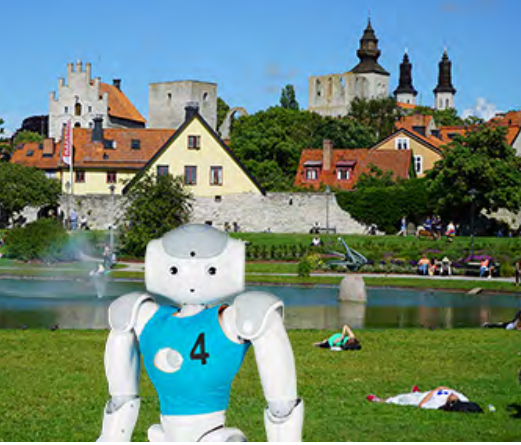




SWEDISH FOUNDATION for
STRATEGIC RESEARCH

Annual Report 2018





SWEDISH FOUNDATION *for*
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SSF REPORT NO 32

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Swedish Foundation for

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Message from the CEO

– The Foundation's objective is to strengthen Sweden's competitiveness through strategic research



”Strategic research should focus on excellence and impact.”

Five years ago I was made operationally responsible for the activities of the Swedish Foundation for Strategic Research. It is a pleasure to work with professional colleagues and a strategically minded governing board.

I am convinced of the need for external financing bodies for research. Competition for additional research funding is a reliable way of ensuring quality in academia. Quality needs to be assessed by independent experts in order to keep pace with increasing international competition. Furthermore, independent financing bodies such as foundations are encouraging new interdisciplinary forms of collaboration.

For example, during 2018, SSF introduced funding for the programme Med-X, where the challenge is to link medical research in specific clinical areas to new ways of thinking within the fields of IT, electronics or new materials. It is aimed at providing better medical care and an export market for Swedish industry.

In addition, I would like to emphasise that the unique leadership programme within **Future Research Leaders offers support** for individual scientists and for innovation within academia. Research training is **always a valuable vehicle for the provision of competence and technology**



►►► **exchange.** This is why we annually offer grants to PhD students within industry and institutes, as well as at the Graduate School SwedNess linked to the European Spallation Source (ESS).

During the past year, SSF has also made decisions regarding research grants to as many as 33 projects involving development within some areas of higher engineering; **this involves innovation within the Development of Instruments, Techniques and Methods.** Also, nine researchers shared SEK 300 million granted by SSF to **Materials for Energy Applications.** The objective is to develop sustainable energy systems in collaboration with industry. Within AI, ten new projects were started within the Cyber Security programme.

In 2018, the Foundation spent SEK 780 million on grants to 350 projects. Women and men are awarded an equal number of grants. Scientific publications supported by SSF are at the top of the citation index.

The best part is when the results of research provide an added effect, when they inspire to new research and are utilised. Hence, I am equally pleased when our scientists' papers are accepted for publication in Nature as when they apply for a patent. In addition, the Foundation promotes the development of new forms of research communication, for instance, through our own reports which are circulated for free in schools via utbudet.se. A series of films portraying SSF scientists are available on the Foundation's Youtube channel. Most recently, we have contributed to the launch of KIT-Framsteg, with millions of visitors.

The Foundation has now been active for a quarter of a century. This will be celebrated in several ways during 2019, for instance with a special jubilee call for proposals focused on movement and internationalisation, as well as various programme conferences. During the next 25 years, I expect strategic research to become even more important. Hence, new approaches are required in order to meet the increasing rate of change in society.

Lars Hultman



Message from the Chair

Another fantastic and successful year has come to an end and in 2019 the Foundation for Strategic Research (SSF) celebrates 25 years in operation.

SSF was founded in 1994 as one of several foundations financed by the phasing out of the Swedish government's Employee Funds (löntagarfonderna). The specific objective of SSF is to support strategic research aimed at strengthening Sweden's competitiveness.

Since its formation, SSF has established itself as one of the most important players in the Swedish research system, and the Foundation has never been more relevant than today. A recent investigation (the Steering and Resource investigation, STRUT) has put forward proposals for university governance, including the organisation of publicly allocated funds. Research funding that is exposed to competition is proposed to decrease in relative terms, as opposed to basic grants. On the assumption that STRUT is now directing publicly funded research in Sweden, the emerging new Swedish research landscape points to an even more important role for SSF.

Following calls for proposals, funding is granted to excellent research that has the potential to have great impact on society. Such projects are found within the life sciences, materials science and ICT, with funding ideally split equally between these three research areas. Increasingly, grants are being offered for projects within new cross-boundary areas where multidisciplinary and novel approaches are being encouraged, as well as equal opportunities.

"SSF is contributing to the improvement of Swedish research and the strengthening of Sweden's competitiveness"

Individual grants form an important part of SSF's activities. The best known programme is perhaps Future Research Leaders, but among the programmes there are other grants available for individual scientists. These support forms are very important as they offer opportunities for further development of the greatest research talents in the country.

SSF contributes to the improvement of Swedish research and to strengthening Sweden's competitiveness. It cannot get better than that.

Björn O. Nilsson



PHOTO: LULE-BILD



January 2018

SSF arranges an information meeting about the call for proposals for the Development of Instruments, Techniques and Methods (ITM) 2017. The meeting is well attended and is transmitted live on the internet via Facebook and Youtube, where it is extensively viewed later.

We organise a utilisation seminar about the right to commercialise research at the crossroads between academic and clinical development featuring among others Martin Ingvar from Karolinska Institutet (KI); County Council solicitor Lena Jönsson and Anna-Carin Ohlin from University of Gothenburg (GU)/Sahlgrenska University Hospital (SUH).



PHOTO: SSF

A cheerful conversation between Martin Ingvar, KI, Tomas Gustafsson, Västerbotten County Council, and Anna-Carin Ohlin, GU/SUH.



February 2018

The Governing Board makes a decision regarding SEK 300 million to ten research projects within the programme ”Cybersecurity and Information Security” and SEK 300 million to nine projects within ”Materials for Energy Applications 2016”.

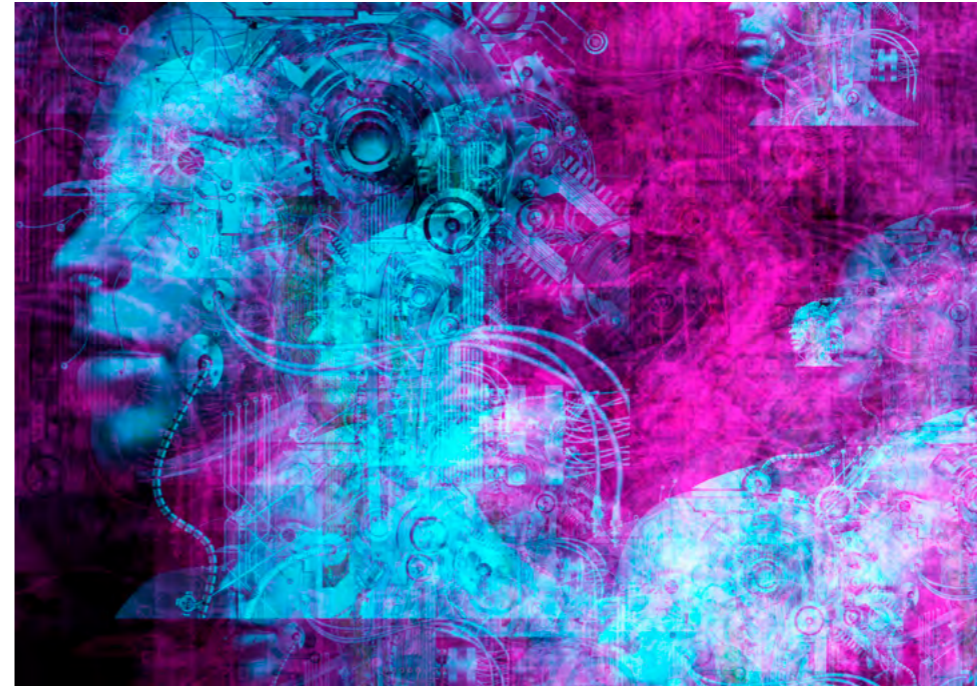


PHOTO: ISTOCK



March 2018

PHOTO: SCREEN DUMP



How can Wikipedia be used to disseminate information about research and a particular field of interest?

Together with one of Sweden's leading experts on Wikipedia, Olle Terenius from Uppsala University, SSF organises a one-day seminar about how Wikipedia can be used to publicise research results.



April 2018



One Saturday in April it's time for the SSF supported "March for Science". Among the participants and speakers are scientists, the Minister for Higher Education and Research, politicians and many representatives from various parts of society. Furthermore, the manifestation sparks off the campaign #Hurvetdudet? (how do you know that).

SSF is co-organising the conference Forum for Research Communication, which opens the International Science Festival in Gothenburg. SSF shares the stage with KIT, which produces short explainer format research films for Facebook in collaboration with SSF, reaching very wide audiences.



May 2018

SSF visits the Swedish University of Agricultural Sciences (SLU), meeting both administrators and scientists. During the year, further visits are made to other Swedish universities.

Aimed at an increased dialogue and better understanding of objectives, SSF is able to explain its purpose and at the same time get feedback on how funding from SSF can make most impact.

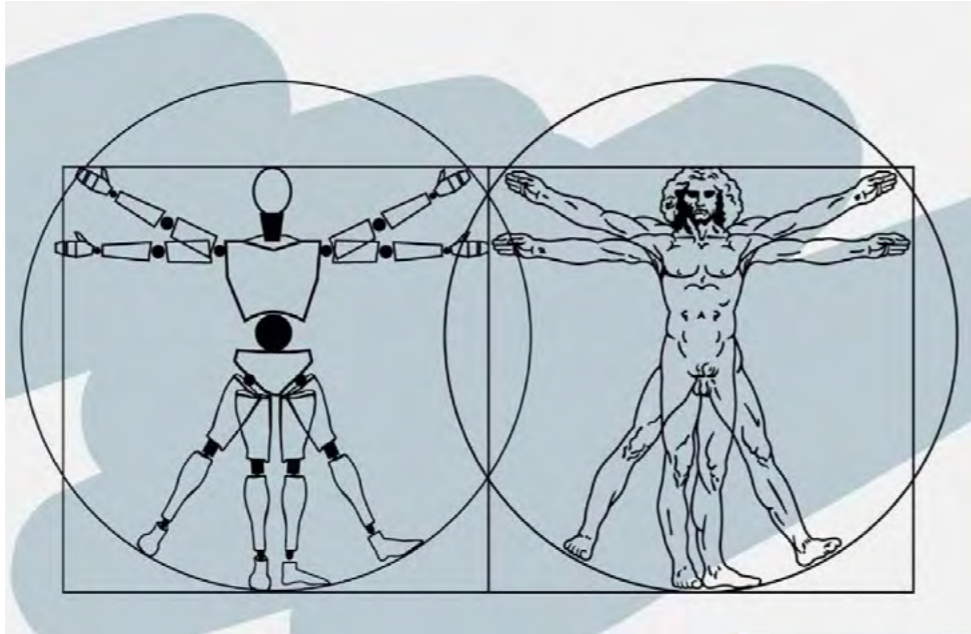


PHOTO: SLU



June 2018

ILLUSTRATION: HEDDA GUMPART



The SSF report "Life with AI" is released. AI research is attracting huge efforts globally, and SSF is part of this drive.

In the report, ten independent scientists are discussing their view of where the development is heading. The report also includes an investigation by Novus into how AI is perceived by the general public.



July 2018

”Are we smart enough for AI?” is the title of the SSF organised seminar in Almedalen, which is so well attended that unfortunately the venue isn’t large enough.

Among those contributing are Elsa the Robot with her **”dad”** Fredrik Löfgren from Linköping University; Professor Magnus Boman from the Royal Institute of Technology (KTH); Ann Grevelius, fintech entrepreneur and member of SSF’s Asset Management Committee, and Karim Jebari, researcher from the Institute for Futures Studies.

The seminar is broadcasted on the web.

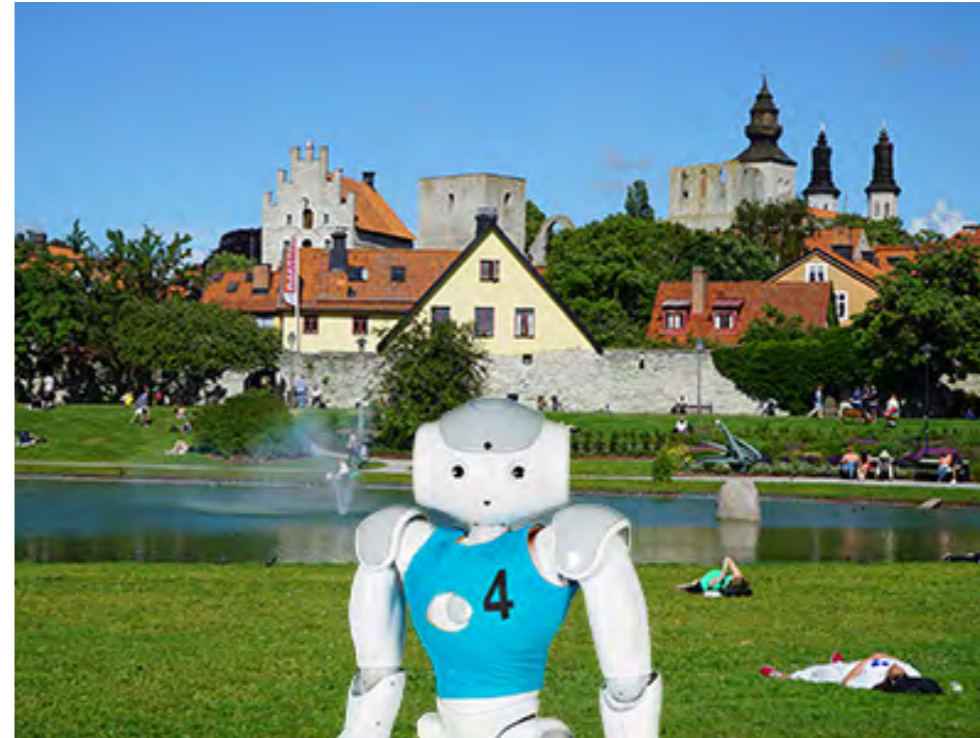


PHOTO: SSF



August 2018

The campaign "How do you know that?" intensifies ahead of the general election. Apart from SSF, some 80 organisations are taking part. The aim is to

increase the awareness of science and how it can be used to improve society, and also to allow science to play a greater role in the political debate.



PHOTO: SCREEN DUMP



September 2018

PHOTO: SSF



The Grand-Place, central square, of Brussels.

”**Machine and Other Intelligence**”, is the name of a conference in Norrköping aimed at PhD students and postdocs within the Foundation’s IT and TM programmes. During the autumn SSF continues to produce films featuring Future Research Leaders.

The Foundation’s Secretariat makes a study visit to Brussels in order to establish links and to become more familiar with EU research institutions and funds. How do these operate, what is currently being prioritised, are there new and exciting forms of financing from which to gain inspiration? We visit the European Research Council (ERC), Imec (a top-class R&D centre for nanoelectronics and digital technologies), other players and funding agencies as well as Sweden’s permanent representation with the EU in Brussels.



October 2018

An assessment of SSF's flagship programme

"Future Research Leaders" is finalised. It recommends a continuation of the programme and fur-

PHOTO: PIXABAY



ther development of aspects dealing with leadership and utilisation.

Simultaneously, the halfway assessment of the programme **Research Infrastructure Fellows (RIF)** is also finalised.

Decisions are made regarding 12 grants of SEK 2.5 million each for Industrial PhDs.

33 different projects aimed at promoting the development of instruments, techniques and methods that provide the prerequisites for future research and innovation are awarded SEK 236 million.



November 2018

During two hectic weeks, a study trip is realised for Future Research Leaders 6.

Their journey takes them to Singapore – Shanghai – Hangzhou – Tokyo. In Japan, the trip and the travellers are featured in a daily vlog on Youtube, Facebook and SSF's homepage, making the study visit available to anyone who is interested.

View the vlog [here!](#)

SSF takes part in and gives lectures on digitalisation and AI at Mediamecca Malmö.



PHOTO: SSF



December 2018

A conference and halfway assessment of the programme "Generic Methods and Tools" (GMT) is held at Chalmers University of Technology.

A short film is released about the European Spallation Source (ESS), the world's most powerful neutron source. The film is produced by KIT, in joint consultation with and financed by SSF, the Swedish Research Council and Vinnova.

The journal Forskning & Framsteg and SSF jointly organise a conference for science journalists, called **Vetjo-dagen**.

In order for Sweden to be a leading nation in battery research, SSF is putting forward SEK 10 million to support a research consortium led by Kristina Edström at Uppsala University. The aim is for a



PHOTO: ISTOCK

large European centre for battery R&D to be established in Sweden.

The Governing Board agrees a SEK 700 million framework budget for the Foundation's research.



Funding Calls and Decisions 2018

New calls for proposals

April	Strategic Mobility 2018 (SM18)
June	Med-X 2018 (RMX18)
December	Research Institute PhDs 2018 (FID18)
	Future Research Leaders 7 (FFL7)

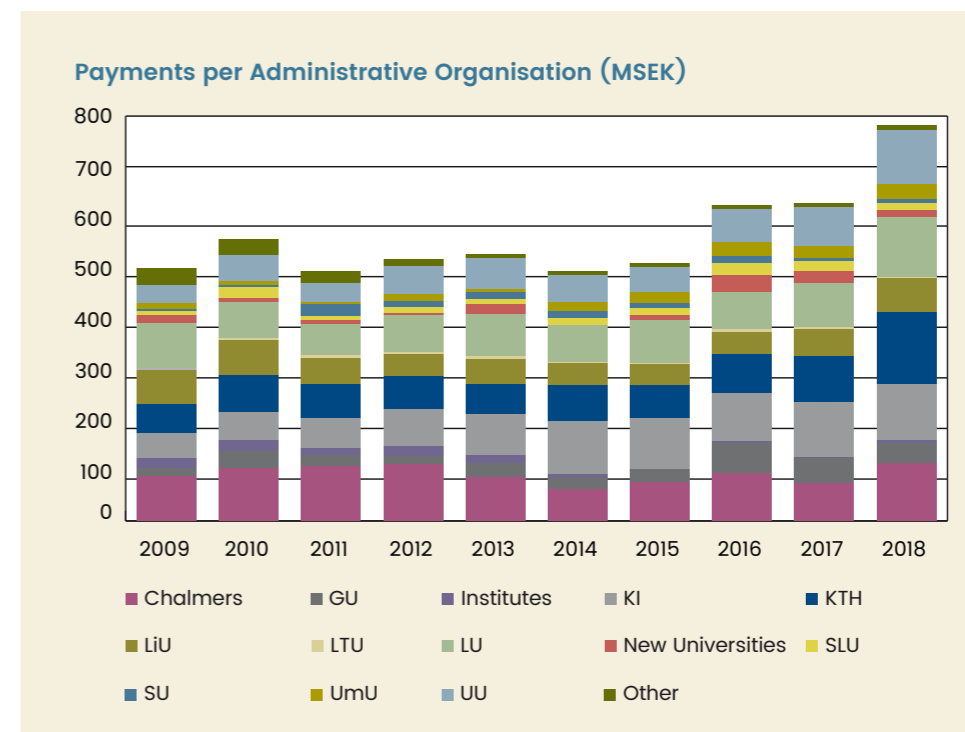
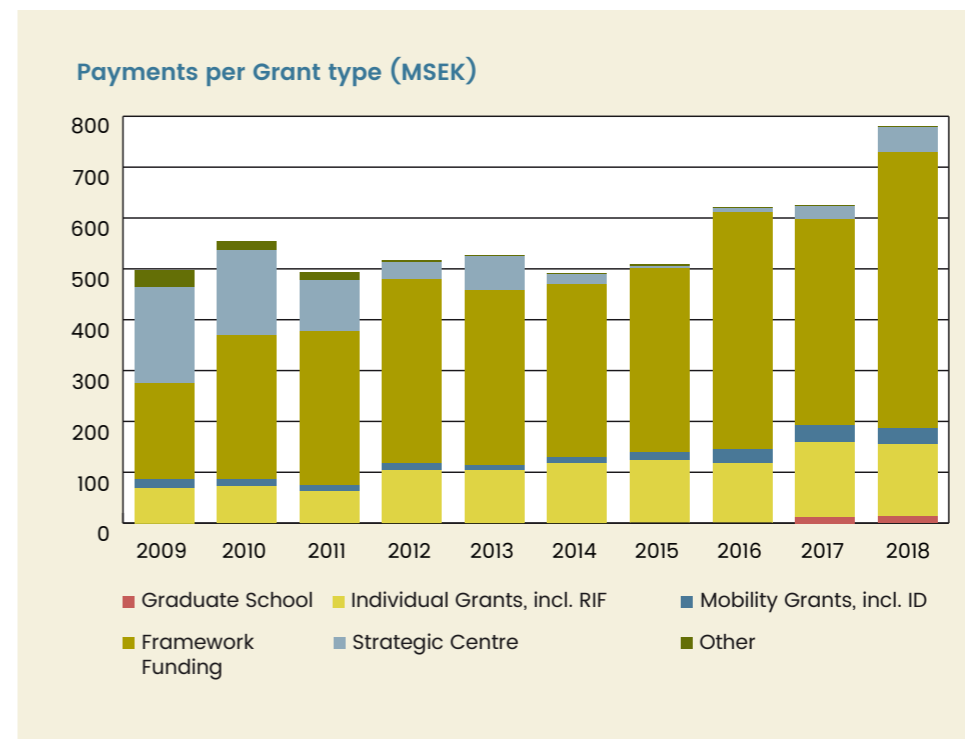
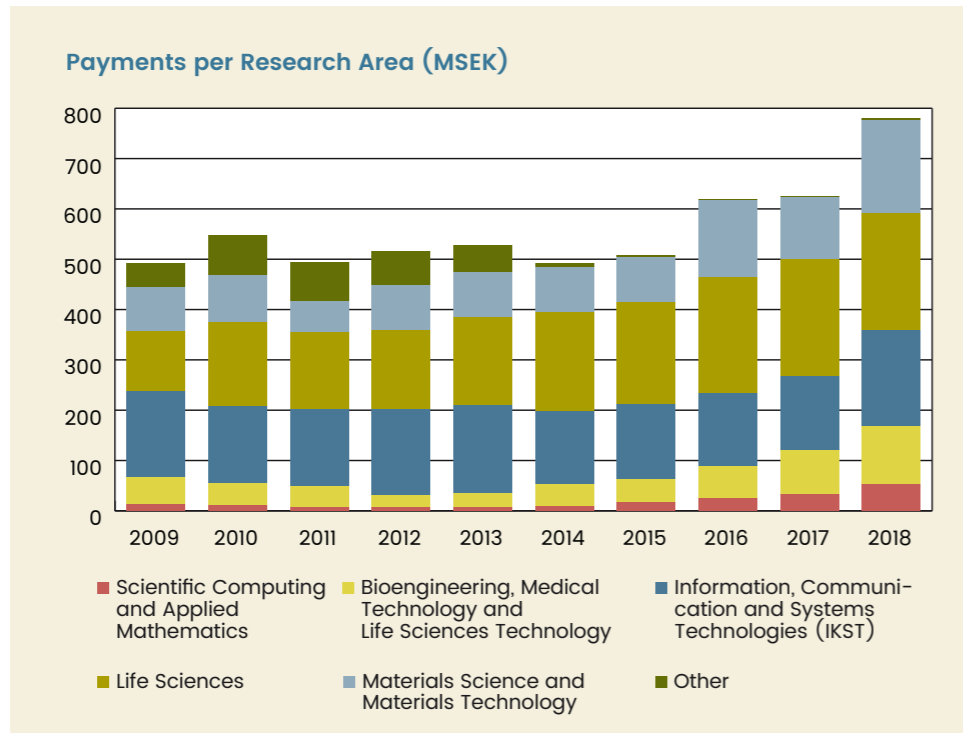
Funding Decisions

February	Materials for Energy Applications 2016 (EM16)
	Cybersecurity and Information Security 2017 (RIT17)
October	Industrial PhDs 2018 (ID18)
	Development of Instruments, Techniques and Methods 2017 (ITM17)
December	Strategic Focus on Battery Research 2018 (SI18)
	Strategic Mobility 2018 (SM18)
	Research Institute PhDs 2017 (FID17)



Distribution of Grants

The graphs show grants by SSF during the past ten years according to type of grant, research area and university.



2018 Research Movies

During 2018, a number of movies featuring research supported by SSF are being produced. A movie about a new diagnostic method for a common disease – asthma – is released in the spring. Another 19 movies featuring researchers from the Future Research Leaders (FFL) programme are produced during an intensive period the following autumn. We also decide to try something new – a five-day vlog from the research leaders' study visit to Tokyo, which can be followed nearly in real-time (see November).



Research about friction provides environmental benefits! Watch the movie, Shervin Bagheri and his team at the Royal Institute of Technology (KTH)!



Snot and mucus are more important than you might realise! Watch the movie featuring Thomas Crouzier and his research group at KTH!



Your breath can reveal if you suffer from asthma! Watch Sven-Erik Dahlén and his research colleagues at Karolinska Institutet and Karolinska University Hospital searching for biomarkers.



The cell responsible for inflammatory bowel disease. Watch the movie featuring Jenny Mjösberg and her team of researchers at Karolinska Institutet!

[View more films featuring SSF research projects here!](#)



Annual Accounts 2018



The Foundation's capital is made up of funds transferred to the Foundation in 1994 following a decision made by the Swedish government. By careful management of these funds for 24 years, the Foundation had funds totalling SEK 10.5 billion on 31 December 2018 after the distribution of research grants worth around SEK 14.3 billion during the period 1994–2018.

Read the full Annual Accounting Report [here](#).



Message from the Chair of the Asset Management Committee – A turbulent year

At the start of 2019, the Foundation for Strategic Research had access to capital worth SEK 10.5 billion. In 2018, a return of 1.5 percent was achieved. The past five years have seen an average return of 5.9 percent in real terms. This is well in excess of SSF's target for operational returns of 2.5–3 percent. Since the start in 1994, SSF has had an average annual return of 7.6 percent.

In 1994, the original capital was SEK 6 billion. Since its creation, the Foundation has distributed SEK more than SEK 14 billion.

An Asset Management Committee (KfK), delegated by the Board and made up of external members, manages the fund together with SSF's Financial Manager and Portfolio Manager.

2018 was a year of poor return. Due to, among other things, the increased risk of a trade war, global economic growth prospects slumped. The world's stock markets fell by 9 percent. During the second half of the year, an expected rate increase turned into falling rates.

In the last quarter, there was a lot of movement. The world's stock markets fell by around 15 percent. In September, SSF's annual return was a healthy 7.9 percent, but fell to 1.5 percent in December. In these circumstances, a few of SSF's investment managers were able to do well. Most of

them did not. Properties achieved a spectacularly good return of 20 percent. Apart from a few exceptions, investments made in interest bearing assets, venture capital and shares also performed acceptably well.

Hedge funds were, yet again, a disappointment. For a couple of years, SSF has tried to invest in hedge funds that show little variation in line with stocks and rates markets. The idea was to compensate for return imbalances overall. This approach has failed. With one exception, asset managers have not succeeded in delivering promised results. Moreover, it is not the first unsuccessful year. Obviously, the investment strategies do not work.

The Swedish currency (SEK) was weak during 2018. As a result, SSF experienced an increased return of around 2 percent, which is more than the overall annual return of 1.5 percent. Currently, SEK performs at levels (measured as TWI) previously only seen during the homegrown IT crisis at the beginning of the 21st century and during the 2008-2009 global financial crisis. It is very difficult to understand the policy of the Swedish Riksbank.

All asset managers need to continually question their previous decisions. This is particularly important in currently existing markets.

Per Afrell



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SSF's Secretariat

PHOTO: CLAES HERRLANDER



From left: Joakim Amorim, Magnus Jacobsson, Sara Marakbi Häkkinen, Jan Fahleson, Mattias Blomberg, Henryk Wos, Birgitta Talu, Olof Lindgren, Inger Florin, Sofie Pehrsson, Gunnel Rådström, Lars Hultman, Mattias Lundberg and Eva Regårdh. Monica Andersson is missing from the photo.

For further information, please contact SSF's secretariat using the contact details on the previous page.



SSF's Governing Board

PHOTO: EVA REGÅRDH



From left: Anders Ynnerman, Harriet Wallberg, Christer Fuglesang, Jörgen Hansson, Helene Andersson Svahn, Hans Rydstad, Monica Bellgran, Björn O. Nilsson, Ulf Wahlberg and Cecilia Holm.

For information regarding declarations of board memberships and other interests of the members of the Board, the CEO and of the members of the Asset Management Committee, please contact SSF's Secretariat.



The Foundation for Strategic Research

- Supports research and research training in engineering, medicine and the natural sciences in order to strengthen Sweden's competitiveness.
- Promotes the establishment of a greater number of Swedish research centres of high international class.
- Builds bridges between basic research and the utilisation of research results.
- Funds several hundred research projects at universities – typically in cooperation with industry and research institutes.
- Distributes career grants to prominent research leaders, with emphasis on younger talents.
- Focuses on targeted areas such as Information and Communication Technology, Materials Development and the Life Sciences and their associated technologies.
- Promotes interdisciplinary collaboration, the utilisation of research results and the infrastructure of research, and mobility between academia and industry, nationally as well as internationally.
- Annually distributes grants worth SEK 700–800 million.



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STRATEGIC RESEARCH

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