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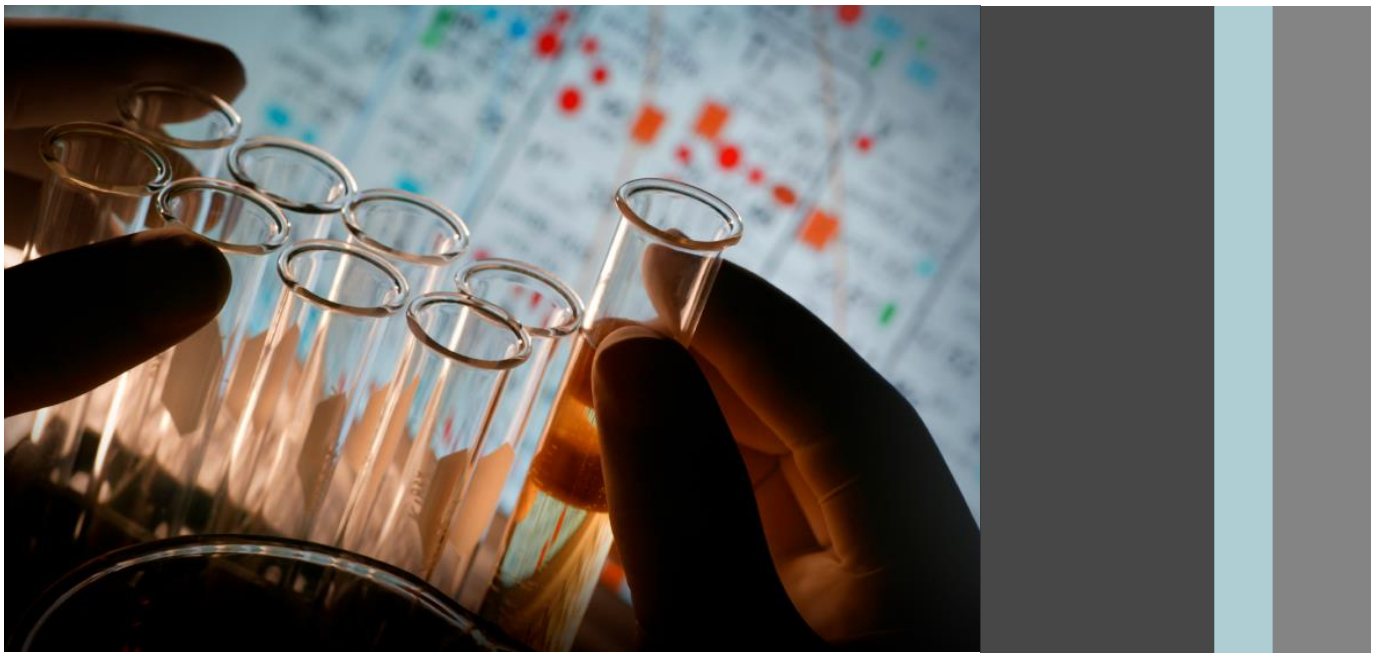

The Centres of Attention

- Experiences from the call and evaluation process of SSF:s IRC15

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SSF-rapport 27

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Executive summary

Background

Within the call for IRC15 (Industrial Research Centres 15), the Swedish Foundation for Strategic Research (SSF) announced 400 million SEK for long term and internationally competitive research projects. The purpose of the call was to stimulate collaboration between industry, research institutes and academia. The proposed research activities within the centres were to focus on long term efforts in disruptive technologies. The collaborations should initiate substantial development of new technologies, new products or new services.

Premises of the study

In this report, we assess the call and evaluation process for IRC15. We focus on the following aspects of the call and evaluation process:

1. What positive and negative experiences are there among the various parties regarding the call and evaluation process?
2. To what degree has the system prioritized and what potential foreclosure effect has this had? How and what methods have the participating organisations used to identify and prioritize the project of interest?
3. To what degree does the proposal fit into the strategy of each participating organisation and how integrated is the proposal in the line management up to CEO/R&D-manager/Principle/Dean?
4. To what degree has the idea of bid been defined, controlled, and influenced by non-academic parties?
5. How has gender equality been managed and communicated when formalizing the bid?
6. To what degree does IRC15 overlap with other programs, from the perspective of the participating companies – and does the overlap have a positive or negative influence?

We have used two main methods to answer the six questions above. A web-based survey has been sent to (i) project leaders and (ii) co-applicants, and (iii) to additional individuals participating in the hearings. The purpose of the survey has been to quantify and identify generalizable opinions and views among the applicants. We have also conducted interviews with main- and co-applicants in the proposals, as well as individuals in the evaluation committee, the peer-review group and the hearing committee.

Main insights

Overall, the applicants and participants in the evaluations groups have a positive view of the call and evaluation process – even though successful applicants are more positive than less successful applicants. Applicants also find that the administrative process within the call was very well executed.

The most characteristic feature of the call for IRC15 was the one-proposal rule, which implied that an organisation could only participate in a single project proposal. Although the restriction had the intended effect of decreasing the number of applications and stimulating cooperation and prioritization within and between organisations, there were also negative effects, such as uncertainties and difficulties in initial phases of the call process and risks that some prominent project proposals were not created because key organisations chose to participate in other projects. Many prominent Swedish industry companies participated in the call, and the industry partners were very committed within the consortia. The one-proposal rule imposed organisational challenges within large industry partners, but when a consortium finally was settled the commitment was very strong.

A summary of the main insights from this study is presented in Table 1.1 below.

TABLE 1.1
Summary of insights

Question	Insights
Perception of the call and evaluation process	- Overall positive view of the call and evaluation process – although successful participants are more positive - Positive view on the information and feedback by SSF during the call and evaluation. - The hearing was a very valuable part of the evaluation of proposals - Demanding to form a centre agreement prior to the hearing
Prioritizing and foreclosure effects	- Substantial foreclosure effects - Restrictions had unclear impact on quality of the proposal - Initial scramble and catch-22 dynamics to find partners - The call encouraged cooperation and prioritization - Skepticism towards one proposal restriction among applicants - The process to form the proposal was demanding and required more resources than usual
Integration of proposal in line management and strategy	- High integration in line management and support from the top of organisations - Higher management generally not involved in details – especially in large organisations in the private sector - Substantial informal mandate to coordinators in large organisations - Proposals in line with organisational strategies
Influence of non-academic parties	- Project ideas often originate from (i) academic departments or (ii) in dialogue between academic departments and industry - Companies very positive to participating and taking prominent roles in proposals - Projects regarded as important for: ▪ Increasing knowledge within key strategic areas ▪ Expected long term economic benefits - Non-academic partners had significant influence on proposals - Due to the one-proposal rule, projects often depend on participation of key companies which increases the influence of industry partners.
Gender equality in proposals	- Of 25 proposals, only one was led by a woman - Female co-applicants twice as successful as male co-applicants - Consortia with larger share of women more successful - Gender equality aspects in proposals do not live up to SSF:s desired standard.
Overlap with other calls	- No substantial overlap. IRC15 is: ▪ aimed towards basic research (disruptive technologies), while ▪ relevant for industry (co-production) - Small risk of dead-weight losses since small amount of centres granted funding

1 Background

1.1 Background

Within the call for IRC15 (Industrial Research Centres 15), the Swedish Foundation for Strategic Research (SSF) announced 400 million SEK for long term and internationally competitive research projects. The purpose of the call was to stimulate collaboration between industry, research institutes and academia. The proposed research activities within the centres were to focus on long term efforts in disruptive technologies. The collaborations should initiate substantial development of new technologies, new products or new services.

The call was designed to create incentives for organisations to prioritize within their research and development strategies to identify the most eminent projects. In the call, an organisation were only allowed to participate in a single proposal. The intent of this limitation was to create incentives for long term commitments and efficient research activities. SSF also had an expectation to add a "learning effect" within the call by stimulating the parties to bring forward their most prioritized project from a scientific and industrial perspective. Since relatively few centres were to be granted, a priority for SSF was also to receive a relatively small number of proposals of high quality.

The project proposals were assessed based on several criteria including scientific quality and strategic relevance to the Swedish industry, but also parameters such as gender aspects and anchoring of the proposal within the top management of each organisation. The evaluation criteria are summarized in Box 1.1 below.

BOX 1.1
Criteria for evaluation of the proposals

- International state of the art of science and relevance for industry. Also plans for international scientific and/or industrial cooperation should be included.
- Governance and management including gender aspects and cooperation plan
- IP management (as part of the Centre Agreement)
- Realistic, feasible, and true collaboration – added value of the centre
- Level of engagement/focus from industry, amount of co-funding
- Scientific quality; originality, strengths, weaknesses, degree of interdisciplinarity and feasibility of the research plan
- Strategic relevance to Swedish industry and/or society as well as explicit long term impact of the proposed research
- Qualifications of the applicants, previous scientific and technological achievements, international experiences, and networks, and leadership/management of research teams.
- Evidence of anchoring of the application to top management within all parties (including LoI).

Source: SSF Call for proposals: Industrial Research Centres (Dnr IRC15-0000)

Within the call, up to eight centres were to be funded with 50-100 million SEK during a period of 6-8 years. This corresponds to an annual funding of 10-17 million SEK. The funding of the last 3-4 years of a project depend on the successfulness of the first half of the project which is assessed in a half time report.

The call was initiated in September 2015[1] and a total of 25 proposals were submitted before the deadline in May 2016. The proposals were evaluated in a process including a first selection by an evaluation committee, evaluations by a peer review group, and a hearing. On February 6, 2017, the board decided to grant funding to the following four research centres:[2]

- **ScanOat**
  Poject leader: Leif Bülow, Lund University
- **LUDC-IRC for personalized medicine in diabetes**
  Project leader: Maria Gomez, Lund University
- **Functional Nucleotide Drug Delivery**
  Project leader: Fredrik Höök, Chalmers university of Technology
- **Swedish Maritime Robotics Centre**
  Project leader: Ivan Stenius, KTH Royal Institute of Technology

The four centres above are further described in Appendix.

1.2 Premises of this study

In this report, we assess the call and evaluation process for IRC15. A purpose of the study is to provide input on how to improve upcoming call processes for industry-academic research. We focus on the following aspects of the call and evaluation process:

1. What positive and negative experiences are there among the various parties regarding the call and evaluation process?
2. To what degree has the system prioritized and what potential foreclosure effect has this had? How and what methods have the participating organisations used to identify and prioritize the project of interest?
3. To what degree does the proposal fit into the strategy of each participating organisation and how integrated is the proposal in the line management up to CEO/R&D-manager/Principle/Dean?
4. To what degree has the idea of bid been defined, controlled, and influenced by non-academic parties?
5. How has gender equality been managed and communicated when formalizing the bid?
6. To what degree does IRC15 overlap with other programs, from the perspective of the participating companies – and does the overlap have a positive or negative influence?

1.3 Method

We have used two main methods to answer the questions specified in the previous section.

A web-based survey has been sent to (i) project leaders and (ii) co-applicants, and (iii) to additional individuals participating in the hearings. The purpose of the survey has been to quantify and identify generalizable opinions and views among the applicants.

Some respondents in the survey are employed at the same organisation. If this is the case, we give each answer a weight. The weights of the respondents within a specific organisation sum to 1.[3]

[1] The call text can be found in Appendix.
[2] The call and evaluation process is further discussed in Chapter 2.
[3] If a single individual in an organisation provide the answer "*X*", the weight *w* of the answer is 1. If *n* individuals in an organisation provide answers, the weight *w* of each answer is 1/*n*. This also gives that the sum of the weights *w* for the *n* individuals in an organisation sums to 1 ($\sum_i^n w_i = 1$).

We have also conducted interviews with main- and co-applicants in the proposals, as well as individuals in the evaluation committee, the peer-review group and the hearing committee.

There has been a substantial overlap of individuals responding to the survey and the interviews. As mentioned above, the survey does to some extent quantify aspects of the call, whereas the interviews provide more qualitative insights. In the interviews, we have discussed and nuanced the patterns identified in the survey. We have related the interview data to the survey data to identify the respondents' perspective on common trends but also on outliers and unique information. The survey and the interview guide can be found in Appendix.

In addition to the survey and the interviews, we have conducted literature studies of documentation regarding the call (i.e. project proposals, documentation of strategic research strategies etc.).

1.4 Outline

In Chapter 2, the process of the call and evaluation within IRC15 is summarized.

After Chapter 2 there are six consecutive chapters focusing on each of the six questions stated above respectively.

In Chapter 9 we discuss the findings and sum up the learnings.

In the Appendix (Chapter 10) the interview guide and the survey is presented.

2 The call and evaluation process

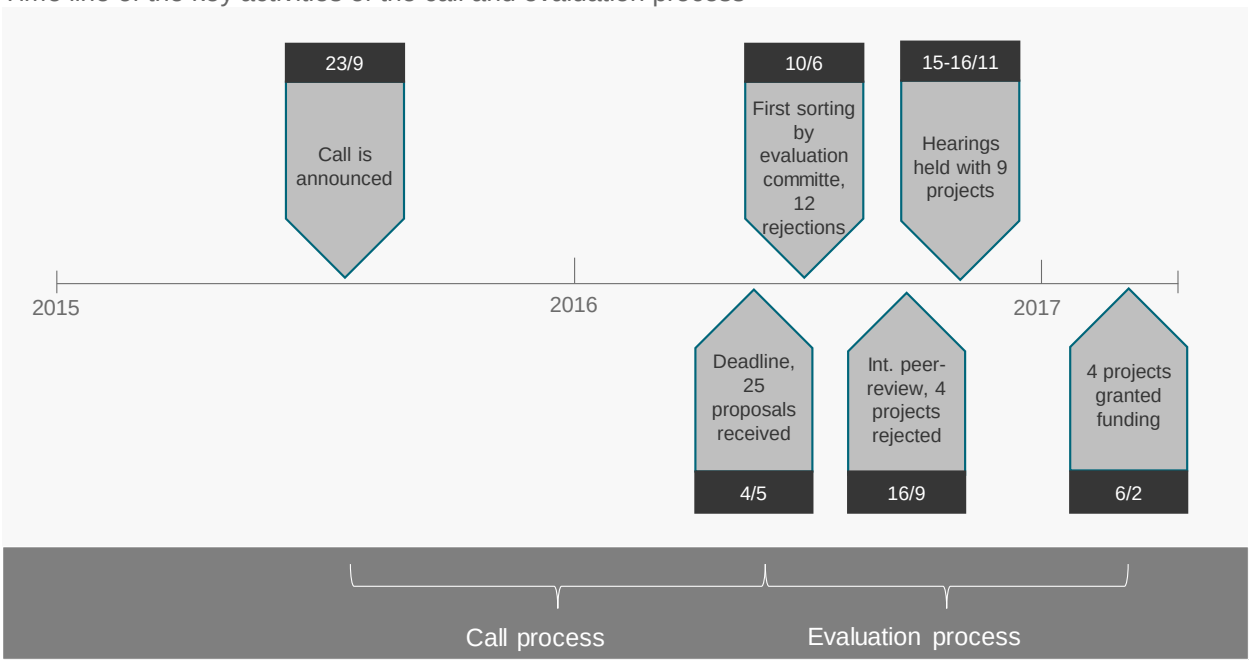
In this chapter, we describe the call and evaluation process for IRC15. In short, the call process concerns the period from announcement of the call until the deadline of submitting a proposal,[4] whereas the evaluation process concerns the process of determining which proposals that should be granted funding. In Figure 2.1 below, the steps and key activities of the call and evaluation process is summarized.

2.1 The call process

The call was made public by SSF on September 23th, 2015. In the call announcement, the foundation stated that SEK 400 million were to be granted in a national call for proposals for long term problem- and application driven Industrial Research Centres (IRCs) that meet the highest international scientific standards. In the call document, it is stated that the program should stimulate collaboration between industry, research institutes and academia. The research activities within the respective center should focus on long term efforts in disruptive technologies. The collaboration is supposed to lead to a substantial development of new technologies, new products, or new services.

The foundation wanted the applicants to carefully prioritize resources as this was expected to result in better proposals and thus in the long run better projects. To ensure this the foundation included a restriction in the call that each applying organisation could only participate in one proposal. The purpose of this restriction was that the dynamics between and the strategic positioning among the participants

FIGURE 2.1
Time line of the key activities of the call and evaluation process



[4] Note that a call in practice starts with an idea, which undergoes a development process until the call is finally announced. In this study, we focus on the period from announcement of the call and onwards.

would become a more prioritized part of the proposal process. Each organisation had to consider how to prioritize internally, but also externally among potential partners. An organisation had to regard aspects such as whether it will be able to join the project of first choice and in which project the chance of funding is maximized. And if an organisation cannot join its first choice of project - which one is next in line? Note also that the restriction to participate in a single proposal did not take the size of an organisation into account. Thus, if one part of a company participated in a proposal, other parts of the organisation (such as subsidiaries or research centers) could not join other proposals within the call, no matter if the organisation consists of 10 or 1 000 employees. Universities could participate in one proposal per department.

The call ended on May 4, 2016, approximately 7 months after the initiation of the call. The call was open longer than regular calls from SSF, since the foundation wanted to provide flexibility for parties to prioritize and form consortia. A total of 25 proposals had been submitted to SSF at the end of the call process.

2.2 The evaluation process

The evaluation of the 25 proposals submitted within the call for IRC15 was organized by an evaluation committee. The committee consisted of twelve individuals, whereof two participants represented SSF. The committee was led by an external chairman.

The evaluation process consisted of four primary steps from received proposals to granted projects:

1. First, the evaluation committee assessed the proposals in an initial sorting. The committee approved 13 proposals for further scrutiny. The other twelve proposals were rejected.
2. In the second step of the evaluation process, the remaining proposals were evaluated by a peer review group, consisting of 24 international experts. Based on the reviews, the evaluation committee rejected four of the remaining proposals while nine were sent to the next evaluation step.

3. In the third step, the remaining projects were presented by the applicants in a hearing. The hearing was led by four international experts, and members of the evaluation committee attended each session. Prior to the hearing, the parties in the consortia were obliged to form a consortium agreement regarding the sharing and legal rights of the potential findings of the project, should it get funded. After the hearing, the evaluation committee recommended the board to grant funding to four projects.

4. In the fourth and final step of the evaluation process, SSF:s board took the final decision regarding funding of the projects.

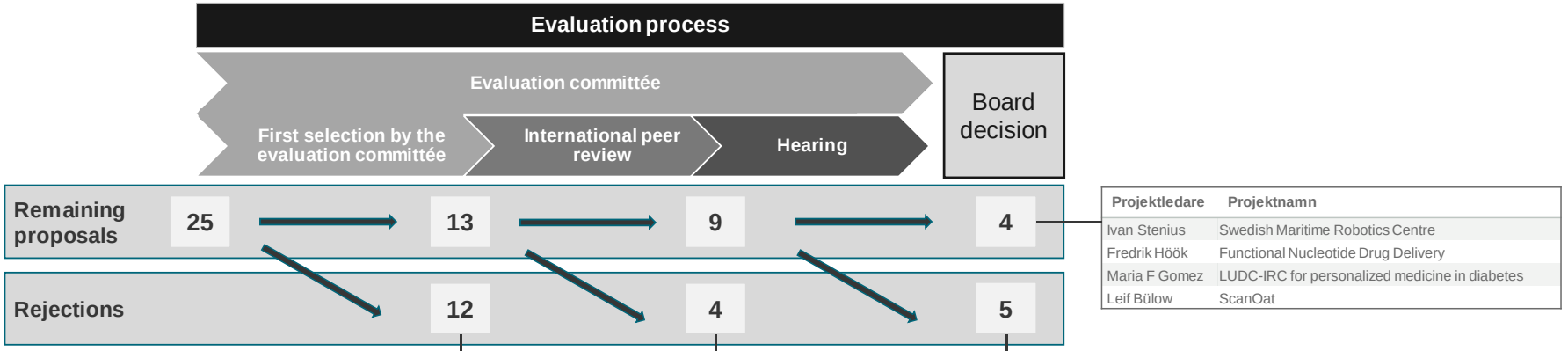
The preliminary statement from SSF was that no more than eight projects would be granted. On February 6, 2017, the board decided to grant funding to the four proposals recommended by the evaluation committee:[5]

Figure 2.2 summarizes the evaluation process, and describes where each proposal was either rejected or granted in the process, i.e. which proposals that were rejected in the first sorting by the evaluation

[5] A short summary of the four winning project proposals can be found in Appendix

committee, which proposals that were rejected after the input from the international peer-review, which proposals that participated in the hearing and which proposals that finally were granted funding.

FIGURE 2.2
The evaluation process



Projektledare	Projektnamn
Ivan Stenius	Swedish Maritime Robotics Centre
Fredrik Höök	Functional Nucleotide Drug Delivery
Maria F Gomez	LUDC-IRC for personalized medicine in diabetes
Leif Bülow	ScanOat

Projektledare	Projektnamn
Hans-Peter Nee	Solutions for a global flexible transmission grid
Uday Kumar	Advanced Condition Monitoring using Smart Bearings
Lars Nyborg	Tailoring Material and Process for Next Generation AM
Fredrik Nikolajeff	Facilitating and implementing neurodegenerative biomarkers

Projektledare	Projektnamn
Ivica Crnkovic	5D IRC–Center for Digitalisation of Dependable Systems
Klas Andersson	Selective Oxidation Processes
Hans Theliander	Forest Residue Valorisation
Ahmed Kishk	GAP^5G: Gapwaves packaging technology for Massive MIMO
Pär Olsson	CIRCLES Centre for Industrial Research on LFR Energy Systems
Fredrik Lanner	IRC to Develop Stem Cell Based Advanced Cell Therapies
Herbert Zirath	New III-V Materials and Devices for Future Systems in Space
Göran Gustafsson	Organic informatics
Roger Ruber	Accelerators for Medicine
Henrik Hult	Risk modelling for the insurance business
Bo Åkerström	Women's and Children's Health
Mark Rutland	HAPPY - HAPtic Perception deliverY

Projektledare	Projektnamn
Leif Asp	Multifunctional Composites for Road and Air Future Transport
Michael Sundström	An IRC for Personalized Medicine in Inflammatory Diseases
Karl Henrik Johansson	SOCIAL: Societal-Scale Cyber-Physical Systems
Mikael Östling	Smart Sensing Materials in Extreme Environment (SensMat)
Lars Samuelson	Industrial Research Centre for Disruptive Nanotechnology

2.3 Characteristics of the proposals

In Table 2.1 below we describe summary statistics regarding the 25 proposals submitted within the call. Nine of the 25 projects were within Material Science and Technology, by far the most represented academic field. The second, third and fourth most represented academic field were Life-Sciences, Bioengineering and ICT with four proposals each. Notably, none of the granted proposals were within the academic field of Materials Science and Technology, despite this field dominating the total number of proposals.

We also find that 24 of 25 main applicants were male. A single female was in charge of a proposal. Among the co-applicants, the share of males were approximately 75 percent.

In total, 13 Higher Education Institutes (HEIs) were involved in the 25 proposals. 7 of these were incorporated in the proposals that obtained grants.

A total of 93 companies were included in the proposals - 18 percent of these participated in proposals that were granted funding. Out of the 93 companies, 60 were classified as large (at least 250 employees). 6 of the large companies landed grants which corresponds to a slightly lower share of 10 percent compared to the total population of companies. The hit rate to obtain a grant were higher among small and medium-sized companies (up to 249 employees). Seven public research institutes participated in the call - two of these were involved in the granted projects.

TABLE 2.1
The proposals in numbers

	Proposals	Granted	Share
	Number	Number	%
Proposals	25	4	16%
- **Bioengineering**	4	2	50%
- **ICT**	4	1	25%
- **Computational Sciences and Applied Math**	1	0	0%
- **Life Sciences**	4	1	25%
- **Materials Science and Technology**	9	0	0%
- **Other**	3	0	0
Male – main applicants	24	3	13%
Male co-applicants	196	33	17%
Female – main applicants	1	1	100%
Female co-applicants	64	22	34%
Number of Higher Education Institutes (HEIs)	13	7	54%
Number of companies	93	17	18%
Number of large companies	60	6	10%
Number of small and medium-sized companies	33	11	33%
Number of public research institutes	7	2	29%

Källa: SSF (2017)

3 Perception of the call and evaluation process

In this chapter, we discuss the involved parties' perception of the call and evaluation process. We discuss both positive and negative experiences among the parties involved in the process. We focus on general opinions on the call and evaluation process, the view on the design of the call as well as the provided information and the hearing. Other aspects related to the call will be discussed in depth in the following chapters. See the Box below for a summary of the key insights of this chapter.

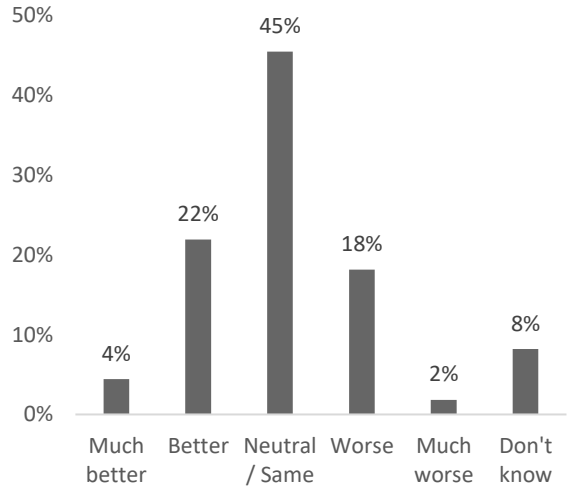
BOX 3.1
Summary of results

- Overall positive view of the call and evaluation process – although successful participants are more positive
- Positive view on the information and feedback provided by SSF during the call and evaluation.
- The hearing was a very valuable part of the evaluations process
- Demanding to form a centre agreement prior to the hearing

3.1 General view of the call and evaluation process

Although the perception of the call and evaluation process of IRC15 varies among the applicants, most applicants have a neutral view regarding the design of the process, see Figure 3.1 below. 45 percent of the survey respondents assess the design of the call and evaluation process as equivalent to other calls of similar size.[6] Approximately one of four respondents assess that the call was better or much better than similar calls, and 20 percent experienced that it was worse or much worse. Relatively few respondents have strong opinions about the call and evaluation process. Only a handful of the respondents express that the process was either much better of much worse than similar calls.

FIGURE 3.1
Overall, how do you assess the design of the call and evaluation process for IRC15 compared to other calls of similar size? (all respondents)



Note: *N* = 94

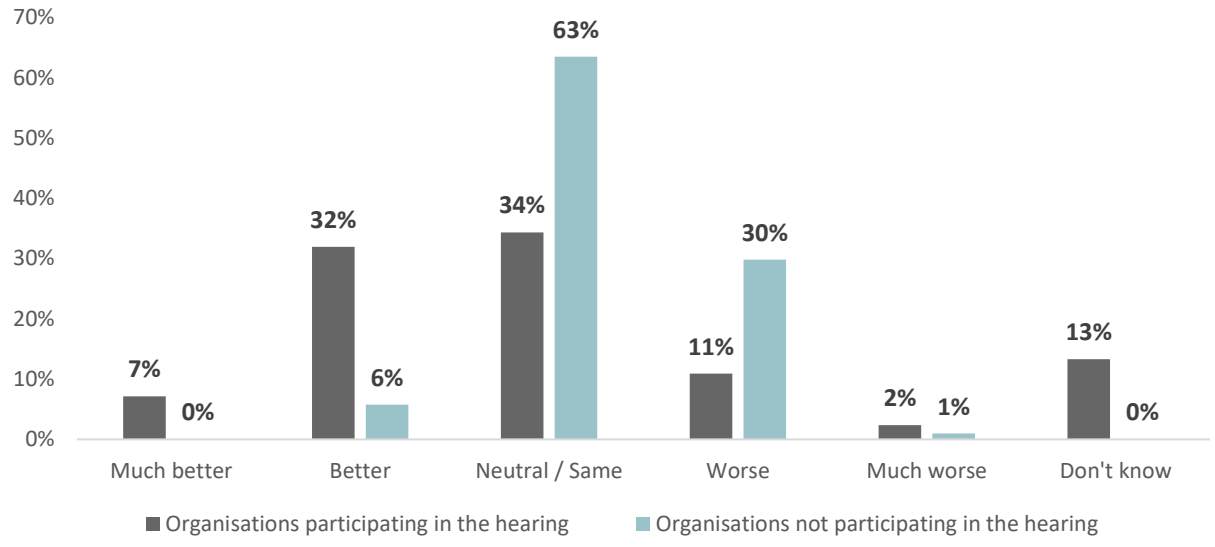
[6] E.g. VINNOVA:s Competence Centres or the Swedish Research Councils Linné Centres.

Even though most respondents are neutral regarding the general design of the call, there are many opinions regarding details of the call design. These aspects will be further discussed later in this and in following chapters.

We also find that successful participants are more positive to the call design compared to less successful participants. In Figure 3.2 below we present answers to the same question as in Figure 3.1, where the respondents now are divided into two categories – (i) organisations that participated in the hearing and (ii) organisations that did not participate in the hearing. As might be expected, respondents who proceeded to the hearing have a more positive view of the call and evaluation process than the respondents that did not. Four of ten respondents in the hearing group assess the design of the call as better or much better than similar calls – the corresponding statistic among respondent in consortia that did not participate in the hearing is six percent. It might not come as a surprise that respondents in successful consortia have a more positive view than those in less successful ones. There are two possible reasons for the different views on the call design among successful and not successful participants:

- Successful participants tend to have a more positive view of the process irrespective of the actual design of the call, simply because they are successful - and the corresponding opposite may apply for those that were not successful.
- Another explanation to the difference is that positive respondents represent organisations that benefited from the specific design of the call and evaluation process – such as organisations that benefited from the one-proposal rule.

FIGURE 3.2
Overall, how do you assess the design of the call and evaluation process for IRC15 compared to other calls of similar size?

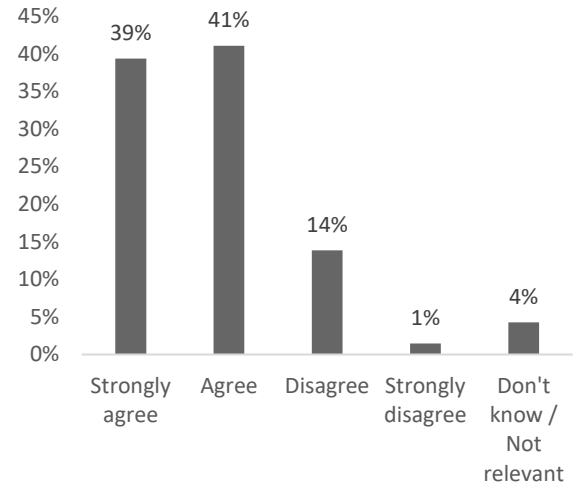


Note: *N* = 94

3.2 Premises of the call

An important aspect of the call for IRC15 was to stimulate close collaborations between the involved parties. We find that the design of the call had the intended effects. The involved parties agree to the statement that call encouraged organisations to co-operate and prioritize, see Figure 3.3. Eight of ten respondents either agree or strongly agree to the statement – only 15 percent disagrees or strongly disagrees. In interviews, the applicants bring forward that incentives to cooperate and prioritize is one of the most characteristic aspects of IRC15.

FIGURE 3.3
The call encouraged the bidding parties to cooperate and prioritize



Note: *N* = 94

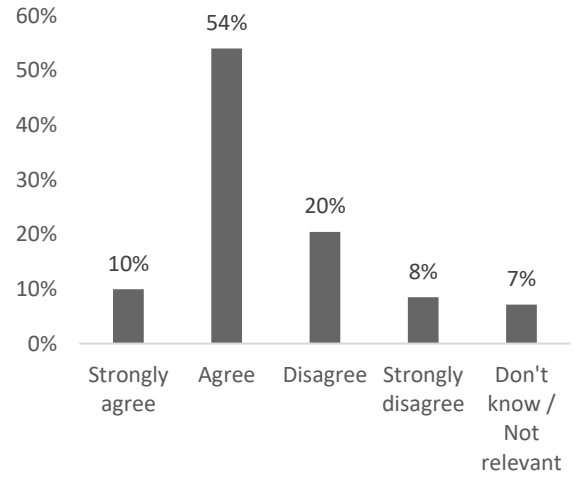
Two elements within the call process are the primary reasons for the strong incentives to cooperate and prioritize:

- The one-proposal rule: This rule meant that the parties involved in the proposal process were compelled to form strategic collaborations and affiliations in early stages of the call process.
- The requirement to form a centre agreement (for the projects that participated in the hearing): This rule forced organisations (not only researchers but also legal units) to cooperate and work together.

The one-proposal rule is further discussed in Chapter 4 and the requirement to form a centre agreement is discussed in section 3.4.

Most respondents agree that the demands within the call were reasonable. In Figure 3.4, the respondents view on the demands of the bidding parties is presented. 20 percent of the respondents disagrees and another eight percent strongly disagrees to the statement that the demands on the bidding parties were reasonable. Furthermore, only 10 percent of the respondents strongly agreed to the statement.

FIGURE 3.4
The demands on the bidding parties were reasonable

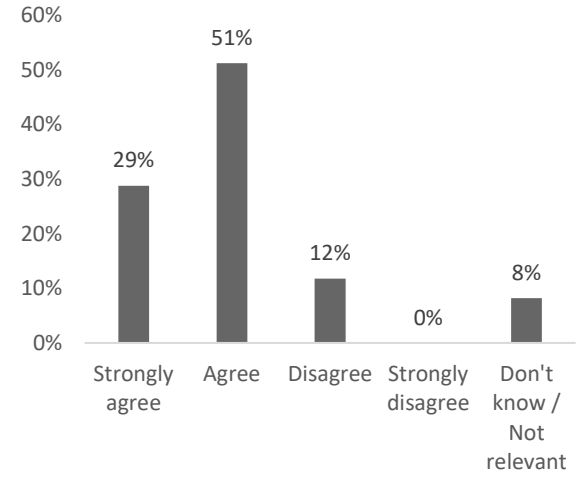


Note: *N* = 94

The parties involved in the proposals also find that there was enough time to form a project proposal, see Figure 3.5 below where eight of ten respondents agree to the statement that there was plenty of time to form the proposal. Only twelve percent of the respondents disagrees to the statement.

Although many respondents find that the demands were reasonable and that there was plenty of time to form a proposal, many also point out that that one-proposal rule, implying that an organisation could only participate in a single proposal, gave rise to demanding internal processes. Although there was enough time to form the proposal, some respondents state that a large part of the process to form the proposal was assigned to form the consortia. This process was time consuming and meant that there was less time and resources left for forming the actual proposal.

FIGURE 3.5
There was plenty of time to form the proposal

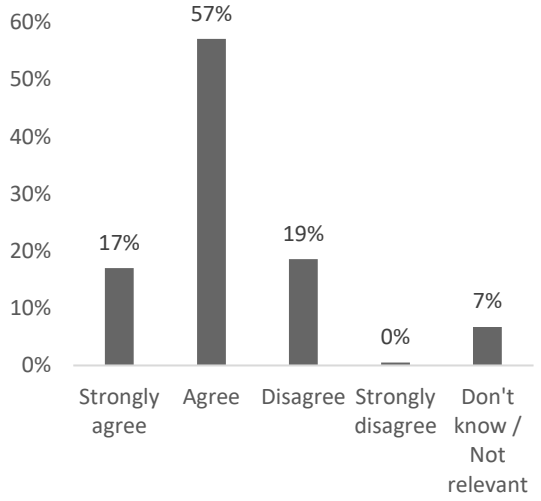


Note: *N* = 94

3.3 Information during call and evaluation

Individuals involved in the proposals, and also the three evaluations groups, find that the information provided by SSF within the call process was very good. The information provided in the call document was well formulated, and question arising during the process was well answered. Seven of ten respondents either agree or strongly agree to the statement that the provided information was sufficient, see Figure 3.6.

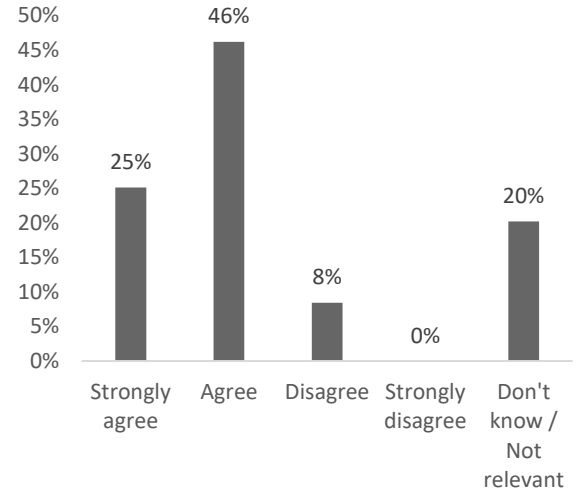
FIGURE 3.6
Was the provided information sufficient?



Note: *N* = 94

Respondents are also very positive to the feedback on questions raised during the call process, see Figure 3.7. This is further emphasized in interviews with participants in the consortia. The respondents explain that the feedback was fast and well administrated. The positive view on the feedback from SSF regarding questions on the call process is also emphasized in interviews with individuals in the different evaluations groups. A relatively large share of respondents answered “Don’t know” to this question since many individuals did not raise questions during the call process.

FIGURE 3.7
Questions raised during the call process were answered clearly



Note: *N* = 94

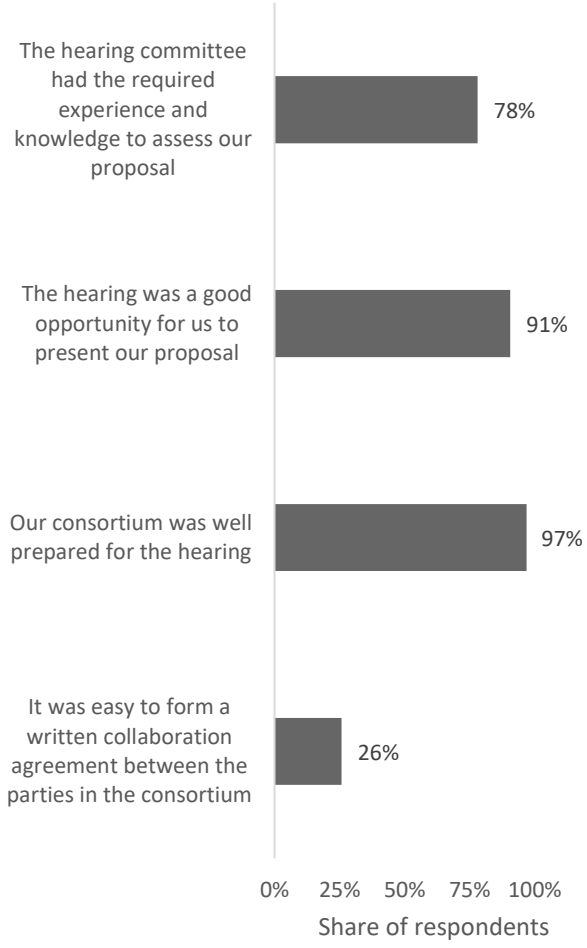
An exception to the generally positive view regarding information within the call and evaluation process is the information provided when a proposal was rejected. Some organisations that were not granted funding express, in either the survey or the interviews, that they were not satisfied with the feedback that was provided along with the rejection. Some express that the motivation behind the rejection was unclear or indicated misconceptions of the proposals, but most individuals express that the rejection letters were short and did not include enough details regarding the rejection.

Another aspect, raised primarily by individuals in the evaluation groups, is that the portal used to compile and review proposals was difficult to handle - although these difficulties were solved with support from SSF. Also, as the amount of information regarding each proposal was very extensive and detailed, some evaluators express that the amount of information in each proposal was too extensive and therefore difficult to overview, which implied risks of misinterpretations.

3.4 The hearing

The respondents in projects called to the hearing generally have a positive view of the experience. In Figure 3.8 we summarize the share of respondents answering either “Agree or “Strongly agree” on a scale from “Strongly agree” to “Strongly disagree”.

FIGURE 3.8
Respondents perception of the hearing



Note: Share of respondents answering “Agree or “Strongly agree” on the scale “Strongly agree” – “Agree” – “Disagree” – “Strongly disagree”.
N = 94

Nine of ten respondents find that the hearing was a good opportunity to present the proposal. Eight out of ten respondents found that the hearing committee had the required experience and knowledge to assess the proposal. This is further emphasized in the interviews, where participating individuals express a positive view of the hearing – even though some express that while the committee were highly professional, they lacked necessary insights in certain academic fields, and that some questions therefore were misleading and unnecessary. Note that these opinions were expressed by individuals in consortia that were not granted funding.

Almost every respondent find that his or her consortium was well prepared for the hearing. This view is somewhat nuanced in the interviews. Some individuals representing the projects mention that the consortia could be better prepared for the hearings. The hearing committee and the evaluation committee share the view that some consortia were not prepared for the presentation, and it was obvious that some participants basically met just before the meeting.

Both the hearing committee and the evaluation committee found the hearing a very valuable part of the evaluation process. The hearings provided insights into the dynamics between individuals in the proposal. Important aspects such as leadership of the consortium, and the level of engagement among and synergies between participating organisations were unfolded.

Only one of four respondents agree that it was easy to form a written collaboration agreement between the parties in the consortium. In interviews, it is emphasized that the written agreement was very resource demanding. The primary challenge when forming the centre agreement was that legal units were generally not willing to form a legal document prior to a potential start of the project. The efforts to form this document required many resources – but many respondents also find that this part of the process also saved a lot of effort when the project (if funded) would be initiated.

4 Prioritizing and foreclosure effects

In this section, we discuss the prioritizations by the participants within the call for IRC15, and what potential foreclosure effect these processes have implicated. We also discuss how and what methods the participating organisations have used to identify and prioritize the final proposal. A summary of the key insights is displayed in Box 4.1 below:

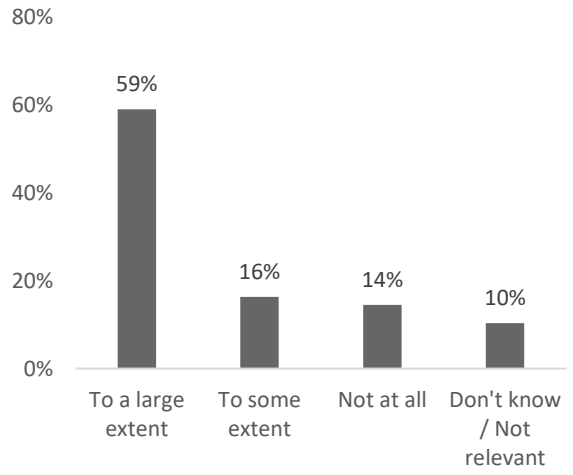
BOX 4.1
Summary of insights

- Substantial foreclosure effects
- Restrictions had unclear impact on quality of the proposal
- Initial scramble and catch-22 dynamics to find partners
- The call encouraged cooperation and prioritization
- Skepticism towards one proposal restriction
- The process to form the proposal was demanding and required more resources than usual

4.1 The one-proposal restriction

As described in the sections above, an organisation has only been allowed to participate in a single proposal. Also, only 4-8 proposals were to be granted funding (and in the end, the minimum amount of proposals was funded). Thus, the participating organisations have been obliged to prioritize among potential projects. This prioritization process included prioritizing internally within organisations as well as externally among potential partners. This in turn implies that foreclosure effects have arisen - if not for the limitation of only one application per organisation, participants would be able to participate in several different proposals within a broader spectrum of topics.

FIGURE 4.1
Did the restriction to only participate in one proposal affect your organisations strategy for prioritizing which proposal to participate in?



Note: *N* = 94

The one-proposal rule led to an unusual competitive landscape and had large effects on strategies for prioritizing which proposal to participate in - see Figure 4.1. In the survey, approximately six of ten respondents state that the restriction affected the strategy regarding which proposal to participate in

to a large extent. Another 16 percent experienced that they were affected to some extent. In total, three of four organisations experienced that the strategies were affected by the one-proposal rule to *at least* some extent. Only a small number of organisations did not experience foreclosure effects. These organisations were often relatively small, and did not have prominent role in the process to form the proposal. Even though the one-proposal rule affected all participating organisations, we find that some types organisations were more affected than others. Although there are exceptions, we find the following notable patterns:

- **Strategy processes within larger organisations were more affected than corresponding processes within smaller organisations**. Larger organisations, with subsidiaries and different departments, were compelled to prioritize and communicate internally. Smaller organisations did not have the same internal difficulties since communication within smaller organisations in general were faster and more open. The larger organisations that were most successful in forming a strategy to prioritize within the call used a designated coordinator (often a single individual) that was responsible for the communication between different parts of the organisations. We discuss this aspect further in Chapter 5.

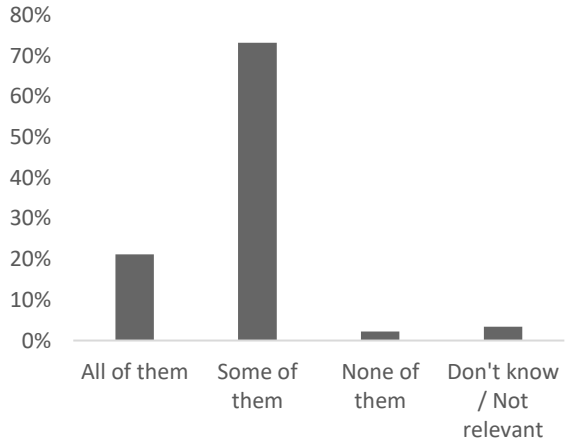
- **Academic departments had more difficulties to prioritize than companies.** This difference arose since decisions regarding the strategy to a larger extent was conducted on a collegial level rather than within a line management or by a designated coordinator in academic departments compared to companies. Larger departments often contain several research groups within a broad spectrum of research areas. Some departments experienced considerable difficulties to agree which proposal to focus on - this process was in many cases conducted in an ad-hoc manner without clear structures.

Note that the views above are generalisations with many exceptions. The foremost exception is academic departments with strong leaders (formal or informal), where the process of determining which proposal to invest in was relatively easy compared to departments without strong leaders.

4.2 Processes to identify project partners

Many collaborations in proposals within the call for IRC15 were based on existing relationships. A large majority of the organisations in the proposals had cooperated with at least some of the other organisations within the proposals. 20 percent of the organisations had collaborated with all partners prior to the call, and over 70 percent had collaborated with at least some of the partners. The few respondents that indicated no prior collaboration with the projects partners belong to smaller organisations in the private sector.

FIGURE 4.2
Has your organisation collaborated with the other organisations in your proposal prior to your cooperation in the call for IRC15?

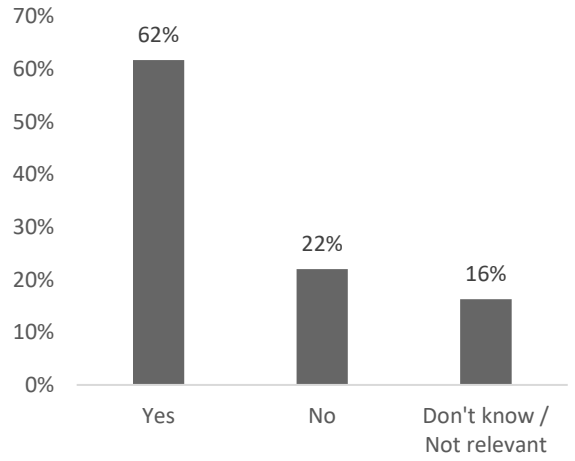


Note: *N* = 94

A substantial number of participants discussed collaborations with other organisations than the partners included in the final proposal, see Figure 4.3 below. Six of ten organisations had such discussions. These discussions primarily occurred in the initial phases of the call process and were sometimes intense – especially academic departments were very keen on cooperating with specific key partners, while companies had a larger degree of freedom when choosing which proposal to participate in. 22 percent of the participants did not discuss collaborations with other organisations. This group primarily consists of smaller companies.

FIGURE 4.3

Did your organisation, within the call for IRC15, discuss collaborations with other organisations than the partners included in the final proposal?



Note: *N* = 94

Many consortia were formed based on already existing collaborations and relationships. An example is one of the proposals, where the project was driven by an already established collaboration between an academic department and the participating companies. The consortium was formed around a project idea even before the call was announced and had an internal agreement to collaborate in upcoming calls equivalent to IRC15.

The respondents that did not discuss collaborations with other organisations (corresponding to the individuals answering “No” in Figure 4.3) were asked to explain why no such discussion occurred. See Figure 4.4.

Over a quarter of the respondents explain that there were no other relevant partners to team up with in the process. Also, a quarter of the respondents explain that they knew immediately who to collaborate with. These respondents belong to consortia that were created around a project idea prior to the call announcement.

Some participants had passive roles in forming the proposals, and therefore did not have any contact with other organisations than those included in the final proposal.

FIGURE 4.4

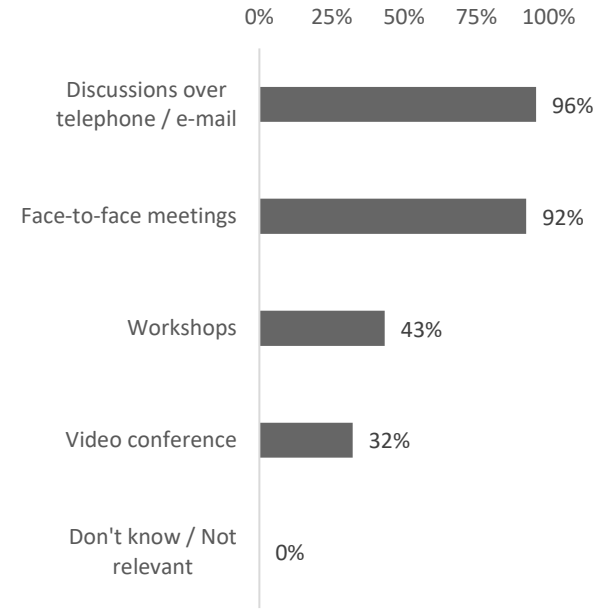
Why did you not discuss collaborations with other organisations than those in the final proposal? (several answers allowed)

Note: *N* = 15

The organisations participating in a consortium engaged in a variety of activities. The most common was discussions over telephone/e-mail and face-to-face-meetings, see Figure 4.5. Note that 8 percent of the respondents did not meet face-to-face with other partners in the proposal.

Successful consortia had more intense cooperation in the process of forming the proposal. Some consortia had regular meetings and workshops to form the best possible offer. Successful consortia engaged in workshops to a larger extent than less successful consortia. Proposals that were discarded early in the process had less close activities such as workshop, and to a larger extent used telephone / email or regular meetings as the only means to engage with partners in the proposal.

FIGURE 4.5
What activities did your organisation engage in with your partners to form the proposal?



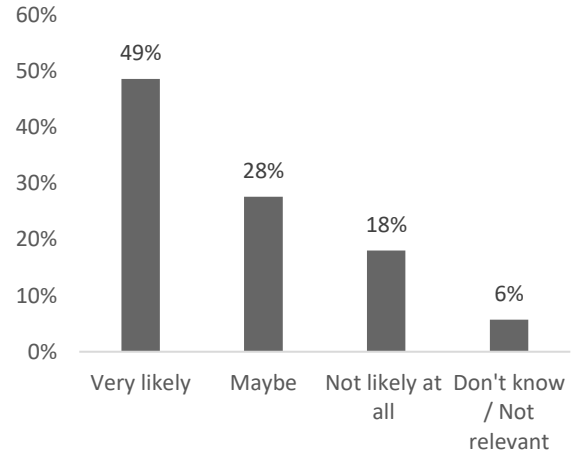
Note: *N* = 91

4.3 Effects of the limitations

A large share of the organisations participating in the call express that the limitations due to the one-proposal rule had undesirable effects on the process of forming the proposals. Some express that it was unclear why companies weren't allowed to partake in one proposal per business unit, when universities could participate in one proposal per department. Furthermore, it was perceived as strange that a company with thousands of employees could participate to the same extent as a small company with e.g. 3 employees since large corporations usually operate within many different business areas.

Although the above characteristics were regarded as negative among participants, the limitations that arose due to the one-proposal rule were expected and desirable consequences within the call. SSF wanted prioritization processes to take place in the highest organisational level in each participating organisation and limit the number of applications to stimulate large organisations to concentrate efforts to create the best possible proposal.

FIGURE 4.6
How likely is it that your organisation would have participated in more than one proposal within the call for IRC15 if it was permitted?



Note: *N* = 93

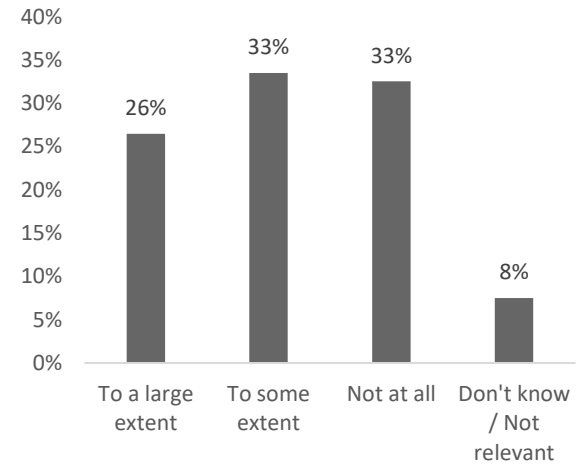
The one-proposal rule had significant effects on the behavior of participating organisations, especially large companies. Many respondents judge that it is very likely that his or her organisation would participate in more than one proposal within the call for IRC15 if it was permitted, see Figure 4.6 above. One of two respondents judge that it is very likely that his or her organisation would have participated in more than one proposal, and almost eight of ten judges that participating in another proposal is at least likely – only 18 percent judges that participation in more than one proposal would not be likely at all. This is a strong indication that that the call for IRC15 indeed had foreclosure effects, and more collaborations would have occurred if it was allowed. A noteworthy difference among the respondents is that smaller organisations in general judges that the probability of participating in other proposals (in a contra-factual situation) is relatively small.

We also find that the cooperation between partners in the call for IRC15 was more committed than usual. Six of ten respondents agree that the cooperation was more committed than usual to at least some extent. Many organisations were compelled to commit to partners chosen at an early stage within the call. As an organisation only was permitted to participate in a single proposal, much effort was made to create strong collaborations. Without strong efforts, a consortium might risk that an important partner would choose another proposal and leave the partnership.

A noteworthy part of the call process was the initial "scramble" phase where consortia were formed. Some proposals were dependent on the participation of e.g. a single key company. As some of these key companies did not decide which proposal to participate in until late stages in the call process (often due to slow internal processes), some proposals experienced a state of limbo in the initial phases. This made cooperation more difficult since there was substantial uncertainty if the proposed project was realistic to implement or not.

FIGURE 4.7

The cooperation with our partners was more committed than usual

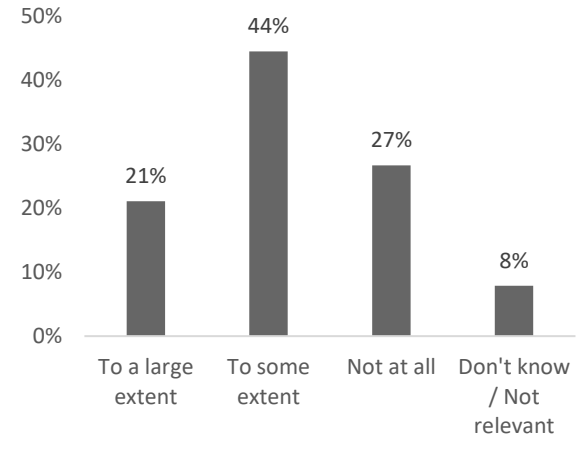


Note: *N* = 72

Related to the above is also the fact that many organisations have been compelled to compromise more than usual. Many organisations, especially academic departments and larger companies, have compromised more than usual, see Figure 4.8.

FIGURE 4.8

We were compelled to compromise more than usual



Note: *N* = 72

The one-proposal rule, the committed cooperation between organisations and the compromises caused the call process to be relatively challenging and resource demanding for the participants.

A large majority of the participants express that the process to form the proposal was more challenging than usual, see Figure 4.9. Eight of ten respondents find that the process to form a proposal was more challenging than usual to either some or to a large extent. The respondents that did not find the process challenging generally represent organisations that did not have a prominent role in the proposal process.

Many organisations had significant challenges identifying how to form a process for prioritizing which proposal to choose. In some organisations, these kinds of prioritizations are uncommon, and no or few existing routines were in place to handle these processes. Some organisations had to create new functions and processes to handle the efforts with the proposals. At some academic departments, this was very demanding, since different research group within a department were interested in submitting a proposal.

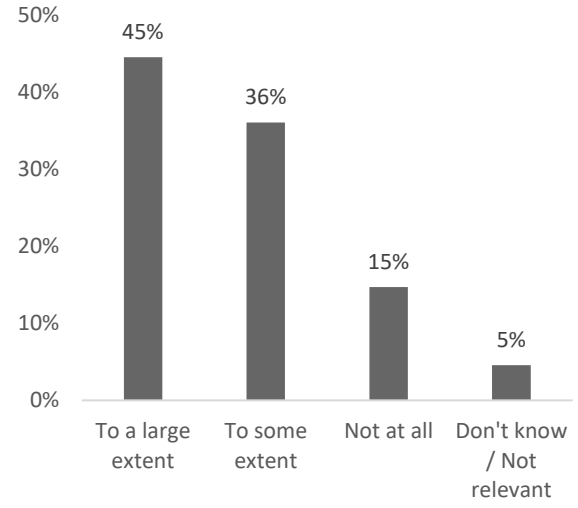
In addition to being more challenging, the process to form the proposal required a relatively large amount of resources (Figure 4.10). One third of the respondents assess that the process to a large extent required more resources, while another 40 percent assess that the process required more resources to at least some extent.

As discussed in section 3.4, a remark from the nine consortia that proceeded to the hearing, was that the formation of a centre agreement was very demanding. It required a large work effort and involved large parts of the legal units. Some consortia experienced that while the researchers and the head of the organisation was willing to participate in a proposal, legal units was unwilling to form an agreement before the hearing since the projects had not been granted funding yet. Concerns were also made that the centre agreement was not as sharp as it could be, since legal units were not willing to accept specific details in the agreement. Therefore, there might be a risk that the agreements are relatively sweeping rather than precise regarding the commitments between the parties. But at the same time, as large parts of the organisations were mobilized, the agreement (and the project) were more integrated within the organisations. As necessary preconditions for initiating the project were sorted out, the organisations were more prepared prior to the project start.

In summary, a lot of work and administrative efforts were conducted even though relatively few proposals ended up receiving grants. Worth noticing is that even though the process required more resources than usual for each consortium, much of the administrative aspects of the projects (e.g. the consortium agreement) was accomplished within the call process itself which meant that much work was saved for the projects that were granted funding. As relatively few proposals were submitted due to the one-proposal rule, much resources that otherwise would result in unsuccessful proposals were saved. Also, without the one-proposal rule the rate of granted proposals would be lower since it can be expected that more proposals would be submitted while the number of granted project were within the range 4-8.

FIGURE 4.9

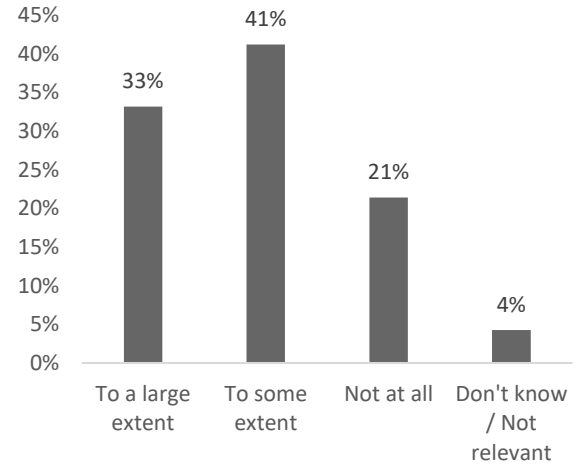
The process to form the proposal was more challenging than usual



Note: *N* = 72

FIGURE 4.10

The process to form the proposal required more resources than usual

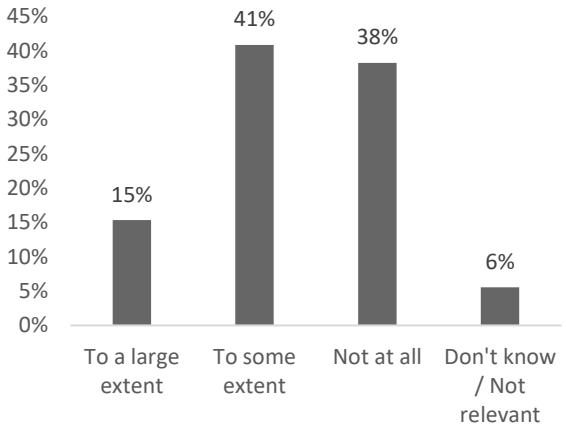


Note: *N* = 72

The opinions on whether the restriction to participate in a single proposal had positive effects on the final proposal are somewhat disperse among the respondents. 15 percent of the respondents experience that the quality was affected positively to a large extent. Four of ten experience that the quality was affected positively to some extent – another share of the same size experienced no positive effects, see Figure 4.11.

FIGURE 4.11

Was the quality of the proposal affected positively by the restriction for each organisation to participate in one proposal?



Note: *N* = 94

We can cover the effects of the degree of collaboration by studying the grades of projects that experience different views on whether the cooperation with the partners in the proposals was more committed than usual. In Table 4.1 below we summarize the average grade of proposals by applicants with different opinions on whether the cooperation was more committed than usual or not. We find that the group of respondents that express that the cooperation was more committed than usual received higher grades than proposals where the commitment was not higher than usual. The difference between the group are not statistically significant, but

indicate that consortia with closer collaboration achieved better project proposals.

TABLE 4.1
The cooperation with our partners was more committed than usual

Answer	Average grade
To a large extent	3,7
To some extent	3,6
Not at all	3,0

Note: *N* = 72

To sum up, the one-proposal rule had both positive and negative effects. We summarize the main effects in Table 4.2. Among the positive aspects, we can conclude that there was more intense cooperation between the involved parties. Administrative processes (such as a centre agreement) were sorted out prior to the project start and the structure of the proposals were highly integrated within the respective organisation. We can also conclude that the number of proposals was relatively low as was a target from the perspective of SSF.

Among the negative aspects, the one-proposal rule implicated that some consortia experienced a "limbo state" in the initial phases of the call period since the projects were dependent on the participation of specific key industry partners. Organisations might also behave comfortably and cooperate within already established elationships. Also, a lot of resources (that otherwise could be spent on improving the proposal) were spent on forming each consortia.

TABLE 4.2
Effects of the one-proposal rule

Positive effects	Negative effects
• More intense cooperation between parties in the proposals (when the consortium was finally formed). • Many administrative aspects sorted out within the call process. • Fewer proposals • Large integration in line management (see Chapter 5.	• Uncertainties regarding which proposal to participate in, and which other organisations that participate in the proposal, in early phases of the call process. • Risks that organisations behave comfortably and end up in already establish relationships. • Much resources spent to form a proposal and a relevant consortium.

5 Integration of proposal in line management and strategy

In this section, we discuss the integration of proposals in the line management and the strategies of participating organisations. More specifically, we discuss the involvement of the highest level of the line management, and to what extent the project proposals fit into the strategies of participating organisations. The insights are summarized in Box 5.1 below.

BOX 5.1
Summary of insights

- High integration in line management and support from the top of organisations
- Higher management generally not involved in details – especially in large organisations in the private sector
- Substantial informal mandate to coordinators in large companies
- Proposals in line with organisational strategies

5.1 Integration in line management

As discussed in depth in the sections above, an important aspect of the terms for submitting proposals within the call for IRC15 is the limitation to participate in a single proposal. This limitation implicated that participating parties had to weigh their priorities carefully to maximize the probability to attain funds. As only one proposal was allowed, participants were challenged to identify relevant projects that could be anchored/integrated in the top management of the organisation, both within universities and other organisations.

Overall, the participation in a proposal within IRC15 has been highly integrated in the line management of organisations. Since only one proposal was allowed, considerable efforts were made within the line management to determine which strategies to follow and which proposal to participate in. The final decisions regarding participation in a proposal were often made at the highest level within the line management (such as country or group managers).

There were several external factors that affected the internal processes within the line management regarding the prioritization between proposals. As each stakeholder were only allowed to participate in one proposal, participants did not only consider which projects that might be relevant from an R&D-perspective, but also which project that had the highest likelihood to be granted funding. Thus, different organisations had different underlying motivations to enter the projects, which also affected the processes internally within the line management. Large companies involved in the call process usually faced an internal prioritization process - some of them could choose between participation in 3-4, or sometimes even more projects. Many large companies describe the process of comparing projects relevant for different business units as troublesome

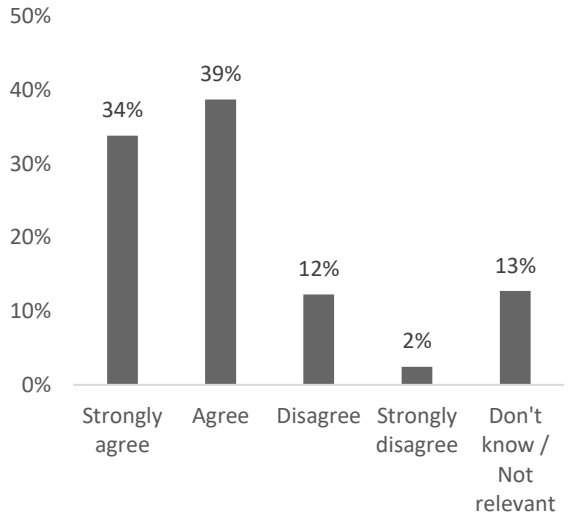
since the research areas can vary substantially. In smaller companies, the proposals were generally well known among the higher management and the process were more informal. In larger companies, the strategy of participation was often organized by high-ranked individuals, that coordinated the processes to decide proposal to participate in.

The one-proposal rule increased the need to involve the top management within organisations. As different parts of a company or a university department were not able to participate in different proposals, the final decision was often made by the executives (or other corresponding managers) in an organisation. Most larger organisations had key individuals (such as R&D-managers) that coordinated the process of prioritizing proposals. These key individuals had substantial informal mandates to prioritize between proposals. The managing levels of larger organisations were to a relatively small extent involved in details of the proceedings but rather had an assuring and controlling perspective.

5.2 Integration in strategies

The proposed projects were generally well integrated into the strategy of participating organisations. Many organisations, both within academia and the private sector, express that the proposed projects are within the core of each organisations research activities. As only one proposal was allowed, organisations prioritized to invest in important, strategic research areas. Many respondents also agree to the statement that the call encouraged research in disruptive technologies, see Figure 5.1.

FIGURE 5.1
The design of the call encouraged research in disruptive technologies



Note: *N* = 94

There are some minor exceptions to the statements described above. Some projects relied on the participation of specific organisations, but due to the limitation to only participate in a single proposal the key partners in some cases (late in the call process) chose to participate in another consortium. This also implied that the focus of the project changed, and the remaining organisations experienced that the degree of integration of the proposal in its own strategies changed in a negative manner. Also, as described in Chapter 4, some respondents experienced a conflict of interest between the one proposal rule and the ambition for disruptive technological development in the projects, as the restriction led to a situation where large companies might focus on their home turf instead of getting out of their comfort zone and explore other research areas. That is, as incentives were high to prioritize important research areas close to the core of research strategies, there was also a risk of decreasing the disruptive elements in the proposals.

Within larger companies such as Volvo, SAAB and Ericsson, research is conducted in the entire range from basic to applied research. The research strategies of large corporations contain a very broad spectrum of focus areas, and the participation in projects within IRC15 often covers a small part of that strategy. Industry partners assess that the project proposals are located close to the initial phases of the company's value chain, and that the projects focus on basic research rather than applied research. Worth noting though, is that respondents from the private sector assess that while the economic outcome of the project might be uncertain, and of considerable size only on a long-term basis, the research within the projects were expected to create substantial knowledge relevant for many different parts of an organisation – not only for the specific researchers and staff active in the specific project.

6 Influence of non-academic parties

A purpose of the call for IRC15 is to support and encourage collaborations between universities and non-academic partners. In this section, we cover the influence of non-academic stakeholders in formalizing the contents and structure of the project proposals. We discuss to what degree the proposals have been defined, controlled, and influenced by non-academic parties. We focus primarily on the influence by industry partners. The main insights are presented in the Box below.

BOX 6.1
Summary of insights

- Project ideas often originate from (i) academic departments or (ii) in dialogue between academic departments and industry
- Companies very positive to participating and taking prominent roles in proposals
- Projects regarded as important for:
  - Increasing knowledge within key strategic areas
  - Expected long term economic benefits
- Non-academic partners had significant influence on proposals
- Due to the one-proposal rule, projects often depend on participation of key companies which increases the influence of industry partners.

6.1 Considerable influence by industry partners

Industry partners agree that the call for IRC15 was formulated in a manner that encouraged involvement of prominent Swedish companies. In interviews, industry partners point out that the proposed activities within IRC15 encourage research with large potential for both scientific and economic breakthroughs. Even though the projects are regarded as characterized with a relatively high degree of risk, the expected value in the form of scientific knowledge in the short term and economic returns in the long term are both regarded as high. These expectations created incentives for companies to actively participate in the process of forming the project, and were the main reasons as to why industry partners were very positive to participation in the consortia.

The ideas for projects within IRC15 often originated within academic institutions, or in dialogue between academic institutions and key industrial partners. A common identification process of the projects involved academic-industry collaboration. Even though the ideas for the proposals often originated within academic institutions, either with or without involvement of other organisations, the industrial parties had considerable influence on the proposals. Especially the one-proposal rule has affected the influence of industry partners.

The practical implementation of projects ideas (both submitted and not submitted) often depended on the participation of specific key companies. In some cases, an idea to a proposal originated within an academic department, where the implementation of the proposed activities required a participation from a specific industry partner. As academic departments were aware that key industry partners could only participate in a single proposal, they were keen

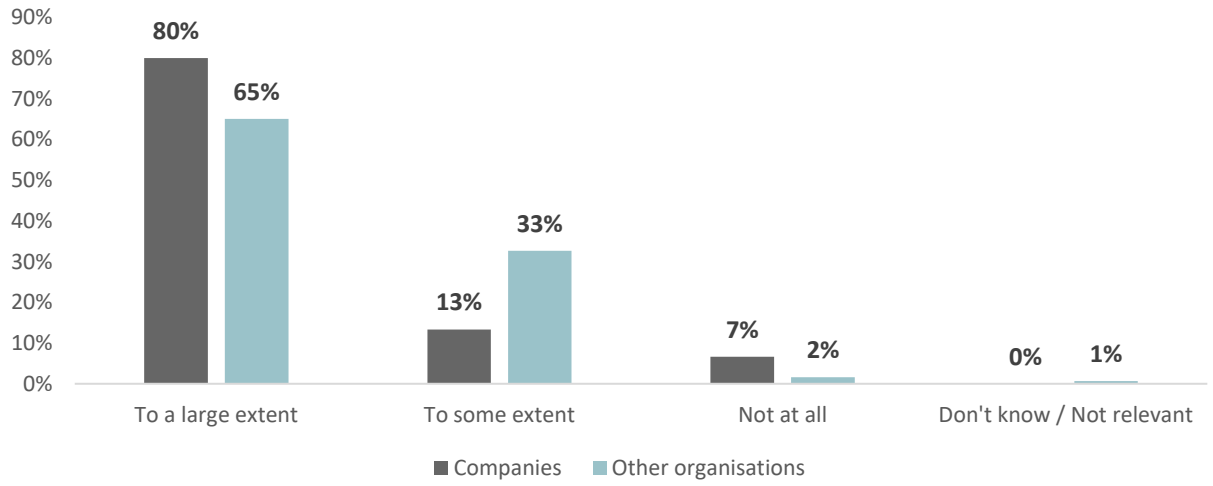
on making the proposals as attractive as possible for industry partners. Some companies were able to choose among several different proposals, and could choose the most appealing project based on the company's strategy and expected return from the participation. Due to this phenomenon, many proposals were formed on the basis of making the project as appealing as possible for key industry partners. As they often were important regarding the implementation of proposed project, industry partners often had prominent roles in the forming of the proposals and were to a large degree able to form the proposals to their own interest. This include matters from detail level such as formulations in the proposals, but also broader aspects such as deciding which other organisations that should be part of the consortia and other crucial strategic decisions.

Applicants involved in the proposals agree to the statement that the influence of non-academic partners on the project proposals are high. In Figure 6.1 the opinions regarding to what degree the proposal was influenced by non-academic parties is presented. We separate between companies and other organisations to describe the difference in opinions between the private sector and other types of organisations.

A large majority of the respondents express that the process of forming the proposal to a large extent was influenced by non-academic parties. Very few respondents express that the proposal was not influenced by non-academic parties at all. This is a strong indicator that non-academic partners had considerable influence on the proposals.

Note also that companies, compared to other organisations, to a larger extent express that the proposals are influence by non-academic parties. Eight out of ten companies find that non-academic parties influence the proposals to a large extent – the corresponding statistic among other organisations is 65

FIGURE 6.1
To what degree was the proposal influenced by non-academic parties included in the proposal (i.e. companies or public institutions)?



Note: *N* = 94

percent. The survey respondents within research institutes are too few for generalisations, but their opinions are in line with the general pattern of large influence by companies.

6.2 Different degree of influence on the proposals

The large influence of non-academic partners does not imply that *all* industry partners experienced considerable influence on the proposals. In most proposals, one or two strong industry partners had large impact on the proposals, while other, smaller organisations often adapted to the main outlines of the proposals.

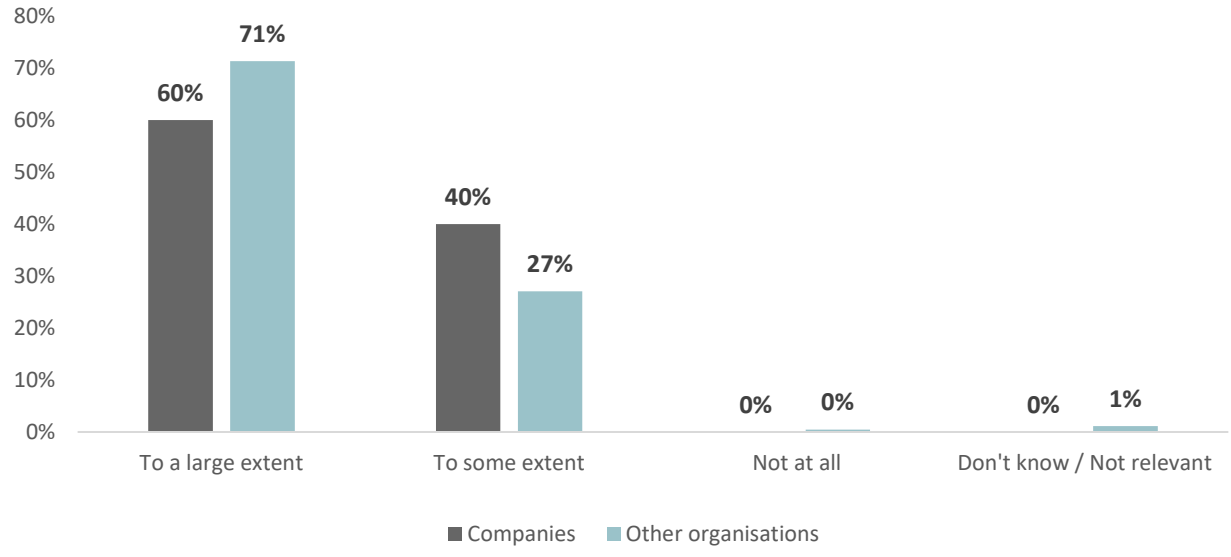
An indication of such a pattern is presented in Figure 6.2. When asked about the degree of involvement from the own organisation, companies find that they to a smaller degree were involved in the process to formalize and define the contents of the proposal compared to other organisations. Many smaller companies were not explicitly involved in the formation of the proposals.

In general, larger companies find that they are more active in the process of forming the proposal. Altogether, there are some considerable differences in the involvement of different kind of industry partners are worth pointing out:

- Larger companies have been more influential than smaller companies.
- Larger companies are more involved in the formation of the proposal compared to smaller companies.
- Smaller companies are not as vital for the implementation of projects as larger companies.

Worth noting is also that merely a single respondent remarked that his or her organisation was not active in formalizing and defining the contents of the proposals at all. That is, basically all participants, both academic and non-academic, were involved in the formation of the proposal to at least some extent.

FIGURE 6.2
How active was your organisation in formalizing and defining the contents of the proposal?



Note: *N* = 94

7 Gender equality in proposals

This section covers gender aspects within the call process. Explicitly, we discuss how gender equality has been managed and communicated when formalizing the bid. The main insights are summarized in the Box below.

BOX 7.1
Summary of insights

- Of 25 proposals, only one was led by a woman
- Female co-applicants twice as successful as male co-applicants
- Consortia with larger share of women more successful
- Gender equality aspects in proposals do not live up to SSF:s desired standard

7.1 The share of women in proposals

In Table 7.1 the main- and co-applicants within the call for IRC15 is summarized by gender.[7] The total number of applicants (both main and co-applicants) within the call was 285. The share of females among the applicants was 23 percent. The total number of male applicants in the proposals was 220 while the number of women amounted to 65.

59 applicants, corresponding to 21 percent, was involved in proposals that were granted funding. A relatively large share of women co-applicants was active in projects that were granted funding. 34 percent of women co-applicants were involved in projects that were granted funding – the corresponding statistic among men is 17 percent. That is, on an individual basis the female co-applicants were twice as successful as male applicants.

TABLE 7.1
Gender statistics

Male / female	Proposals	Granted	Share
Male – main applicants	24	3	13%
Male – co-applicants	196	33	17%
Female – main applicants	1	1	100%
Female – co-applicants	64	22	34%
Total	285	59	21%

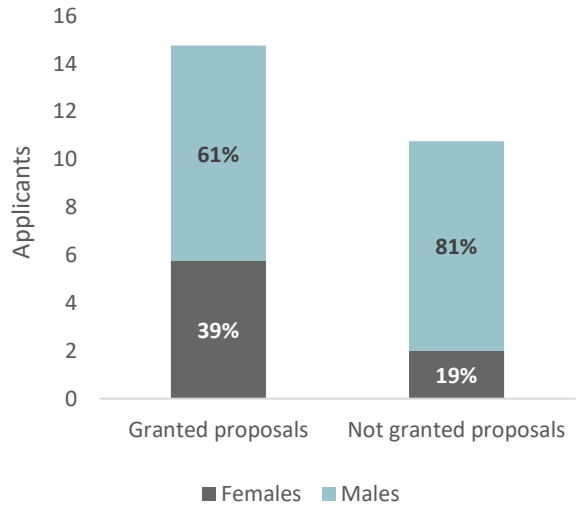
Note also that consortia that were granted funding were slightly larger than the proposals not granted funding. In Figure 7.1 the number of applicants in granted and not granted proposals is presented.

[7] The statistics corresponds to the data presented in Table 2.1.

The mean number of applicants in granted proposals was 14,8. The corresponding statistic among proposals that were not granted funding was 10,8. Four of ten applicants in granted proposals was female while two of ten applicants among proposals not granted funding was female.

Note also that the mean number of males was basically the same in granted and not granted proposals (9 and 8,8 respectively), while the number women was almost three times higher in granted proposals (5,8 and 2,0 respectively).

FIGURE 7.1
Number of applicants in granted and not granted proposals



Note: The labels describe the share of men / women among (i) granted and (ii) not granted proposals respectively

Although consortia with more female applicants were more successful, it is worth pointing out that only one of the 25 consortia was led by a woman. This consortium was among the four projects that were granted funding.

7.2 Gender aspects in proposals

Gender aspects was used as an evaluation criterium within the call for IRC15. In the call document, it is stated that gender equality has to be managed and integrated in the organisation and operations of the centre among the composition of the board, SAC, applicants etc. A specific evaluation criteria was also that governance and management within the project should including gender aspects.[8] Note also that SFF point out gender equality as a strategic factor for research in the foundations Research Strategy 2017-2021, including balanced acceptance rates among men and women, and a strive for balance among applicants.

Overall, gender issues have not been considered by the applicant parties to an extent that corresponds to SSF:s ambitions. In the proposals, this aspect is often discussed briefly and lightly. Main applicants (of which 96 percent were men) very often explain that that the share of women in higher positions is low within the academic field of the proposal, which implicates challenges in finding competent women. In some project proposals though, there were efforts made to apply a standard practice rule of 60-40 to balance the equality of each sex, or delimit the inequality, when staffing the project. Worth noting is also that many consortia delimited the discussions about gender aspects to promoting a certain share of women involved in the project, while aspects such as long term efforts to encourage female researchers within the projects area of research, or expected positive aspects of a diverse work place were left out.

[8] See Box 1.1

It is worth pointing out that all governmental academic institutions (and Chalmers University / Jönköping University) have been assigned to implement gender mainstreaming[9] during 2016-2019. Gender mainstreaming is a strategy to integrate men's and women's concerns and experiences in the political, economic and societal spheres. The purpose of gender mainstreaming within academic institutions is to create an environment where both men and women have the same opportunities to reach academic successes. In practice, gender mainstreaming should be integrated in the processes within the academic institutions, which implies that also the proposals should consider gender aspects. Worth noting is also that while academic institutions are required to take gender aspects into account, the industry partners are not compelled to consider such aspects.

A concern that have been raised among both evaluations groups and applicants is that the one-proposal rule might counteract the willingness to include (i) young and (ii) female staff in the project. The reasoning behind this concern is similar to that regarding the level of disruption in the proposals – departments might behave risk-avert and appoint experienced, well reputed researchers instead of investing in ambitious young researchers. Since the first group consists primarily of men, the share of women might be held back due to the one-proposal restriction. A possibility to increase the gender aspects in proposals is to further emphasize this in the call document – and possibly also be specific regarding what is expected of the consortia.

[9] "Jämställdhetsintegrering"

8 Overlap with other calls

In this section, we discuss the potential overlaps between the call for IRC15 and other calls relevant to the stakeholders in the proposals. Explicitly, we discuss to what degree IRC15 overlaps other programs, from the perspective of the participating companies – and if the overlaps have a positive or negative influence. A summary of the insights is provided in Box 8.1 below.

BOX 8.1
Summary of insights

- No substantial overlap. IRC15 is:
  - aimed towards basic research (disruptive technologies), while
  - relevant for industry (co-production)
- Small risk of dead-weight losses since small number of centres granted funding

From an economic perspective, a purpose to finance academic research with public resources is to create knowledge that benefits the whole society and counter-act a market failure where the amount of resources for research is lower than optimal from a societal aspect. On the other hand, a risk with public funding of academic research is that too much resources might be used for a specific type of research, which would create overlaps since the resources is not used in an optimal manner. This also applies to the call for IRC15, where there is a risk that the call overlaps with other call processes in the public funding system, creating dead-weight losses. For example, during the same period as the call for IRC15, VINNOVA had a similar call for Competence Centres[10] (CC). SSF and VINNOVA also held a joint information meeting regarding the calls for IRC15 and CC.

An important aspect of calls managed by SSF is to maximize the number of proposals within the relevant realm of SSF. In Figure 8.1, a hypothetical distribution of proposals on the scale from basic research to applied research is shown. Somewhat simplified, the Swedish research Council (Vetenskapsrådet) is a primary financier to the left in the figure, while VINNOVA is a typical financier regarding applied research to the right in the figure. The funding provided by SSF is found (again, somewhat simplified) in the middle of the scale. The proposals within calls from SSF should be in the middle of the scale – therefore, it is important that IRC15 is positioned and designed in a manner that promotes suitable proposals.

There are several calls for research funding that operates within the same spectrum as IRC15. An overwhelming majority of the respondents, both in the survey and in interviews, point out that VINNOVAs call for Competence Centres (CC) lies close to IRC15. Therefore, we will concentrate the discussion on overlaps with other calls to VINNOVAs call for CC.

[10] Swedish: ”Kompetenscentrum”

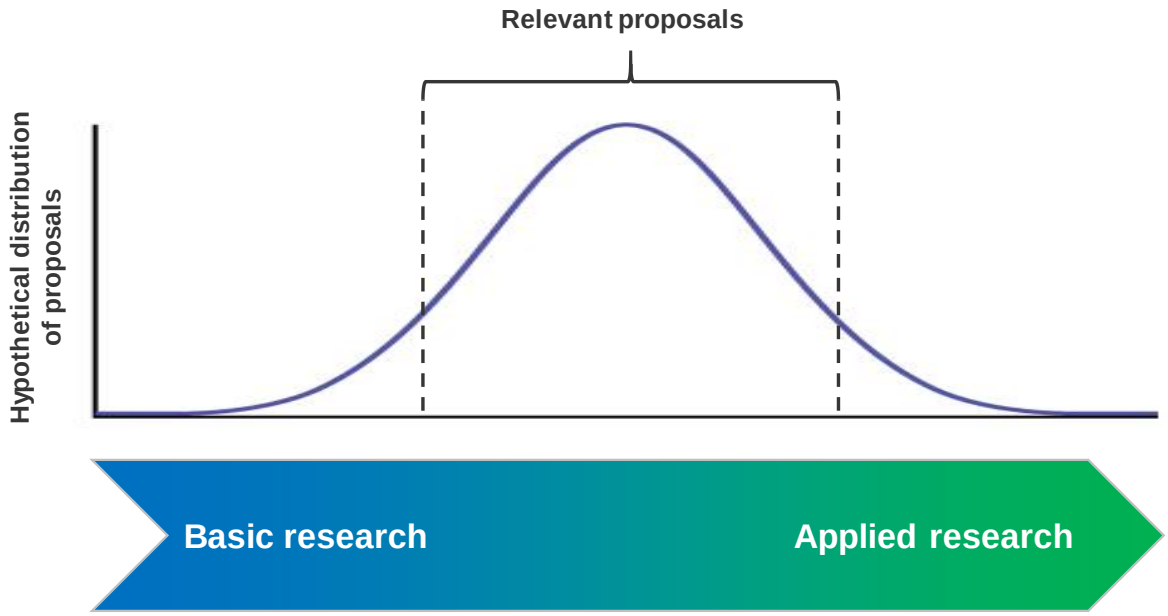
8.1 VINNOVA Competence Centres

In this section, we shortly describe VINNOVAs call for Competence Centres. A CC is based on threefold financing from (i) VINNOVA, (ii) academic parties / institutes and (iii) private / public sector. The cooperation should focus on a specific research area to create and utilize new knowledge.

The latest call (where funding was granted in April 2017) is a development of previous calls such as the Competence Centre Program[11] (1995-2007) and the VINN Excellence Center Program (starting 2004). The call consisted of two parts: (i) open calls every third year, where a maximum of eight centres will be funded and (ii) a single call to existing VINNOVA centres, where five centres will receive further funding. The call is aimed towards groups of parties, within all research areas, with an idea to create an excellent research environment based on cooperation. The coordinator should be an academic part or an institute that creates a proposal together with co-applicants within the private and / or public sector. There is no maximum or minimum number of partners in the project, but cooperation is an important aspect of the centres.

The criteria to be awarded funding include the potential to create a research environment with scientific knowledge, the degree of cooperation, quality of the leadership, critical mass, the need of a research centre within the specific research area, the potential to stimulate additional future investments in the research area and how prioritized the research focus is within the organisation of the main applicant. The centres are awarded funding for 5+5 years, where the funding for the last five years depends on the results from an international evaluation. There

FIGURE 8.1
Optimal distribution of proposals



[11] Swedish: ”Kompetenscentrumprogrammet”

will be specific funding for small and medium-sized enterprises (SMEs). This funding amounts to one million SEK annually.

Among the similarities between CC and IRC is the importance of industrial participation. Both calls are need-driven, in the aspect of creating strong research milieus that creates new knowledge with relevance for parties in Sweden. Another similarity is that the centres will undergo a mid-term evaluation for additional funding, and the requirement of a centre agreement between the applicants.

Although there are similarities between the calls for IRC15 and CC, there are also several differences. Among the most significant is the restriction of only one application from a stakeholder, and that there is only one call for proposal for IRC15, while CC is a recurring type of call. IRC15 have higher focus on earlier parts of the value chain and disruptive technologies which implies higher risk and longer time to market than CC. There were also potential to higher funding per centre in IRC15.

One project manager for a proposal within the call or IRC15 experienced synergies between the proposal for the VINNOVA-program and the proposal to IRC15. Much work within the call for CC could be reused to get a head start for the proposal to IRC15. Another project manager explained that basically the proposal was sent to both calls, hoping that at least of the applications would be granted.[12]

8.2 Other programs for research centres

From the perspective of the applicants, there are mainly three other types of research centres, apart from the VINNOVA-program described above, within the Swedish R&D-landscape in recent history. These programs are:

- Linné Centres administrated by the Swedish Research Council,
- The research profiles administrated by The Knowledge Foundation, and
- Competence Centres within the energy area administrated by the Swedish Energy Agency.

These programs differ from the IRC15-program in several manners. The Linné centres (Swedish Research Council) might be regarded as more focused on basic research than IRC15. In total 40 centres has been granted funding via the Linné program. 20 of them were granted funding in 2006 and the other 20 were granted in 2008. The centres are running over a 10-year period, and are sharing funds of approximately 270 million SEK during the time.

The research profiles (funded by The Knowledge Foundation) are focused on public-private partnerships and industrial collaboration between industry and academia. This program is aims to bolster the younger higher education institutes in Sweden.

Finally, eight competence centres were funded by the Swedish Energy Agency within the energy area. Five of them started between 1995 and 1997 and another three started in 2011. Thus, it has been more than 20 years since the first centres were established in 1995. The 3 most recent centres focused on combustion engines, smart grids, and gasification of biomass.

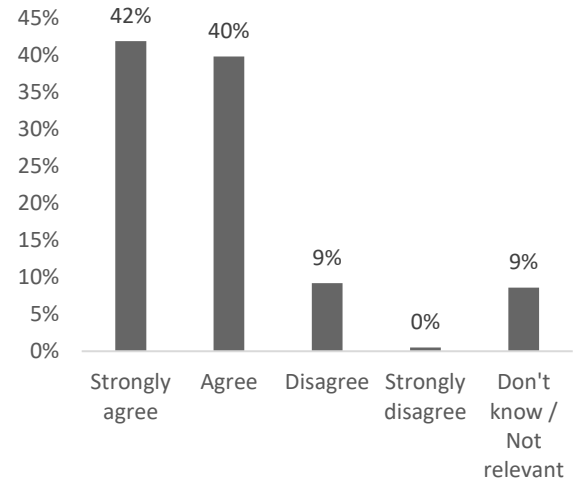
[12] This particular proposal was not funded, and feedback was given on the lack of international scientific cooperation and low involvement of strong industrial partners, implying that the centre might be more relevant within VINNOVAs call.

8.3 Overlaps

The overlaps of other types of funding are not substantial. The other types of centres are located at other parts of the scale in Figure 8.1. In particular, many applicants find that VINNOVAs Competence Centres are more aimed towards product innovation rather than research, and some point out that the risk is higher in a project within IRC15 due to a higher focus on basic (and disruptive) research. The time from research to market is expected to be shorter in projects within CC compared to IRC15.

The projects leaders and co-applicants also find that IRC15 is a unique type of funding. Eight of ten respondents agree (or strongly agree) to the statement that IRC15 has a unique position within the Swedish R&D landscape, see Figure 8.2.

FIGURE 8.2
The call holds a unique position within the Swedish R&D-funding landscape



Note: *N* = 94

One should also take into account the relative low number of granted centres within IRC15. Only 4-8 centres were to be granted funding (and in the end, only four applications were granted). The applicants express that there is a high demand on funding of centres similar to IRC15, which is a strong indicator that the overlaps are relatively low.

9 Discussion

In this chapter, we discuss the results of the report, and highlight the main findings. We also discuss alternative designs of upcoming calls of similar focus, size and design as IRC15. A summary of insights is presented in Table 9.1 below.

9.1 Main findings

In this section, we summarize the most pronounced findings regarding the call and evaluation process of IRC15.

The call was administrated very well

Overall, the applicants have a positive view of the call and evaluation process – even though successful participants are more positive than less successful participants. Applicants find that the administrative process within the call was very well executed. Also, participants in the evaluation group find that the call was administrated very well. The information provided by SSF was very good, and questions raised during the process were well answered. Applicants particularly express that contacts with representatives from SSF during the call process was very good.

Both positive and negative effects of the one-proposal rule

The most characteristic feature of the call for IRC15 was the one-proposal rule, which implied that an organisation could only participate in a single project proposal. Many applicants express strong opinions regarding this limitation – most of them negative. Even though the restriction had the intended effect of decreasing the number of applications and stimulating cooperation and prioritization within and between organisations, there were also negative effects, such as uncertainties and difficulties in initial phases of the process and risks that some prominent project proposals were not created because key organisations chose to participate in other projects.

Committed industry partners

Many prominent Swedish industry companies participated in the call, and the industry partners were very committed within the consortia. The proposed design of the centres were expected to bring large values to the organisations in the form of increased knowledge within key strategic areas and expected long term economic benefits. The one-proposal rule imposed organisational challenges within large industry partners, but when a consortium was settled the commitment was very strong.

IRC15 in the research funding landscape

The applicants regard IRC15 as an important call within the Swedish research funding system. IRC15 shares many features with VINNOVAs call for Competence Centres, but is to a higher degree associated with basic research and long term effects. The funding per centre is higher within IRC15, which allows for more intense and long term research. A characteristic feature of IRC15 was also the focus on disruptive technologies – an aspect covering basic research with the purpose of commercializing specific technologies on a long-term basis, which gives a unique position in the research funding landscape. Also, since few centres were approved the overlaps can be considered very low.

TABLE 9.1
Summary of insights

Question	Insights
Perception of the call and evaluation process	- Overall positive view of the call and evaluation process – although successful participants are more positive - Positive view on the information and feedback by SSF during the call and evaluation. - The hearing was a very valuable part of the evaluation of proposals - Demanding to form a centre agreement prior to the hearing
Prioritizing and foreclosure effects	- Substantial foreclosure effects - Restrictions had unclear impact on quality of the proposal - Initial scramble and catch-22 dynamics to find partners - The call encouraged cooperation and prioritization - Skepticism towards one proposal restriction among applicants - The process to form the proposal was demanding and required more resources than usual
Integration of proposal in line management and strategy	- High integration in line management and support from the top of organisations - Higher management generally not involved in details – especially in large organisations in the private sector - Substantial informal mandate to coordinators in large organisations - Proposals in line with organisational strategies
Influence of non-academic parties	- Project ideas often originate from (i) academic departments or (ii) in dialogue between academic departments and industry - Companies very positive to participating in proposals - Projects regarded as important for: ▪ Increasing knowledge within key strategic areas ▪ Expected long term economic benefits - Non-academic partners had significant influence on proposals - Due to the one-proposal rule, projects often depend on participation of key companies which increases the influence of industry partners.
Gender equality in proposals	- Of 25 proposals, only one was led by a woman - Female co-applicants twice as successful as male co-applicants - Consortia with larger share of women more successful - Gender equality aspects in proposals do not live up to SSF:s desired standard.
Overlap with other calls	- No substantial overlap. IRC15 is: ▪ aimed towards basic research (disruptive technologies), while ▪ relevant for industry (co-production) - Small risk of dead-weight losses since small amount of centres granted funding

9.2 Alternative design of future calls

In this section, we discuss alternative designs for upcoming calls similar to IRC15. The alternative designs of the call are based on the experiences from the empirics presented in this report.

Alternatives to the one-proposal restriction

A distinct consequence of the one-proposal rule was the relatively low number of submitted proposals. Eight of ten participants judge that participation in more than one project proposals were at least somewhat likely without the one-proposal rule. Therefore, SSF:s ambition the receive a low number of applications was achieved. Also, even though individual applications required relatively large amount of resources, the system as a whole saved resources as few proposals and consortia were created.

Even though many desirable aspects were achieved with the one-proposal rule, there were strong opinions among applicants regarding this framework. One might therefore consider an alternative, but still limiting approach. An alternative to the one-proposal rule used within IRC15 is to allow more than one proposal per organisation – but still use some limitation regarding the number of proposals per organisation to keep the incentives to prioritize and commit. The practical implementation of such a rule for companies might e.g. be one proposal per legal unit or 2-3 proposals per company group. Another alternative is to assign a specific amount of allowed proposal participations to organisations of different sizes, based on key figures such as the number of employees. This could take the form of e.g. 1 participation for small companies, 2 participations for medium-sized companies and 3 participations allowed for large companies. A similar principle can be applied to academic departments of different sizes.

Another relevant aspect is that the one-proposal rule created troublesome processes within many organisations, which in turn implied that the call created negative associations towards SSF. Not all organisations experienced such difficulties, but by allowing more than one proposal, the risk of negative associations towards SSF would decrease.

Note though that frameworks in which more than one proposal (but still limited to a specific amount) per organisation might entail difficult considerations of what constitutes an organisation (or a part of an organisation) that is permitted to submit a certain number of proposals. There is a risk that such limitations would entail arbitrary decisions, simply because too much effort might be needed to define the characteristics of each participating organisation.

Another relevant aspect is that the participating organisations have gone through the process of managing a strategic partnership within the call for IRC15. If similar calls would include similar limitations, many organisations now have at least some experience of handling such a process again.

Evaluation process

The hearing was an important part of the evaluation process within IRC15. Similar implementations of hearings in upcoming calls, where members of the evaluation committee take part of the sessions, can be expected to be very useful also in upcoming calls.

The administrative activities within the call was very appreciated among both applicants and evaluators. Even though the positive feedback primarily is aimed towards individual administrators, the administrative structures within the call for IRC15 should be reused for upcoming similar calls. An exception to the positive view on administrative aspects within

the call is the portal used for administrating proposals. Many evaluators found it difficult to use, and a simplified solution for handling proposals might be considered.

The only negative aspect pointed out by participants regarding the information provided within the call is the short feedback received when a proposal was rejected. An alternative to the current form of rejection letters is to provide more information when a project is rejected – although there is balance between providing information regarding why the project is rejected and descriptions of alternative designs of the projects. There is an ongoing debate regarding the amount of information and feedback a financier should provide when rejecting a proposal. Somewhat simplified, proponents of extensive information to rejected proposals argue that the quality of future proposal will increase if feedback is provided, while opponents argue that a financier should not influence the applicants and contribute to the formation of upcoming proposals – creating a potential bias situation.

Gender aspects

Even though SSF explicitly used gender aspects as an evaluation criterium, many consortia treated this part relatively lightly. As gender aspects had relatively low priority within many project proposals, there is a possibility to further emphasize the expectations on the participating organisations regarding this evaluation criterium in a more detailed manner. To increase the awareness and understanding among applicants on this issue, the call document can be formed in a manner that even more explicitly than the IRC15 call document describes what is expected from a project proposal regarding gender aspects. This might not only include securing a certain share of female researchers but also explicit descriptions on how activities within the project will be formed to promote and support female staff on both short term and long term basis. To avoid that gender aspects is treated lightly, an important aspect is also to explicitly state that the weight of this evaluation criterium is equivalent to other aspects such as industry involvement and relevance for Swedish industry and society.

Profiling and structure of centres

The size of and proposed research activities within the centres are well positioned within the Swedish research landscape. The potential funding is slightly larger than VINNOVAs Competence Centres, while the proposed research within IRC15 is more focused on basic (disruptive) research.

Some applicants find that the centres are more aimed towards specific academic fields such as life science (three of four granted project were within life science or bioengineering, while none of the nine submitted proposals within Material Sciences and Technology were granted funding). An alternative approach is to conduct separate evaluations within different academic fields and grant a specific number of proposals within each field.

10 Appendix

SSF Call for proposal: Industrial Research Centres

In this section, the call for proposals within IRC15 is presented. The call document was published 2015-09-23 with Dnr IRC15-0000.

The Swedish Foundation for Strategic Research announces SEK 400 million in a national call for proposals for long term problem- and application driven Industrial Research Centres (IRC:s) that meet the highest international scientific standards. The call aims to stimulate truly collaborative research between industry, research institutes, and academia.

Each Centre will be granted approximately MSEK 50 to 100 in total for a period of 6-8 years, i.e. approximately MSEK 6 – 17 per year, including overheads. Funding for the last three-four years will be contingent upon a successful midterm evaluation. SSF will approve up to 8 Centres.

Background

Sweden has very successful and research intensive industrial sectors. During the last 10-20 years attempts have been made to promote collaboration opportunities between industry and the Swedish universities that now are successfully striving to become more complete academic environments, interacting with society.

Our research and innovation system need both “push” by innovative scientific environments and “pull” by demand driven innovative value creators. Other agencies fund so called competence centres, with varying degree of industry lead, for many years and the effects/impact and experiences have been well documented. SSF has supported Strategic Research Centres between 2002 and 2012.

Scope of the present call

The purpose of the present call is to boost long term problem- and application driven research centres encompassing truly collaborative research ecosystems between industry, research institutes, and academia. This “boost” must fit into the long term business plan of all industrial partners at highest management level. The Centre should be strategically defined around explicitly formulated industrial needs with corresponding formidable research challenges and the research problems should be defined and pursued together by the industrial and academic partners. The scope of the IRC must be concentrated on disruptive innovation including new enabling technologies and/or emerging technology shifts in a long-term perspective.

The Centre is focused on pushing the limits of the needs driven research challenges, by the use of scientific methods, technology transfer, and promotion of next-generation technology. Development of present/near implementation technology platforms are outside the scope of this call.

Eligibility

An Industrial Research Centre consists of preferably 2-5 industrial partners (companies) together with 1-5 partners from academia (departments) or research institutes. At least one of the partners must be a department at a Swedish university, which becomes the administering organisation for the grant.

The IRC is characterised by collaboration between several research groups from different organisations. The IRC has a Board consisting of 3-5 industry persons (representing the industrial partners in the Centre) and a Centre Director from academia or research institute. The board, with a chair from industry, will have the mandate to recommend SSF to terminate the funding as whole or parts, if they are not satisfied with the development of the IRC, or to change the management of the IRC.

Each of the applying partner may be represented in only one application to SSF. The reason for this is to ensure that all partners in an application have prioritized their efforts into the most promising area of research and future market (long term market). Partner in this case is meant company, research institute, public authorities, and university institution/department. SSF thus expects to receive few, but well elaborated, applications since only up to eight Centres will be approved.

The grant can be used for, e.g., salaries (senior researchers, postdocs, PhD students, etc.), research tools, and running costs according to the needs of the Centre. All industry partners must fund their own participation in the IRC with a combination of in-kind and cash by a minimum of 20 % of the total budget of the Centre. The application must, besides demonstrating how the SSF grant will be distributed, clearly display all co-funding (in-kind, cash, lab usage, etc.) from the industrial partners. The amount of co-funding will be an important criteria in the review of the proposals, demonstrating the level of engagement from the industrial partners and thus the feasibility of the Centre.

The application must be elaborated jointly by all the partners in the Centre and submitted by the Centre Director (main applicant). The main applicant must be a prominent researcher employed by a Swedish university or research institute and must be prepared to assume operative responsibility for the Centre during the entire grant period. Co-applicants are the researchers from (i.e. employed by) the collaborating partners, industry, public authorities, research institutes, and university departments. The research plan must clearly demonstrate the roles of all the co-applicants in the Centre. International research organisations (partners) may participate only on their own budget, apart from international researchers that becomes employed in the Centre through the participating Swedish partners. It is also important to prove the strategic relevance for each partner at the highest management level in the application, e.g., in forms of letter of intent.

The companies shall normally be registered in Sweden, or so close to Sweden that the exchange can work practically and be justified strategically for Sweden. Instead of a company, the industrial party may also be a hospital if the Centre involves clinical research, e.g., implementing medical technologies.

Since the IRC:s differ greatly depending on the scientific and commercial areas the parties must themselves propose a concise set of long/short term key performance indicators (KPI) upon which the Centre can be evaluated in the midterm evaluation. These indicators must concern scientific, managerial, and business qualities and substance as well as strategic relevance impact. Each of these should be elaborated in the research plan and tightly connected to the goals of the Centre.

The IRC must also assign an international scientific advisory committee (SAC), proposed already in the application.

For the organisation and operations of the Centre, the gender equality has to be managed and integrated, respectively (composition of board, SAC, applicants, etc.).

A maximum of 25% of the overall grant may be used for salaries for the Main applicant and/or for the Co-applicants (i.e. these individuals) taken together. However, no more than 25% of the salary of each applicant (i.e. the same individuals) may be covered from the SSF grant.

A Centre Agreement signed by all partners will be required from the consortium of the application, if and when it is selected for a hearing. The period for this contract is recommended to be at least 3 years.

Funding for the last three-four years will be contingent upon a successful midterm evaluation. The budget allocation from SSF will be a decision of 300 million in conjunction with the Centre's start and 100 million will be decided and distributed by SSF after the mid-term evaluation.

Applications not conforming to these conditions will not be considered. It is the responsibility of the main applicant to inform all the co-applicants and to check the proposal for compliance before submission.

Proposal and submission

A complete application must contain, among other data specified in the portal, a full description of the research plan and details of the relevant and complementary expertise of each of the participating groups. It should also contain a clear account of the strategic significance of the research, including an IPR plan and plan for utilisation/exploitation of the results in Sweden during the Centres lifetime as well as for up to 10 years after completion of the Centre.

Each proposal shall clearly describe the international state of the art within the area(s) addressed. It is also important for the proposal to give a clear picture of the resources available and to demonstrate that the proposed constellation of all partners (industry, research institutes, and universities) will be effective in view of its objectives.

The application must be signed by the vice chancellor of the administering organisation, the Centre Director, and all of the board members, i.e. all partners.

All partners must attach letters of intent from the highest management level (head of research, or the equivalent).

The proposal must be written in English and submitted via the SSF portal at: http://apply.stratresearch.se. Note that in order to get a complete view of all data required for submission it is necessary to consult the portal. Please log on to the portal well in advance of the deadline. Please also submit the application in due time before the deadline. When the application is submitted, the system will reject it if some data field is missing. As long as this is done before the application deadline it is possible to submit and re-submit as many times as necessary. Use FAQ-document at SSF www to look for additional clarifications during calls for proposals. This FAQ will be regularly updated.

All applications must be submitted by **14:00 hours (2:00 pm CET) on 4 May 2016**. No additional material will be considered after this deadline, unless explicitly asked for by the Foundation. 4/4

Evaluation

Applications will be assessed by an evaluation committee consisting of national and international experts from industry, academia, and research institutes as well as by external international peer review.
The applications will be reviewed using the following criteria:

- Conformity to the scope and eligibility as outlined above
- International state of the art of science and relevance for industry. Also plans for international scientific and/or industrial cooperation should be included.
- Governance and management including gender aspects and cooperation plan
- IP management (as part of the Centre Agreement)
- Realistic, feasible, and true collaboration – added value of the centre
- Level of engagement/focus from industry, amount of co-funding
- Scientific quality; originality, strengths, weaknesses, degree of interdisciplinarity and feasibility of the research plan
- Strategic relevance to Swedish industry and/or society as well as explicit long term impact of the proposed research
- Qualifications of the applicants, previous scientific and technological achievements, international experiences, and networks, and leadership/management of research teams.
- Evidence of anchoring of the application to top management within all parties (including LoI).

Timetable

- Last date for applications: 4 May 2016, 14:00 CET at the latest
- The application will be evaluated in two stages:
  Stage 1: Selection of up to 15 applicants for hearing. All other applications will be rejected. Finished not later than June 2016
  International peer-review. Not later than September 2016
  Hearing: September-October 2016
  Stage 2: Selection of up to 8 application to be funded. Not later than October- November 2016
- Decision by the SSF Board: End of 2016

- Centre start: From January 2017, but not later than July 2017.

Please note that the Foundation is subject to the Principle of Public Access to Official Records (Offentlighetsprincipen). Thus, applicants should avoid submitting material that they do not wish to be made public, e.g., information that could prevent patenting.

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Summary of the four winning proposals

In this section, we summarize the four proposals that, within the call for IRC15, were granted funding by SSF:s board February 6, 2017.

Project title: ScanOat
Project leader: Leif Bülow, Lund University
Granted funding: 75 MSEK
Oat has a high nutritional value and is an excellent raw material, especially when more and more people are looking for functional and vegetable based food. Also, oats are suitable for cultivation in Sweden.Scanoat is an industrial research center that will coordinate industrial needs with academic research in molecular plant breeding. The aim is to develop new oat-based products that can be grown industrially and have positive health effects. The project is a collaboration between Lund University, Swedish Agricultural University, Lantmännen, Oatly and Swedish Fiber.

Project title: LUDC-IRC for personalized medicine in diabetes
Project leader: Maria Gomez, Lund University
Granted funding: 75 MSEK
Half a billion people suffer from diabetes today, a figure that is expected to double within 20 years. It is caused by unhealthy lifestyle and genetic factors and is rapidly growing in the West – also in Sweden. Even countries with advanced healthcare have difficulties preventing or treating diabetes. The aim of the project is to find predictive biomarkers connected to diabetes and its complications. By using large patient datasets and "big data", new potential biomarkers can be identified. They will then be used in experimental models and clinical studies, such as targeted patient recruitment based on genotype and / or phenotype. Partners in this project are Novo Nordisk, Johnson & Johnson Innovation, Pfizer, Probi, CardioVax, Follicum and Region Skåne / MAS Hospital, (Malmö General Hospital).

Project title: Functional Nucleotide Drug Delivery
Project leader: Fredrik Höök, Chalmers university of Technology
Granted funding: 75 MSEK
To combat many of today's serious diseases, such as cardiovascular disease and cancer, new types of drugs are required. A completely new type is so-called nucleotide-based drugs based on DNA / RNA. This centre will study basic conditions for such drugs together with several industry partners. The project aims to create a better understanding of the mechanisms governing cellular uptake, transport and release of nucleotide-based drugs. The project includes cell studies and development of modeling tools for the development of new genetically based drugs. This will be done by a multidisciplinary team from industry and academia, with Astra Zeneca, Camurus, Vironova, Gothenburg Sensor Devices and Karolinska Institute and University of Gothenburg.

Project title: Swedish Maritime Robotics Centre

Project leader: Ivan Stenius, KTH Royal Institute of Technology
Granted funding: 75 MSEK
This project aims to develop next-generation maritime robots for marine cultivation, area monitoring and environmental monitoring. Compared with today's methods that often require both large boats and divers, the next generation of maritime robots will have significantly better performance at a lower price. To develop them, an interdisciplinary effort in the areas of autonomy, perseverance, perception and communication is required. Cooperating organisations are Stockholm and Gothenburg University, and the industrial partners Saab, MMT Sweden, FMV and FOI.

Web survey

In this section, we present the survey which was sent to individuals involved in the proposals. The survey was sent to project leaders and co-applicants, and also additional individuals participating in the hearings.

2. Overall, how do you assess the design of the call and evaluation process for IRC15 compared to other calls of similar size?

(State one answer only)

Much worse	Worse	Neutral / Same	Better	Much better	Don't know
❑	❑	❑	❑	❑	❑

3. To what extent do you agree to the following statements regarding the call and evaluation process for IRC15?

(State only one answer per question)

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know / Not relevant
The provided information was sufficient	❑	❑	❑	❑	❑
Questions raised during the call process were answered clearly	❑	❑	❑	❑	❑
Demands on the bidding parties were reasonable	❑	❑	❑	❑	❑
There was plenty of time to form the proposal	❑	❑	❑	❑	❑

The call encouraged the bidding parties to cooperate and prioritize	❑	❑	❑	❑	❑
The design of the call encouraged research in disruptive technologies	❑	❑	❑	❑	❑
The call holds a unique position within the Swedish R&D-funding landscape	❑	❑	❑	❑	❑

Comments:

____

4. To what extent do you agree to the following statements?

(State only one answer per question)

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know / Not relevant
It was easy to form a written collaboration agreement between the parties in the consortium	❑	❑	❑	❑	❑
Our consortium was well prepared for the hearing	❑	❑	❑	❑	❑
The hearing was a good opportunity for us to present our proposal	❑	❑	❑	❑	❑
The hearing committee had the required experience and knowledge to assess our proposal	❑	❑	❑	❑	❑

5. Has your organisation collaborated with the other organisations in your proposal prior to your cooperation in the call for IRC15?

(State one answer only)

None of them	Some of them	All of them	Don't know / Not relevant
❑	❑	❑	❑

6. In the call for IRC15, an organisation (university department, research institute, company) was only allowed to participate in one proposal. Did this restriction affect your organisations strategy for prioritizing which proposal to participate in?

(State one answer only)

Not at all - Go to 8	To some extent	To a large extent	Don't know / Not relevant - Go to 8
❑	❑	❑	❑

7. What effects did the restriction to participate in only one proposal within the call for IRC15 have?

(State only one answer per question)

	Not at all	To some extent	To a large extent	Don't know / Not relevant
The quality of the proposal was affected positively	❑	❑	❑	❑
The cooperation with our partners was more committed than usual	❑	❑	❑	❑
We were compelled to compromise more than usual	❑	❑	❑	❑

The process to form the proposal was more challenging than usual	❑	❑	❑	❑
The process to form the proposal required more resources than usual	❑	❑	❑	❑

Other:

_ _

8. How likely is it that your organisation would have participated in more than one proposal within the call for IRC15 if it was permitted?

(State one answer only)

Not likely at all - Go to 9	Maybe	Very likely	Don't know / Not relevant - Go to 9
❑	❑	❑	❑

9. Did your organisation, within the call for IRC15, discuss collaborations with other organisations than the partners included in the final proposal?

(State one answer only)

- ❑ Yes - Go to 11
- ❑ No
- ❑ Don't know / Not relevant

10. Why did you not dicuss collaborations with other organisations than those in the final proposal?

(Multiple answers allowed)

- ❑ There were no other relevant partners
- ❑ We knew immediately who to collaborate with
- ❑ There was not enough time
- ❑ We did not have enough information
- ❑ We had a passive role in the process of forming the proposal
- ❑ Dont't know / Not relevant

Other

_ _

11. What activities did your organisation engage in with your partners in order to form the proposal?

(Multiple answers allowed)

- ❑ Discussions over telephone / e-mail
- ❑ Video conference
- ❑ Face-to-face meetings
- ❑ Workshops
- ❑ Don't know / Not relevant

Other

_ _

12. Did you receive sufficient support and encouragement from your host university when forming the proposal?

(State one answer only)

- ❑ Yes
- ❑ No
- ❑ Don't know / Not relevant

13. To what degree was the proposal influenced by non-academic parties included in the proposal (i.e. companies or public institutions)?

(State one answer only)

Not at all	To some extent	To a large extent	Don't know / Not relevant
❑	❑	❑	❑

14. How active was your organisation in formalizing and defining the contents of the proposal?

(State one answer only)

Not at all	To some extent	To a large extent	Don't know / Not relevant
❑	❑	❑	❑

15. Does your organisation participate in other R&D-programs similar to IRC15 in Sweden?

(State one answer only)

- ❑ Yes
- ❑ No - Go to 17
- ❑ Don't know / Not relevant - Go to 17

16. Kindly specify which other R&D-programs in Sweden, similar to IRC15, your organisation participates in:

_ _

17. Do you have any suggestions on how a call and evaluation process similar to IRC15 could be improved?

_ _

Interview guide

Below is the interview guide used when interviewing project leaders or co-applicants. The interviews were conducted in a semi-structured manner, meaning that the questions are asked in an open manner and that the interviewed individual were allowed to discuss each topic freely.

1. What positive and negative experiences are there among the various parties regarding the call and evaluation process?

a. What are your thoughts in general about the call and evaluation process for IRC15?
b. Has the call process been well organized?
c. What worked well?
d. What worked less well?
e. Was there enough time to pursue the bid?

2. To what degree does the proposal fit into the strategy of each participating organisation and how involved are different parts of the line management up to CEO/R&D-manager/Principle/Dean?

a. To what degree does the research area of the proposal fit into the research activities of your organisation?
b. Where in your organisation has your participation been approved? *(See proposal)* I.e:
c. To what degree has the above specified person been engaged in your proposal? I.e:
d. To what degree was the above specified person planned to be engaged during the proposal? I.e:
e. *Non-academic parties:* What parts of the organisation has been engaged in the formalization of the bid?

3. To what degree has the system prioritized and what potential foreclosure effects has this had?

a. What has been the major challenges to formalize the proposal in the call and evaluation process? I.e:
b. Would your organisation have participated in several bids within IRC15 if it was permitted?
c. *If proposal submitted to hearing:* Was it difficult to form a written collaboration agreement between the parties in the consortium?
d. Were there any other proposals (within the call of IRC15) that your organisation were interested in taking part of?
e. If YES above: Why did you choose to participate in the current proposal?
f. Were there any organisations, other from the ones in the final proposal, that you would have liked to include in the proposal?
g. If YES above: Do you know why they weren't included in the proposal?

4. How and what methods have the participating organisations used in order to identify and prioritize the project of interest?

a. *Primarily non-academic parties:* What has been the form of your internal process (both formal/informal) to prioritize which research area and/or which proposal to pursue?
b. How have you communicated with potential and established collaboration partners within the scope of the bid? (both formal/informal).
c. Have you cooperated with the other parties in the proposal prior to the call or is it the first time?
d. Where did the idea to the proposal originate? I.e:
e. What factors have been most important for your participation in the final proposal?
f. How do you assess the risk of the project? (low, intermediate, high)

5. How has gender equality been managed and communicated when formalizing the bid?

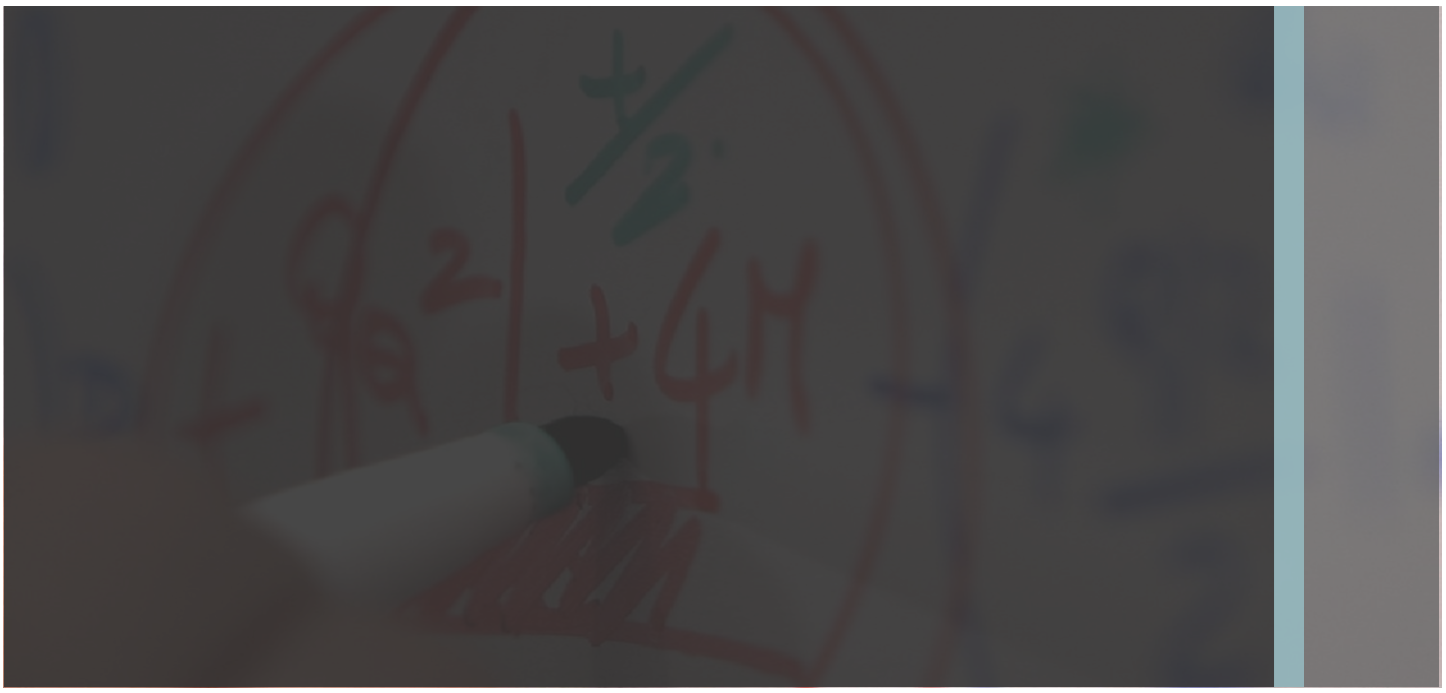
a. Has the project management included gender equality aspects in the proposal?
b. What role has gender equality had during the process of formalizing the proposal?
c. Has the project integrated a long term plan to promote gender equality?
d. How has gender equality aspects been managed in the communication between different parties in the proposal? How has the topic been managed?

6. To what degree has the idea of bid been defined, controlled and influenced by non-academic parties?

a. To what degree has the non-academic parties been involved and:
    i. Defined the content
    ii. Controled the bidding process
    iii. Influenced the idea?
b. *Non-academic parties:* To what degree did you influence the content in the proposal?

7. To what degree does IRC15 overlap with other programs, from the perspective of the participating companies – and does the overlap have a positive or negative influence? (I.e the Vinnova program "Kompetenscentrum").

a. Do you think that it would be possible to pursue a similar project within the scope of other programs for R&D-funding? If YES: which ones?
b. Do you think that the call and evaluation process for IRC15 stimulates unique research projects that would not be possible to pursue with other (existing) type of research funding? Why/why not?
c. Do you participate in other similar programs?
d. Are there any other synergies between participation in IRC15 and other R&D-projects?



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