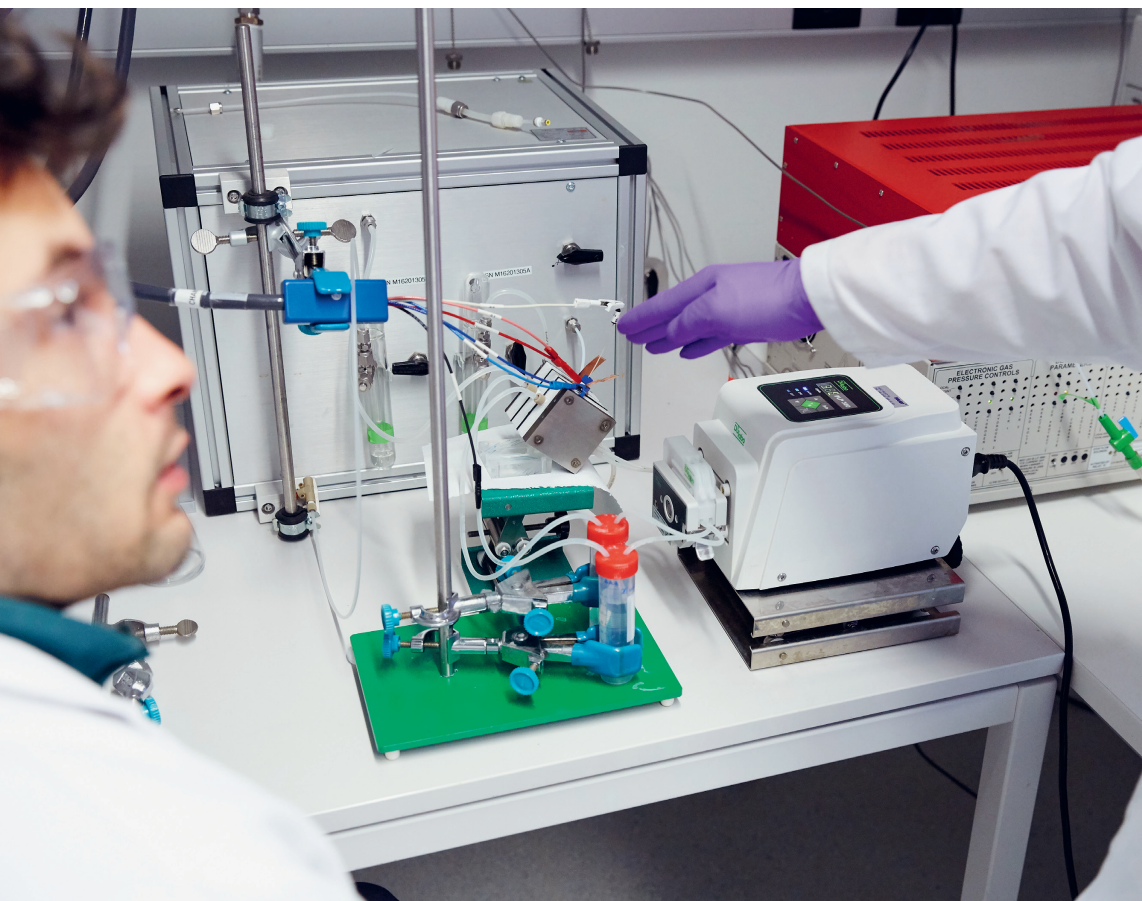
Recipient of several SNSF grants and a fellowship from the European Research Council (ERC)



Using special microchips, it is possible to isolate metastasising tumour cells in blood samples. The chips were developed by the team of Nicola Aceto in collaboration with the Department of Biosystems Science and Engineering of ETH Zurich in Basel (top left). Microscope image of circulating clusters of tumour cells in the blood of a cancer patient (top). Karin Strittmatter, technical employee, analyses cultures of such cells in the lab (left).



Solar light illuminates quantum dots in a solution; depending on their size, the dots glow in different colours, which means they absorb different components of the light (right). Gian Luca De Gregorio working on an electrochemical cell: here copper nanoparticles degrade the CO₂ with the aid of electricity (below). In such reaction flasks, the particles are carefully synthesised using solution chemistry (bottom right).



→ Just like plants

“A sustainable society needs to produce and stock renewable energy while also reducing CO₂ in the atmosphere. As researchers, we want to contribute to this goal. We synthesise tiny nanoparticles, including metallic and non-metallic elements. Like plants, these particles can store sunlight and electricity into chemical bonds while converting CO₂ into useful compounds.”

Raffaella Buonsanti, chemist, EPFL Valais Wallis

Recipient of an Assistant Professor Energy Grant from the SNSF and of a European Research Council (ERC) Starting Grant

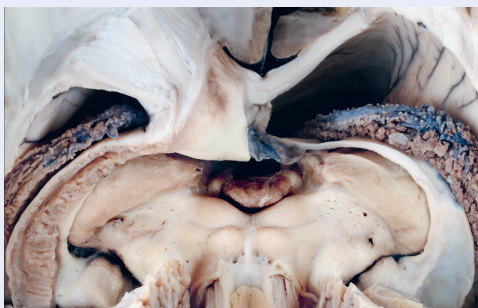


Highlights 2019

April

Inside view

An unusual view of the human brain wins the “Object of study” category of the **SNSF Scientific Image Competition**. The picture was taken by Kevin Akeret, doctoral student at University Hospital Zurich. The jury selects three winning images and one video from 457 entries. In addition, they award eleven distinctions. A selection is presented at the Biel/Bienne Festival of Photography. On the opening night, videos of the previous competitions are set to music.



June

Equality now

Employees of the SNSF join the national **women’s strike** on the Bundesplatz in Bern. “A lack of gender equality damages science and slows down social and economic innovation,” says director Angelika Kalt. The SNSF calls on politicians to make gender equality a reality. Among other things, conditions for working parents need to be improved.



September

The algorithm as poet

Antonio Rodriguez wins the **Optimus Agora Prize** for his exhibition “Digital Lyric”. Among other features, he allows the visitors to test a device that writes poems using artificial intelligence. Depending on the instructions, the poems contain differing shares of love, joy and sadness. “I want to allay certain fears to do with digitalisation, but also with poetry,” says Rodriguez, professor of modern French literature at the University of Lausanne.

September

Looking into the past

13 billion years ago, the universe was reionising: the electrons and protons of hydrogen atoms separated. Using data from the Hubble Space Telescope, **Anne Verhamme** showed that the radiation of galaxies was the likely trigger of the reionisation. For this work, the assistant professor for astronomy at the University of Geneva is awarded the **Marie Heim-Vögtlin Prize** by the SNSF.



October

With public money

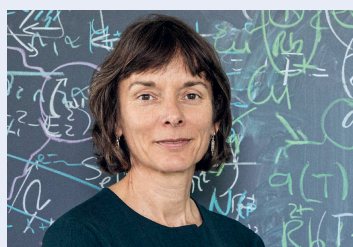
Michel Mayor and **Didier Queloz** receive the **Nobel Prize in physics** for their basic research on exoplanets. In an interview, Michel Mayor thanks the SNSF and the University of Geneva: “They funded our work on exoplanets before it enjoyed the reputation that it does today.” Matthias Egger, President of the Research Council, says: “This prize is an acknowledgement that basic science needs to be funded with public money.”



November

Novel combination

Nicola Spaldin, ETH professor of materials theory, receives the **Swiss Science Prize Marcel Benoist** for her ground-breaking research into multiferroics. These novel substances react both to magnetic and electric fields. An example is bismuth ferrite, which consists of bismuth, iron and oxygen. Her work lays the foundation for ultrafast processors and minute data storage devices.



“Materials play an important role in improving certain aspects of our lives.”



November

Real achievements

Susan Gasser steps down as president of the SNSF’s **Commission on Gender Equality**. Between 2014 and 2019, she contributed significantly to strengthening the SNSF’s commitment to gender equality. Gasser, director of the Friedrich Miescher Institute in Basel, started important debates and was a key player in creating the new funding scheme PRIMA. Her successor **Michèle Amacker**, co-director of the Centre for Gender Studies at the University of Bern, will take up her post in January 2021. Until then, **Nicky Le Feuvre** will preside over the commission ad interim.



November

Touring Switzerland

The SNSF visits each higher education institution every two years to present selected funding schemes and offer advice mainly to young researchers. In 2019, the **tour of Switzerland** included stops in Basel, Geneva, Lausanne, Lugano, Winterthur and Zurich. At several stops, the SNSF was joined by the Swiss Innovation agency Innosuisse. In total, over 500 researchers visited the events at nine universities and universities of applied sciences.

November

Empirical excellence

What is the effect of migration policy measures? **Dominik Hangartner** collects and analyses data to answer such questions. He is professor of political sciences at ETH Zurich and project leader at the National Centre of Competence in Research “On the move” of the SNSF. His empirical research is an outstanding example of what social sciences can achieve. He is awarded the **National Latsis Prize** for his work.



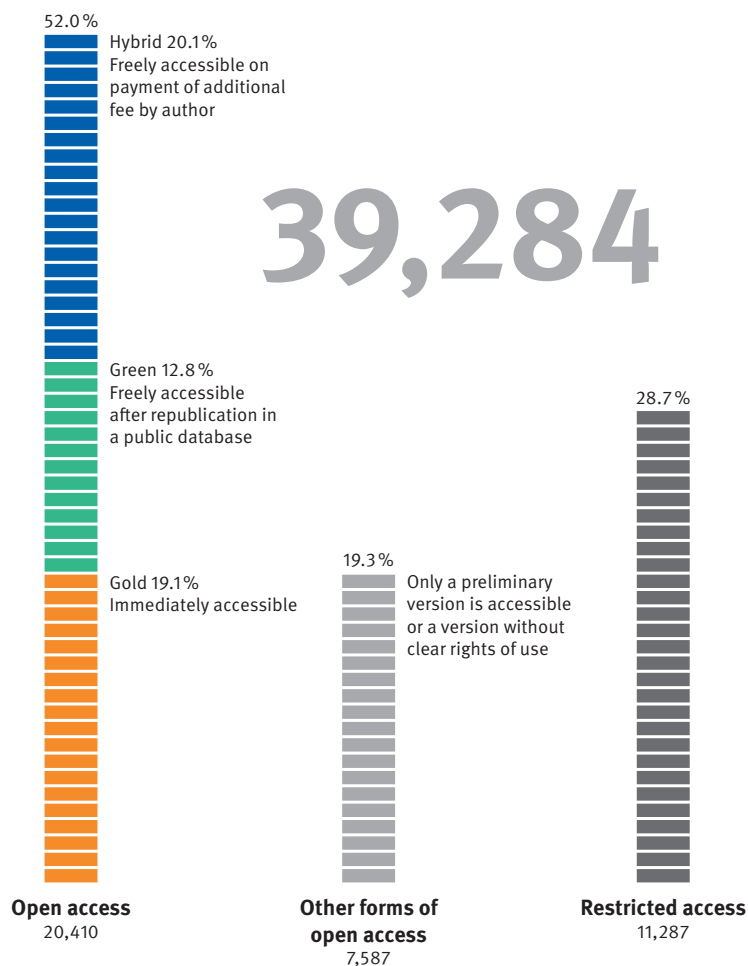
December

General election

Similar to the national parliament, the **National Research Council** of the SNSF needed to be re-elected in 2019. The Executive Committee of the Foundation Council elected around 100 leading researchers for the next four-year period of office. They are all working at universities or other research institutions. The Research Council decides which projects will be funded. It appoints various evaluation bodies that support its work.

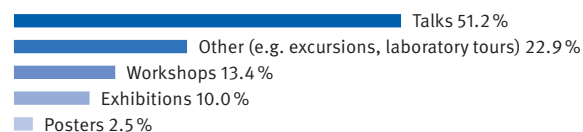
Research output 2015–2019

Scientific publications



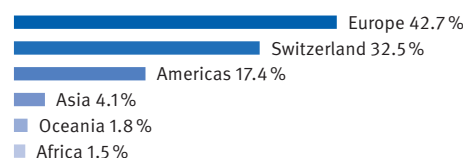
Knowledge transfer events

6,809



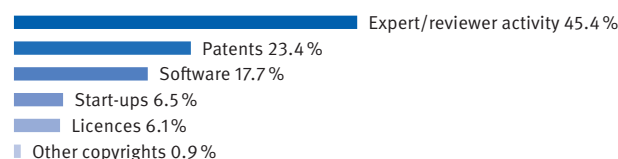
Research collaborations

39,896



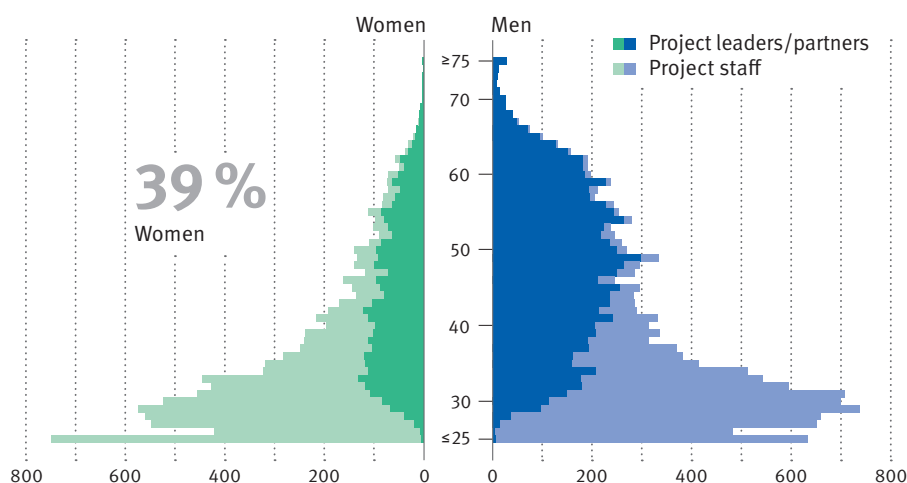
Use-inspired outputs

1,217



Ongoing projects 2019

Researchers in projects by age and gender



Ongoing SNSF projects

5,750

Researchers involved

18,900

As at: 31.12.2019

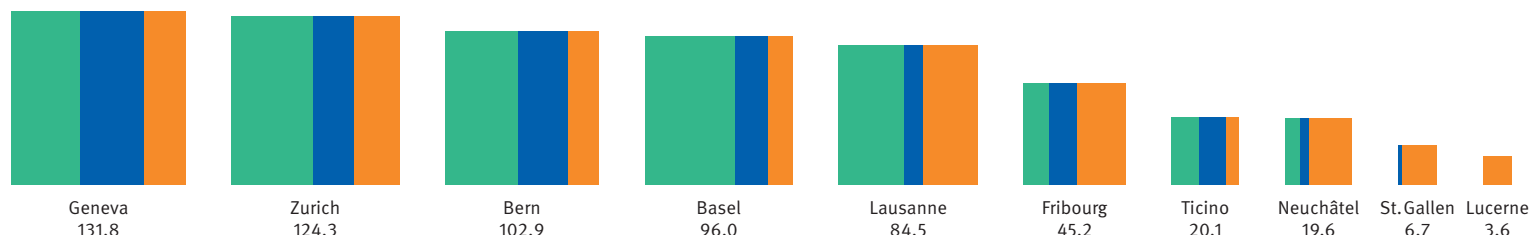
Funding approved in 2019

Excluding supplementary grants and measures

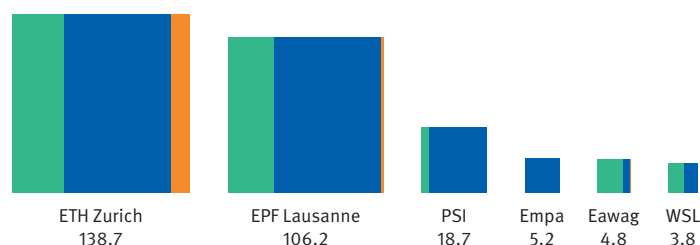
By institution and discipline

in CHF million

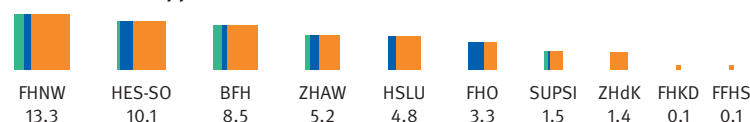
Universities (incl. university hospitals)



ETH Domain



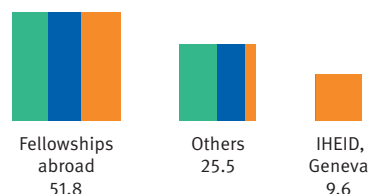
Universities of applied sciences



Universities of teacher education



Others



37%

Biology and medicine

37%

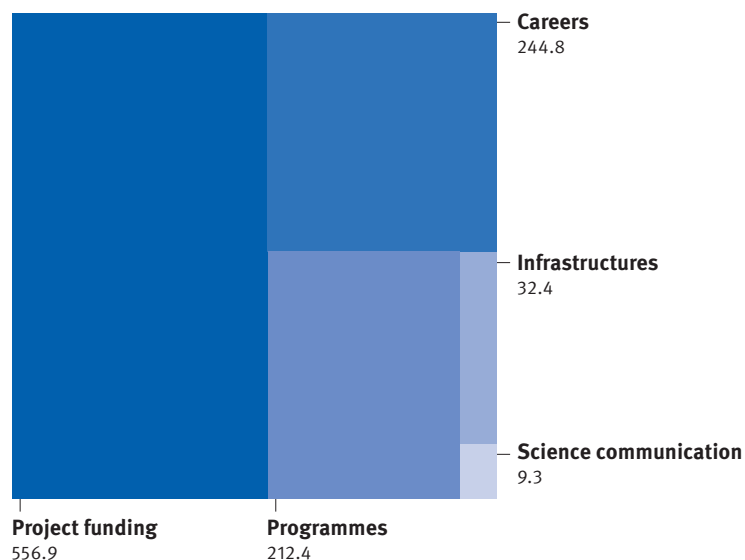
Mathematics, natural and engineering sciences

26%

Humanities and social sciences

By funding category

in CHF million



Approved funds

in CHF million

1,056

Supplementary grants and measures: 81

Approved applications

3,365

Submitted applications: 6,852

Detailed figures: <https://data.snf.ch>

Financial statement 2019

Research funding expenditure was substantially higher in 2019. This resulted in a loss of 80 million francs at the end of the year. The reserves fully cover the incurred loss.

In 2019, the SNSF invested more funds in project funding and in the Sinergia programme in particular. For the first time, it spent over a billion francs on research funding and on reimbursing the overhead expenses of higher education institutions. As it is not legally permissible for reserves to exceed a certain limit, the funds allocated by the government had to be cut by approx. 40 million francs. This increased the negative result. The total amount of the already

approved grants for the next six years rose significantly to over 1.5 billion francs (see Grants approved for future accounting years as at 31 December 2019). With a 6.5 per cent increase, expenditure on the Administrative Offices rose less steeply than the research funding expenditure. Additional costs were mainly incurred by IT systems that facilitate the scientific evaluation processes.

Income statement

in CHF 1,000	2019	2018	Change in %
Federal contributions	1,060,162	964,998	9.9
Deferred federal contributions 2019	-39,614	-	-
Further contributions	900	986	-8.7
Donations/bequests	1,500	110	-
Research funding expenditure	-949,125	-873,031	8.7
Expenditure to cover indirect research costs (overhead)	-109,540	-107,556	1.8
Scientific evaluation and governance	-11,241	-10,670	5.4
Public relations	-2,153	-2,122	1.5
Administration expenses and depreciation	-40,823	-38,317	6.5
Other operating income	284	376	-24.5
Other operating expenses	-324	-371	-12.7
Operating result	-89,974	-65,597	37.2
Financial income	14,839	1,501	888.6
Financial expenditure	-256	-6,881	-96.3
Financial result	14,583	-5,380	-
Investments in restricted funds	-287,913	-240,355	19.8
Withdrawals from restricted funds	282,843	293,920	-3.8
Income from restricted funds	-5,070	53,565	-
Ordinary income	-80,461	-17,412	362.1
Non-operating income	389	40	872.5
Extraordinary income	-	-	-
Annual result	-80,072	-17,372	360.9

All figures stated in this report have been individually rounded.

Balance sheet

Assets

in CHF 1,000	31.12.2019	Share in %	31.12.2018	Share in %
Current assets				
Cash and cash equivalents	640,017	81	633,587	80
Accounts receivable	20,374	3	39,096	5
Other short-term receivables	62	0	50	0
Prepaid expenses	835	0	1,416	0
Total current assets	661,288	84	674,149	86
Fixed assets				
Tangible assets	11,975	2	12,220	2
Financial assets	116,880	15	100,838	13
Intangible assets	318	0	605	0
Total fixed assets	129,173	16	113,663	14
Total assets	790,461	100	787,812	100

Liabilities

in CHF 1,000	31.12.2019	Share in %	31.12.2018	Share in %
Short-term liabilities				
Liabilities from approved grants	338,203	43	299,934	38
Liabilities to SERI due to an excess of reserves	39,614	5	–	0
Accounts payable	1,767	0	1,155	0
Other short-term liabilities	179	0	248	0
Deferred income	2,443	0	2,717	0
Short-term provisions	1,000	0	1,500	0
Restricted funds	44,313	6	31,335	4
Total short-term liabilities	427,519	54	336,889	43
Long-term liabilities				
Restricted funds	255,364	32	263,273	33
Total long-term liabilities	255,364	32	263,273	33
Total liabilities	682,883	86	600,162	76
Equity				
Foundation capital	1,330	0	1,330	0
General funds	284	0	288	0
General reserves	105,964	13	186,032	24
Total equity	107,578	14	187,650	24
Total liabilities	790,461	100	787,812	100

Additional information on the financial statement

Restricted funds

in CHF 1,000	as at 1.1.2019	Incoming resources	Outgoing resources	Transfer	as at 31.12.2019
Scopes fund	829	366	–	–	1,195
r4d fund	27,750	4,570	–14,495	–	17,825
NRP fund	30,692	25,520	–28,365	–	27,848
NCCR fund	16,377	70,022	–61,242	–	25,157
Fund for special programmes in biology and medicine	15,963	26,459	–20,928	–	21,494
Fund for BRIDGE programme	33,338	12,123	–13,020	–	32,441
Fund for Horizon 2020 backup measures	14,723	–	–10,886	–	3,837
Fund for ERC transfer grants	5,470	–	–1,233	–	4,237
Energy research fund	12,970	65	–3,914	–	9,121
Other funds	35,945	131,911	–127,932	–	39,928
Funds from earmarked donations/bequests/agreements	100,550	16,875	–830	–	116,595
Total restricted funds	294,607	287,911	–282,845	–	299,678

Grants approved for future accounting years as at 31 December 2019

in CHF 1,000	2020	2021	2022	2023	2024	2025	Total
Total	771,715	497,476	230,774	70,341	12,880	251	1,583,437

According to the federal budget for 2020, contributions to the SNSF will amount to (without overhead) CHF 999.672 million. The new service level agreement for 2021 and beyond has not been signed yet.

Federal contributions

in CHF 1,000	2019	2018
Basic contribution	823,340	742,042
National Centres of Competence in Research	70,000	70,000
National Research Programmes	25,000	18,000
Additional tasks/ Federal funding mandate	23,000	21,700
SDC contributions	–	–
Overhead	108,000	104,400
SwissCore	450	533
Various federal contributions	10,373	8,323
Total	1,060,163	964,998

Research funding expenditure

in CHF 1,000	2019	2018
Projects	489,530	445,696
Careers	200,282	192,761
Programmes		
National Centres of Competence in Research	58,742	55,657
National Research Programmes	27,202	28,658
Other programmes	108,598	92,431
International cooperation	15,832	16,552
Total programmes	210,374	193,298
Infrastructures	49,199	44,108
Science communication	11,801	11,001
Supplementary tasks	10,771	10,404
Repayments	-18,393	-18,367
Grants approved but unused	-4,440	-5,870
Total	949,124	873,031

Administration expenses and depreciation

in CHF 1,000	2019	2018
Personnel expenses	31,611	31,191
IT expenses	5,215	3,186
Immovable property expenses	914	821
Depreciation of tangible assets	456	458
Depreciation of intangible assets	547	740
Other administration expenses/ external mandates/SwissCore	2,080	1,921
Total	40,823	38,317

Transactions with related parties

Related persons and organisations comprise whosoever may, either directly or indirectly, significantly influence the financial or operational decisions of the Swiss National Science Foundation. The following transactions with related parties have taken place:

- Approval of research grants for members of the Foundation Council:
CHF 4.269 million (2018: CHF 3.900 million)
- Approval of research grants for members of the Research Council:
CHF 28.278 million (2018: CHF 31.946 million)

Performance of risk assessment

In fiscal year 2019, the Swiss National Science Foundation (SNSF) carried out a comprehensive risk assessment authorised by the Executive Committee of the Foundation Council.

According to the completed risk assessment and in light of measures put in place for monitoring and mitigating risks, no risks were identified in the past fiscal year that could lead to a lasting or substantial impairment of the financial situation of the Swiss National Science Foundation. In the SNSF's assessment, there is moreover no significant risk for the foreseeable future that would necessitate an adjustment in the book values of the Foundation's assets and liabilities.

Approval of financial statements

At the recommendation of the Swiss Federal Audit Office, the external auditor that examined the statements, the Foundation Council approved the financial statements 2019 at its meeting of 27 March 2020.

Bodies of the SNSF

The Swiss National Science Foundation (SNSF) is a foundation with a public funding mandate.

Foundation Council

Members	Men	Women
40	52%	48%

As the SNSF's governing body, the **Foundation Council** ensures that the SNSF stays on mission. It supervises the activities of the bodies of the SNSF. Based on a recommendation from the National Research Council, it endorses the main pillars of the SNSF's funding policy, in particular the multi-year programme. The Foundation Council is responsible for approving the financial statement and the annual report.

Executive Committee of the Foundation Council

Members	Men	Women
15	47%	53%

The **Executive Committee** prepares the agenda of the Foundation Council and directly supervises the activities of the National Research Council and the Administrative Offices. It elects the members of the Research Council and – together with the president of the Research Council – the directors of the Administrative Offices. The Executive Committee also approves new funding schemes as well as the service level agreement with the Swiss government.

National Research Council

Members	Men	Women
95	64%	36%

The **National Research Council** is the scientific body of the SNSF. It is responsible for the evaluation of research proposals and for the final funding decisions. The preparatory work for these decisions is done by evaluation bodies appointed by the Council. Two important specialised bodies, the Gender Equality Commission and the Scientific Integrity Commission, support the Research Council in its work.

The eight-member strong Presiding Board presides over the Research Council. Its core task is to ensure that the funding decisions are made according to the highest quality standards. In addition, the Presiding Board discusses science policy and devises the research funding policies of the SNSF.

Administrative Offices

Employees*	Men	Women
284	40%	60%

The **Administrative Offices** support the bodies of the SNSF and coordinate their activities. They are responsible for all administrative matters as well as for the SNSF's national and international networking activities and communication. The core business of the Administrative Offices is organising the selection procedures for SNSF fundingschemes – from calls for proposals to the evaluation process to the implementation of decisions taken by the Research Council.

* 238 full-time equivalent positions

Gender Equality Commission
Commission on Research Integrity

Evaluation bodies

Around 800 experts work in 70 evaluation bodies, approximately a third of them women.

Research Commissions

The activities of the **Research Commissions** at Swiss universities are aimed at promoting the next generation of researchers, particularly within the scope of the SNSF's mobility fellowships for doctoral and postdoctoral students.

Auditors

The Swiss Federal Audit Office is the independent **auditing body**. It examines the accounts and the annual statement of the SNSF to ensure compliance with the law and with the foundation's Statutes.

The Administrative Offices in 2019

10,763

external reviews

184

evaluation meetings

In 2019, the Administrative Offices conducted evaluation processes for 6,852 grant applications and obtained 10,763 reviews from external experts.

The National Research Council and its evaluation bodies discussed the applications in 184 meetings. 395 researchers received an invitation to present their project in an interview. The Administrative Offices organised the meetings and interviews and implemented the decisions of the Research Council. During the year, they received 8,361 scientific and financial reports and 9,611 administrative messages. For the first time, the Administrative Offices issued a call for the funding schemes SPIRIT and Spark. SPIRIT promotes cross-border and team-oriented projects with countries of the Global South. Spark finances original projects of short duration.

The Administrative Offices also started the large-scale AARE project to enhance SNSF research funding. The project will examine processes and IT systems with the aim of further simplifying them and making them more flexible.

The SNSF's new building project will also bring a major change. The premises at the current location are in a residential neighbourhood in Bern. Spread across five buildings, they do not offer enough space and no longer meet the needs of the Administrative Offices, the Research Council and evaluation bodies. For this reason, the SNSF is planning to build new offices in the development area Wankdorf, which belongs to the city of Bern. After in-depth evaluation, the Administrative Offices invited tenders for a study mandate from architecture firms at the end of 2019. Operations are expected to start from the new premises in 2023.

Five apprentices completed their training in commerce (some with a higher education entrance qualification) or mediamatics. At the end of last year, there were thirteen apprentices and four academic interns at the SNSF.

The public research database P³ was queried more than 100,000 times during 2019. It contains detailed information on the projects funded by the SNSF since 1975.

The Administrative Offices published 92 news articles and 37 calls for proposals, and dispatched 18 newsletters to 23,000 recipients. Over 20,000 people followed the SNSF on Twitter, LinkedIn, Instagram and Facebook. In all, the SNSF's social media contributions were viewed three million times.

8,361

reports by researchers

9,611

administrative messages
from researchers

Foundation Council (31.1.2020)

A general election of the Foundation Council was held for the 2020–2023 period of office. The newly constituted Council elected its President and Vice President, Executive Committee and co-opted members as of 31 January 2020.

President

Jürg Stahl (from 1.2.2020)

Prof Felicitas Pauss, representative of SCNAT (until 31.12.2019, president ad interim)

Vice President

Prof Maria Schönbächler (from 1.2.2020), representative of SCNAT

Representatives of scientific organisations

Cantonal Universities → **Basel:** Prof Torsten Schwede. **Bern:** Prof Daniel Candinas. **Fribourg:** Prof Katharina Fromm. **Geneva:** Prof Dominique Soldati-Favre. **Lausanne:** Prof Franciska Krings. **Lucerne:** Prof Gisela Michel. **Neuchâtel:** Prof Simona Pekarek Doeher. **St. Gallen:** Prof Kuno Schedler (until 31.1.2020), Prof Thomas Markus Zellweger (from 1.2.2020). **Ticino:** Prof Benedetto Lepori. **Zurich:** Prof Stefanie Walter.

Term of office ended 31.12.2019: Prof Edwin Ch. Constable (Basel), Prof Thomas Hunkeler (Fribourg), Prof Alexander Trechsel (Lucerne).

Swiss Federal Institutes of Technology → **Lausanne:** Prof Sabine Süssstrunk. **Zurich:** Prof Sabine Werner.

Universities of applied sciences/universities of teacher education → Prof Horst Biedermann (PH SG), Prof Maria Caiata Zufferey (SUPSI), Prof Markus Hodel (HSLU), Prof Jürg Kessler (FHGR), Prof Isabelle Mili (IUFE Geneva), Prof Jean-Marc Piveteau (ZHAW), Prof Falko Schlottig (FHNW), Dr Luciana Vaccaro (HES-SO).

Term of office ended 31.12.2019: Prof Barbara Fontanellaz (FHS-SG), Prof Thomas D. Meier (ZHdK), Prof Guillaume Vanhulst (HEP-VD).

Academies → **Swiss Academies of Arts and Sciences:** Prof Antonio Loprieno.

SAHS: Prof Claudine Burton-Jeangros. **SAMS:** Prof em. Daniel Scheidegger.

SATW: Prof Konstantinos Boulochos. **SCNAT:** Prof Maria Schönbächler, Prof Marcel Tanner.

Term of office ended 31.8.2019: Dr Monica Duca Widmer (SATW)

Term of office ended 31.12.2019: Prof Felicitas Pauss (SCNAT).

Government-appointed members

Prof Cesla Amarelle (Canton of Vaud, Dept. of Education, Youth and Culture), Dr Gregor Haefliger (SERI), Dr René Imhof (F. Hoffmann-La Roche AG), Monika Knill (Canton of Thurgau, Dept. of Education and Culture), Ulrich Jakob Looser (BLR & Partners AG), Jürg Stahl (Swiss Olympic), Natascha Wey (VPOD).

Term of office ended 31.12.2019: Judith Bucher (VPOD), Prof Barbara Haering, Anne-Catherine Lyon (Swiss Conference of Cantonal Ministers of Education [EDK], former member of cantonal government Vaud).

Co-opted members

Prof Ron Appel (SIB), Prof Denis Duboule (University of Geneva and EPFL), Katharina Prautsch (actionuni), Dr Pascale Vonmont (Gebert-Rüf Stiftung, free co-optation); from 1.2.2020: Dr Thierry Strässle (ETH Domain), Prof Michael Hengartner (ETH Board), Dr Anne Crausaz (swissuniversities).

Term of office ended 31.11.2019: Dr Fritz Schiesser (ETH Board)

Term of office ended 31.12.2019: Prof Janet Hering (ETH Domain), Prof Werner Wicki (swissuniversities).

Executive Committee

Jürg Stahl; Prof Maria Schönbächler; Prof Horst Biedermann, Prof Daniel Candinas, Prof Denis Duboule, Prof Katharina Fromm, Dr Gregor Haefliger, Prof Franciska Krings, Ulrich Jakob Looser, Prof Torsten Schwede, Prof Dominique Soldati-Favre, Prof Sabine Süssstrunk, Dr Luciana Vaccaro, Prof Stefanie Walter, Prof Sabine Werner.

Term of office ended 31.12.2019: Prof Edwin Constable, Prof Felicitas Pauss, Prof Kuno Schedler.

Internal Audit

T+R SA, Gümligen BE.

Compliance Committee

Prof Franciska Krings (President); Prof em. Klaus Müller, Prof Howard Riezman, Prof Monika Roth, Dr Dorothea Sturn.

National Research Council

President

Prof Matthias Egger

Presiding Board → Prof Matthias Egger. **President Division I:** Prof Ola Söderström. **President Division II:** Prof Arjen K. Lenstra. **President Division III:** Prof Hugues Abriel. **President Division IV:** Prof Katharina M. Fromm (deputy of RC President until 31.12.2019). **President Specialised Committee Careers:** Prof Fritz Schlunegger. **President Specialised Committee International Cooperation:** Prof Katharina Michaelowa. **President Specialised Committee Interdisciplinary Research:** Prof Rita Franceschini.

Division I: Humanities and Social Sciences → Prof Ola Söderström (President); Prof Madeleine Herren-Oesch (Vice President); Prof Peter Auer, Prof Laura Bernardi, Prof Claudio Bolzman (until 30.9.2019), Prof Roberto Caldara, Prof Franz Caspar, Prof Véronique Dasen, Prof Christiana Fountoulakis, Prof Rita Franceschini, Prof Dario Gamboni (until 30.9.2019), Prof Julia Gelshorn (from 1.10.2019), Prof Daniel Gredig (from 1.10.2019), Prof Eszter Hargittai, Prof Ben Jann (from 1.10.2019), Prof Katharina Maag Merki, Prof Claudia Mareis, Prof Ioannis Papadopoulos, Prof Gabriele Rippl (from 1.10.2019), Prof Jörg Rössel (until 30.9.2019), Prof Dominic Rohner (from 1.10.2019), Prof Konrad Schmid, Prof Sabine Schneider (until 30.9.2019), Prof Paul Söderlind (until 30.9.2019), Prof Martin Spann, Prof Danièle Tosato-Rigo, Prof Georg von Krogh (until 31.12.2019), Prof Markus Wild.

Division II: Mathematics, Natural and Engineering Sciences → Prof Arjen K. Lenstra (President); Prof Thomas Gehrmann (Vice President until 4.11.2019), Dr Bernd Gotsmann (Vice President from 5.11.2019); Prof Rémi Abgrall, Prof David Andrew Barry, Prof Eva Bayer-Flückiger (until 31.12.2019), Prof Christian Bernhard (until 30.9.2019), Prof Aude Billard, Prof Jeffrey Bode (from 1.10.2019), Dr Marc Böhner, Prof Joachim Buhmann, Prof Paul Dyson, Prof Karl Gademann, Prof Christoph Heinrich (until 31.12.2019), Prof Juliane Hollender, Prof Samuel Leutwyler (until 30.9.2019), Prof Ulrike Lohmann, Prof Marcel Mayor (until 30.9.2019), Prof Frédéric Merkt (from 1.10.2019), Prof Jean-François Molinari (from 1.10.2019), Prof Oscar Nierstrasz, Prof Daniela Rubatto (from 1.10.2019), Prof Fritz Schlunegger, Prof Olivier Schneider, Prof Thomas Südmeyer, Prof Donna Testerman (from 1.10.2019), Prof Lothar Thiele.

Division III: Biology and Medicine → Prof Hugues Abriel (President); Prof Matthias Peter (Vice President); Prof Markus Affolter, Prof Anne Angelillo-Scherrer, Prof Melanie Blokesch (from 1.4.2019), Prof Chris Boesch, Prof Bart Deplancke, Prof Dominique De Quervain, Prof Michael Detmar, Prof Olivier Devuyst, Prof Marc Yves Donath, Prof Laurent Excoffier, Prof Markus Fischer, Prof Cem Gabay (until 30.6.2019), Prof Michel Gilliet (from 1.10.2019), Prof Fritjof Helmchen, Prof Christoph Hess, Prof Petra Hüppi, Prof Beat Keller, Prof Hanna Kokko, Prof Claudia Kühni, Prof Kaspar Locher, Prof Andreas Lüthi, Prof Oliver Mühlemann, Prof Adrian Franz Ochsenbein, Prof Anita Rauch, Prof Federica Sallusto, Prof Peter Scheiffele (from 1.10.2019), Prof Isabelle Schmitt-Opitz (from 1.4.2019), Prof Bernard Thorens, Prof Hanns Ulrich Zeilhofer (until 30.9.2019), Prof Rolf Zeller.

Division IV: Programmes → Prof Katharina M. Fromm (President until 31.12.2019); Prof Regina Elisabeth Aebi-Müller (Vice President); Prof Anastasia Ailamaki, Prof Uschi Backes-Gellner, Prof Manfred Max Bergman, Prof Claudia Binder, Prof Susanna Burghartz, Prof Friedrich Eisenbrand, Prof Anna Fontcuberta i Morral, Prof Gudela Grote (from 1.1.2019), Prof Stefanie Hellweg (until 30.9.2019), Prof Michael O. Hottiger, Prof Denis Jabaudon (from 1.1.2019), Prof Stuart Lane (from 1.1.2019), Prof Andreas Mayer, Prof Katharina Michaelowa, Prof Bert Müller (from 1.5.2019), Prof Dimos Poulidakos (from 1.1.2019), Prof Nicolas Rodondi, Prof Frank Scheffold (until 30.9.2019), Prof Dirk van der Marel.

Specialised Committee Careers → Prof Fritz Schlunegger (President); Prof Michael O. Hottiger (Vice President); Prof Peter Auer (from 1.10.2019), Prof Eva Bayer-Flückiger (until 31.12.2019), Prof Susanna Burghartz, Prof Petra Hüppi, Prof Beat Keller (from 1.5.2019), Prof Christian Matter, Prof Ioannis Papadopoulos, Prof Sabine Schneider (until 30.9.2019), Prof Jess Snedeker.

Specialised Committee International Cooperation → Prof Katharina Michaelowa (President); Prof Anna Fontcuberta i Morral (Vice President); Prof Anne Angelillo-Scherrer, Prof Véronique Dasen, Prof Paul Dyson, Prof Christoph Heinrich (until 31.12.2019), Prof Madeleine Herren-Oesch, Prof Bernard Thorens.

Specialised Committee Interdisciplinary Research → Prof Rita Franceschini (President); Prof Dirk van der Marel (Vice President); Prof David Andrew Barry, Prof Laura Bernardi (from 1.12.2019), Prof Melanie Blokesch (from 1.12.2019), Prof Chris Boesch, Prof Claudio Bolzman (until 31.10.2019), Prof Juliane Hollender, Prof Andreas Lüthi, Prof Andreas Mayer.

Commission on Gender Equality in Research Funding → Prof Susan M. Gasser (President until 31.12.2019); Prof Michelle Cottier, Prof Thomas Hinz, Dr Simona Isler, Prof Nicky Le Feuvre, Gary Loke, Prof Anna Wahl.

Commission on Research Integrity → Prof Nadja Capus (President); Prof Regina Aebi-Müller (Vice President); Prof David Andrew Barry, Dr Sönke Bauck (from 1.9.2019), Dr Marco Bieri, Dr Stéphanie Boder-Pasche (until 31.5.2019), Dr Tania Bühler, Dr Martin Christen (until 31.8.2019), Prof Bart Deplancke, Prof Anna Fontcuberta i Morral, Prof Juliane Hollender (from 1.1.2019), Dr Stephanie Hoppeler, Prof Michael O. Hottiger, Claudia Lautenschütz, Dr Vanja Michel (from 1.6.2019), Dr Claudia Rutte, Dr Barbara Schellenberg (from 1.12.2019), Prof Danièle Tosato-Rigo, Dr Martin von Arx (until 30.11.2019), Gilles Wasser.

Further information → www.snsf.ch/nrc

Research Commissions

Presidents of the Research Commissions at Swiss higher education Institutions → **Basel:** Prof Andreas Papassotiropoulos. **Bern:** Prof Gabriele Rippl (until 31.10.2019); Prof Marianne Johanna Lehmkuhl (from 1.11.2019). **Fribourg:** Prof Thierry Collaud. **Geneva:** Prof Pierre Barrouillet. **Lausanne:** Prof Martin Preisig. **Lucerne:** Prof Alexander Trechsel. **Neuchâtel:** Prof Corinne Rossari. **St. Gallen:** Prof Michael Lechner. **Ticino:** Prof Mauro Pezzè. **Zurich:** Prof Michael Schaepman. **EPF Lausanne:** Prof Kay Severin. **ETH Zurich:** Prof Uwe Sauer.

Administrative Offices

Executive Management → Director: Dr Angelika Kalt. Deputy Director: Dr François Baumgartner (until 31.10.2019). Vice Director: Rosemarie Pécaut. **Heads of Staff Services** → **Executive Staff/Legal Department:** Inge Blatter. **Communication:** Christophe Giovannini. **Institutional Relationships:** Dr Jean-Luc Barras (from 16.12.2019).

Heads of Strategy Services → **Strategy Support:** Dr Katrin Milzow. **Data and Systems (DSF):** Benjamin Rindlisbacher. This division ceased to exist on 30.6.2019. It was replaced as of 1.7.2019 by the **AARE Programme:** Dr Thomas Werder Schläpfer.

Heads of Research Funding divisions → **Division I, Humanities and Social Sciences:** Dr Pierre Willa. **Division II, Mathematics, Natural and Engineering Sciences:** Dr Thomas Werder Schläpfer. **Division III, Biology and Medicine:** Dr Ayşim Yılmaz (until 31.5.2019), Dr Irene Knüsel (from 1.11.2019). **Division IV, Programmes:** Dr Dimitri Sudan. **Careers division:** Dr Marcel Kullin. **Interdisciplinary and International Co-operation division (InterCo)/SwissCore:** Dr Jean-Luc Barras (until 15.12.2019), Dr Marc Zbinden (from 16.12.2019). **Gender Equality in Research Funding:** Dr Simona Isler.

Heads of Central Services → **Director:** Rosemarie Pécaut. **Human Resources:** Karim Errassas. **Finance:** Markus König. **IT Services:** Mario Andenmatten. **Facility Management:** Yves Flohimont.

Details of the Research Council and the Administrative Offices:
as of 31 December 2019
Information on Foundation Council: as of 31 January 2020

Abbreviations and glossary

AARE

Programme to renew the SNSF's research funding processes

actionuni

Organisation representing young researchers as well as associations of non-professorial teaching staff of the universities and the ETHs both nationally and internationally

BRIDGE

Joint funding programme of SNSF and Innosuisse to promote the innovation potential of research in Switzerland

COMPAS

Open-source, Python-based computational framework for collaboration and research in architecture, structural engineering and digital fabrication

Doc.CH

SNSF funding scheme in the humanities and social sciences

Innosuisse

Swiss Innovation Agency

Eawag

Swiss Federal Institute of Aquatic Science and Technology

economiesuisse

Association of Swiss companies: largest umbrella organisation representing Swiss businesses

EDK

Swiss Conference of Cantonal Ministers of Education

ETHZ/EPFL

Swiss Federal Institutes of Technology (Zurich and Lausanne)

FHGR

Graubünden University of Applied Sciences

FHNW

University of Applied Sciences Northwestern Switzerland

FHS-SG

University of Applied Sciences, St. Gallen

HEP-VD

University of Teacher Education Canton of Vaud, Lausanne

HES-SO

University of Applied Sciences and Art Western Switzerland

HSLU

Lucerne University of Applied Sciences and Art

IUFE

University Institute of Teacher Education, Geneva

NCCR

National Centre of Competence in Research, Switzerland

NRP

National Research Programme, Switzerland

PH

University of teacher education

PRIMA

SNSF funding scheme for women researchers who have the potential for a professorship

SAHS

Swiss Academy of Humanities and Social Sciences

SAMS

Swiss Academy of Medical Sciences

SATW

Swiss Academy of Engineering Sciences

SCNAT

Swiss Academy of Sciences

SIB

Swiss Institute of Bioinformatics, Lausanne

SERI

State Secretariat for Education, Research and Innovation

SNSF

Swiss National Science Foundation

Spark

SNSF funding scheme supporting projects that are unconventional or pursue a novel approach

SUPSI

University of Applied Sciences and Art of Southern Switzerland

SwissCore

Contact and information office shared by the SERI, the SNSF and Innosuisse in Brussels

Swiss Olympic

Umbrella organisation of Swiss sports organisations and the National Olympic Committee representing Switzerland

swissuniversities

Works to strengthen and enhance collaboration among Swiss higher education institutions and promotes a common voice on educational issues in Switzerland

VPOD

Association of Swiss Civil Servants

ZHAW

Zurich University of Applied Sciences, Winterthur

ZHdK

Zurich University of the Arts

Publishing information

Published by

Swiss National Science Foundation
Wildhainweg 3, P.O. Box
CH-3001 Bern | Switzerland
+41 31 308 22 22
com@snf.ch | www.snsf.ch

Editing and production

Communication division:
Christophe Giovannini (Head)
Project management: Daniel Schnyder
Content: Stefan Bachmann, Laura Binz, Agneta Bladh, Inge Blatter, Anna Brandenburg, Christian Brunner, Daniela Büschlen, Julia Cahenzli, Matthias Egger, Florence Ettlin, Christophe Giovannini, Thomas Griessen, Daniela Hallauer, Simona Isler, Sylvia Jeney, Anne Jorstad, Angelika Kalt, Markus König, Alexandre Koersgen, Andrea Landolt, Claudia Lautenschütz, Senta Lenstra, Andreas Michel, Katrin Milzow, Fabio Molo, Christian Mottas, Christian Nill, Nele Netzschwitz, Felicitas Pauss, Tobias Philipp, Stéphane Praz, Charles Roduit, Céline Rossier, Markus Röthlisberger, Daniel Saraga, Jun Sarbach, Daniel Schnyder, Daniel Sebastiani, Walter Steiner, Michaela Strinzel, Martin von Arx, Katharine Weder, Stéphanie Würth
Microsite production: Mark Christen, Sandra Samsodeen
Overall production: Nele Netzschwitz

Translation

Corinne Ammann, Omar Solanki

© Concept/design/realisation

Linkgroup AG, Zurich
www.linkgroup.ch

Printing/distribution

Printlink AG, Zurich
www.printlink.ch

Paper

Z-Offset, super-white, wood-free

Number of copies printed: 1,500 in German |
800 in French | 800 in English

ISSN 2504-1304

© 2020 – Swiss National Science Foundation,
Bern

Image credits

BM PHOTOS, Stéphanie Borcard
and Nicolas Métraux, www.bmphotos.ch
(front pages/picture series p. 18–19, 20–21, 36)

Other images:

Table of contents (from left): Anna-Tina Eberhard (p. 2); Nicolas Brodard (p. 2); Arcadi Garcia i Rius (p. 2); Dr Benoit-Joseph Laventie and Prof Urs Jenal, University of Basel (p. 2); BM PHOTOS (p. 2); provided by Swedish Research Council (p. 3)

Nicolas Brodard (p. 4–5); Flyability/www.flyability.com (p. 6); BM PHOTOS (p. 7–9); Arcadi Garcia i Rius (p. 10); Severin Nowacki (p. 10); provided by Swedish Research Council (p. 12); Dr Benoit-Joseph Laventie and Prof Urs Jenal (p. 13); Adobe Stock (p. 13); Nicolas Brodard (p. 14, p. 15 below, p. 16. right and below); provided (p. 15 top); Anna-Tina Eberhard (p. 16); Kevin Akeret (p. 22); Philippe Pache (p. 22); Cornelia Vinzens (p. 22); Keystone/Laurent Gilliéron (p. 23); Daniel Rihs (p. 23); Severin Nowacki (p. 23); Marco Finsterwald (p. 23); Mischa Scherrer (p. 23)

Infographics (p. 24–25):
Hahn+Zimmermann, Bern
www.hahn-zimmermann.ch

Further information

The Profile online

→ www.snsf.ch/profile

Key figures

→ <https://data.snf.ch>

General information

→ www.snsf.ch



→ www.twitter.com/snsf_ch



→ www.facebook.com/snf.fns.snsf.ch



→ www.youtube.com/snsfinfo



→ www.instagram.com/swissnationalsciencefoundation/



→ www.linkedin.com/company/snsf



→ www.xing.com/companies/swissnationalsciencefoundation

Research magazine Horizons

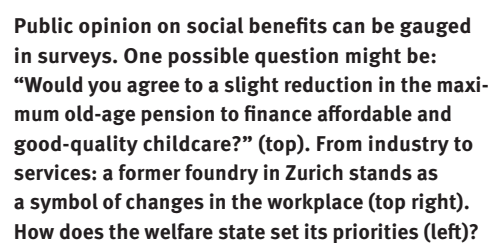
→ www.horizons-mag.ch

Research database P³

(all grants approved since 1975)

→ www.snf.ch/p3





→ Protecting welfare

“The post-industrial job market, austerity policies and an aging population threaten the welfare state. For example, what payments should the unemployed or pensioners receive in the event of social security being insufficiently funded? In my research group, we analyse the distribution of resources and the associated conflicts in Switzerland and Europe. We learn more about people’s attitudes. This makes it easier to develop reforms based on the solidarity principle that are capable of winning a majority.”

Silja Häusermann, political scientist,
University of Zurich

Recipient of several SNSF grants and a fellowship of the European Research Council (ERC)

We invest in researchers and their ideas

Mandated by the Swiss government, the Swiss National Science Foundation (SNSF) supports scientific research in all academic disciplines. We select and fund the best research projects and support the most promising young researchers based on national competitive procedures. The knowledge generated in these projects provides a sound basis for economic and societal progress.

5,750

ongoing SNSF research projects

18,900

participating researchers

As at 31 December 2019