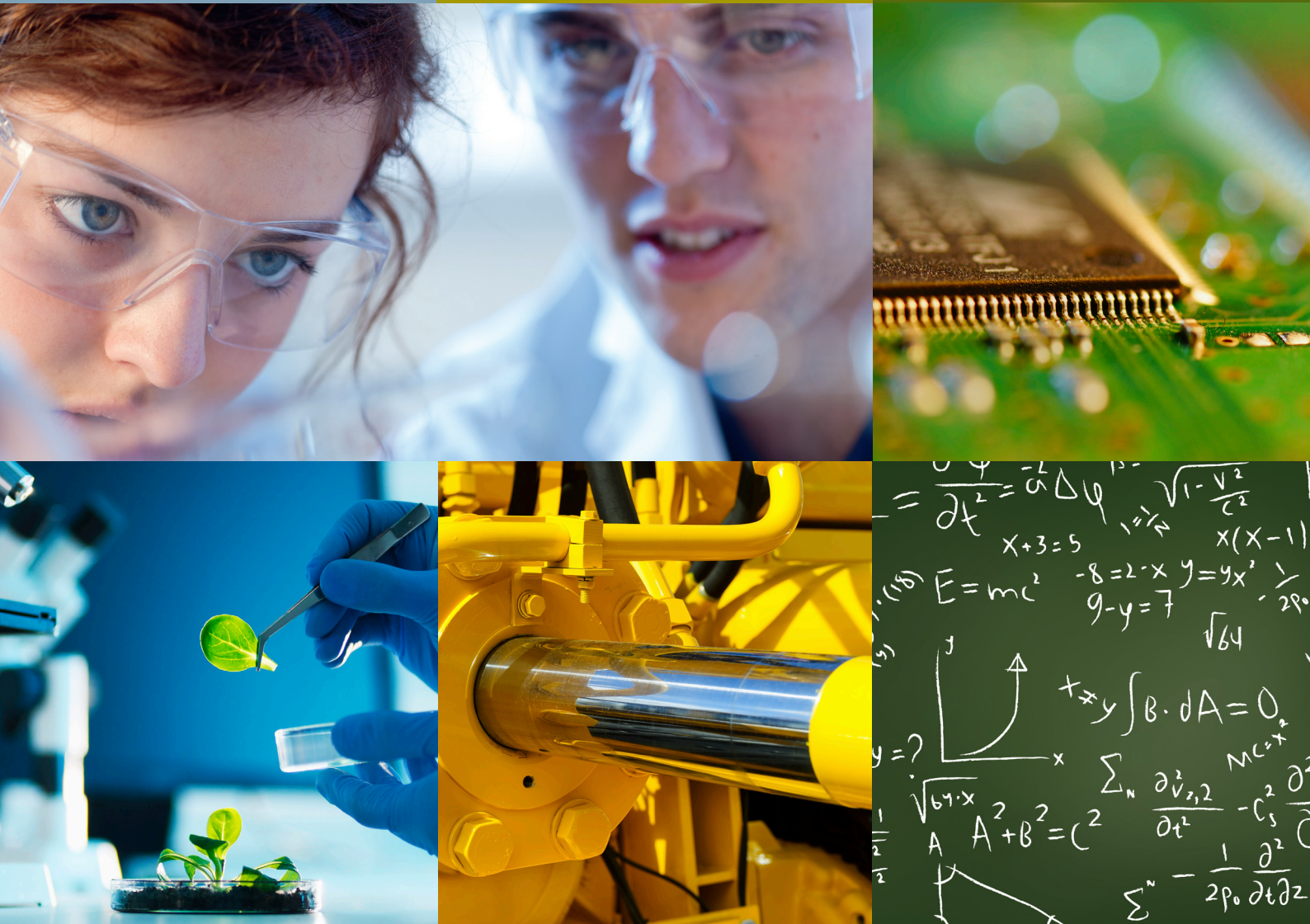# *Evaluation of the SSF program Future Research Leaders*

Evaluation of rounds 2-4 of the SSF program Future Research Leaders for individual grants to younger researchers

Contents

Preface

The present evaluation report of rounds 2-4 of the SSF program Future Research Leaders (FFL), has been written by a committee appointed by SSF. The main purposes with the evaluation is to analyse the impact of the program for Swedish research and FFL awardees. Furthermore, the committee has assessed how useful the program investments have been for the involved research areas.

In summary, the report confirms the leading role of the program in Sweden, in particular the leadership training part of the program. The recommendations in the report are important elements for the planning of future calls and the development of the program.

SSF and the evaluation committee would hereby like to express its sincere appreciation to all who in different ways have contributed to the report.

Both former grantees and applicants summoned to hearing have generously answered the questions in an extensive survey and thereby added a large body of valuable information to the report. Similarly, several people, involved in different parts of the program, have kindly responded to the interview invitation and shared their vast experience with the members of the evaluation committee.

Without the great efforts from the people mentioned above, the present report could not have been written.

Stockholm, December 21, 2018

Lars Hultman, CEO, SSF

Per Eriksson, Chairman of
the evaluation committee

Abbreviation list and list of terms frequently used in the report

ERC = **E**uropean **R**esearch **C**ouncil

FFL = Future Research Leaders (**F**ramtidens **F**orsknings**L**edare)

FFL program = includes the funding part, the leadership program and the mentorship part

Formas = The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (**For**skningsrådet för **m**iljö, **a**reella näringar och **s**amhällsbyggande)

FWCI = Average **F**ield-**w**eighted **c**itation **i**mpact- a measure of the number of citations an article receives relative to the expected number for an article of the same subject, type and year

Grantee = applicant who received an FFL grant

KAW = **K**nut and **A**lice **W**allenberg Foundation

KVA = The Royal Swedish Academy of Sciences (**K**ungliga **V**etenskaps**A**kademien)

NFR = Swedish Natural Science Research Council (**N**aturvetenskapliga **F**orsknings**R**ådet)

Non-grantee = applicant summoned to the hearing (third and last selection step) but who did not receive a grant

RJ = The Swedish Foundation for Humanities and Social Sciences (**R**iksbankens **J**ubileumsfond)

SSF = Swedish Foundation for Strategic Research (**S**tiftelsen för **S**trategisk **F**orskning)

STINT = The Swedish Foundation for Cooperation in Research and Higher Education (**S**tiftelsen för **INT**ernationalisering av högre utbildning och forskning)

Top5% = Percentage of publications in in Top5% - the average percentage of publications from authors within the cohort and period that is among the top 5 percentile based on FWCI

Vinnova = Sweden's Innovation Agency (**V**erket för **innova**tionssystem)

VR = Swedish Research Council (**V**etenskaps**R**ådet)

1. Executive Summary and Recommendations to SSF

a) General and overarching recommendations by the Committee

- **The program should be continued**

  The unique profile of the program with its combination of excellent research, and an extremely advanced leadership program clearly fills a very important need in the Swedish research funding system. The program has throughout its existence demonstrated a strong strategic relevance and it is anticipated that the relevance will be even stronger in the future, since the universities will face large scientific challenges in the years to come and thus will need leaders with clear scientific visions and a strategic mindset. The program is a very important pillar in the Swedish research system and has full support by all the Vice-Chancellors of the major universities in Sweden and by the CEO of KAW foundation.

- **The leadership program within the FFL-grant should be regarded as equally important as the research funding part**

  Including an extensive leadership program in the grant has been ground-breaking and strongly appreciated among the

grantees. Thus, maintaining a very high-quality state-of-the-art leadership program is an absolute requirement in developing modern academic leadership at the universities. The current organization of the leadership program is very well structured and professionally made. This has created the basis for the continuous development and perceptiveness in leadership based on scientific findings and experience. It is important that the structure with two equal parts constituting the FFL-grant is clearly expressed in the call announcement and considered by the reviewing panels in order to attract and select excellent researchers with a strong interest in leadership development.

b) Specific recommendations

- **The current conditions for applying, i.e. no university nomination procedure, should be retained to maximise the possibilities to identify innovative and creative research projects and potentially strong research leaders**

  However, the ties between an applicant and the university should be strengthened by means of a letter of acceptance from coaching, as well as individual support if needed.

- **The mentoring part in the leadership program needs to be strengthened and structured further**

  The mentoring part is important for the grantees to develop their leadership skills. Clear definitions of

relevant authorities at the university. In the acceptance letter the host university should state that they accept and provide adequate support to the grantee.

- **Assessment criteria regarding the hearing and its weight in the overall assessment must be clarified for both applicants and reviewing panels and committees**

  It is important that the call text clearly describes the significance and design of the hearing. The hearing shall be built on the scientific basis of leadership research and established practice where the applicant's potential as research leader is assessed.

- **If an applicant receives several major contributions at the same time as the SSF grant a dialogue between financing organisations should be initiated**

  A concentration of very large resources for a short period of time to a few, rather young, FFL-grantees may not be beneficial for their career. In such cases, SSF could try to extend the grant period to obtain a more balanced and long-term support of research grants.

what is required for being a mentor is important. To ensure a proper functioning of the mentor-adept relation SSF could, for example, through a smaller call encourage potential mentors to apply. There should be a remuneration paid by SSF to the mentor to stress the importance of this part of the

- **Utilisation of research results should receive more attention in the leadership program**

  The sum allocated to utilisation of research results is an important element. It should be treated as such in the leadership program, offering guidance and

FFL program. The mentoring part should furthermore be linked to the themes in the leadership. The mentor meetings could in this way include discussions of the themes covered in the leadership program.

- *The study trip, which is included in the leadership program, provides insight into international trends. For networking and subsequent alumni activities the study trip is of great importance and should therefore be kept*

The study trip is highly appreciated for its international outlook towards excellent research environments. In addition, it strengthens the links between the grantees which may lead to future collaborations.

- *SSF should consider the possibility to arrange yearly regular alumni meetings even after the granting period. These meetings ought to be connected to a national research leadership*

seminar/conference organized by SSF
The FFL program is recognized to have made a strong positive impact in the Swedish research system underlining the importance of research leadership development. In order to further strengthen this the Committee recommends SSF to consider arranging regular alumni meetings and to connect these meetings to a national research leadership seminar/conference organized by SSF.

2. Purpose with the evaluation and specific questions to be answered

The entire document from SSF regarding the directives and describing the purpose with and goals for the evaluation can be viewed in the end of the report (Appendix 3). The directives are of both general and specific character. The general directives describe the purpose with the evaluation and can be summarised as follows:

1. The assessment should highlight not only the importance of the FFL program for Swedish research within the respective round of the program and field of research but also analyse the effects/consequences of the scientists who received an FFL grant.
2. The evaluation should furthermore assess how useful the program investments have been for the involved research areas and focus on whether the aid in addition to general research funding contributed to success.

The specific directives address more detailed issues for the committee to focus on:

3. What are the obtained results in relation to general goals set by SSF and to goals specific for the program? (leadership, scientific results, collaboration, etc)?
4. In what way the FFL program has been ground-breaking and influenced other research funding organisations
5. What the effects/consequences have been for the grantees regarding their research career in general and compared to those applicants that were excluded in the final round
6. The influence of the FFL program on the academic system and the actions taken from the universities to ensure that the grantees are given good opportunities to establish their own research
7. The communication of scientific results to the public and how they have been utilised
8. The research of the grantees after the FFL grant period
9. Conclusions and lessons to be learned from the evaluation. Parts of the FFL program that should remain and what can be omitted or changed in future rounds

10. The specific value of the FFL grant, attributed to the program form as such and if there are any items in the program that increase the probability for success

In the process of studying the above issues, the Committee has also discussed:

- if there, with respect to the different research areas covered by the FFL program, has been a fruitful interaction with the society, industry, health care, etc.
- the need of the FFL program. The program has been launched several times and during that period similar programs have been developed by other research funding organisations.

In the report, references to the directives are made where relevant to highlight the connection between different results and conclusions with the directives from SSF.

3. Short background to the program initiative

Early in the year 2000, the Swedish Foundation for Strategic Research (SSF) launched a new type of program, covering all research areas supported by SSF (Information Technology, Life Sciences, Life Science Technology and Material Sciences). About 20 top researchers in the beginning of their research career were selected after a multi-step selection procedure and received each SEK 10 million over a period of six years. The purpose with the program was to make it possible for this group of very talented researchers to independently develop their own research. In the longer perspective, the fear that these researchers might move abroad where they could obtain a more long-lasting support with better terms. The former CEO of SSF, professor Staffan Normark, then came up with the idea to create a program where a large sum of money was given to very talented young researchers over a longer period than normal. He was influenced by his previous work at Washington University where he was responsible for recruiting top researchers. In the American system it is common to recruit researchers also from other universities and to attract the best people with a substantial start up grant given to the chosen person.

The unique features with the new program included a large sum of money to each grantee in combination with a strong effort to train and support the grantees to become future research leaders. Individual grants to grantees were supposed to take responsibility for a larger constellation than their own research group and thus a leadership program was created for the grantees, consisting of several two-day meetings with different themes. In addition, each grantee should suggest and make use of a personal mentor that could guide them during the first year of the granting period and eventually longer. Furthermore, the leadership program also included a one-week study trip. The program was named INGVAR (Individual Grant for the Advancement of Research Leaders) which was an researchers were implemented at the same time, or shortly after, at, for example, NFR (later VR), KVA, RJ and STINT [1]. However, none of them had an explicit focus to develop research leaders trained for, in the long run, to take a great deal of responsibility, maybe even beyond their own research field. The program was regarded by the SSF board to be a successful initiative and have so far resulted in six calls where the last round was launched in June 2015. During its lifetime the program, and in particular the leadership part, has continued to develop towards a unique profile and in this respect the program has been ground-breaking and contributed to the development of the Swedish research funding system.

Since the fourth round of the FFL program ended December 31, 2016 and the fact that the first round has acronym in honour of Ingvar Carlsson, former Prime Minister and Chairman of the SSF board 1997-2002 and professor Ingvar Lindgren, CEO of SSF 1994-1998. The program was later named Future Research Leaders or Framtidens ForskningsLedare (FFL, an abbreviation used hereafter in this report).

The idea behind the program was to counteract the fact that talented young researchers were not very well supported by the Swedish granting system with its small and short-lived grants. There was a

been evaluated [1] SSF decided to evaluate rounds 2, 3 and 4 of the program. In addition, an evaluation has been conducted [2] involving the leadership program in FFL-1, -2 and -3.

The present report has been conducted by a committee consisting of Per Eriksson (chairman), Lund University, Matts Björklund, Umeå University, Anne Borg, Norwegian University of Science and Technology, Karin Fälth-Magnusson, Linköping University, Sverker Holmgren, Uppsala University, Susanne Nilsson, Royal Institute of Technology and Jan Fahleson, SSF (secretary). See Appendix 2 for the present function of the members in the committee.

The intention is that the present report can be of value in future work, not only for SSF but also for other research funding organisations.

4. Description of the FFL program and a comparison to similar programs

As can be seen from Figure 1 below the FFL rounds evaluated in this report included an extensive selection process. Although some differences can be seen, some common features can also be noted. The first selection step is performed by national area panels, evaluating both scientific quality and leadership potential based on the submitted preproposals (FFL-2 and 3) and proposals (FFL-4) respectively. The selected pre-proposals/proposals were sent to international reviews, primarily assessing the scientific quality, but also the leadership part was open for comments by the reviews. Based on the international reviews a selection committee choose which proposals to be included in the last selection step. The last step has changed over time, from a combined scientific and leadership assessment step, to a step where primarily the leadership part is evaluated by the hearing committee.

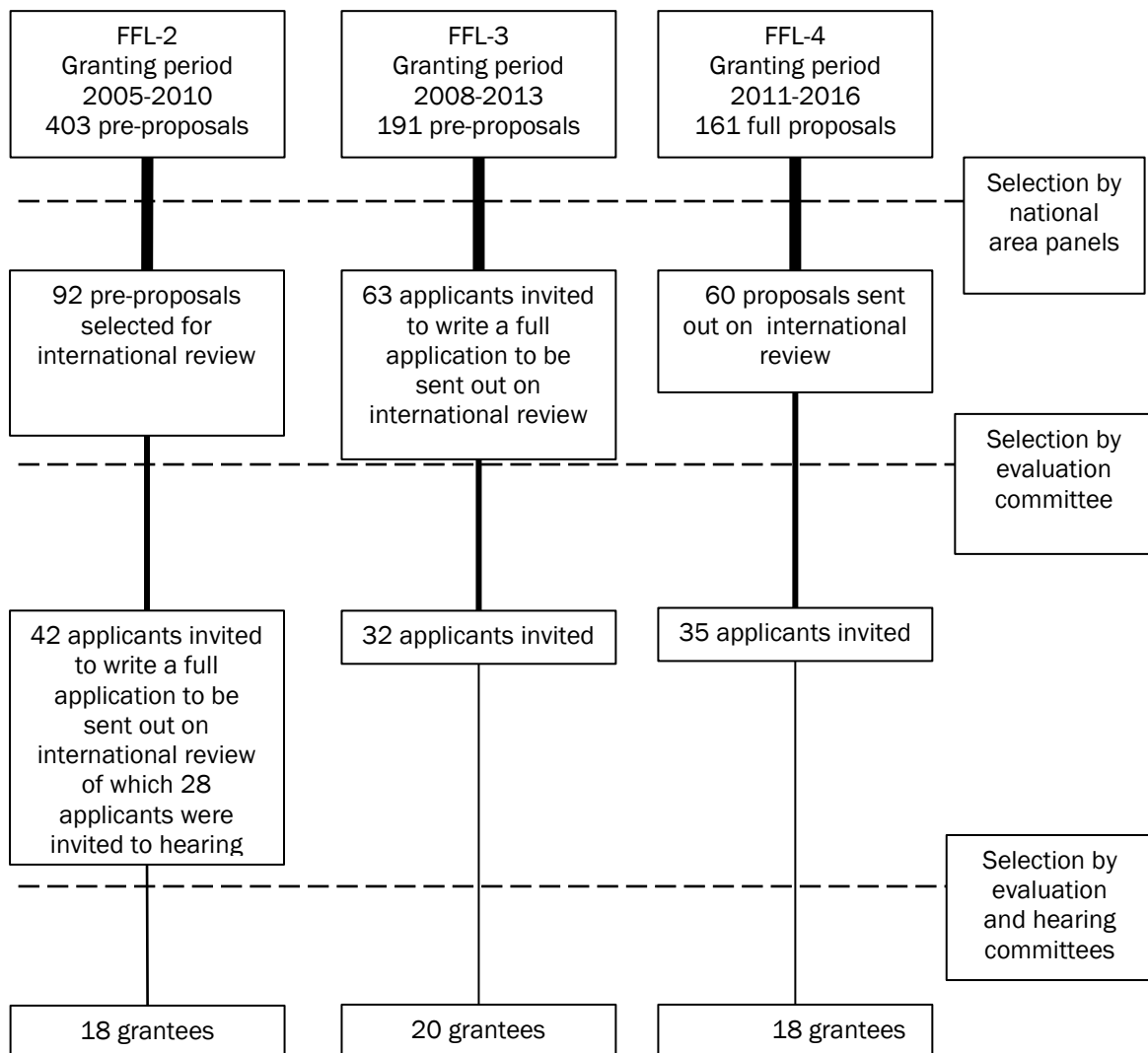| FFL-2 Granting period 2005-2010 403 pre-proposals	FFL-3 Granting period 2008-2013 191 pre-proposals	FFL-4 Granting period 2011-2016 161 full proposals	
			Selection by national area panels
92 pre-proposals selected for international review	63 applicants invited to write a full application to be sent out on international review	60 proposals sent out on international review	
			Selection by evaluation committee
42 applicants invited to write a full application to be sent out on international review of which 28 applicants were invited to hearing	32 applicants invited	35 applicants invited	
			Selection by evaluation and hearing committees
18 grantees	20 grantees	18 grantees	

Figure 1. Selection processes in round 2-4 of the FFL program

In FFL-2 and -3 a pre-proposal step was included. This was later omitted, when the disadvantages of the prolonged decision period, combined with the heavy administration load, were considered to outweigh the advantages. However, all rounds included as a first selection step an assessment by national expert panels, followed by an assessment of international experts. The results from the international review and the assessment of a separate evaluation committee constituted the

second selection step in which the committee decided which applicants to be summoned to a hearing. A special hearing group conducted the hearings. Finally, the evaluation committee in dialogue with the hearing committee suggested grantees to the SSF board. In FFL-2 except for the chairman the evaluation committee consisted of members from the national expert panels and the hearing group, while in FFL-3 the evaluation committee were composed of members from the national expert panels but not from members in the hearing group. In FFL-4 and onwards the national expert panels, the evaluation committee and the hearing group all had separate members.

Within the FFL-2 call there was a special grant for women. Among those that were summoned to hearing but did not receive a grant (10 applicants) there were three women. These three applicants, together with the two top female scientists in the list just below the applicants selected for hearing, received 2 MSEK for a period of two years.

Alongside with FFL-4 there was a call named "Individual Grants for Future

Interdisciplinary Research Leaders". However, none of the applicants in this call was selected to hearing and thus no grants were handed out. The allocated sum (40 MSEK) was transferred back to SSFs funding capital.

Once the selection process was finished the applicants were notified and those that had been summoned to hearing received a written statement clarifying the reasons for approval or rejection were clarified. A diploma event has usually been held for the grantees with on-stage interviews and celebrations including family, colleagues and friends. The progress of each project has been monitored via yearly reports. A final report was to be submitted three months after the granting period has finished.

During the granting period the grantees participated in the leadership program. It can be worth mentioning that the leadership program was reorganized, starting with the FFL-4 program and onwards. The new organization had a program committee consisting of five members, from both academia and industry. Separate from the program committee, each individual program with a leadership part had a person

who, together with the scientific secretary in charge, was responsible for the implementation of the course plan laid out by the program committee. The new leadership training focused on developing the potential of the grantees to become research leaders. Previously the leadership program involved lectures dealing with relevant issues but not with an explicit focus on the personal development of the participants. In addition to the leadership program, the grantees are expected to choose a mentor for individual coaching of their research career.

In FFL-5 and -6 the activities have basically been very similar to the ones described above for FFL-4 but there has been a continuous development of the leadership program.

The FFL program today has several counterparts, both national and international ones (see Table 1S in Appendix 1: Supplementary material). The programs from other research funding organisations, involving individual support to younger, extremely talented researchers, similar to the FFL, are mainly (Figure 2)

- Wallenberg Academy Fellows from KAW,
- Starting Grant from VR and
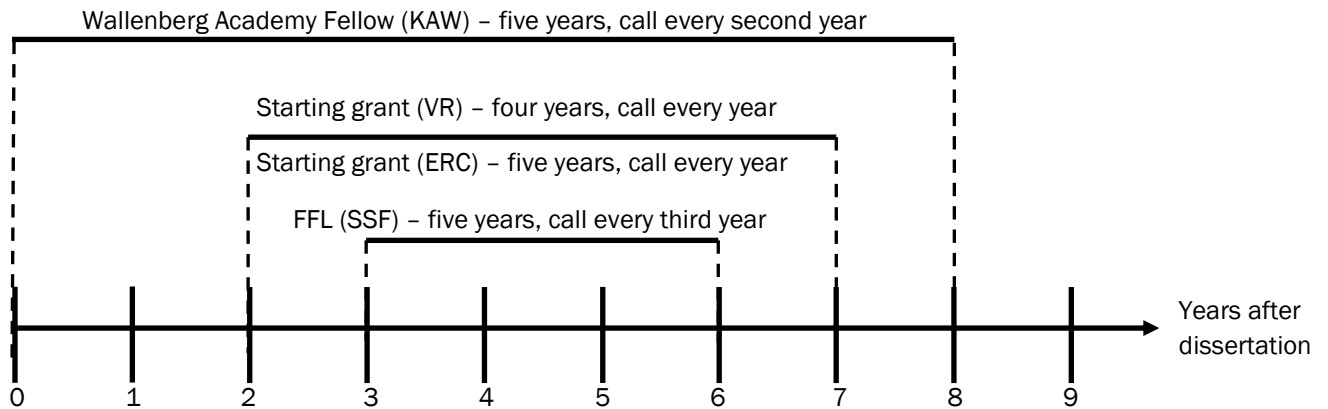- Starting Grant from ERC.

Figure 2. Overview over programs for individual support to young researchers. Time span indicates eligibility to the different programs in terms of "academic age" (years after dissertation).

However, the FFL program has a unique profile through the combination of an extensive leadership program with the funding part. In addition, SSF has a clear aim that the research should be of strategic relevance to Swedish industry and/or society.

The three other programs mentioned above focus more on basic research and do not include such an ambitious leadership part as the FFL program does. Furthermore, the Wallenberg Academy Fellow program has a top down selection procedure where universities nominate candidates to the program. The other programs have a bottom up procedure, i.e. as long as you fulfil the requirements stated in the call, any individual can apply.

5. The different parts constituting this evaluation

The committee met ten times, approximately one meeting per month over a period from September 2017 till September 2018. To obtain a solid base for conclusions and recommendations, the data collection was conducted in four ways, see below.

5.1 Literature search

The committee has studied protocols from board meetings, announcement texts, earlier evaluations, content and evaluations of leadership programs, etc. A list of documents utilized is provided in the end of the report (Appendix 7: Background material).

5.2 Interviews

The committee has met with representatives for the universities such as Vice-Chancellors, pro Vice-Chancellors responsible for research, chairpersons of evaluation committees/hearing groups/leadership programs and scientific secretaries at SSF. In total 3 days of interviews have been conducted (March 7, April 12 and May 16, 2018) with 28 persons involved. The interviews were held as either group or single interviews. The interview questions and a summary of answers can be found in Appendix 4.

The questions to each interviewed participant had been sent out about a week in advance (see Appendix 4 for a summary of the interviews). However, the questions were to be regarded as initiation points

for discussion, indicating that not all questions were answered in every specific interview and that other questions also were discussed.

This part of the evaluation connects to the directives 1, 2, 3, 4, 6 and 10.

Notes were taken by several of the members in the committee during each interview session. These notes were sent out to and reviewed by all members. Finally, the notes were analysed and discussed in the committee to identify key messages and similarities and differences in the interviewees' responses.

5.3 Surveys

Surveys were sent to the grantees of FFL2-4 (55 grantees; one grantee had moved to the US and thus that project was terminated about two years earlier than anticipated) as well as those applicants who were summoned to interview but who did not receive a grant, in the following referred to as "non-grantees" In total there were 39 non-grantees but two of them received a grant in FFL-5 and were thus not included in the survey (by adjusting for parental leave and/or clinical internship you can be eligible in more than one call). In addition, short telephone interviews were conducted with four non-grantees, three of which also had responded to the survey. Several of the questions in the survey have been used in earlier evaluations [2], [3].

The questions in the survey were provided in an Excel-sheet, filled out by the respondents and returned to the secretary of the committee. See Appendix 5 for the two surveys. In total 71 persons responded to the survey (49 grantees and 22 non-grantee applicants summoned to hearing).

This part of the evaluation connects to the directives 1, 3, 5, 6, 7 and 8.

Along with the analysis of the quantitative data collected in the survey, the comments provided by the respondents were categorised and clustered by two of the members in the committee to identify similarities and differences in the response patterns. Of particular interest was to understand what different aspects related to the selection process, the leadership program and the grant as a whole, the respondents experienced as negative and positive.

5.4 Bibliometric analysis

Quote requests for the bibliometric analysis were offered to four Swedish universities and to Elsevier B.V. Analytical Services. After evaluation of the answers to the quote requests Elsevier B.V. Analytical Services was offered to perform the bibliometric analysis.

The analysis compared the grantees with the non-grantees in each round and included the 56 grantees from the three rounds of the FFL program (55 grantees plus the grantee who moved to the US and whose project was terminated about two years earlier than anticipated)

as well as the 37 individuals summoned to hearing but who did not receive a grant.

Three funding periods were studied:

- Pre-funding = 6 years prior to funding period (FFL-2: 1999-2004, FFL-3: 2002-2007, FFL-4: 2005-2010)
- Funding = 6 years funding period for the cohort (FFL-2: 2005-2010, FFL-3: 2008-2013, FFL-4: 2011-2016)
- Post-funding = period after funding period: 6 years for FFL-2 (2011-2016), 4 years for FFL-3 2014-2017), 1 year for FFL-4 (2017)

Metrics were retrieved for each author and averages were calculated for each cohort and within each period. The following bibliometric indicators were used:
- Average number and median value of publications. Includes publications that authors in the cohort published during the period. Publications refers to all Scopus-indexed publications by an author in the cohort and includes articles, reviews, conference papers, books and book chapters.
- Field-weighted citation impact (FWCI) - FWCI is a measure of the number of citations an article receives relative to the expected number for an article of the same subject, type and year. The average FWCI is calculated based on FWCI of publications from authors in a cohort during the given period. The median value of FWCI was also calculated.
- Percentage of publications in Top5% - the average percentage and median value of publications from authors within the cohort and period that is among the top 5 percentile based on FWCI.
- Collaboration type - the average proportion and median value of publications by authors in the cohort and defined as follows:
- Single author: author byline includes only one author (Prop single author [%]).
- Institutional collaboration: author byline includes at least two authors and all authors are from the lead author's institution (Prop inst publ [%]).
- National collaboration: author byline includes at least two authors from two different institutions, both from the same country (Prop nat publ [%]).
- International collaboration: author byline includes at least two authors from at least two countries (Prop int %]).
- Cross-sector Collaboration - the average proportion and median value of publications by authors in the cohort and during the period that result from collaborations with corporate entities (Prop cross sector publ [%]).

This part of the evaluation connects to the directives 1, 3, 5 and 8.

The executive summary and recommendations on pages 4-5 connects to directive 9.

6. Results

6.1 Literature search

The idea with a program involving individual grants given to very talented researchers over a longer time frame was a new component in the Swedish research funding system in the beginning of 2000 when the FFL program was launched. Other research funding organisations had started similar programs at the same time or shortly after but Staffan Normark, the former CEO of SSF, realized that there was a need of integrating research with leadership training to develop researchers who could take a larger responsibility, e.g. take an active part in the strategic planning at their university. Through the launching of this new type of program, SSF sought to fulfil that need.

The documents provided by SSF show a thorough selection procedure involving international review and individual hearing. As described earlier there was a qualitative difference in the selection process between FFL-3 and -4, see Figure 1. The implemented change made the administrative handling of applications easier and shortened the period from deadline of submission of applications to final decision.

The provided documents also allow for some comparisons of general interest. When studying the proportion of men and women in the three rounds 36,2 % of the applicants were women while they constituted 28,6 % of the grantees. The difference was not found to be statistically significant when analysed in a chi-square test (https://www.socscistatistics.com/tests/chisquare/Default2.aspx).

When investigating different research areas regarding submitted versus granted applications, statistically significant differences were noted for the Material Science and the Information Technology areas, i.e., a large increase for the Information Technology area and a large decrease in the Material Science area (see Table 2S in Appendix 1: Supplementary material). When combining the figures for the more recent rounds not covered in this evaluation, i.e., FFL-5 and -6, no such differences could be detected, however. In this context it should be mentioned that in FFL-6 a stronger selection pressure was exerted on applications in the Life Science area to follow the intentions from SSF in obtaining a more even distribution of granted projects between the different areas.

6.2 Interviews

The discussions from the interviews demonstrate the strong position of the FFL program in the Swedish research funding landscape. What is distinguishing this program from other funding schemes directed to young researchers is the combination of excellent science and leadership training, which is highly valued. The need for training future research leaders is emphasized, as both in Sweden and Europe there is a scarcity of strong research leaders. One of the scientific secretaries raised the question if SSF should continue with further calls of the program since the strategy of SSF is to catalyse new measures in strategic research funding. However, other interviewed strongly recommended a continuation of the program.

Both the proposal and selection processes have been developed over time to shorten the period from submission deadline to decision and to make it easier for both applicants as well as scientific secretaries at SSF. Furthermore, the importance of the hearing step with respect to assessing leadership potential has been strengthened. The criteria in the hearing step are recognized as much harder to define and assess, so the leadership profile sought in the program must be made clear in advance both to applicants and to the hearing group.

The bottom-up application procedure differs from the Wallenberg Research Fellows scheme but is supported by the director of KAW as a complement to their nomination system.

The support from the university has sometimes, by the grantees, being perceived as weak. The Vice-Chancellors of the major universities in Sweden see this as an important question to resolve but do not want any obligations imposed by SSF regarding job security of the FFL grantees.

The leadership program has been strengthened from the earliest rounds and is a strong asset to the program. Through discussion among the stakeholders, it was clear that the continuous development of this part of the program is of uttermost importance.

A recommendation was to emphasize the utilization of scientific results more clearly. This part of the program was considered less successful so far. However, it must be emphasised that basic science was of high priority in the early rounds of the FFL program, giving less space to exploiting results.

Furthermore, the mentor program needs a more defined structure.

Another suggestion was to strengthen the mobility and international collaboration as part of the program.

Several times during the interviews the issue regarding multiple grants funded for the same grantees during a short time frame was brought up. SSF was recommended to discuss coordination with other funding organizations.

6.3 Surveys and bibliometric analysis

a) General aspects

In the survey, the committee received 49 answers from the 55 FFL grantees (89 % response frequency) while 22 applicants out of the 37 non-grantees summoned to hearing responded to the survey (59 % response frequency). The committee did not expect a high response frequency from the non-grantees so the obtained frequency could be regarded as satisfying. It must be noted, however, that the responses differ somewhat in quality. All respondents have e.g. not answered all questions in the survey.

Several of the questions in the survey included text boxes where the respondents could make comments (see Appendix 5 for the surveys). Representative comments are found in the text below.

In most of the figures and tables below, values are shown for both grantees and non-grantees as a comparison. As can be seen, the differences between grantees and non-grantees are small, which is to be expected since all applicants summoned to hearing are scientifically excellent and thus perform almost equally well in several of the measured parameters.

b) The selection process

During the selection process, both grantees and non-grantees experienced that they got the information they needed from the SSF administrator in charge (value 4,6 and 4,0 respectively on a scale from 1 to 5 where 1 represents the lowest value). The grantees were also satisfied with the contact with the administrator during the granting period while the non-grantees were less satisfied with how information was delivered after the granting decision (value 4,7 and 3,3 respectively).

c) How have the respondents succeeded in their research career?

i) Survey responses

Several questions related to how the respondents had succeeded in their respective careers so far. Here it should be noted that large differences in their level of scientific success at these early stages of their academic endeavours can probably not be expected. Since, as mentioned above, grantees as well as non-grantees were evaluated as being scientifically excellent, it can be assumed that both cohorts have been able to attract other funding for their research and been able to build their own research groups. It could very well be so that the direct effects of the leadership program on the scientific success of the grantees is larger at later stages of their careers than currently. Also, the indirect effects on the university system might be very important, as argued in many of the interviews.

As can be seen from Figure 3, a majority of the respondents, both grantees and non-grantees, have today been able to establish their research and has gained a position as professor. A slightly higher proportion of professors can be noted among the grantees as compared to the non-grantees. When sorting the data according to research area the same tendency is observed (data not shown).

As expected, a higher proportion of grantees who are professors at current were found among the grantees in FFL-2 and -3 (100 and 88 percent, respectively) compared to FFL-4 (59 percent). The corresponding figures for the non-grantees were 100, 86 and 29 percent, respectively.
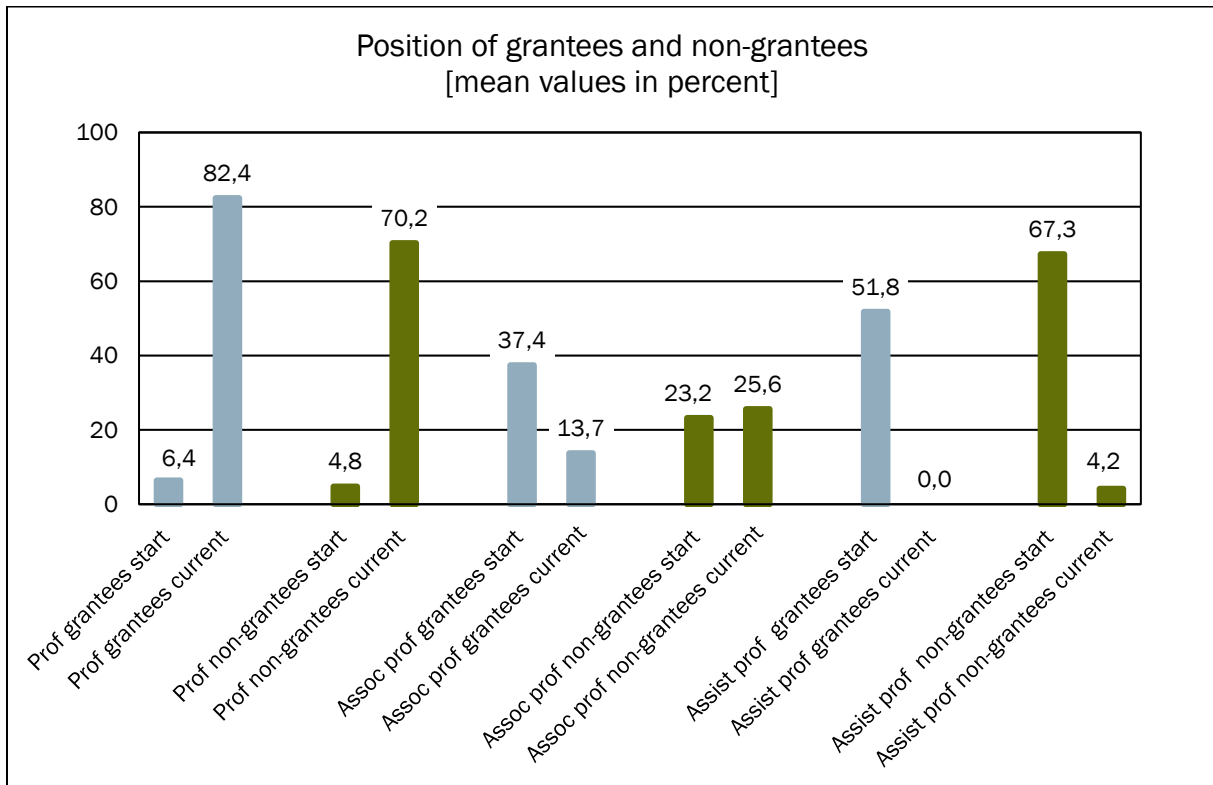
Figure 3. Position of respondents at the start of the granting period and current as stated by the survey respondents.

Regarding the total turnover (Figure 4) a substantial increase over time can be observed, again with no apparent difference between grantees versus non-grantees. When looking at different research areas the same tendency was again observed (data not shown). However, grantees from FFL-2 had a slightly higher total current turnover than FFL-4 grantees (8,4 and 6,1 MSEK, respectively). Also, among non-grantees this relationship was observed but in this case the difference was smaller (6,6 and 5,6 MSEK, respectively).
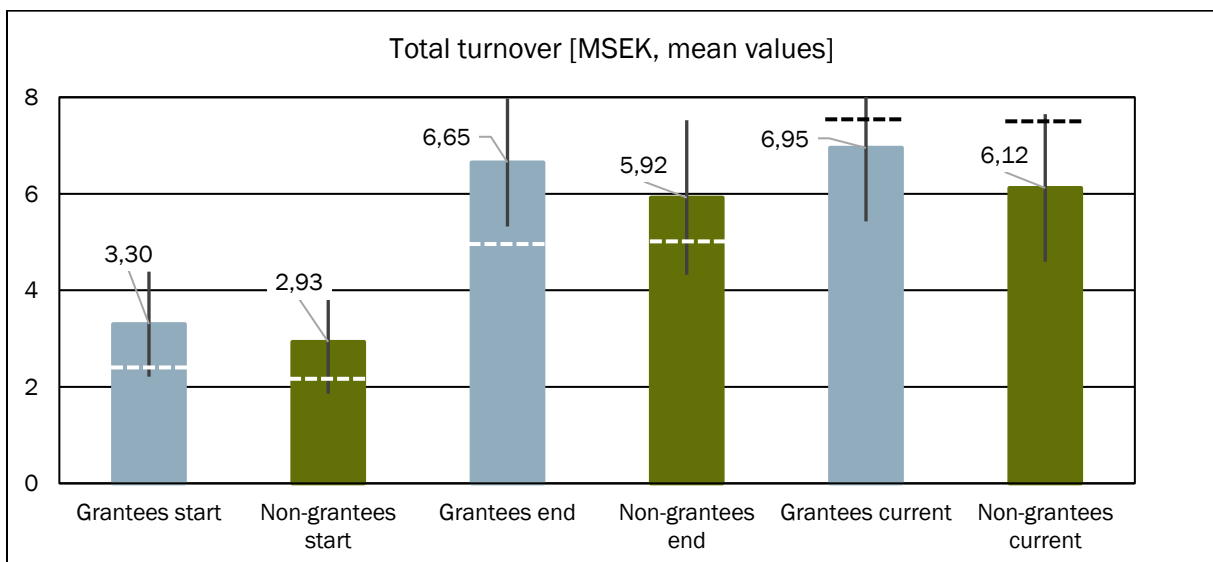

Figure 4. Estimation of total turnover (MSEK, mean values) at the start, the end of the granting period and current according to answers in the survey. Figures are indexed with the monetary value of 2018 as a starting point (http://historicalstatistics.org/Jamforelsepris.htm). The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines across or above the cohort bars.

In line with the increase of total turnover over time the group size increases (Table 1). Also here, no obvious differences could be detected between grantees and non-grantees or between research areas except for the IT area, where the group sizes among the non-grantees have been substantially larger throughout the investigated period (data not shown). However, this observation was based on few samples and a couple of very large groups.

Table 1. Research group sizes (mean) and group composition of grantees and non-grantees, at the start of the granting period, the end and current. Estimates from survey respondents. Median values are shown in brackets.

	Start of granting period	End of granting period	Current
Group size (no of individuals, mean values)			
Grantees	4,3 (3,5)	8,3 (8)	8,9 (8)
Non-grantees	3,8 (3,5)	7,2 (8)	8,1 (8)
Group composition (mean values in %)			
Grantees – PhD students	31,7	31,5	26,9
Non-grantees – PhD students	48,2	47,9	40,6
Grantees – post docs	24,4	25	26,6
Non-grantees - post docs	29,4	34,2	32,3
Grantees - associate professors	13,4	10	12,3
Non-grantees – associate professors	5,9	2,3	4,6
Grantees – professors	11,2	13	11,1
Non-grantees – professors	2,4	3,4	5,1
Grantees – administrative staff	5,8	6,9	9,7
Non-grantees – administrative staff	3,9	1,9	1,5
Grantees – technicians	13,4	13,6	13,3
Non-grantees - technicians	10,2	10,2	15,9

The grantees exhibit some tendency towards a more mixed composition of researchers on different levels (Table 1). This also holds the case when studying group composition in the different research areas (data not shown). No striking differences were observed between different rounds (data not shown).

Connected to the estimates of total turnover and group size is the amount of external funding among grantees and non-grantees. As can be seen in Figure 5, under the conditions studied the grantees seems to perform slightly better than non-grantees.

External funding as measured three years after start of the FFL grant and the following five years [mean and median values, MSEK]
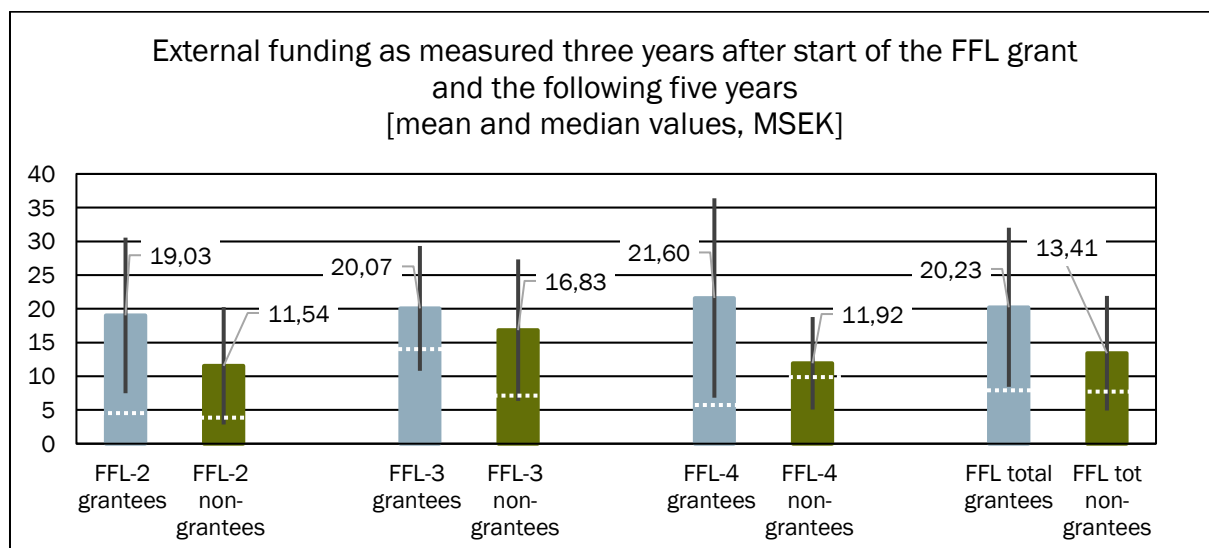
Figure 5. External funding for grantees versus non-grantees in three rounds of the FFL program. The figures are based on data where the researcher is project leader and includes KAW project grants, Wallenberg Academy Fellow (both the starting and the extension grant), ERC (Starting and Consolidating Grant and Proof of Concept), VR, Formas, SSF (excl FFL) and Vinnova grants. The time period measured covers five starting exactly three years after the start of the FFL grant. Figures are indexed with the monetary value of 2018 as a starting point (http://historicalstatistics.org/Jamforelsepris.htm). The black bars denote standard deviation of the data. Median values are shown as dotted lines across the cohort bars.

As a consequence of being able to establish their research, both grantees and non-grantees have over time increased their number of assignments/positions outside their own research group (Figure 6). The assignments/positions could be either within the university (e. g. head of the department) or outside (evaluation committees, editorial boards, scientific advisor, etc). When studying this parameter in relation to different research areas (data not shown) the general picture with an increase over time is again observed with the exception that for non-grantees no increase was found in the areas IT and Life Science Technology. However, in these two areas there were only a few individuals.
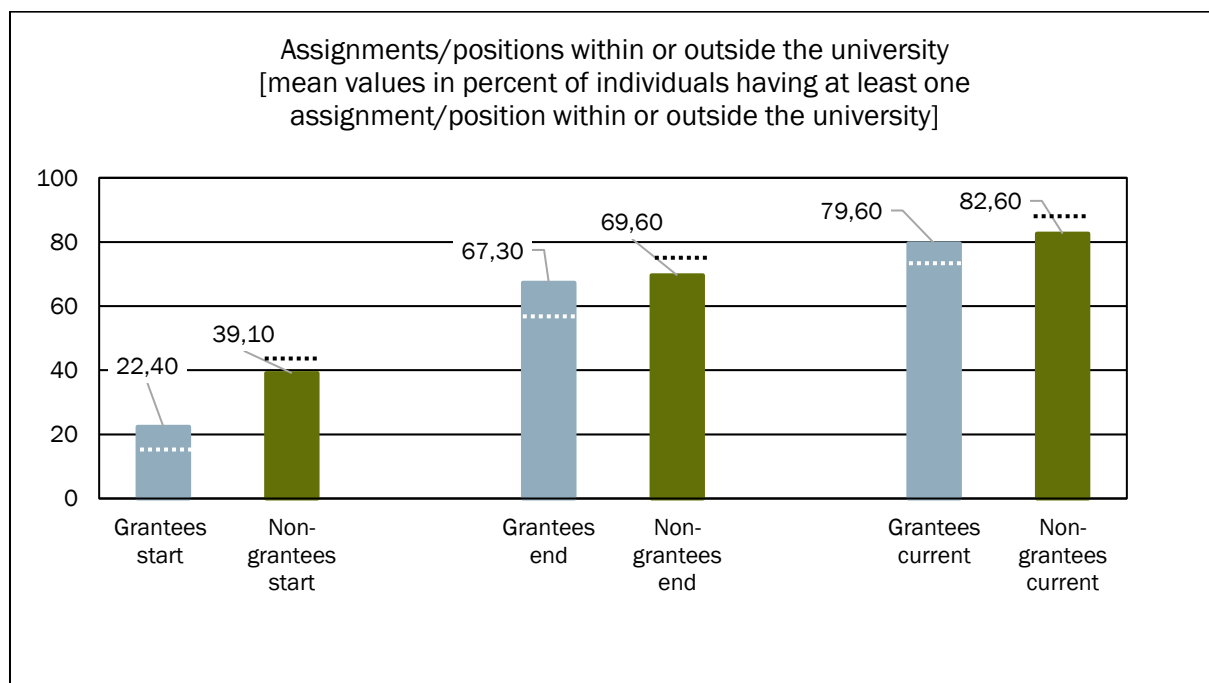

Figure 6. Assignments/positions within or outside the university at the start of the granting period, at the end and current, according to answers in the survey. The alternatives in the survey included assignments within the university such as university board member, faculty board member or head of department. Assignments outside the university could mean participation in scientific councils or editorial boards, board member in spin off companies, consultancies and guest professorship. Median values are shown as dotted lines across or above the cohort bars.

National and international collaborations have increased substantially, again for both grantees and non-grantees (Figure 7). Collaboration in this context is defined as a joint project or a joint publication. It seems however, that the grantees have succeeded somewhat better than the non-grantees concerning international collaborations. When comparing different research areas (data not shown), the same tendency of increasing values is seen, although in the LST (Life Science Technology) area the non-grantees seem to perform slightly better than the grantees both concerning national as well as international collaborations.
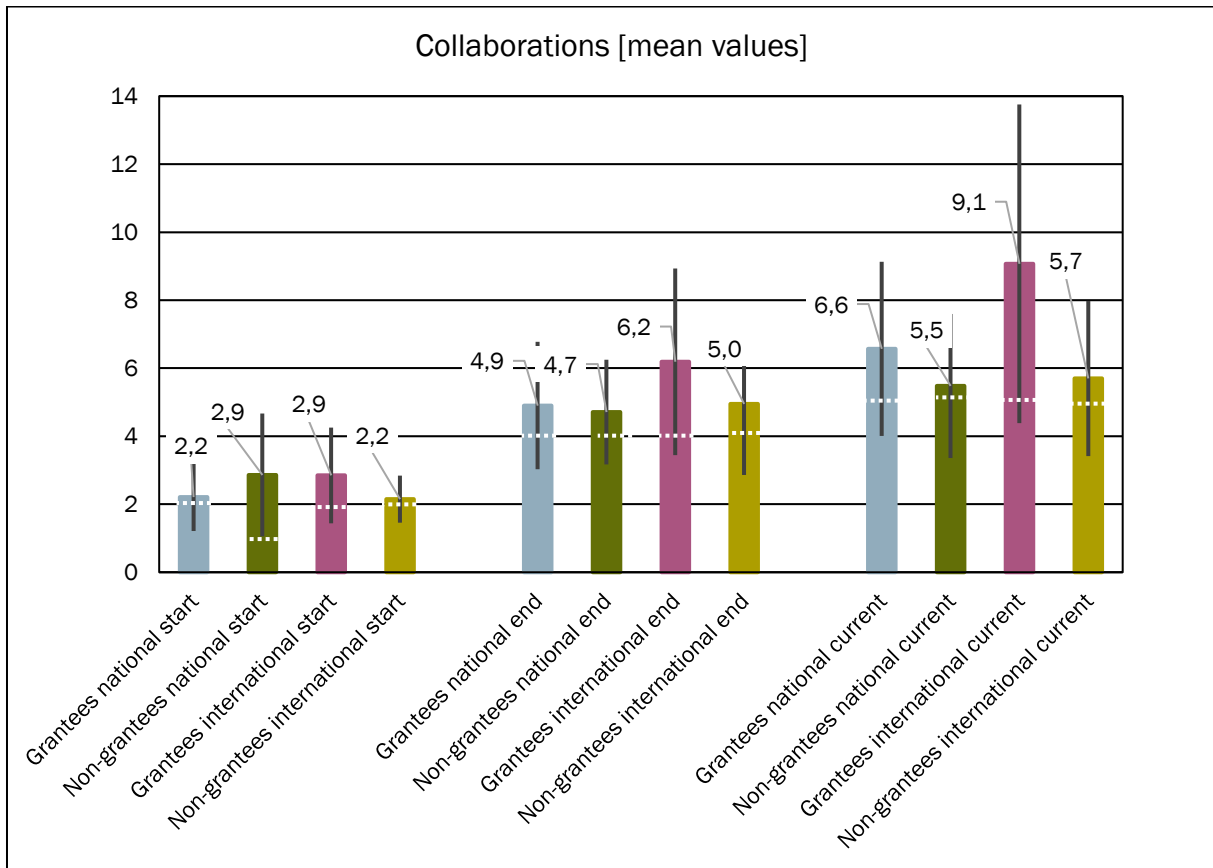
Figure 7. National and international collaborations for grantees and non-grantees (mean values) at the start of the granting period, at the end and current, according to answers in the survey. Collaboration in this context is defined as a joint project or a joint publication. The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines across the cohort bars.

ii)   Bibliometric analysis
The main results from the bibliometric analysis are presented in Table 2. The number of publications increases during time periods for both grantees and non-grantees. The FWCI is fairly constant and seemingly larger than 1,0 (the global baseline) over the periods with no obvious differences among grantees and non-grantees. This shows that both grantees and non-grantees are substantially more successful than the global average for their respective research field. The same tendency is observed for each different research area (Appendix 1, Table 3S).

A slight tendency towards an increased proportion of publications resulting from international collaborations can be seen among both grantees and non-grantees. This tendency was also observed for the Life Science and Life Science Technology areas as well as for non-grantees in the IT area (Appendix 1, Table 3S).

Table 2. Results from bibliometric analysis. See section 5.4 or abbreviation list for an explanation of bibliometric indicators. The time periods refer to pre-funding, funding or post-funding periods of the grantees and are as follows: FFL-2 pre-funding 1999-2004, funding 2005-2010 and post-funding 2011-2016; FFL-3 pre-funding 2002-2007, funding 2008-2013 and post-funding 2014-2017; FFL-4 prefunding 2005-2010, funding 2011-2016 and post-funding 2017. For abbreviations in the table head, please see section 5.4.

Category	Years	Indicator (mean values, median values within brackets)							
		No of publ	FWCI	Top 5% [%]	Prop int publ [%]	Prop nat publ [%]	Prop inst publ [%]	Prop single author publ [%]	Prop cross sector publ [%]
FFL-2 (18 grantees, 10 non-grantees)									
Grantees	1999-2004	26,2 (24,5)	2,3 (2)	17,5 (15,4)	47,5 (47,1)	15,9 (14,3)	31,9 (35,3)	3,8 (0)	12,8 (5,3)
Non-grantees	1999-2004	20,3 (22)	3 (2,1)	20,9 (17,9)	47,5 (40,4)	13,1 (8,7)	35,3 (40,4)	4,1 (0)	4,5 (3,8)
Grantees	2005-2010	42,5 (34,5)	2,2 (2,3)	16,5 (16,1)	46,1 (50,9)	18,1 (13,3)	31,8 (25,5)	3,6 (0)	11,2 (6,7)
Non-grantees	2005-2010	35,4 (23)	2,1 (1,7)	10,5 (9)	60,2 (56,9)	8,9 (4,9)	29,1 (24,3)	1,8 (0)	3 (2,5)
Grantees	2011-2016	62,6 (44)	1,9 (1,7)	11,2 (9,4)	63,8 (64,3)	11,1 (9,9)	23,1 (21,3)	2 (0)	15,8 (6,2)
Non-grantees	2011-2016	49 (24,5)	2,3 (1,4)	9 (5,4)	58,7 (67,2)	23,1 (21,6)	17,3 (11,6)	0,9 (0)	4,5 (3,2)
FFL-3 (20 grantees, 12 non-grantees)									
Grantees	2002-2007	22,5 (17)	3,4 (2,2)	20,1 (19)	50,6 (52,6)	13,4 (6,5)	30,7 (33,3)	5,1 (0)	10,6 (2,1)
Non-grantees	2002-2007	16,2 (13,5)	3 (2,5)	19,3 (14,5)	46,8 (56,6)	9,1 (7,8)	40,6 (29)	3,5 (0)	7,8 (1,9)
Grantees	2008-2013	36,9 (26)	3,2 (2,2)	18,3 (19)	55,3 (53,9)	13 (11,1)	29,3 (26,5)	2,4 (0)	10,2 (3,9)
Non-grantees	2008-2013	28,7 (23)	2,7 (1,9)	16,6 (10,6)	57,3 (59,3)	14,2 (10,9)	24,5 (27,8)	4 (0)	10,4 (5,3)
Grantees	2014-2017	25,5 (19)	2,4 (2,2)	12,1 (12)	57,5 (60,6)	17,5 (16,7)	24,6 (21,8)	0,5 (0)	5,3 (0)
Non-grantees	2014-2017	22,5 (18)	2,3 (1,4)	12,4 (8,2)	65,7 (72,8)	11,7 (7,5)	21,6 (24,9)	1 (0)	16,1 (11,3)
FFL-4 (18 grantees, 15 non-grantees)									
Grantees	2005-2010	24,1 (18,5)	3 (2)	21,2 (20)	55,9 (53,4)	13,1 (9,3)	29,5 (23,6)	1,6 (0)	7,9 (1,8)
Non-grantees	2005-2010	25,7 (14)	3,4 (2,7)	19,5 (15,1)	43,6 (49,1)	25,6 (25)	29,1 (21,4)	1,6 (0)	10,3 (5,3)
Grantees	2011-2016	34,4 (32,5)	1,7 (1,7)	11,5 (10)	58,4 (58,1)	11,7 (9,4)	28,5 (25)	1,3 (0)	4,8 (1,3)
Non-grantees	2011-2016	54,4 (28)	3,2 (2)	15,4 (10,5)	58 (58,1)	13,2 (10,7)	27,6 (24,1)	1,2 (0)	10,2 (4,5)
Grantees	2017	5,3 (4,5)	2 (1,4)	10,5 (0)	66,8 (68,9)	9 (0)	24,2 (8,3)	0 (0)	7,8 (0)
Non-grantees	2017	12,9 (5)	1,9 (1,7)	10,1 (0)	55,1 (50)	10 (7,1)	28,1 (25)	6,8 (0)	3,8 (0)

d) Self-estimates of the leadership program in FFL

In the survey, several questions related to how the grantees experienced the leadership program within the FFL grant.

As a whole, the grantees were very satisfied with the leadership program (Figure 8). They also clearly indicate that it had a strong impact of and how they plan their career (Figure 9).
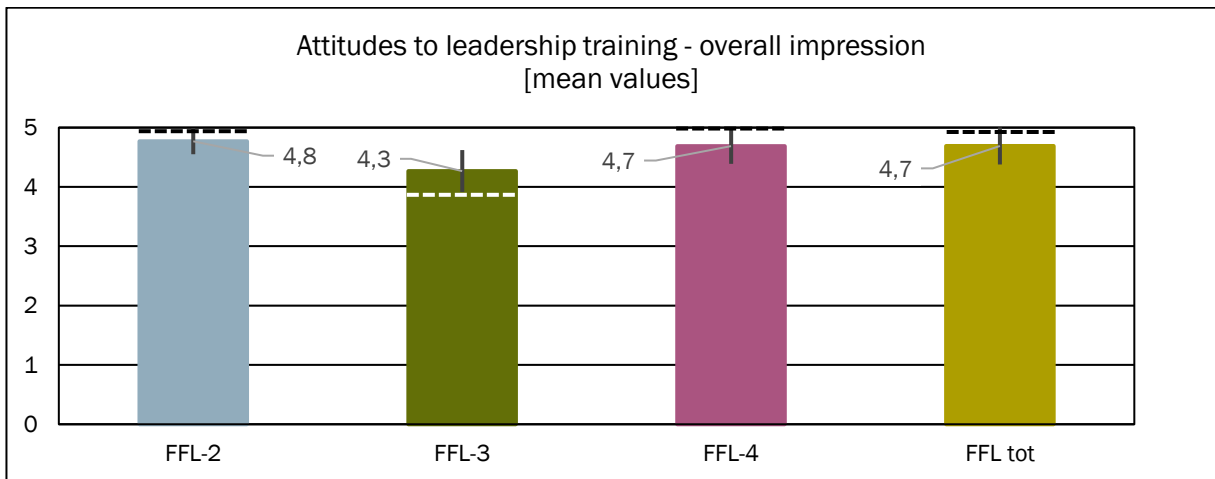
Figure 8. Attitudes to leadership training – Overall impression. Figures refer to survey estimates from the respondents (grantees) concerning the statement "I am, as a whole, satisfied with the leadership program". Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1). The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines across or above the cohort bars.

The grantees value the leadership training as very important for their careers and specifically also valuable for their career planning. There were no substantial differences in attitudes to the overall impression of leadership training between the different FFL – programmes.
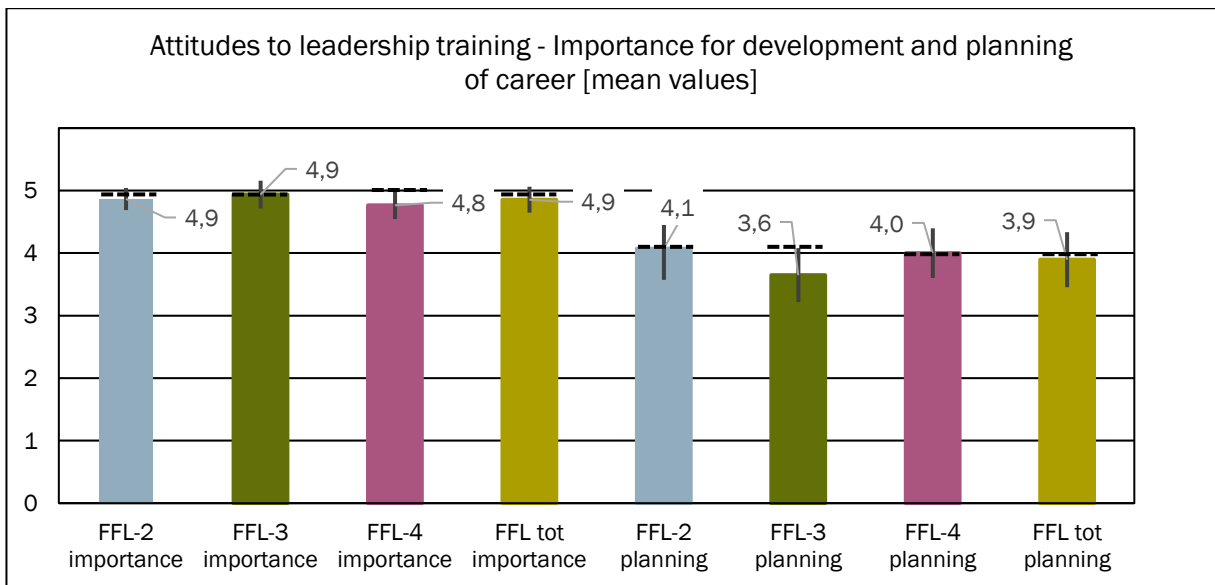

Figure 9. Attitudes to leadership training – Importance on development and planning of career. Figures refer to survey estimates from the respondents (grantees) concerning the statements "The leadership program has been important for my career" and "Experiences from the leadership program have changed the way I plan my career" - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1). The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines across or above the cohort bars.

The leadership program is extensive and contains many different parts. As a specific positive effect it can be noted that the grantees to a very high degree have learned from other experiences ("I have drawn lessons from other people's experiences as a research leader"). They consider the leadership program to have been very helpful in their role as research leaders "I have significantly developed in my

21

skills as a research leader" (Table 3).

The grantees respond that they have developed necessary leadership skills as taking responsibility for larger research groups, for increasing the efficiency of others and for focusing job satisfaction in their research groups. Another effect of the leadership program is, according to the answers from the survey, that the grantees to a very high degree are helping their own departments towards higher standings in their own universities (Table 3).

Table 3. Specific positive effects of the leadership program (mean values, median values within brackets). Figures represent estimates from survey respondents (grantees) on a scale of 1 to 5 where 5 is the highest value.

	FFL-2	FFL-3	FFL-4	FFL tot
I have drawn lessons from other people's experiences as a research leader	4,7 (5)	4,8 (5)	4,8 (5)	4,8 (5)
I have significantly developed in my skills as a research leader	4,5 (5)	4,5 (4)	4,8 (5)	4,6 (5)
I contribute to job satisfaction in my research group	4,3 (5)	4,2 (4)	4,6 (5)	4,4 (4)
I contribute in helping the Department to reach/maintain a high standing in my University	4,2 (4)	4,4 (4)	4,5 (5)	4,4 (4)
I feel like I can take responsibility for more/larger research groups	4,5 (5)	4,2 (4)	4,6 (5)	4,4 (4)
I participate significantly to increase the efficiency of others	4,4 (5)	4,2 (4)	4,4 (4)	4,3 (4)
I have a tool to exert my leadership	4 (4)	4,1 (4)	4,5 (5)	4,2 (4)
I have been given a larger network that I actively use	4,2 (4)	3,8 (4)	4,4 (4)	4,1 (4)
I am acting in a cost-efficient way	3,8 (4)	3,9 (4)	3,7 (4)	3,8 (4)

The most valuable elements of the leadership program
The participants' ranking of the three most valuable elements of the FFL leadership program showed a broad variation of subjects and reflected the many different individual needs. The leadership program and the included elements have also developed and changed over time, which must be considered when you value the individual comments that were made together with the rankings.

The most highly ranked element that the grantees agreed upon was the possibility to exchange experiences and discuss with other scientists in the same stage of the research career. Examples of comments are:

- *"Meeting others and comparing different systems was important for my scientific development"*
- *"The most valuable element was clearly to meet other researchers in similar positions, but different fields and universities ..."*
- *"Perhaps it would be interesting to divide new FFL researchers into topical areas, within which they arrange conferences by inviting previous FFL members plus a few international scientists."*
- *"Add support for additional meeting after the grant period."*
- *"Leadership was very very good! Just wish there were moreorganized follow-ups :)"*

The second most highly ranked element was building and broadening the personal network which meant *"... having the opportunity to exchange experiences, opinions, concerns, sharing the successes and failures..."* as one of the grantees formulated it.

Psychological testing and personal feedback was also highly ranked and described as both interesting and helpful. One comment was that *"...It allocated a couple of hours.. I quite changed how I act as a group leader after that"*.

Another subject that many grantees ranked as important was Academic Leadership and that it was very informative to meet invited speakers with interesting backgrounds as academic leaders.

- *"The biggest challenge is academic leadership. I still draw on some of the insights from the training on how to deal with it"*

In addition to this was the training of leadership skills highlighted as valuable for the development as research leader and training of communication skills, handling conflicts, group dynamics etc. The group discussions, exercises and workshops were also mentioned as important components in the program. Media training was another theme that participants agreed upon as important. Some of the grantees also mentioned mentorship and the study trip as valuable parts in the program.

The least valuable elements and suggestions for improvements
The responses to this question should also be handled with caution as the elements included in the FFL-program has developed and changed over time. The FFL program has successively developed and changed its contents based on evaluations, which means that some of the comments below might already have been taken care of in the later FFL programmes.

Themes that the participants have individually commented on the most, as the least valuable elements in the program, are Research Ethics, Gender Aspects, Commercialization, Career Planning and to some extent the Personality Tests and Personal Development. The critique mainly focus on how the specific theme was completed, not the subject itself.

One comment was about how the importance of ethical considerations in science has become even more central. *"Ethics have many dimension and I think it is worth investing significant efforts into a workshop on how to handle this from the start of setting up a research group, everything from data handling to responsibility to tax payers".*

Some of the participants had also comments about the Gender theme in the program.
- *"Gender equality is important, but I felt it was all old news. I would have liked to hear something more concrete".*
- *"Gender aspects. Important topic but was not informative in how to change the problem"*
- *"I had hopes of getting tools to deal with situations when there is a gender bias, how can I contribute to increased awareness and what can I do when it is happening? I felt the session was more focused on declaring the problem".*

Commercialization was also a theme that some of the participants felt could be improved in the program and was commented in the following way.
- *"Commercialization could have been done better"*
- *"Commercialization is an interesting topic, but that has to be presented by a senior leader within industry or an entrepreneur who has undertaken relevant efforts and succeeded".*

There was also dissatisfaction from some of the participating researchers about the career planning component in the program. Others regarded it important and a valuable theme.

- *"The career planning perhaps did not give very much as most of us were fairly focused and well organised when it comes to our own career development"*
- *"We did not have specific career planning, but I think it could have been good to have it"*

The participants have the most different opinions about The Personality tests and the Personal Development theme in the program. While many are very pleased and regard it as important and helpful, others have a different opinion.
- *"The psychological testing was a waste of time for me, and I know others had similar experience"*
- *"Some parts on "personal development" that were rather foggy"*

Another comment is that the Psychological testing was a bit based on stereotypes and was not deep enough to get through the complexity. It can be noted that some of the respondents had difficulties in finding negative comments about the leadership program and they regarded that all elements as valuable.

The *Mentorship program*
The individual comments about the mentorship program are both positive and negative and equally appreciated and disapproved among the respondents. A good match between mentor and adept stands out as the major reason for making the program work well. Examples of comments based on positive experiences are:
- *"The mentorship part was excellent. I had an outstanding mentor who*

paid strong interest into me and my development."

- *"I had extremely good experience of the mentorship program. Working with my mentor has resulted in that we have started a company with 15 employees."*
- *"The mentorship was very good. It was great to discuss a lot of different topics with a more senior person having expertise both in academic leadership as well as commercialization."*

Negative experiences of the Mentorship part of the program are equally frequent in the comments of the participants. The underlying reason for lack of success is either lack of time from the mentor's side or sometimes from the adept's side. Another factor was the lack of structure in the mentorship program.

- *"The mentorship part was a bit of a disappointment as my mentor was often pressed for time. Thus, our appointments often felt a bit rushed. Although I think the idea is very good."*
- *"Mentor program was never followed up. I actually never met my mentor after the initial contact. Mentorship could be used more effectively and integrated into the leadership program more effectively"*
- *"In my case I would say the mentorship program was ok, but not great. I think we had a lack of structure and goals with this program. In the end it also comes down to how well the mentor and mentee match in terms of personality."*

e) Self-estimates of the FFL grant

The effects of the FFL grant were studied in several questions in the survey. Overall, the grant seems to have had a significant impact of the career development of the grantees (Figure 10).
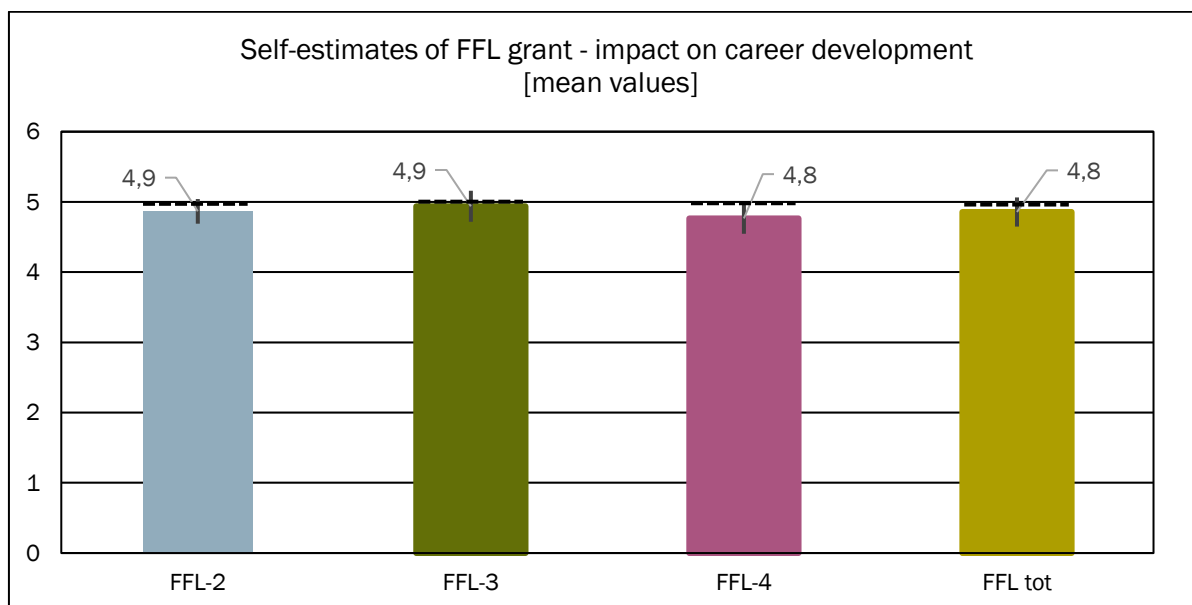

Figure 10. Impact of the FFL grant (mean values). Figures refer to survey estimates from the respondents concerning the statement "The FFL grant has had a significant impact on my career development" - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1). The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines above the cohort bars.

The grantees emphasized the importance of the FFL grant and responded that the grant was a very important factor in their research progress and that the strategic and scientific goals, as described in the proposal, also were fulfilled. To some degree, the FFL grant had also led to lasting collaboration with international groups but to a lower level to collaboration with companies. The results from other answers in the survey (Figure 7) and the bibliometric analysis (Table 2) also indicate that there is an increase of international collaborations during the granting period and afterwards.

Table 4. Effects of the FFL grant (mean values, median values within brackets). Figures represent self-estimates on a scale of 1 to 5 where 5 is the highest value.

	FFL-2	FFL-3	FFL-4	FFL tot
The research in my project was strengthened by my FFL grant	4,9 (5)	4,8 (5)	4,9 (5)	4,9 (5)
The strategic added values as described in my proposal were fulfilled	4,7 (5)	4,1 (4)	4,2 (4)	4,3 (4)
The scientific goals as described in my proposal were fulfilled	4,5 (5)	4,2 (4)	4,1 (4)	4,2 (4)
The FFL grant has led to lasting collaboration with international groups	3,8 (4)	3,9 (4)	3,5 (4)	3,7 (4)
The FFL grant has led to fruitful collaboration with one or more companies	3,7 (4)	3,1 (3)	2,9 (3)	3,2 (3)

Although the grantees considered the FFL grant to be very important for their career (Figure 9) and to have had a strong impact on their research (Table 4), they did not, on the other hand, feel a particularly strong support from their university (Figure 11).
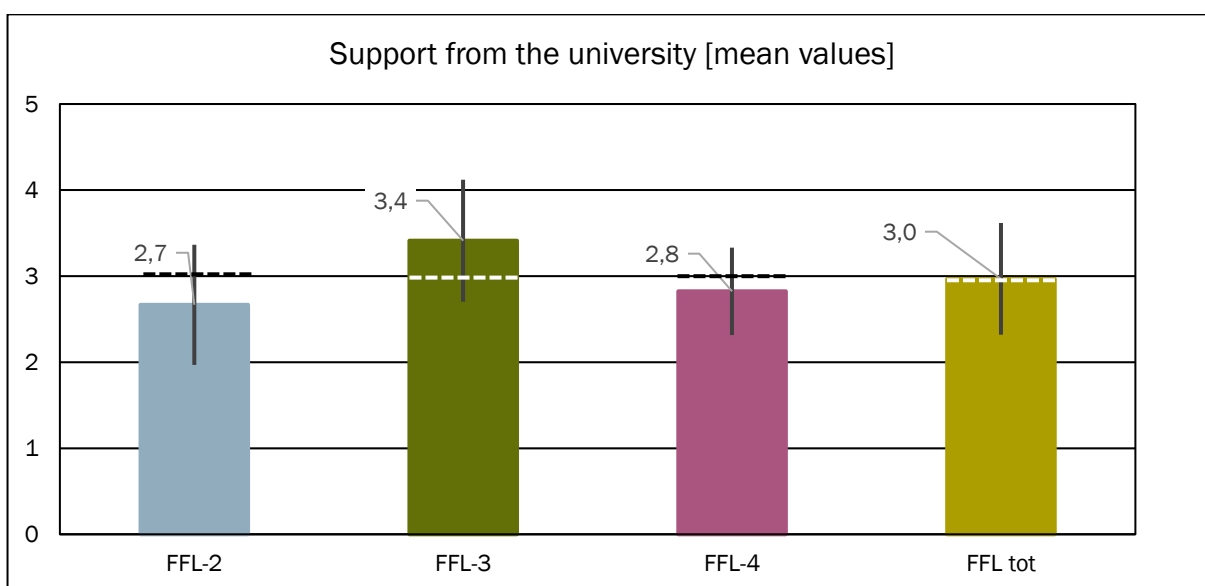

Figure 11. Support from the university. Figures refer to survey estimates from the respondents concerning the statement "Upon receiving the FFL grant my university supported me through the grant period and took an active role in my future career development" - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1). The black bars denote standard deviation of the data in the response. Median values are shown as dotted lines across or above the cohort bars.

Regarding utilisation of research results, 32 grantees out of the 49 responding to the survey, stated that they are/have been involved in activities regarding utilisation of research results (twelve, ten and ten in FFL-2, -3 and -4, respectively). In this context it needs to be mentioned that FFL-4 was the first round of the program that specifically set aside 3 % of the grant sum to activities for utilisation of the results obtained in the research projects.

In the individual comments, almost every individual respondent brings forward the tremendous effect of receiving the FFL grant. Some emphasize the importance of being selected per se, several the opportunity to build up an independent research group and equally many highlight the financial support in combination with the leadership program.

- *"This was substantial enough funding for me to be able to actually start my own research program and get reasonable amount of independence. This was clearly the defining point in my career."*
- *"The prestige, the money and the network!"*
- *".... the money made all the difference for me, I could establish truly independent group and get on entirely different level in research. SSF grant also opened many doors and increased my*

chances of getting other grants from VR, Cancerfonden and so on. I also established network of friends, which is useful until today."

- *"Prestige, the leadership programme and the relatively "free" research funding"*

Very few individuals find that receiving the FFL grant has led to any negative side effects. Not getting appropriate support from the host university is the most common negative remark.

- *"I don't think I got any specific support from my university, but the FFL recognition I believe has helped me in various situations when interacting with university mgmt."*

Societal impact

The majority of respondents mention several different outcomes where patents and start-up of companies dominate. In addition, collaboration with companies and other external societal stakeholders is also mentioned.

- *"The grants have paved the way for several interesting opportunities. I have now several collaborations with industry, I have constructed a translational research environment with funding from the hospital to improve procedures in health care and I am in the processing of spinning out a company"*
- *""Quite a few patents. Three spin-off companies. Two of those already profitable and growing. Several new products with international distribution."*

Some respondents, foremost in the later FFL-calls, claim that their research have not yet led to any societal impact.

- *"No, I was not able to use the utilization part of the grant. Our research is very much fundamental in nature."*

Unexpected results

The majority of respondents highlight scientific breakthroughs and many of them are able to describe what improvements these have led to in different sectors. Other unexpected results mentioned is the development of new companies.

- *"The freedom in research has led to opportunities to shift the emphasis of the work and pursuit of new ideas that came out of the planned research but were not planned themselves."*
- *"The grant opened up new research directions that lead to two scientific breakthroughs. These breakthroughs have moved my research considerably closer to industry and the health care sector and has helped me secure additional funding from several other funding agencies."*

Some of the respondents say that *"I would not classify our results as unexpected or as breakthroughs".*

7. Comments and conclusions

In the following section, the Committee discusses the obtained results in relation to the directives given by SSF.

a) Importance and need of the FFL program for Swedish research

The overall impression is that the FFL program is of very high quality regarding the research projects and has as its unique feature an extensive and today excellently executed leadership program. This unique combination, which has been ground-breaking in the Swedish research funding system, was also highlighted during several of the interviews, e.g. in the interview with the Vice Chancellors (Appendix 4) where it was mentioned that there is a scarcity of strong research leaders not only in Sweden but in Europe as a whole. Thus, one of the focal points of the program, i.e. leadership, which throughout the existence of the program has demonstrated a high strategic relevance, is even more important today.

Although the mostly very positive view of the program found among different persons being interviewed, SSF has a tradition to act as a catalyst and actively search for new strategic areas to finance. This in turn implies that even if a program has been very successful, SSF can choose not to repeat it. The Committee has considered this fact and also taken into account the fact that other programs aiming at supporting young scientists exist at other research funding organisations. However, the opinion of the Committee is that the discussion should focus on how to secure that there are a sufficient number of grant programs, each carefully designed to fit a niche, in order for Sweden to attract and keep young researchers of top quality having a strong leadership potential.

In conclusion then, the Committee believes that the FFL program has a very important role to fill in the Swedish research system and has a strong strategic relevance. Furthermore, this relevance will most likely be stronger in the future when academic leadership will be even more important. The Committee would like to stress the notion that the FFL program consists of two equally important parts, i.e. funding and leadership and that this is understood by everyone involved.

b) Usefulness of the program investments and its specific contribution to success

It is important to note that the grantees in general perform equally well with regard to scientific achievements irrespective of research area. This implies that the program investments are beneficial for all research areas covered by the FFL program.

As already mentioned, the FFL program has a unique profile and the grant adds a specific feature, that is to educate and prepare young researchers for good academic leadership. This in turn will lead to different research areas having leaders with a strong will to take an overarching responsibility for strategic development.

c) Obtained results in relation to general goals set by SSF and to goals specific for the program and to actions taken from the universities to support FFL grantees

A general first goal in research funding is that the selection process in a call should be fair and transparent.

In the FFL program, the selection process did undergo some changes when comparing round 2 and 3 with round 4. The pre-selection step was removed and a full application was submitted directly. This created less administrative work within SSF and led to a shorter time between deadline for submission and decision. As judged from the survey, however, several applicants considered the preselection step to be positive.

Regarding the last step in the selection process, i.e. the hearing, the respondents in the survey perceived it as being somewhat undefined. It was not clear in the announcement text exactly what criteria that were to be used. Also, applicants summoned to hearing were not sure of the layout for the interview or the importance of the interview in relation to the other assessments. They also asked for a more detailed feedback from the interview as such.

The Committee concludes that there is a need to clarify in the announcement text the

criteria for the hearing and the importance of this selection step in the whole evaluation process. Furthermore, the information to applicants summoned to hearing needs to be more detailed. However, the actual layout of the hearing could be kept in the hands of the hearing committee to be able to assess the applicant's response to an unprepared situation. In addition, the final assessment given to the applicants should contain not only feedback from the assessment of their science but also from the hearing. It is furthermore important that the final assessment is written in such a way that the applicant clearly understands the reasons for granting or rejecting the application. The Committee is aware that writing a good and helpful assessment is a time-consuming process. It is therefore necessary that the members of the evaluation committee are given enough time and resources for this in the selection process.

The specific goal with the FFL program is to select young top-quality researchers with an ability to establish their own research group and develop into good academic leaders. It can be seen (Figures 3-4) that the absolute majority of the grantees have been able to obtain a professorship and their research groups have grown. Furthermore, they have over time been given more assignments within and/or outside the university (Figure 5) and their collaboration with international researchers has increased (Figure 7, Table 2). If they at the same time have

become good leaders is difficult to answer. The fact that they have become more and more involved in internal and external assignments implies that their research has gained respect, which in turn indicates a well-functioning research group producing good results.

According to the survey, the universities were not considered enough supportive in terms of career planning and development by the grantees, as indicated by the lower scores in Figure 10. At the same time, the Vice-Chancellors did not want regulations imposed by SSF with respect to the support of the FFL grantees interfering with their recruitment strategies.

For the future, the Committee recommends stronger ties between the applicant and the university where the research will be conducted. This could take the form of a "letter of acceptance" to be attached to the application stating that the applicant has had a dialogue with the department head/equivalent so that all parties are clearly aware of the conditions if the applicant's research is located at the chosen department. Also, a congratulation letter and maybe a call from the CEO of SSF to the Vice-Chancellors at the universities hosting one or several FFL-grantees would really underline the importance for the university in supporting the FFL grantees.

d) Effects/consequences for the scientists who received the grant and comparison to those applicants that were excluded in the final round. Specific value of the FFL grant.

As indicated from the survey the FFL grant was very important for the development of the research career of the grantees (Figure 10, Table 4).

Connected to the positive development of research career was the leadership program that helped the grantees to reflect over their situation as research leaders and to improve their leadership skills (Figure 9, Table 3). As mentioned earlier, it is of importance to note that the leadership program underwent a major structural change between FFL-3 and FFL-4. The change led to a more structured organization focusing more on individual leadership development than previously. As judged from the interviews, the leadership program now is very extensive and ambitious and continuously strives to obtain the highest possible quality. The leadership program should be responsive to the development of new methods for a good leadership.

The Committee recognizes the very high quality of the leadership program but would like SSF to more clearly inform applicants and others involved that the FFL grant is really consisting of two equally important parts, one funding part and one leadership program, the latter being a unique feature of the FFL program. It must be

stressed to the applicants that the leadership program is of uttermost importance and the participation is mandatory.

The study tour is a very important part and the committee recommends it should remain as an ingredient of the FFL-program. Not only as an ice breaker for developing relations and networks internally in the group of grantees, but mainly for the opportunity for strategic outlook and to study changes, trends and tendencies in the research society on an international level. Those perspectives are important for developing competent and successful research leaders for the future.

In addition to the leadership program, SSF could introduce yearly meetings after the granting period and involve other rounds of FFL in order to create an alumni network. These meetings should avoid focus on any specific theme but instead consist primarily of exchange of experiences. In connection to these yearly alumni meetings the Committee recommends SSF to arrange a regular national research leadership seminar/conference. This will underline the importance of research leadership development for the Swedish research system and the important role of SSF and the FFL program.

One part of the leadership program, namely the mentorship part, did not work well for all grantees. For some it has been very helpful but for others it has had almost no impact at all. The

Committee recognizes the problem and suggests that more time should be invested in this part of the leadership program to make sure that there is a very good match between the mentor and the FFL grantee. SSF could, for example, through a special call encourage appropriate mentors to register their interest. To ensure commitment, there should be a remuneration paid by SSF to the mentor in case they match up with a grantee. Furthermore, the mentorship part needs to be continuously monitored to see that it functions properly over time and make changes when necessary. The mentorship part could also be more intertwined with the themes covered in the leadership program and the role of the mentor should be clearly defined (see Appendix 6 for a brief description of the mentorship at NTNU).

One of the objectives for the Committee to investigate was how the individuals that received the grant performed in comparison to those applicants that passed the first evaluation stage and were summoned to hearing but did in the end not receive a grant. Results from both the survey and the bibliometric analysis (Figures 3-5, 7, Table 1-2) indicate no major differences between the two groups. There are tendencies that the development for the non-grantees have been somewhat less successful in some respects (Figures 5 and 7). Especially regarding external funding (Figure 5) a slightly better performance of the grantees versus non-grantees can be observed in all three rounds. It is possible

that this tendency can be attributed to the FFL grant (including the leadership training program), acting as a quality marking. However, the data in the report are based on a small number of individuals so definite conclusions are difficult to make.

The small or non-existing differences between grantees and non-grantees in several cases, particularly at the onset of the FFL grant, can be taken as an indication that all applicants summoned to hearing were essentially all scientifically very good and hence it was relevant for the hearing committee to select on the criteria leadership potential.

When evaluating a leadership training and development program, one must take into account that effects and results should be seen in a long-term perspective. One central dimension of leadership is to influence others for improved performance, e. g. other researchers, members of the research group etc. The duration over time from the first leadership initiative to the final performance outcome makes performance measurement complicated. An "altruistic" leadership means to develop others, not only yourself which also complicates the evaluation of effects of leadership training. Within this evaluation, these dimensions have not been possible to fully investigate.

The conclusion though, is that the solid positive self-evaluation, from the participants, about the effects of the FFL-leadership program

indicates, that both the research leaders, their invited colleagues and group members will enhance their performance in a longer perspective.

As mentioned earlier, SSF has a tradition to look for new strategic areas to support and the fact that grantees and non-grantees seem to have a very similar scientific career development again raises the question of the necessity of the FFL grant. Do these talented young researchers really need an FFL-grant? Would they not be equally successful even if the FFL program did not exist? The opinion of the Committee is that the grantees might be successful even without the FFL grant but they would have missed an opportunity to develop their leadership skills. The grantees strongly value the FFL program for their research leader development and their career. Since there is scarcity of advanced scientific leaders in Europe, Sweden could lose an important cohort of research leaders – who are also leading scientists - if the FFL program was discontinued.

In general, the Committee thinks it is important to have an improved dialogue between different research funding organisations to avoid that too much money is concentrated to very few individuals, especially at early career stages when they have not acquired a lot of experience as research leaders. Having a short time with a vast amount of resources and then possibly be forced to reduce the capacity to a much lower level is not beneficial for good research in the long run.

e) Utilisation of results, interaction with industry, society, etc

SSF has in its statutes emphasized collaboration between academia and industry (under § 3) and also mention in its current research strategy that the supported research should come to practical use within a time frame of 5-15 years. It is the opinion of the committee that this area has not been sufficiently emphasised in the FFL program, at least not in the early calls.

FFL-4 was the first round that had 3 % of the grant allocated for utilisation of research results but already in FFL-2 and -3 most (32 out of 49) of the grantees stated in the survey that they were or had been involved in activities for utilisation of research results. This is encouraging although the FFL grant per se did not seem to be crucial for a lasting collaboration with different companies (Table 4). However, when studying FFL-4 only about 28 % of the total sum has been used. Ten out of 18 grantees did not use the money at all (SEK 300 000 per grantee). In FFL-5, with two years left to spend the money, only 14 % have been used and 13 out of 19 grantees have not used any of the allocated money.

The Committee concludes that the 3 % set aside for utilisation of research requires a stronger focus than present. In the application form the applicant should include a short plan for the utilisation of research results and how to spend the allocated sum. The plan would then be assessed together with other criteria in the selection process and could be further scrutinised and developed in the leadership program possibly with the support of a personal research impact plan (see an example from Royal Institute of Technology, KTH, in Appendix 6). A follow up by the program committee and the people responsible for the leadership program could also be necessary. The Committee also recommends SSF to develop cooperation with VINNOVA and Industrifonden in order to interact with the grantees with the aim of making better make use of the 3 % set aside for utilisation of research.

f) Conclusions and lessons to be learned – parts of the FFL program that should remain and what can be omitted or changed in future rounds

Please see general and specific recommendations.

Appendices

Appendix 1: Supplementary material

Table 1S. Examples of programs similar to the FFL program

Funding organisation/ university	Name	Grant period (years)	Periodicity	Size of grant	Grantees in each call	Leader-ship program included	Remark
National programs							
Swedish Research Council (VR)	Starting Grant	4	Every year	1,6 – 6 MSEK	105 in Medicine, Technology and Life Sciences (2017)	No	2-7 years after PhD exam, replaces "Projektbidrag unga forskare"
Formas	Research and development projects to future research leaders	3	Every year	3 MSEK	?	No	2-8 years after PhD exam
Knut and Alice Wallenberg Foundation (KAW)	Wallenberg Academy Fellows	5	Every year (from 2017 every second year)	5-10 MSEK (depending on research area)	19 in Medicine, Technology and Life Sciences (2017)	Mentorprogram and seminars where grantees suggests themes	Max 8 years after PhD exam. Swedish universities nominate candidates
International programs							
European Research Council (ERC)	Starting Grant	5	Every year	Max 2 million Euro	403 in total 11 from Sweden (2018)	No	2-7 years after PhD exam
European Molecular Biology Organization (EMBO)	Young Investigator	3	Every year	Max 45 000 Euro	28 (2017) None were from Sweden	Yes (mentor program also included)	Applicant must be 40 years or younger
European Molecular Biology Organization (EMBO)	Installation Grant	3-5	Every year	Max 300 000 Euro	8 (2017)	Yes (mentor program also included)	Max nine years after PhD exam. Not open for Swedish applicants

Table 2S. Data for the different research areas in FFL2-4 regarding number of submitted and granted applications. An asterisk denotes that in FFL-2 and -3 the area included Information technology and Production.

| Area	FFL-2	FFL-3	FFL-4	Sum	% of total no. of applications
No. of submitted applications					
Life Science	209	84	66	359	48,1
Life Science Technology	26	33	39	98	13,1
Information Technology*	50	34	25	109	14,6
Material Sciences	75	39	28	142	19
Other	35	1	2	38	5,1
No. of granted applications					
Life Science	6	11	8	25	44,6
Life Science Technology	4	3	4	11	19,6
Information Technology*	8	5	4	17	30,3
Material Sciences		1	2	3	5,3
Other					
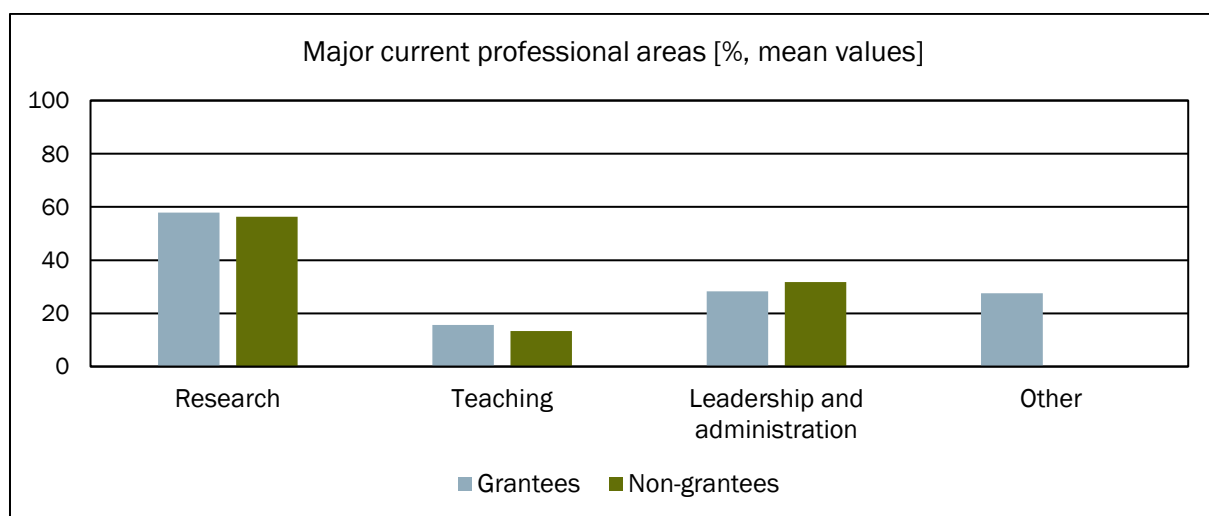
Figure 1S. Major current professional areas

Table 3S. Figures for the bibliometric indicators in the different research areas for FFL2-4 combined.

Category	Indicator (mean values)							
	No of publ	FWCI	Top 5% [%]	Prop int publ [%]	Prop natp publ [%]	Prop inst publ [%]	Prop single author [%]	Prop cross sector publ [%]
IT pre funding								
Grantees (13 individuals)	32,5	2,9	21,7	42,4	7,6	39,9	9,3	15,1
Non-grantees (6 individuals)	27,7	3,9	28,9	28,6	17,1	47,6	6,7	11,2
IT funding								
Grantees	57,2	2,4	18,4	36,4	13,8	45,3	3,9	13,1
Non-grantees	55,2	2,6	23,4	45,1	17,6	33,3	4,0	13,2
LS pre funding								
Grantees (24 individuals)	16,8	3,0	19,3	59,0	13,7	25,9	1,3	7,1
Non-grantees (22 individuals)	21,1	3,3	20,9	50,9	19,4	27,9	1,8	6,1
LS funding								
Grantees	28,0	2,6	14,6	62,4	12,0	23,5	2,1	5,7
Non-grantees	41,0	2,8	13,0	63,8	10,7	23,1	2,4	7,8
LST pre funding								
Grantees (11 individuals)	28,8	3,4	21,6	44,4	24,2	29,6	1,8	10,5
Non-grantees (5 individuals)	15,2	2,9	14,3	36,6	10,4	51,9	1,2	12,4
LST funding								
Grantees	39,5	2,6	17,6	53,8	22,4	21,3	2,2	7,7
Non-grantees	35,0	3,2	15,5	52,2	17,0	30,1	0,7	8,1
MS pre funding								
Grantees (8 individuals)	24,6	1,98	14,1	53,1	11,6	31,5	3,3	12,7
Non-grantees (4 induviduals)	19,2	1,42	7,6	54,2	10,7	29,8	5,4	7,3
MS funding								
Grantees	34,2	1,74	11,5	50,3	10,6	37,5	1,6	12,7
Non-grantees	26,5	2,11	8,0	56,2	7,8	35,4	0,7	4,4

Appendix 2: Members in the committee

Per Eriksson (chairman) - former Director General VINNOVA, former Vice-Chancellor of Lund University

Matts Björklund - Development Consultant/Psychologist, Umeå University

Anne Borg - Professor in Condensed Matter Physics, Pro Vice-Chancellor for Education, Norwegian University of Science and Technology

Karin Fälth-Magnusson - Professor em in Pediatrics, former Deputy Vice-Chancellor, Linköping University

Sverker Holmgren - Professor in Scientific Computing, Uppsala University

Susanne Nilsson - Researcher at Integrated Product Development, Royal Institute of Technology

Jan Fahleson (secretary) - Scientific Secretary, SSF

Direktiv - Utvärdering av omgång 2-4 av SSF-programmet Framtidens Forskningsledare (FFL)

Inledning

Stiftelsen för Strategisk Forskning (SSF) är en oberoende finansiär av forskning inom teknik, medicin och naturvetenskap. Ändamålsparagrafen i stadgarna säger att stiftelsen "ska främja utvecklingen av starka forskningsmiljöer av högsta internationella klass med betydelse för utvecklingen av Sveriges framtida konkurrenskraft." medan verksamhetsparagrafen anger att stiftelsens satsningar kan avse såväl ren grundforskning som tillämpad forskning samt, inte minst, områden däremellan.

Stiftelsen verkar strategiskt genom både val av forskningsområde och bidragsform med huvudsakligen öppna utlysningar. Exempel är ramprogram inom strategiskt viktiga forskningsområden, karriärstöd och andra riktade satsningar. Avsikten är att uppmuntra till interdisciplinära samarbeten, nyttiggörande av forskningsresultat, användning av forskningsinfrastruktur, rörlighet mellan akademi och näringsliv samt internationellt.

Den forskning som stiftelsen stödjer ska uppfylla de dubbla kriterierna vetenskaplig kvalitet och samhällelig relevans. Här är inomdisciplinära framsteg önskvärda, men inte tillräckligt för att uppfylla relevanskravet. Bidragsmottagare ska visa ett engagemang för nyttiggörande av forskningen redan vid ansökningstillfället. Stiftelsens investeringar i forskning ska ge mätbar avkastning i form av vetenskapliga resultat som grund för tekniska eller medicinska framsteg med ett genomslag i näringsliv och samhälle på en horisont om 5-15 år.

Det mest framträdande av SSFs program vad gäller karriärstöd till enskilda forskare är Framtidens Forskningsledare (FFL). Syftet med detta program är att ge yngre forskare (max 40 år) en möjlighet att etablera och bygga upp sin forskning i Sverige. De forskare som erhåller detta bidrag ska bedriva excellent forskning av strategisk relevans men de ska även uppvisa mycket goda ledaregenskaper samt vara beredda att axla ansvaret för större forskningssatsningar utanför den egna forskargruppen.

Beredningsprocessen för att välja ut de som föreslås få bidrag inom FFL-programmet är omfattande och involverar en första selektion med hjälp av områdespaneler, följt av en internationell utvärdering och slutligen en hearing med utvalda kandidater.

Hittills har sex omgångar av FFL-programmet genomförts varav FFL-1 avslutades formellt 2007-12-31 och har utvärderats.

(http://stratresearch.se/app/uploads/framtidens-forskningsledare-2001-2006.pdf).

FFL-programmet utlyses vart tredje år under en femårsperiod med en möjlighet att disponera medlen under ett extra år vilket innebär att FFL omgång 2-4 nu är avslutade. SSF har därför beslutat att slututvärdera FFL 2-4. Idag pågår FFL-5 och 6 och SSF planerar en utlysning av FFL-7 under 2018.

Viktiga frågor för slututvärderingarna av SSFs program är deras betydelse för forskningen samt näringslivs- och samhällsutvecklingen inom området, för- och nackdelar med den specifika programformen, individernas karriär, värdena i uppnådda forskningsresultat, svagheter och styrkor i samspelet mellan program och högskolan respektive näringsliv och samhälle.

För övergripande utvärderingar av stiftelsens program är själva huvudfrågan vilken betydelse stiftelsens samlade program har haft för forskning, näringsliv och samhälle. I detta sammanhang är det viktigt att inse att olika forskningsområden har väsentligt olika förutsättningar vad gäller t ex inomvetenskaplig konkurrens, finansieringskällor, tid från upptäckt till produkt/tillämpning, etc.

Uppdraget

Bakgrund

Stiftelsen önskar genomföra en slutlig utvärdering av omgång 2-4 av programmet Framtidens Forskningsledare (FFL), verksamma under perioden 2003-2016.

Syfte

Utvärderingen ska belysa FFL-programmets betydelse för den svenska forskningen inom respektive omgång och forskningsområde men också analysera effekterna/konsekvenserna för de forskare som erhållit bidrag inom någon av programomgångarna.

Utvärderingen skall inte enbart bedöma nyttigheten av genomförda satsningar inom aktuella områden utan även fokusera på huruvida stödet utöver allmänt resurstillskott bidragit till framgång.

Upplägg

Utvärderingen bör inledas med en översiktlig redovisning av programmens verksamheter som sätter programformen i relation till övriga forskningsfinansiärers insatser på liknande individbaserade program.

En jämförande analys av programformen i ett internationellt perspektiv bör också ingå.

Utvärderingen bör fokusera på de effekter programmen haft genom att jämföra programmens svagheter och styrkor med utgångspunkt från relevanta punkter som:

- Uppnådda resultat i förhållande till stiftelsens mål respektive till programspecifika mål (ledarskap, vetenskap, tvärvetenskap, samverkan, mm)

- I vilken mån programmet har haft effekter på övriga delar/aktörer i forskningsfinansiärslandskapet finansiärer och varit banbrytande

- Vilka effekter/konsekvenser som programmen har haft för bidragsmottagarnas karriär och professionella (oberoende) utveckling i allmänhet och i synnerhet i relation till de forskare som var uttagna till intervju men som inte erhöll bidrag

- Påverkan på det akademiska systemet och hur respektive lärosäte har tagit hand om forskaren med karriärstöd och eventuell medfinansiering

- Kunskapsöverföring till omgivande samhälle samt nyttiggörande av forskningsresultat

- FFL-forskarens verksamhet efter programmens upphörande

Utvärderingen bör avslutas med vilka lärdomar för framtiden som kan dras av programmens verksamhet, vilka kärndelar som absolut bör bevaras om programmet som sådant ska leva vidare samt vad som bör ändras och/eller läggas till. En mycket intressant aspekt är identifiering av eventuella framgångsfaktorer. Dessutom bör beaktas om stiftelsens stöd tillfört något "mervärde" som inte skulle åstadkommits utan den särskilda programbildningen samt i vilken form och omfattning bidragsmottagarna har fått stöd från sitt lärosäte.

Stiftelsen är medveten om att utvärderingen berör en omfattande verksamhet. Utvärderingsgruppen bör därför prioritera bland möjliga insatser och belysa intressanta frågeställningar genom exempel utan krav på heltäckande likvärdig behandling av alla delmoment.

Utförande

Ett omfattande skriftligt underlag finns i form av programförslag, styrelsebeslut med tillhörande PM, programplaner, avtal, årliga verksamhetsrapporter, samt programmens egna halvtids- och slutrapporter.

Enkäter och djupintervjuer bör genomföras med (ett urval av), forskare i programmen, rektorer, ledamöter i områdespaneler, berednings- och hearingkommittéer och även med doktorander/postdoktorer som

deltagit i programmen genomföras. Dessutom bör enkäter och intervjuer genomföras med de forskare som kallades till intervju men som inte erhöll bidrag.

SSFs kansli handhar alla administrativa detaljer runt utvärderingen, framtagning av bakgrundsmaterial, utskick och sammanställning av enkäter, sammanställning av rapportdelar författade av olika kommittéledamöter, mm.

Redovisning

Utvärderingen skall redovisas i form av en skriftlig rapport på svenska eller engelska. Omfattningen bör vara 20-30 sidor exklusive eventuella appendix. I sina huvuddrag skall rapporten vara färdig under senare delen av våren 2018.

Stockholm den 5 september 2017

Lars Hultman   Jan Fahleson

VD   Vetenskaplig sekreterare inom LS/LST-området

Bilaga:

Program som ingår i uppdraget:

Framtidens Forskningsledare 2 (2005-01-01 – 2010-12-31)

Framtidens Forskningsledare 3 (2008-03-01 – 2014-03-01)

Framtidens Forskningsledare 4 (2011-01-01 – 2016-12-31)

Appendix 4: Interviews – persons interviewed, questions and summary of answers

Persons interviewed

Hans Adolfsson – Vice-Chancellor, UmU

Joakim Amorim – Research Programs Manager

Stefan Bengtsson – Vice-Chancellor, Chalmers

Birgitta Bergvall-Kåreborn – Vice-Chancellor, LTU

Mattias Blomberg – Scientific Secretary, SSF

Helen Dannetun – Vice-Chancellor, LiU

Inger Florin – Scientific Secretary, Life Sciences

Linda Gadd - Managing Director at Signium Myanmar (on telephone)

Mikael Gröning (MG) – former Scientific Secretary at SSF

Elisabeth Haggård - professor Stockholm University

Inga-Lill Holmberg - professor, Stockholm School of Economics

Peter Högberg – Vice-Chancellor, SLU

Gunilla Jönson - professor at Lund University

Sigbritt Karlsson – Vice-Chancellor, KTH

Carola Lemne - former CEO at Svenskt Näringsliv

Karin Markides - former Vice-Chancellor at Chalmers (2006-2015)

Staffan Normark – former CEO at SSF

Gunnar Olsson - former adjunct professor at Karolinska Institutet and VP & Head of Cardiovascular and Gastrointestinal, Global R&D, AstraZeneca, now consultant and board member in Life Science/Biotech companies

Ole Petter Ottersen – Vice-Chancellor, KI

Göran Sandberg - Executive Director, Knut and Alice Wallenberg Foundation

Nahid Shahmehri - professor at Linköping University

Lena-Kajsa Sidén – former analyst at SSF and Scientific Secretary, Life Science Technologies

Lars Strannegård – Vice-Chancellor, Stockholm School of Economics

Sune Svanberg - professor at Lund University

Gunnar Svedberg - professor (on telephone)

Astrid Söderbergh Widding – Vice-Chancellor, SU

Torbjörn von Schantz – Vice-Chancellor, LU

Eva Wiberg – Vice-Chancellor, GU

Eva Åkesson – Vice-Chancellor, UU, was unable to attend but had prepared answers put forward by Astrid Söderbergh Widding

Interview questions

Questions to chairpersons in the hearing committees for FFL2-4

1. Kan du beskriva din roll, uppdrag och uppgift som ordförande för hearingkommittén? Roll, uppdrag och uppgift för kommittén som helhet?

2. Hur var sammansättningen av hearingkommittén? Vilka kompetenser var representerade?

3. Hur arbetade ni inom kommittén? Hur genomförde ni ert uppdrag?

4. En central uppgift för hearingkommittén var att i detta steg av urvalsprocessen bedöma de sökande främst utifrån kriterierna ledarskapspotential, ledningsförmåga (Management) samt innovations-kompetens.

   a. Hur arbetade ni med urvalskriteriet Ledarskapspotential?
   b. Hur hanterade ni kriteriet ledningsförmåga (Management)
   c. Hur gjorde ni för att bedöma innovations-kompetens?
   d. Vad var lättare – svårare att bedöma i urvalsprocessen?

5. Vilken roll och betydelse för bedömning och urval hade den personliga muntliga presentationen i förhållande till annan dokumentation? (Alternativ fråga relaterad till FFL-4: Hur hanterade ni

kriteriet att skap en "resonably equal balance" mellan kvinnor och män för de som beviljades SSF-anslag?)

6. Vad är du särskilt nöjd med när det gäller arbetet inom hearingkommittén för att välja kandidater för bidrag inom FFL programmet? (Alternativ fråga relaterad till FFL-4: Vad var lättare- -svårare att bedöma i urvalsprocessen?)

7. Finns det några aspekter av urvalsprocessen i hearingkommittén som du inte är så nöjd med?

8. Tycker du att kommittén lyckades att genomföra urvalsprocessen på ett bra sätt? Uppfattade du att kommittén valde de bästa kandidaterna för bidrag inom FFL-programmet?

9. Finns det några förbättringar som du skulle vilja föreslå för framtiden, avseende urvalsprocessen i hearingkommittén?

10. Vad är din uppfattning om FFL-programmet som helhet? Din synpunkt på att kombinera ett anslag för forskning med ett ledarskapsprogram som FFL?
Dina synpunkter på förändringar – utveckling och behov inför framtiden?

Questions to scientific secretaries at SSF (former and present)

1. Fördelar respektive nackdelar med tidigare selektionsprocess (FFL-2 och FFL-3)?

2. Selektionsprocessen för FFL-4, som beskrivs ovan, har använts för alla senare omgångar. Vilka för- och nackdelar ser du med den nuvarande selektionsprocessen?

3. Vad är, i era ögon, den största fördelen med att SSF har ett program av den här typen? Förutom att ge ett allmänt svar, försök att värdera de olika momenten inom programmet, såsom selektion, programmets upplägg, genomförande, mm.

4. Vad är, i era ögon, den största nackdelen med att SSF har ett program av den här typen? Förutom att ge ett allmänt svar, försök att värdera de olika momenten inom programmet, såsom selektion, programmets upplägg, genomförande, mm.

5. Hur bedömer du programmets värde i dagsläget, sett i ljuset av att flera andra finansiärer har liknande program?

6. Om ni anser att programmet bör vara kvar, vad skulle krävas, sett i ljuset av att flera andra finansiärer har liknande program, för att ytterligare profilera programmet så att det tillför något som de andra programmen inte har?

7. Hur har mentorsprogrammet fungerat?

8. Hur har resan upplevts, såväl från SSF- som deltagarhåll? Bra/dåligt.

9. Hur skulle du vilja beskriva FTF och utfallet därav?

10. Har du några andra synpunkter av värde för utvärderingen?

Questions to chairpersons and members of the evaluation committees

1. Kan du beskriva din roll, uppdrag och uppgift som ordförande för/ledamot i beredningskommittén? Roll, uppdrag och uppgift för kommittén som helhet?

2. Hur var sammansättningen av beredningskommittén? Vilka kompetenser var representerade?

3. Hur arbetade ni inom kommittén? Hur genomförde ni ert uppdrag?

4. En central uppgift för beredningskommittén var att bedöma de sökandes kvalifikationer.
    a. Vilka bedömningskriterier använder ni er av?
    b. Vad var lättare – svårare att bedöma i urvalsprocessen? T ex vissa kriterier.
    c. Vilka underlag upplever du som särskilt användbara (internationell expertis, nationell panel, sökandes underlag etc.)?
    d. Finns det några underlag som du upplever som mindre användbara?

5. Hur samarbetade bedömningskommittén och hearinggruppen?
    a. Vad upplever du som särskilt värdeskapande i detta samarbetade?
    b. Finns det aspekter i samarbetet som du upplever som utmanande? (t ex avvägningen mellan vetenskapliga meriter och bedömningen från hearing)

6. Vad är du särskilt nöjd med när det gäller arbetet inom bedömningskommittén för att välja kandidater för bidrag inom FFL programmet?

7. Finns det några aspekter av urvalsprocessen i bedömningskommittén som du inte är så nöjd med?

8. Tycker du att kommittén lyckades att genomföra urvalsprocessen på ett bra sätt? Uppfattade du att kommittén valde de bästa kandidaterna för bidrag inom FFL-programmet?

9. Finns det några förbättringar som du skulle vilja föreslå för framtiden, avseende urvalsprocessen i beredningskommittén?

10. Vad är din uppfattning om FFL-programmet som helhet? Din synpunkt på att kombinera ett anslag för forskning med ett ledarskapsprogram som FFL?
    Dina synpunkter på förändringar – utveckling och behov inför framtiden?

    Specifik fråga till BK-ledamoten inom FFL-2:
    Vad var, enligt din mening, det/de bakomliggande skälet/skälen till den särskilda satsningen på kvinnliga sökande?

    Specifik fråga till BK-ledamoten inom FFL -4:
    Hur hanterade ni kriteriet att skapa en "resonably equal balance" mellan kvinnor och män för de som beviljades SSF – anslag?

Questions to persons responsible for the leadership program
1. Kan du beskriva din roll, uppdrag och uppgift som ansvarig för ledarskapsprogrammet?

2. Hur valdes ledamöterna i programkommittén ut? Vilka kompetenser var representerade?

3. Hur arbetade/arbetar ni i programkommittén för att utveckla innehållet i programmet? Hur genomförde/genomför ni ert uppdrag?
    a. På vilka grunder och hur sätts gruppen av externa konsulter samman i programmet? Hur säkerställs kvalitet?
    b. På vilket sätt upplever du att programmet fungerar som en sammanhängande enhet?
    c. På vilket sätt upplever du att programmet fungerar som ett bra komplement till forskningskarriären?

4. Hur samarbetar SSF och programkommittén när det gäller ledarskapsprogrammet?

5. Hur samarbetar programmets deltagare och programkommittén? T ex när det gäller återkoppling, uppföljning, "alumni" (om det finns)?

6. Hur arbetade programkommittén med utveckling av mentorprogrammet?

7. Vad är du särskilt nöjd med när det gäller programmet och specifikt mentorsprogrammet?

8. Finns det något med programmet som du inte är så nöjd med?

9. Hur uppfattar du att programmet har utvecklats över tid? Har det t ex blivit en förskjutning av vilka ämnen man ägnar mer eller mindre tid åt eller en annan utformning?

10. Hur skulle programmet kunna förbättras för att bättre möta framtida behov? Vilka förändringar i omvärlden ser du som särskilt viktiga att beakta när det gäller det akademiska ledarskapet?

11. I ledarskapsprogrammet ingår att forskarna ges möjligheter att välja och anlita mentorer. Hur bedömer ni möjligheten och värdet av att kunna erbjuda erfarna forskningsledare som mentorer och utgör den växande gruppen seniorprofessorer här en särskild tillgång?

12. Vad är din uppfattning om FFL-programmet som helhet? Din synpunkt på att kombinera ett anslag för forskning med ett ledarskapsprogram som FFL?
    Dina synpunkter på förändringar – utveckling och behov inför framtiden?

Questions to the Vice-Chancellors

1. Beskriv ditt universitets strategi för att attrahera och behålla excellenta unga forskare. Hur väl passar/passade SSFs program FFL (Framtidens forskningsledare) med universitetets egen strategi?

2. Sammantaget - vilken effekt/impact/added value ger/gav FFL programmet till ditt universitet?

3. Vilken effekt/impact/added value har programmet haft på deltagarnas karriärutveckling?

4. Har ditt universitet något eget ledarskapsprogram och/eller mentorsprogram som liknar/motsvarar FFL?

5. Hur unikt är FFLs program - jämfört både med ditt eget universitets ev. program och andra program med motsvarande inriktning? Vilka andra program med motsvarande inriktning har ditt universitet arbetat med?

6. Har ditt universitet givit något särskilt riktat stöd till FFL mottagaren - utöver det stöd som alla forskare får? Vad händer när bidragsperioden tar slut?

7. Har FFL mottagaren på något sätt särskilt uppmärksammats av universitetet/fakultet/institution?

8. Har programmet uppfyllt sitt syfte? Bör det fortsätta? Behövs i så fall några ändringar i programmet?

9. Utöver FFL programmet - ser ditt universitet några andra särskilda områden där stöd från SSF skulle vara av unikt och stort värde?

10. Ett önskemål och förväntan från anslagsmottagarna är att de ska erhålla tillsvidareanställning på hemuniversitetet när de har erhållit medel från SSF – om de inte redan har tillsvidareanställning. Är detta ett problem, och vad kan göras från bägge sidor för att nå bästa möjliga samarbete i frågan?

11. Mottagarna av stöd har möjlighet att få utnyttja 3% av anslagssumman mot faktura för verksamhet som utgör nyttiggörande. Enklast kan detta hanteras via holdingbolag på mottagande universitet, men det uppkommer ofta problem i dessa kontakter, varför de 3 procenten sällan rekvireras. Vad kan göras för att bättre främja ianspråktagande av dessa medel, och därmed nyttiggörandet?

12. I ledarskapsprogrammet inom FFL ingår att forskarna ges möjligheter att välja och anlita mentorer. Hur bedömer ni möjligheten och värdet av att kunna erbjuda erfarna forskningsledare som mentorer och utgör den växande gruppen seniorprofessorer här en särskild tillgång?

13. Hur ser ni på FFL-programmet och framtida behov? Är det optimalt, som idag, att från forskningsfinansiärshåll ha ett fokus på yngre forskare eller finns det anledning att ändra på den strategin?

Questions to the founder of the FFL program

1. Kan du beskriva upprinnelsen till programmet? Fanns det t ex förebilder? Vilka medverkade i den initiala utvecklingen av idén och hur gick processen till?

2. När/hur blev programidén accepterad och formaliserad? Vad tror du var skälen till intresset att erbjuda programmet? Vilka var de stora utmaningarna i utformandet av programmet?

3. Vilka förändringar av programmet ser du har varit särskilt betydelsefulla?

4. Vad var bakomliggande skälet till den särskilda satsningen på kvinnliga sökande (FFL 2)?

5. Vad är du särskilt nöjd med när det gäller programmets utformning och innehåll?

6. Finns det något med programmets utformning och innehåll som du inte är så nöjd med?

7. Tycker du att programmet har lyckats med sitt uppdrag? Uppfattar du att kommittén har lyckats välja de bästa kandidaterna?

8. Vad är din uppfattning om FFL-programmet som helhet idag? Din synpunkt på att kombinera ett anslag för forskning med ett ledarskapsprogram som FFL? Dina synpunkter på förändringar – utveckling och behov inför framtiden? Skulle t ex en samlad ansträngning, involverande flera finansiärer, vara bra, dvs en samordning/profilering för att maximera effektiviteten och undvika överlapp?

Questions to the CEO of the KAW foundation

1. Upprinnelse, var kom idén ifrån, förebilder

2. Vilken uppfattning har du om WAF, speciellt om karriärprogrammet?

3. Vad innehåller karriärprogrammet konkret?

4. Hur viktigt är det för WAF i praktiken?

5. Hur mycket samverkan och nya forskningssamarbeten har det faktiskt blivit?

6. Har KAW gjort någon utvärdering av sitt karriärprogram?

7. Hur ser du/KAW på programmet framledes? På vilket sätt tänker sig du/KAW att programmet kan utvecklas så att det tillför något som andra, liknande, program inte har?

8. Skulle en samlad ansträngning, involverande flera finansiärer, vara bra, dvs en samordning/profilering för att maximera effektiviteten och undvika överlapp?

Main points from each interview group

<u>Interview with scientific secretaries at SSF</u>

- The role of the hearing group has changed between programs, with increasing influence over time. Members have change from being dominated by researchers to include a leadership consultant, a psychologist and a pair of researchers.
- Eligibility condition is candidates between three to six years after obtaining a PhD degree. A bias of grantees that defended their thesis six years ago is seen.
- Question raised if continuation of the program would be according to SSF statutes with respect to creating excellent research environments for the benefit of Sweden's competitiveness.
- The leadership program in combination with excellent research as well as strategic relevance regarded as unique.
- Additional activities to increase the uniqueness could be to focus more on utilisation of research results (3 % of the grant is currently set aside for such activities) or conduct the leadership program in a faster rate/omitting some moments, giving time for creating a strong network among the grantees
- Exert a stronger pressure on the universities for creating a good working situation for the grantees.
- Displaying a higher degree of mobility and working abroad could be included as requirements in the announcement text

<u>Interview with chairpersons of the hearing group</u>

- The task for the hearing group was to assess leadership potential.
- In FFL-2 there was a discussion of which criteria to be used and how to avoid selecting applicants unsuitable for leading positions.
- The difference between the performance of women compared to men in a hearing situation was discussed intensively.
- The criteria used in a hearing are not as easy as such to assess, in contrast to scientific merits.
- In possible future calls it is important that SSF beforehand informs the hearing group what kind of leadership to be looking for.
- Of great importance that the leadership program is continuously developing to meet the changing requirements from the outside world, e.g. international collaboration and very large research projects.

<u>Interview with members of the evaluation committees</u>

- The main task for members of the evaluation committees was to secure that the selection process was conducted in an unimpeachable way and how to integrate the outcome from the hearings in the final evaluation.
- The evaluation as such is complex since several things needs to be taken into account, i.e. scientific merits, strategic relevance and leadership potential. On top of that different research areas are compared with, for example, vastly different publication cultures.
- A discussion in the evaluation committees on how to deal with applicants that received a lot of money from different sources, should there be some kind of restriction to gain a more efficient use of research funding? It would be good if there was more coordination between research funding organisations.
- Recommend that there should be a somewhat equal balance of grantees from different research areas and that continuous efforts are made to increase female applicants (and subsequently female grantees).
- Recommend to focus on the leadership part of the program since good leaders are very much needed in academia.

Interview with representatives for the leadership program within the FFL program

- The leadership part of the FFL program was thoroughly reorganized at the start of FFL-4, i.e. more focus was put on the participant's own development as research leaders. Furthermore, a new organisation was implemented consisting of a separate leadership program committee combined with people responsible for the different leadership programs.
- To be able to continuously develop the program, there is a constant discussion between the committee and the people responsible for the leadership programs.
- The mentorship part of the leadership program was considered to be in need of a more defined structure.

Interview with founder of the FFL program

- The idea for future research leaders program was inspired by the University of Washington´s way of conducting this type of recruitments.
- Wanted to change the tradition which, in the mid 1990 's, were fairly common in Sweden, namely postdocs remaining at their home university and near his/her former tutor and professor. Also, the lack of mobility was a problem.
- Tried to establish a separate program for female applicants but did not manage to get the Board's hearing for it.
- It was important to apply as a free individual, i.e. no nomination procedure. In general, there are both advantages and disadvantages with the systems free application versus a nomination procedure.
- Danger of concentrating too much research money to a few individuals under a rather short period of time. The FFL program and other similar programs has led to the creation of very successful research groups but what about the long-term perspective? Should FFL grantees have the possibility to apply for a continuation?
- Consider the effort to be more intensified. Maybe a call every other year, coordinated with Wallenberg Academy Fellows. Pleased about how the program has developed and regards it to be still unique.
- Explore to develop new areas, look more into the work of Vinnova or NIH.

Interview with Vice-Chancellors of eleven major Swedish universities

- Overall, the FFL program is regarded both unique and greatly needed.
- The combination of excellent research with a thorough leadership training is of significance not only for Sweden but for the whole of Europe.
- The internal initiatives at different Swedish universities are good but the FFL leadership training takes on a wider perspective with an extensive outlook.
- With respect to create good career opportunities specially for the grantees, the universities have rules and regulations for how to recruit people and financing organisations should not interfere with these issues.
- The mentorship in the leadership training is very important and should receive more attention to secure a very good match between mentor and FFL grantee.
- Recommend to seek to evaluate FFL applicants in their potential to contribute to the university where they plan to conduct their research. Also, the potential to work in teams should be assessed.
- SSF is furthermore recommended to meet with other financing organisations to coordinate the FFL programme with other similar programs. This could avoid that large sums of money are concentrated to very few individuals.

Interview with director of other funder (Knut and Alice Wallenberg Foundation)

- The procedure of the two funding schemes are different, SSF bottom up, the other top down and it is a basic science program. (The university has to guarantee 50% of the salary. Every grantee has a

mentor and they meet four to five times per year. An extension may be granted, upward limited to 10 years.) The FFL program, with its profile leaning a little more towards an applied approach, is complementary in its profile.

- SSF is considered to have a good profile in combining excellent and applied research with each other.

Appendix 5: Survey questions

NOTE: The grantees and non-grantees got essentially the same survey except for those questions specifically related to the leadership program

Survey to grantees in the SSF-program "Future Research Leaders", round 2, 3 and 4

Handling of personal data
The processing of personal data is carried out in accordance with what is laid down in the Swedish acts on personal data (SFS 1998:204), called PuL in everyday speech, and electronic communication (SFS 2003:389). Both these laws contain provisions aimed at protecting individuals against that privacy is violated when personal data are processed. The personal data from this survey are stored and processed in the data system to serve as a basis for the analysis of the questionnaire as well as the basis for an upcoming follow-up, which is planned to take place within 3 years. To be able to ask supplementary questions in a future follow-up requires access to personal information but participation in the survey is voluntary. Only the SSF will have access to your personal data. In the statistical compilation of the questionnaire, no personal data will be included. The data controller is the Foundation for Strategic Research, P.O. Box 70483, 107 26 Stockholm, e-mail: info@stratregiska.se. The data that are processed are the data that are entered in this form. A private person participating in the survey has the right to request correction of any modified or incorrect data. Request of the data is made via contact with the controller (see above). Private individuals participating in the survey also have the right to free of charge once per calendar year, receive information about the personal data processed. The request in the form of an extract from the register is made to the controller (see above) and shall be made in writing and signed by the applicant and indicate the name and social security number.

☐ I agree that the personal data provided by me are treated as described above.
☐ I do not agree

A. *Basic questions – background*

1. Last name:
2. First name:

3. Gender
   ☐ Female
   ☐ Male
   ☐ I prefer that my answer is treated in the category "No gender stated"

4. What is your current profession?
   ☐ Professor
   ☐ Associate professor
   ☐ Assistant professor
   ☐ Other, please specify:

5. What was your position when your FFL-grant period started?
   ☐ Professor
   ☐ Associate professor
   ☐ Assistant professor
   ☐ Other, please specify:

6. What is your major professional areas? Prioritize 1, 2 and 3. Try to estimate the percentage spent on different activities
   ☐ Research
   ☐ Teaching
   ☐ Leadership and administration
   ☐ Other, please specify:

7. Are you responsible for allocating research resources within a research group, network, research program, etc?
   ☐ Yes
   ☐ No

B. *Application and selection process – contact with SSF*

8. Criteria in the FFL call - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)
    - ☐ The criteria for the FFL call were adequate and easy to understand

9. What do you think about the selection process in the FFL program? Was the process transparent? Try to think through the different selection steps and pros/cons with them (see text box for a reminding summary of the selection process). Are there opportunities for improvement?

    FFL-2: Preproposal (selection by national area panels and evaluation committee) --> Invitation to full proposal (full proposals sent to international experts) --> Hearing (evaluation committe selected applicants summoned to hearing) --> Suggestion to SSF board by the evaluation committee regarding which proposals to be granted.

    FFL-3: Preproposal (selection by national area panels and evaluation committee) --> Invitation to full proposal (full proposals sent to international experts) --> Hearing (evaluation committe selected applicants summoned to hearing) --> Suggestion to SSF board by the evaluation committee regarding which proposals to be granted.

    FFL-4: Full proposal (selection by national area panels) --> Full proposals sent to international experts --> Hearing evaluation committe selected applicants summoned to hearing) --> Suggestion to SSF board by the evaluation committee regarding which proposals to be granted.
    Comments:

10. How was the contact between you and the responsible officer at SSF during the application period? Did you get the help you needed?
    - ☐ The contact worked very well and I got the help I needed (5)
    - ☐ The contact worked fine (4)
    - ☐ The contact worked satisfactorily (3)
    - ☐ The contact didn't work well (2)
    - ☐ The contact worked very badly and I didn't get the help I needed (1)
    - ☐ I did not have to take any contact

11. How was the contact with SSF during the grant period? Did you get the help you needed?
    - ☐ The contact worked very well and I got the help I needed (5)
    - ☐ The contact worked fine (4)
    - ☐ The contact worked satisfactorily (3)
    - ☐ The contact didn't work well (2)
    - ☐ The contact worked very badly and I didn't get the help I needed (1)
    - ☐ I did not have to take any contact

C. *The leadership program*

12. Attitudes to leadership training – Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)
    - ☐ I am, as a whole, satisfied with the leadership program
    - ☐ The leadership program was conducted in accordance with given information
    - ☐ I think that the education should continue in its current form
13. The value of the FFL leadership training – Very high value (5), High value (4), Neutral (3), Low value (2), Very low value (1). Note: SOME subjects below may not be applicable to all leadership programs.
    - ☐ Media training
    - ☐ Academic leadership
    - ☐ Communication
    - ☐ Research funding
    - ☐ Group dynamics
    - ☐ Science and society
    - ☐ Recruitment work
    - ☐ Psychological testing
    - ☐ Commercialization
    - ☐ Project management
    - ☐ Ethics

- ☐ Gender aspects
- ☐ Career planning

14. Specific positive effects of FFL leadership program – Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)
    - ☐ I have drawn lessons from other people's experiences as a research leader
    - ☐ I contribute to job satisfaction in my research group
    - ☐ I have significantly developed my skills as a research leader
    - ☐ I have been given a larger network that I actively use
    - ☐ I contribute in helping the Department to reach/maintain a high standing in my University
    - ☐ I feel like I can take responsibility for more/larger research groups
    - ☐ I participate significantly to increase the efficiency of others
    - ☐ I have a tool to exert my leadership
    - ☐ I am acting in a cost-efficient way

15. Overall, rank the three most valuable elements of the FFL leadership program
    - ☐ 1
    - ☐ 2
    - ☐ 3

    Comments to the ranking:

16. Overall, rank the three least valuable elements of the FFL leadership program
    - ☐ 1
    - ☐ 2
    - ☐ 3

    Comments to the ranking:

17. Provided that you have attended other leadership programs, how do you evaluate the value of the FFL leadership program in comparison to the other programs?
    Comments:

18. Which parts in the FFL leadership program could be increased?
    Comments:

19. Which parts of the FFL leadership program could be decreased/omitted?
    Comments:

20. Please comment on the mentorship part of the leadership program, e. g. experiences, did it work well so that it had a positive impact on your development as a leader, etc. Please also mention if you have or have had a mentor in another leadership program and experiences thereof.
    Comments:

D. *Effects of the leadership program in FFL*

21. The leadership program has had a significant impact on my career development
    - ☐ I strongly agree
    - ☐ I agree
    - ☐ Neutral
    - ☐ I disagree
    - ☐ I strongly disagree

22. Experiences
    - ☐ Experiences from the leadership program have changed the way I plan my career - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

E. *Effects of the FFL grant*

23. The FFL grant has had a significant impact on my career development
    - ☐ I strongly agree
    - ☐ I agree
    - ☐ Neutral
    - ☐ I disagree

☐ I strongly disagree

24. Support from the university
    ☐ Upon receiving the FFL grant my university supported me through the grant period and took an active role in my future career development - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

25. In your view, what has been the greatest advantage in your research career in obtaining an FFL-grant?
    Comments:

26. Were there any disadvantages?
    Comments:

27. Please give an estimation on how the total turnover of your research group during and after the granting period.

Approximately how much was the total turnover of your own research group (grants and contributions) during 2005/2008/2011 in MSEK?	Approximately how much was the total turnover of your own research group (grants and contributions) during 2010/2013/2016 in MSEK?	Approximately how much is the present total turnover of your own research group in MSEK?
0 - 1,49	0 - 1,49	0 - 1,49
1,5 - 2,99	1,5 - 2,99	1,5 - 2,99
4 - 4,99	4 - 4,99	4 - 4,99
5 -9,99	5 -9,99	5 -9,99
10 -	10 -	10 -
I did not have a research group in 2005/2008/2011	I did not have a research group in 2010/2013/2016	I do not have a research group of my own
I do not know/I do not remember	I do not know/I do not remember	I do not know

28. Please give an estimation on how the number of people employed in your research group has developed during and after the granting period.

How many persons were employed in your research group 2005/2008/2011?	How many persons were employed in your research group 2010/2013/2016?	How many persons are presently employed in your research group?
0 -1	0 -1	0 -1
2 -5	2 -5	2 -5
6 -10	6 -10	6 -10
More than 11	More than 11	More than 11
I did not have a research group in 2005/2008/2011	I did not have a research group in 2010/2013/2016	I do not have a research group of my own
I do not know/I do not remember	I do not know/I do not remember	

29. Please give an estimation on how the composition of the research group has developed during and after the granting period.

At the start of the granting period	At the end of the granting period	Present situation
Number of PhD students	Number of PhD students	Number of PhD students
Number of post docs	Number of post docs	Number of post docs
Number of master students	Number of master students	Number of master students
Number of associate professors	Number of associate professors	Number of associate professors
Number of professors	Number of professors	Number of professors
Number of administrators	Number of administrators	Number of administrators
Number of technical staff (for example research engineers, laboratory assistants)	Number of technical staff (for example research engineers, laboratory assistants)	Number of technical staff (for example research engineers, laboratory assistants)
I did not have a research group at the start of the granting period	I did not have a research group at the end of the granting period	I do not have a research group of my own
I do not know/I do not remember	I do not know/I do not remember	

30. Positions within the University/outside the University

Did you have other assignments/positions within the University/outside the University in 2005/2008/2011?	Did you have other assignments/positions within the University/outside the University in 2010/2013/2016?	Do you presently have other assignments/positions within the University/outside the University?
☐ University board member, university level	☐ University board member, university level	☐ University board member, university level
☐ Faculty board member within the University	☐ Faculty board member within the University	☐ Faculty board member within the University
☐ Head of department	☐ Head of department	☐ Head of department
☐ Scientific councils	☐ Scientific councils	☐ Scientific councils
☐ Assignments outside the University Please specify:	☐ Assignments outside the University Please specify:	☐ Assignments outside the University Please specify:
☐ I do not know/I do not remember	☐ I do not know/I do not remember	
☐ No	☐ No	☐ No

31. Scientific goals
   - ☐ The scientific goals as described in my proposal were fulfilled - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

32. Impact
   - ☐ The research in my project was strengthened by my FFL grant - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

33. Strategic relevance
   - ☐ The strategic added values as described in my proposal were fulfilled - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

34. How many national collaborations did you have at the start/at the end of the granting period/do you have at present? Collaboration here is defined as a joint project or joint publication.
   - ☐ Number of collaborations at the start of the granting period
   - ☐ Number of collaborations at the end of the granting period
   - ☐ Number of present collaborations

35. How many international collaborations did you have at the start/at the end of the granting period/do you have at present? Collaboration here is defined as a joint project or joint publication.
   - ☐ Number of collaborations at the start of the granting period
   - ☐ Number of collaborations at the end of the granting period
   - ☐ Number of present collaborations

F. *Collaboration effects*

36. International collaborations
   - ☐ The FFL grant has led to lasting collaboration with international groups - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

37. Industrial collaborations
   - ☐ The FFL grant has led to fruitful collaboration with one or more companies - Strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1)

G. *Utlisation effects, unexpected results, etc*

38. Has your research led to utilisation activities, e.g. patents, spin off companies, new products, improved procedures in health care, improved services in different areas of the society, etc?
Comments:

39. Has your research led to any unexpected results, e.g. a scientific breakthrough and/or a considerable benefit for the society?
Comments:

40. Recommendations to SSF. Please give your best advice on how to improve the program for future applicants/participants regarding

a) the criteria as stated in the announcement text

b) the selection process. What indicators would you propose to use to determine if an applicant has the potential of being a future research leader?
c) the leadership program

Comments:

Role of mentors in the NTNU Outstanding Academic Fellows Programme

The NTNU Outstanding Academic Fellows Programme is a four year programme designed to give young research talents at NTNU the very best opportunities to qualify as international leaders in their fields.

Our most promising young researchers are invited to join the programme based on their scores in international peer review evaluations. The participants will be given the opportunity to concentrate on their research ideas and develop ground-breaking results.

An important element of the programme is international mentoring. Each of the participants will be assigned an international mentor appointed by NTNU's Rector.

The main task as mentor is to help the participant to develop a research plan for the programme period and beyond, including a plan for publication, international collaboration and for competing for prestigious research grants, such as the ERC. An important element in the plan is to identify the unique contribution of the participant to the research field.

How the mentor and participant in the programme engage in a running dialogue is up to the pair to decide on, including the number, length and frequency of meeting, as well as meeting forms (physical or virtual).

NTNU offers an honorarium for the mentors of 2 500 Euros per year. In addition, the university will cover all expenses in connection with visits to NTNU as part of the programme.

The mentors will be invited to NTNU during the program period for a high-level event on the development of internationally leading researcher careers, and are welcomed to visit NTNU at other occasions.

KTH Pro-active Impact Plan

Your name:

Your research discipline:

Explain your research field with max 5 key words:

AIM OF YOUR PERSONAL IMPACT PLAN

To help you in research applications by giving you a broader perspective on possible future impact of your research.

WHAT IS IMPACT?

In a nutshell *"… impact is the good that researchers can do in the world. It consists of the non-academic benefits that arise, whether directly or indirectly, from research. Knowledge exchange is a precursor to impact, and this happens through learning, when the data and information from research becomes knowledge that people can benefit from or use. There are many factors that can influence the likelihood of research leading to impact, including the context you are working in, who is involved and how, your approach to knowledge exchange and how well you manage power dynamics."*[1]

By realizing that your research can have possible future impact in more areas, you can broaden your societal impact into several types.

---

[1] Adapted excerpt from the 2nd Edition of The Research Impact Handbook by Professor Mark Reed.
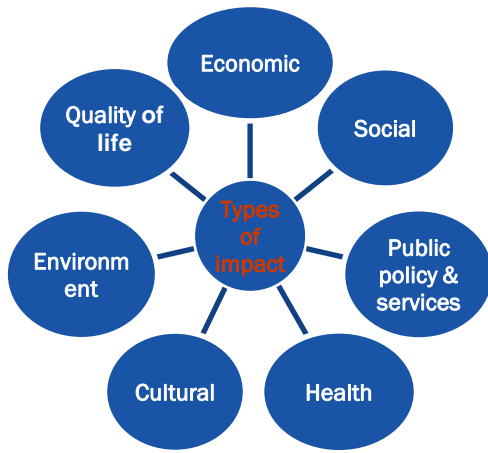
1. PLACE YOUR RESEARCH IN A PERSPECTIVE OF SOCIETY'S NEED

Please answer all questions below, max. 3 sentences/question.

- What overall societal problem are you trying to solve? How is it a problem for who?

- Is it a global priority? Is it a European priority? A national priority? (Refer to political statements, strategies and policies, for example the Sustainable Development Goals, EU2020, Smart industry – a strategy for new industrialization for Sweden etc)

- What happens if the research you plan to do over the next 10 years is abolished – what effect will it cause for society?
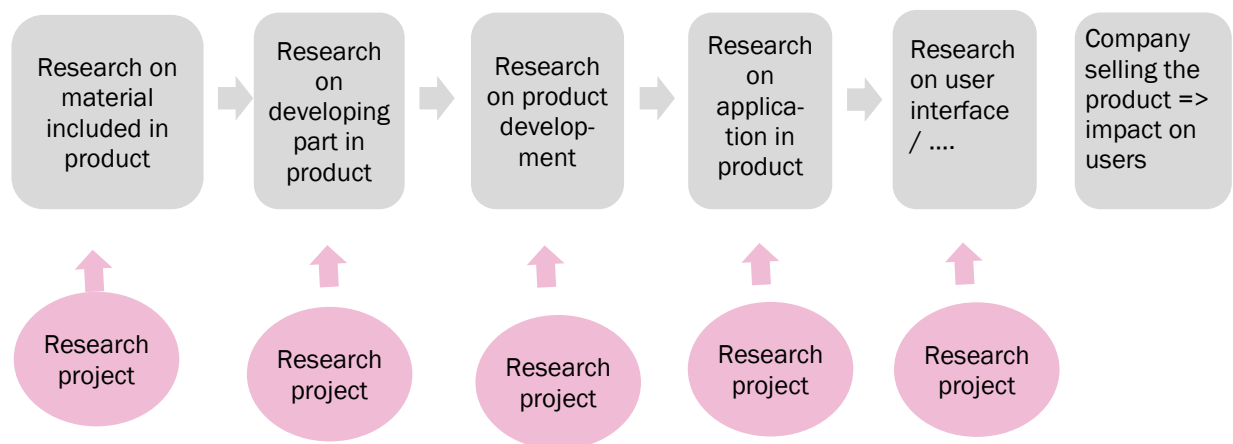
2. POSITIONING YOUR RESEARCH FOR NON-ACADEMICS (I.E. EXPLAINING THE BIG PICTURE)

There are of course many forms of academic impact we may be equally interested in (for example bibliometric indicators of impact), but here we are concerned with non-academic impact, i.e benefits and working for the good of others beyond the academy.

- What TRL level is your research normally positioned at? Take help from the picture   below or definition in H2020*.
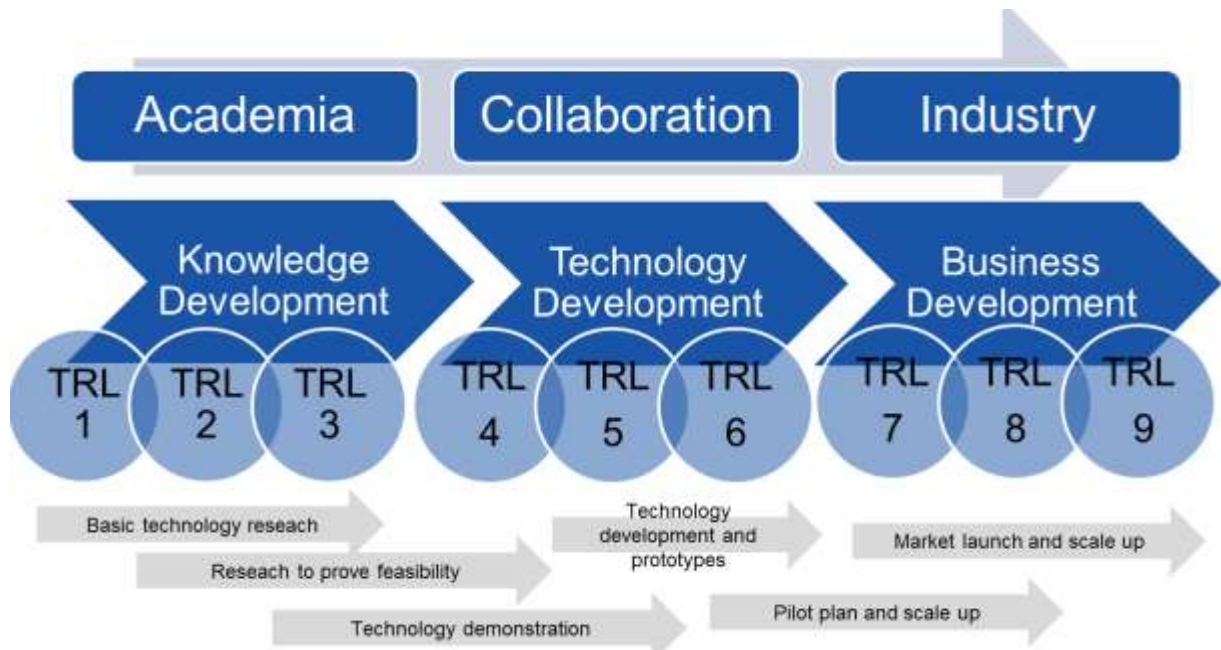
- Where in a value chain is your research project typically placed? Take help from the example below and draw your own value chain where you position your research.

Research on material included in product	Research on developing part in product	Research on product develop-ment	Research on applica-tion in product	Research on user interface / ….	Company selling the product => impact on users
Research project	Research project	Research project	Research project	Research project	

- Who are the **lead user(s)**[2] of your research and what TRL level** are they normally at?

- Are long term **end users**[3] of your research mainly citizens/ regions/ sectors / industries?

- Typical project outputs at end of projects***:

- Future "foreseen" outputs not relating to single projects ****:

3. MORE POTENTIAL END USERS?

If you can identify additional end users, possible in segments below, then you can broaden the societal impact. The examples following each segment are intended to get you started with the exercise. Feel free to move them to other segments and to add more problems and/or needs.

- End users consumers/citizens:
  - A product missing on the market
  - Modified product/process to create new market
  - Behavior changes needed, for example related to environment, new technology
  - Access to water/energy/communication systems/…
  - …

- End users countries/regions:
  - Legislation/standards are missing/inadequate
  - Market barriers
  - Less toxins affecting the environment
  - Cleaner water/less water usage

[2] Lead user is an expression for 'the person who will use the results from your research project'. A lead user could be a university/research institute/R&D at large company / SME / organisation / NGO / hospital / municipality / …
[3] End user is an expression for 'the final beneficiaries of products / processes / software / policies / etc. developed with help of your research'.

- Secure food production
- …

- End users sectors (for example health care, transport, finance…):
  - Legislation/standards are missing/inadequate
  - New methods are needed
  - Energy efficiency
  - Increased security and trust
  - …

- End users industries:
  - Can be produced more efficiently
  - Business models
  - Expanding market in Europe
  - Can reach out to more costumers – new markets in other parts of the world where future consumers will benefit?
  - ….

4. INFLUENCING THE RIGHT PEOPLE

Communication and dissemination is the first step to reach societal impact, engaging with lead users and end users in a direct way is the most effective way of creating impact.

- How do you inform / involve the lead users of your results, so the results become used/lead to impact?
  - Involving them in steering group of project of project/centra / etc.
  - Involving them in advisory board of project/centra/etc.
  - Involving them in user group connected to project etc.
  - Include citizen science as a part of project/research
  - Engaging in different types of hackatons/competitions/prizes/etc.
  - Engaging researcher's pubs/science nights/science festivals/etc.
  - …

- Who needs to be informed/involved in order to reach your long-term impact goals? *****
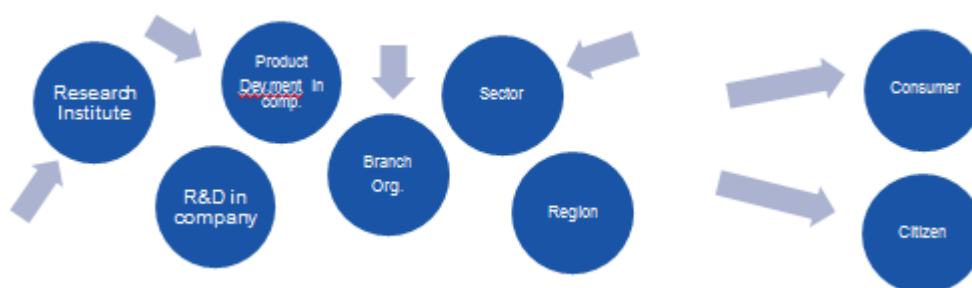
5. YOUR IMPACT PLAN

- **CREATE** MORE IMPACT :

  - Can my research group structure our work so more impact come out of our research? (use KTH strategic partners more/structure the process of writing research applications better/…)
  - Can my research group connect to other groups/centers at KTH, so possibly more impact can be created through use of my outputs in different research fields?
  - Can I incorporate my research more into education at KTH? Can current students will be impact "connectors" at the companies/organizations they work at in the future?
  - Can I increase collaboration with industry partners (for example adjunct faculty)? Is there a company/organization which would be good to have prolonged and deeper contact with since they regularly fit into dissemination plans? Can I concentrate my collaborations to fewer companies so they become more efficient?
  - Can I use the results from my research in different regions/sectors/industries to create more impact?

- **CAPTURE** MY IMPACT

  - Do I have any systematic way of capturing relevant societal impact to prove my "research impact case"?
    E.g: when I write an impact case 10 years from now showcasing what impact my research has had, can I backtrack the activities I or my research group have done in order to create and communicate our research? To prove the chain of events that led to the claimed impact I exemplified in the different categories in 3. "What problems are you addressing? Explain on all levels."

- **COMMUNICATE** MY IMPACT

  - Do I/my research group have a long term plan regarding how to communicate our research efficiently, in order to get the most impact from the communication effort?
  - Do I/my research group have activities aimed at schools or other organizations to reach out in society? Do we engage in public debate?
  - Web page – is someone responsible of updating it? Does it connect to other channels?
  - Do I/my research group use relevant research platform activities to communicate our impact to stakeholders?
  - Do I/my research group write impact cases showing how your research have made an impact based on activities and engagement with lead and end users?
  - …

* Definition in Annex G (TRL) of the General Annexes of Horizon 2020:
TRL 1 – basic principles observed
TRL 2 – technology concept formulated
TRL 3 – experimental proof of concept
TRL 4 – technology validated in lab
TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
TRL 7 – system prototype demonstration in operational environment
TRL 8 – system complete and qualified
TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

** LEAD USER TRL
Example:
TRL 1 – 2: University using the results for new research projects
TRL 2 – 3: University/University center research
TRL 4 – 6: University center/Research institute developing the technology in research projects

TRL 5 – 9: Industries/companies with high R&D and universities/research institutes with applied research.
Municipality (f.ex. transport and health) Technology validation, demonstration.
TRL 7 – 9: Industry, High Tech companies, Start-ups

*** Typical future project outputs at end of projects:
Model, improved understanding of mechanisms, better product/process, changed organizational practice, service, know-how, methodology, software, draft standards, input to public policies, new therapy etc.

**** Future "foreseen" outputs not relating to single projects:
For example textbooks, industry PhD students, research infrastructure being used more by industry, participating as an expert in evaluation panels/panels connected to municipal/government development, improved safety, better-trained staff, reduced material or energy usage, cooperation and presentations with schools and public organizations, debate articles, …

***** Who needs to be informed/ involved in your research for long-term progress?
Examples:
EU parliament (committees)
Commission (DGs)
Government / authorities
Municipalities
Standard bodies
Companies / organizations
NGOs
Hospitals / practitioners
Community groups
Public (schools, museums, diff. forums, …)

Recommended reading on impact:

https://www.fasttrackimpact.com/pathways-to-impact
https://esrc.ukri.org/research/impact-toolkit/

Appendix 7: Background material

Internal documents generated by the scientific secretaries regarding the three rounds of the program

Protocol SSF board meeting 2003-02-11
Protocol SSF board meeting 2003-04-09—10
Announcement text FFL-2
Protocol SSF board meeting 2004-12-14
Protocol from board meeting 2006-04-27 – 28
Announcement text FFL-3
Protocol from SSF board meeting 2008-02-08
Protocol SSF board meeting 2009-06-04
Announcement text FFL-4
Announcement text FTF
Protocol board meeting 2010-12-07

Appendix 8: References

[1] Appendix 1 in: STIFTELSEN FÖR STRATEGISK FORSKNING Framtidens forskningsledare Bakgrund, genomförande och utvärdering av ledarskapsutvecklingsprogrammet 2001-2006 Individual Grant for the Advancement of Research Leaders. Karin Caldwell, Ulf J Johansson, Anders Liljas och Göran Melin, October 2005. (In Swedish). ISBN: 978-91-89206-38- 0
https://strategiska.se/app/uploads/framtidens-forskningsledare-2001-2006.pdf

[2] Arbetsrapport – Utvärdering av Stiftelsen för Strategisk Forsknings ledarskapsprogram ICA och FFL – Djupintervjuer. CMA Research, Oktober 2010

[3] Ingvar Carlsson Award – ICA – SSF's grant program for postdocs returning to Sweden – An evaluation of calls ICA 1-3 (issued in 2005, 2006, 2008). SSF Report No. 2015:21, Dnr zF15-0003. September 2015.

Chi-square test: https://www.socscistatistics.com/tests/chisquare/Default2.aspx

Penningvärdesberäkning: http://historicalstatistics.org/Jamforelsepris.htm