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Evaluation of the Research Council of Norway

Background Report No 8. Company Survey

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1. Introduction

The purpose of the evaluation is to examine the Research Council of Norway's (RCNs) role in the Norwegian research and innovation system and to consider whether the goals established for its activities are being achieved effectively while maintaining a high standard of quality. The evaluation will be used as a basis for further learning, and attention should be paid to the relations between the Research Council and other institutions.

The purpose of the company survey is to **collect opinions about RCN, its instruments and performance, alternative support options (including international opportunities) and future needs.**

1.1 Methods and material

The survey addressed companies in Norway that received funding from RCN between 2000 and 2010. A total of **100 companies** were interviewed via telephone between February and June 2012. The interviews lasted between 20 and 50 minutes and were conducted with individuals who had an overarching position in R&D; in almost all cases they were either **research managers or managing directors**.

The interviews consisted of two distinct parts: they began with a semi-structured discussion around the needs and strategies within the companies' R&D activities. Which needs did the company have? Why those needs? To which external actors did they turn to have the needs satisfied? In which cases did they turn to RCN? What support would they like to have from RCN in the future? This first part usually took a little more than half of the interview time.

The second part of the interviews consisted of structured questions on the use of other funders, the use of RCN and its instruments, an assessment of the procedures and services of RCN, and a question on what future funding opportunities the companies would like to see. Questions in the second part of the interview were typically answered by the companies stating a score between one and five, or a yes or no. We also took notes of additional comments during the second part of the interview and fed those back to the open responses in the first part. The interview questionnaire is included as appendix to this report.

1.2 Outline of report

The remainder of the report consists of six parts. First, there is a chapter that describes the sample. Second, there is chapter on the R&D resources and strategies of the companies. That chapter presents findings from the open part of the interviews. Third, there is a chapter – the first of three which present findings from the structured part of the interviews – on the relevance of RCN activities and funding to the companies. The fourth chapter presents findings on how the respondents find the quality of RCN procedures, information, advice, help and services. In the next chapter findings on needs for future opportunities are outlined. Finally, the conclusion contains a discussion on the – until then uncommented – empirical findings and relate those to the context of the evaluation.

2. Description of sample

The interviewed companies were made based on a stratified selection of companies. A total of 100 companies were interviewed. We made the selection of companies based upon three criteria:

1. The intensity of participation, i.e. number of projects the organisation was involved in.
2. The 'loyalty' to RCN, i.e. whether the company was involved in projects before 2005, after 2005 or throughout the decade
3. The industry sector of activity

Table 1: Selection categories for sample of companies

Selection category	Intensity	Loyalty	Number of respondents
MOD	Less than 10 participations	Ongoing throughout the decade or only in the last 5 years	64
MOD LOST	Less than 10 participations	No longer involved in the last 5 years	14
KEY	At least 10 participations	Ongoing throughout the decade or only in the last 5 years	13
TOP	More than 20 participations		9
TOTAL			100

Since our key interest concerned companies involved in projects concerning research and technology development, a number of criteria were used to exclude companies from our selection. We therefore excluded research institutes and industry membership organisations. We also excluded companies in the publishing sector (print), because they were exclusively involved projects that did not concern research and technology development. To get a better sample, we also excluded companies that participated in only one project and companies for which no NACE code was provided.

We ended up with four categories of companies, see Table 1. In the TOP and KEY categories all companies were contacted. Nine of the 14 TOP companies and 13 of the 35 KEY companies were able to participate in interviews. The number of companies in the MOD and MOD LOST categories was considerably larger, with around two hundred companies in the MOD category and almost one hundred in the LOST MOD category.

The criterion in intensity of participation is relatively highly correlated with the size of the company.¹ Top and Key companies are thus typically larger than companies within the Mod and Lost Mod categories. Respondents in the Top category however include two Technology Transfer Offices, which are small in size.

¹ We also collected the size of the company in terms of number of employees. Due to lack of statistical data we gathered that information by asking the respondent for an approximate number. In case a company was part of a larger corporation, we asked both for number of employees at plant and in the corporation.

For each selection category we also sampled companies based on industry sector. For this purpose we used the NACE sector codes and created broad groups of companies, see Table 2. Unfortunately only two industry sector categories are large enough to allow relatively significant conclusions to be drawn. That depends on the low total number of companies in the other categories: in the small categories all companies in RCN's database were included in the sample.

Table 2: Sector categories for sample of companies

Broad sector	NACE sectors	Number of respondents
Manufacturing	Manufacturing	37
Oil & Gas	Petroleum & gas extraction or related services	5
Agri & Fish	Agriculture & Fisheries/aquaculture	9
Services	All service sectors	46
Other	Other mining/quarrying, Forestry, and Electricity supply ²	3
TOTAL		100

² Includes the original sample category Utility (NACE sector Electricity supply), which rendered too few responses to be included as a category on its own.

3. Companies' R&D resources and strategies

3.1 Reasons to apply for funding

The most common reason why the responding companies apply to RCN is for support with technological problems. **Almost all respondents cite technological problems as a main reason to apply to RCN.** The company then wants to access technological competence outside its own organisation. Typically, this also includes a desire to discuss with researchers about alternative ways to address the problem, and thereby widen the company's horizon for future problem solving.

A majority of companies also find the networking aspect as such important, both with universities and other companies. This includes both dialogue about research problems and informing academia what kind of problems they find relevant. Between five and ten respondents – usually larger companies – even claim that one of the main reasons to apply to RCN, is to help their academic partners to get research funding; the companies want to maintain dialogue and support their partners.

About 20 respondents state or clearly indicate that they maintain relations with research environments at universities and institutes in order to influence their research agendas in a more profound way than through more ordinary problem-solving towards areas of interest for the company. SFIs seem to be highly valued initiatives in that respect.

Collaborations for future **recruitment seem mainly to be a concern for larger companies**, which often find it highly valuable to watch a potential future employee in action. This can also work the other way around – a few smaller companies note that common projects with potential customers are unparalleled opportunities to market themselves and their competence.

Finally many respondents also observe that **collaborations increase or update the field-specific competence of their staff**; it is thus a form of 'advanced vocational training'.

A majority of the respondents **focus on reducing technological risks**. This particularly seems to concern collaborations with public research organisations. Collaborating with for example university researchers can make the company aware of risks already at an early stage, and can help them avoid future costs and mistakes. Some companies also use public researchers for help with quality control at an early stage.

Participation in an RCN-funded project can also be a **good opportunity to avoid commercial risks**. This includes support with product design. To this end, relationships with other companies seem more important than with regard to technological risks. Interviewees from smaller companies and companies mainly functioning as subcontractors seem more focused on commercial risks than others. However, there are considerably fewer companies that talk about commercial risks than those that talk about technological risks.

Small companies, especially in the more expensive technological fields, find the economic support a major motive to apply to RCN. However, large companies often see quite different reasons to apply, for example the networking and recruitment aspects.

3.2 Common responses on RCN

Quite a few respondents claim that **the culture of openness and fruitful dialogue in the Norwegian research and innovation system is an asset that**

must not be depleted. Some of those respondents find discussions on IPR to be a potential threat, and do not want to see universities handling patents. Most of them also point to RCN, and **praise the competence and positive attitude at RCN**, especially the flexibility of RCN to allow adjustment of projects along the way, which for example the EU almost never admits.

The most common critique of RCN concern the demanding and (at least to some companies) **uncertain application processes.** The uncertainty relates both to the often small percentage that actually get funded, and the lack of insight on what actually counts – a handful of respondents claim to have submitted very strong and well-anchored applications, but lost on what they find to be tacit criteria relating to fairness or political priorities. Relatedly, a handful of respondents note that a successful application too often depends too much on format (right partners, in line with all rules etc) and too little on content.

However, around five respondents think – quite to the contrary – that it should be more difficult to get funded by RCN: RCN ‘spreads the butter too thinly’; promising projects, they argue, need more substantial funding on the expense of less promising ones.

Quite a few companies also find that RCN is **too focused on basic research** and **too focused on academia**; that the academic aspect often triumphs industrial relevance. Those respondents usually identify a too high academic influence over RCN. The respondents differ in their views on the effects – there are three main reasons stated. Firstly, a couple of them argue that, from the industrial perspective, risk-taking and wild ideas are overly rewarded, while the chance of actually developing something useful and commercially promising gets too little weight. Secondly, a few respondents note that RCN put too much faith in the competence at universities – they claim their companies, which are all in the engineering or biotechnology sectors, to be better than the best Norwegian academic researchers in their fields; yet RCN always tell the companies “go check with a university if your idea is good enough”, and their best proposals might be rejected for similar reasons. Thirdly, a couple of small companies find basic projects to be take too long – at least three years – which is too long for their planning horizons.

Finally, while a majority of respondents seem to find user-directed projects efficient and rewarding, and not difficult to handle, a handful of respondents find such projects difficult to direct. Such projects, they argue, often demand much time and technological competence to direct. One respondent for example claims that it is not possible to direct such a project unless you have a PhD, which are rare in many companies. The effect is that although the projects formally are user-directed, they run the risk of becoming dominated by representatives from public research organisations, which have more resources and competence.

3.3 Specific comments

Some responses were **rare** but **strongly articulated** by a **small number of interviewees**.

- Three respondents find RCN almost not to be an alternative for advanced and successful SMEs with international aims. Compared with EU, RCN does not offer opportunities that are attractive enough; from RCN a company gets 30-50% of the costs covered compared to 60-70% by the EU. In addition, the companies also get a higher share of the indirect costs covered by the EU. Also, RCN tend to direct companies towards national public research organisations, which are sometimes not attractive partners to those companies. One of the three companies however finds projektetableringsstøtte from RCN crucial: it enables the small company to attain central positions in the EU-projects, as they are able to write the proposals and thereby develop fruitful relations with customers. The whole market position of the company was built in this way.

- One respondent claims that it is practically impossible for the defence industry to get funding from RCN. There has never been a programme towards the defence field, and the company does not have a chance in other fields if the project content has even the slightest to do with defence technologies
- One company producing metal alloys thinks that the metals and minerals part of the geosciences for quite some time has been overlooked by RCN; now, when the interest in minerals is increasing, the company finds that Norway lacks both researchers and students in the field
- A couple of companies in sectors with lean production and very complex products – for example in the automotive sector – find RCN support difficult as they need to develop their technologies very closely with customers; it works less well to involve university researchers in that context
- A company in the space sector finds that RCN almost never offer any opportunities for companies in that sector, preferably to develop demonstrators
- A couple of life science companies seem happy with RCN partly because (they say) Innovation Norway does not have sufficient competence for that specific type of industry
- All interviewed companies in the maritime sector – although they were less than a handful – find the need for demonstrators very important, and that RCN should offer more support for those.
- One large company in the ICT sector find RCN to lack understanding of the thoroughgoing changes that have occurred in the sector during the last years, which has meant a significant shift towards the commercial side, and less interest in technological development; the latter still dominates RCN funding
- A handful of companies remark that decisions on projects in BIA should come earlier in the year; the decisions often come just after most companies have set their budgets
- Several respondents ask for more open calls running throughout the year, and not just deadlines once or twice per year – that has turned out to be a problem for couple of companies that collaborate with foreign partners
- A couple of advanced engineering companies find it negative that RCN does not give cash support for in-house work; they thus have to in effect contract university researchers to do ‘less efficient’ work than they would do themselves

3.4 Companies’ suggestions for the future

Most companies did not come up with specific suggestions for RCN’s future activities. However, a few of them proposed changes that RCN could make to improve its support. Several companies suggest more use of two-tier application system, in which a first short application is submitted primarily to enable RCN to sort out the poor ones or the ones that do not fit, and a second round that is the ‘real’ application round with a longer application and a higher percentage that get funded. That would reduce companies’ costs for developing proposals. Another suggestion that a couple of respondents made was that RCN and Innovation Norway would better harmonise the formats of their forms. Although the technological content might more or less be the same, a proposal to one of them might have to be almost entirely rewritten in order to be sent to the other agency.

Several companies also suggest that RCN should try – if possible – to involve more reviewers with competence from industry, perhaps also venture capitalists; the ‘profit aspect’ should not be as overlooked as today. A similar suggestion is that all RCN programmes should include funding earmarked for monitoring or exploring commercial opportunities in ongoing projects. One respondent, in the pharmaceutical area, also thought that RCN in his field involves too many reviewers that have lost touch with the research frontier, and should try also to involve better academics.

4. Relevance of RCN activities and funding

4.1 Importance of different funding sources

Figure 1: Respondents' use of SkatteFUNN, EU Framework Programmes, Eureka, and Nordisk InnovasjonsCenter (Absolute numbers)

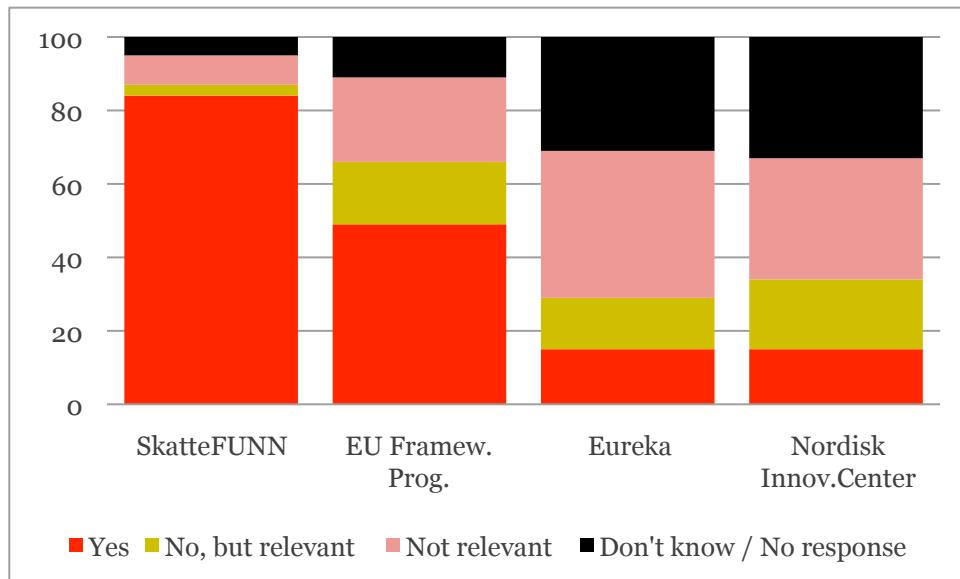
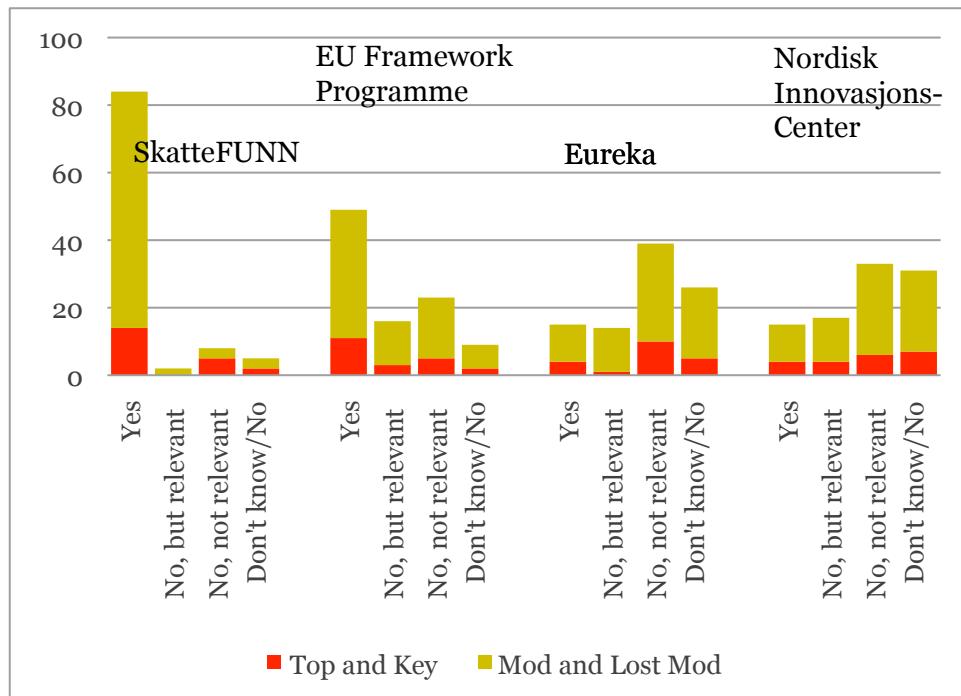


Figure 1 shows the companies' experiences and interests in four other funding sources. Most companies had participated in SkatteFUNN. Most of the companies that had not had SkatteFUNN support said they could not participate because of the SkatteFUNN rules. About half of the companies had participated in European Framework Programmes, and 17 additional companies were interested in participating. Several of those not interested in the framework programmes stated the expected heavy administrative burden as main reason not to participate. The other two funding sources, Eureka and Nordisk InnovasjonsCenter, were less frequently used. A large number of companies, especially smaller companies, had little knowledge of the existence and format of those two support options.

Figure 2: Other funding sources, per selection category (Absolute numbers)



There was little difference between on the one hand Top and Key categories and on the other hand the Mod and Lost Mod categories, see Figure 2. There was also little difference between industry sectors, see Figure 3. Respondents from the service and agri & fish sectors appear to be a bit more interested in European funding, both Framework Programme and Eureka, than respondents from other sectors.

A large majority of the respondents found funding from RCN highly relevant, see Figure 4; 69 of 100 respondents gave RCN scores of four or five, on a scale from one to five where five was most relevant. There was no significant difference between companies from on the one hand the Top and Key categories and on the other hand the Mod and Lost Mod categories.

When compared with Innovation Norway, see Figure 4, the respondents on average find RCN more relevant. However, **also Innovation Norway receive high scores on relevance**; the higher number of low scores on Innovation Norway probably relate to the Innovation Norway's regulations of its funding schemes, which sometimes prioritise smaller companies and thereby discourage larger companies from applying.

Only a small number of respondents found SIVA relevant as a source of funding, see Figure 4. Most respondents that gave high scores on SIVA specialise in developing advanced technologies, either for their own business or for subsequent commercialisation elsewhere. A large number of respondents did not know of SIVA. It is likely that SIVA is of little relevance to most of those companies, i.e. that they would give SIVA a score of one or two on relevance.

Figure 3: Other funding sources, per industry sector (Absolute numbers)

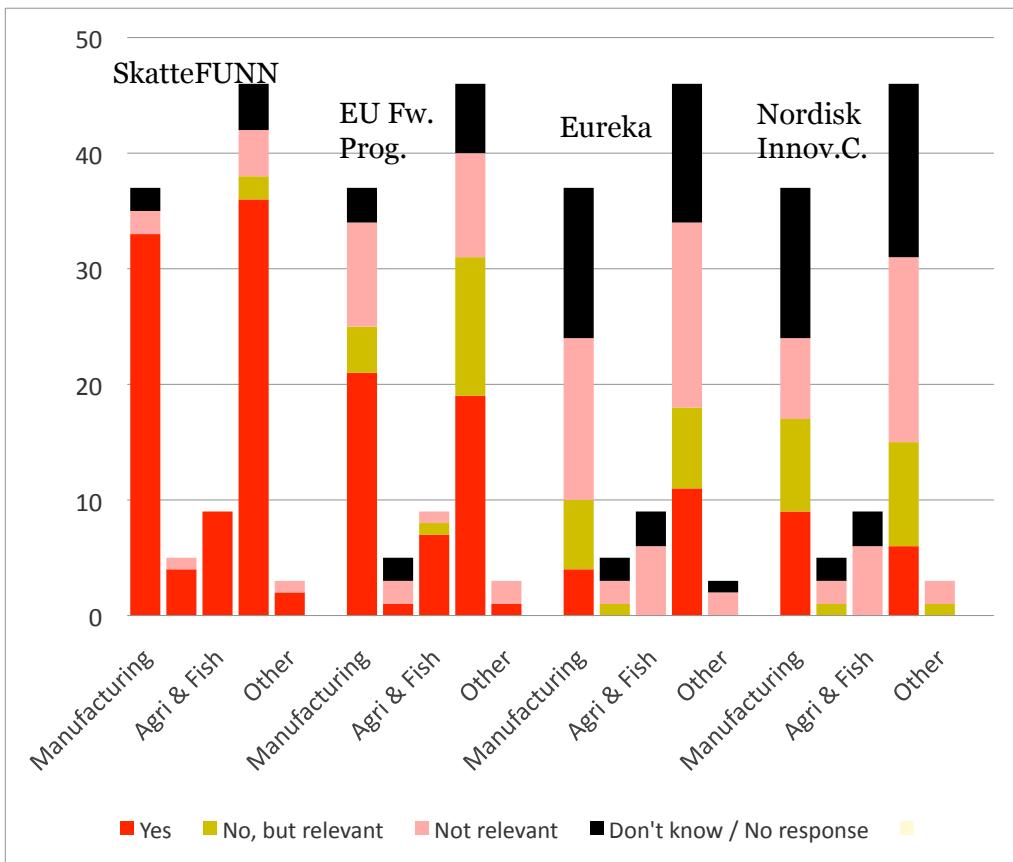


Figure 4: Relevance of Research Council of Norway, Innovation Norway and SIVA (Most relevant = 5).

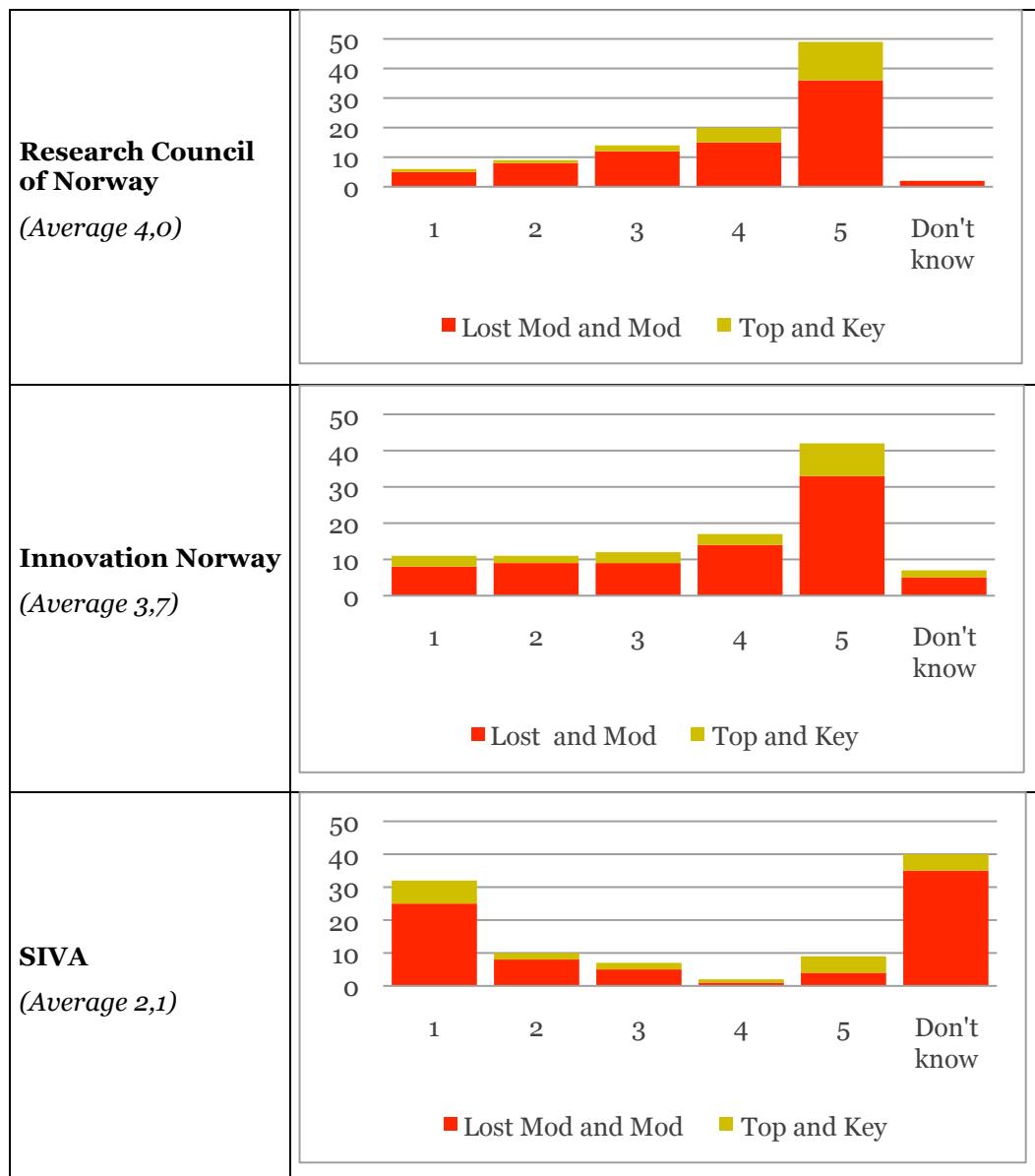
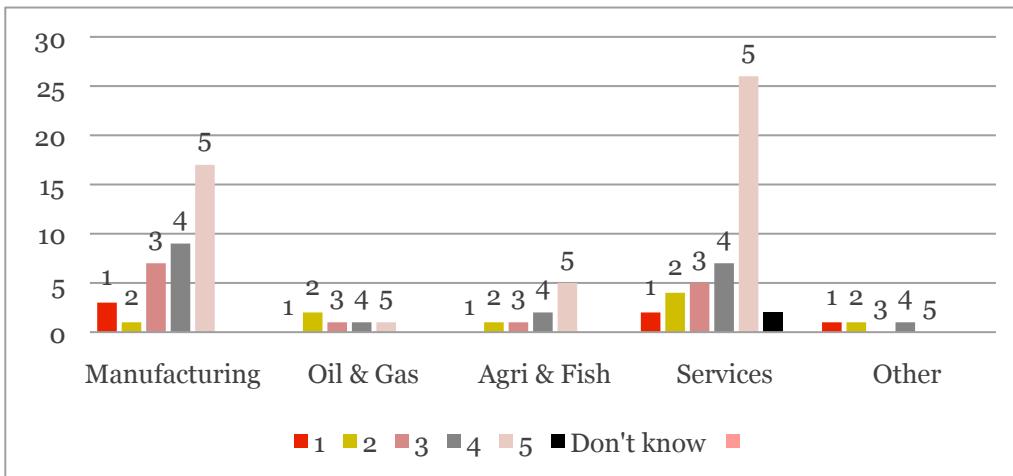


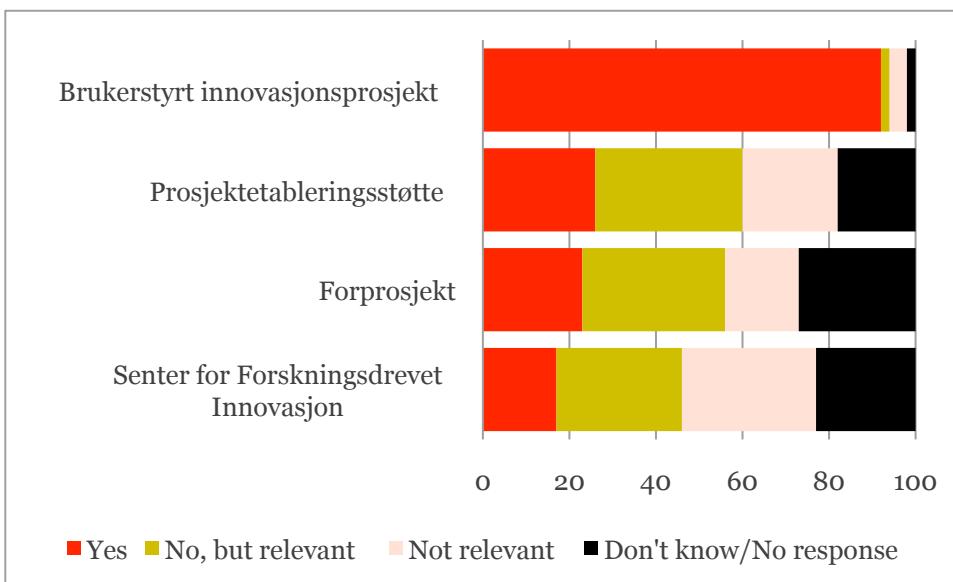
Figure 5 shows the relevance of RCN per industry sector. Notably, there are some differences between respondents from different industry sectors. Respondents from the **energy sector return lower scores on relevance than the other** sectors; those include oil and gas, and other (which mostly contain respondents from the utility sector). Respondents from the **service sector find RCN particularly relevant**. The results from the oil and gas, agriculture and fisheries, and other sectors should however be taken with a pinch of salt, as they had less than ten respondents each.

Figure 5: Relevance of Research Council of Norway, per industry sector (Most relevant = 5)



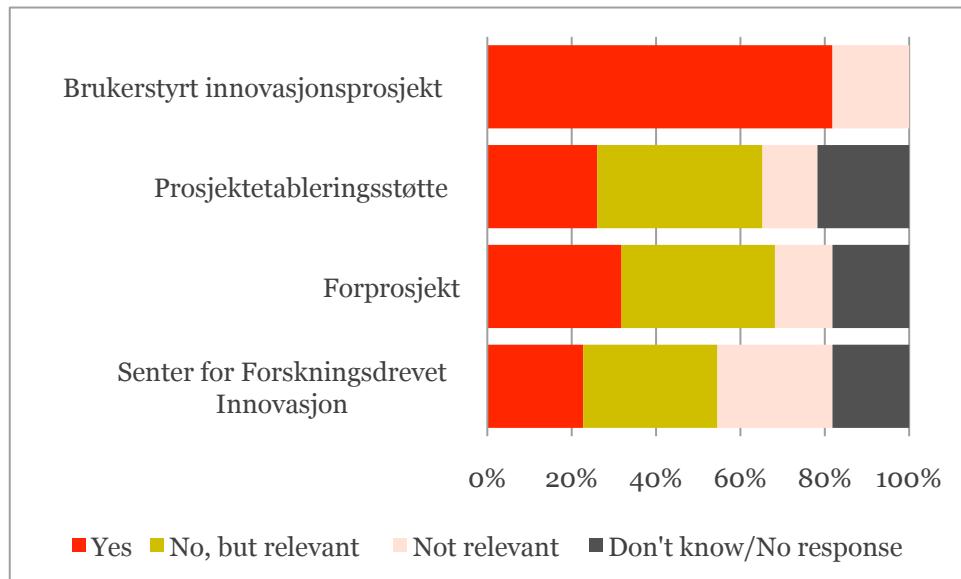
4.2 Relevance of RCN instruments

Figure 6: Respondents' participation and interest in forms of RCN support (Absolute numbers)



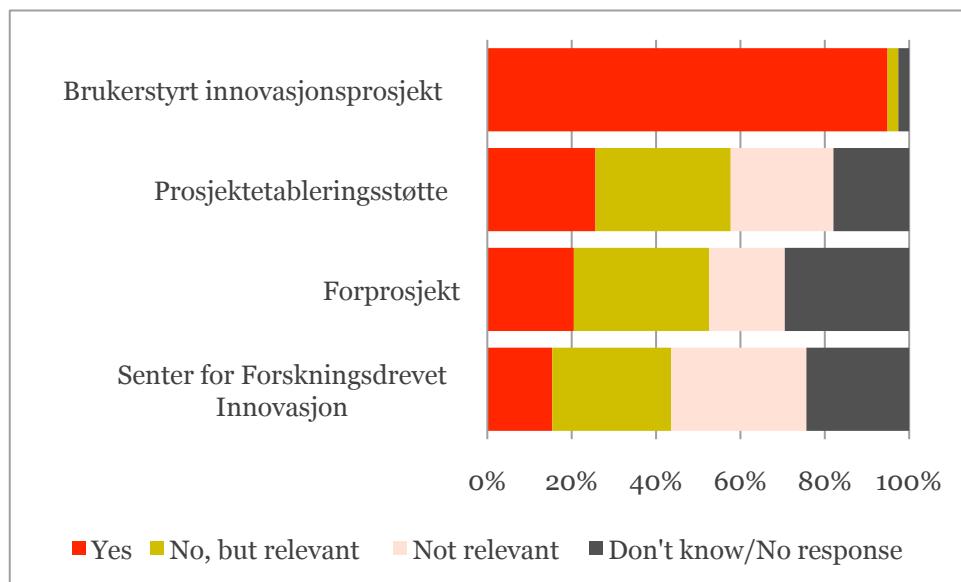
Almost all respondents had participated in brukerstyrt innovasjonsprosjekt (BIP), see Figure 6. A significantly smaller amount of interviewed companies had participated in the other three project types, and quite a few of them claimed not to have enough knowledge to respond on the relevance of those project types. However, although relatively few companies had participated a prosjektableringsstøtte, forprosjekt or Senter for Forskningsdrevet Innovasjon (SFI), around half of them were interested in participation.

Figure 7: Respondents' participation in forms of RCN support, Top and Key companies (relative distribution, N=22)



There are relatively small differences between on the one hand the Top and Key categories and on the other hand the Mod and Lost Mod categories, see Figure 7 and Figure 8. Virtually all companies except a small number of technology transfer offices or similar types of companies are interested in BIPs. Prosjektableringsstøtte, forprosjekt and (especially) SFI appear to attract larger companies or small companies specialised in advanced technologies more than other types of companies.

Figure 8: Respondents' participation in forms of RCN support, Mod and Lost Mod companies (relative distribution, N=78)



We do not include any figure on project types per industry sector. However, a couple of points with regard to industry sector are yet worth making. Of the small number of companies that had not participated in BIP, all except one belonged to the service sector. Of companies that had received prosjektableringsstøtte 17 of 26 are found in the service sector. Also forprosjekt respondents are predominantly found in the service

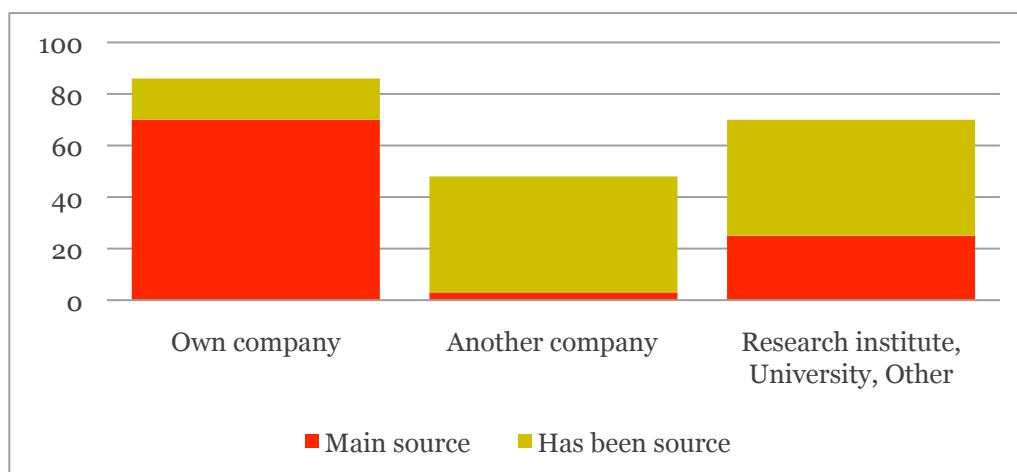
sector: 15 of 23, and another seven in the manufacturing sector. Twelve of the 17 companies that participate in an SFI belong to the manufacturing sector and only one of them is found in the service sector.

Many respondents also participate in other types of projects than the four included here. Many companies have participated in (and often praise) kompetanseprosjekt, in which they typically host a PhD student with the intention to employ him or her after graduation. Several companies had also participated in the FORNY-programme. Projects within the FORNY-programme are registered as 'Annens prosjektstøtte' and are thus not among the four selected categories. The two Technology Transfer Offices in the Top category had for example only participated in projects within the FORNY programme. In addition, some companies also responded that although they had participated in a certain project type, they would not do that again. Due to the structure of the questions, such companies are yet included in the "yes" category in the figure.

The reader should also bear in mind that the statistics on project participation seems to contain errors; several respondents indicated that they participated also in other types of projects than they were registered on in our data. When possible, this error was corrected for by re-classifying companies. SFIs were corrected for by the help of RCN's webpages of the centres. Errors are likely to be found predominantly among the prosjektetableringsstøtte and forprosjekt categories. Although it is difficult to estimate the degree of error it should not be large enough to disturb the analysis.

4.3 Positioning of the company in RCN projects

Figure 9: Source of idea in RCN-funded projects (Absolute numbers)



Most respondents claim their own company to usually be the main source of idea behind projects in which they receive RCN-funding, and more than eight in ten claim to at some point have been the main source of idea, see Figure 9. Only three respondents identify other companies as main sources of ideas; those companies were all in long-standing subcontractor relationships with larger and more technologically advanced corporations. Twenty-four companies claim research institutes, universities or other types of organisations to be the main source of idea. Almost all of those companies are either small and technologically advanced, working for example with biotechnology, or companies that specialise in supporting development of technologies for subsequent commercialisation in other companies. Another few companies in this category would prefer to be the main source themselves, but find that RCN does not offer support that they, despite being highly advanced, can get. Seven in ten respondents have been in projects where research institutes, universities or other types of organisations were the main source of idea. Beside research institutes and universities, quite a few respondents mention Sintef, and one company Energy Norway, as a main source of project ideas.

Regarding main source of idea there is **no difference between selection categories**, see Table 3. In both cases two thirds of the companies claim themselves to be the main source of idea, and almost all the others point out research institutes or universities as the main source of idea.

Table 3: Main source of idea in RCN-funded projects, per selection category (Absolute numbers)

Organisation	Top and Key	Mod and Lost Mod	All
Own company	15	55	70
Another company	0	3	3
Research institute, University, Other	7	18	25
No response	0	2	2
Total	22	62	100

The result is probably coloured by type of support – the generally smaller, often bilateral, user-directed innovation projects are slightly more dominant among Mod and Lost Mod companies than among Top and Key – however, the difference between categories should yet be small. In addition, the result is affected by the Top category including two Technology Transfer Offices, and that seven of the 12 Key respondents are relatively small high-tech companies.

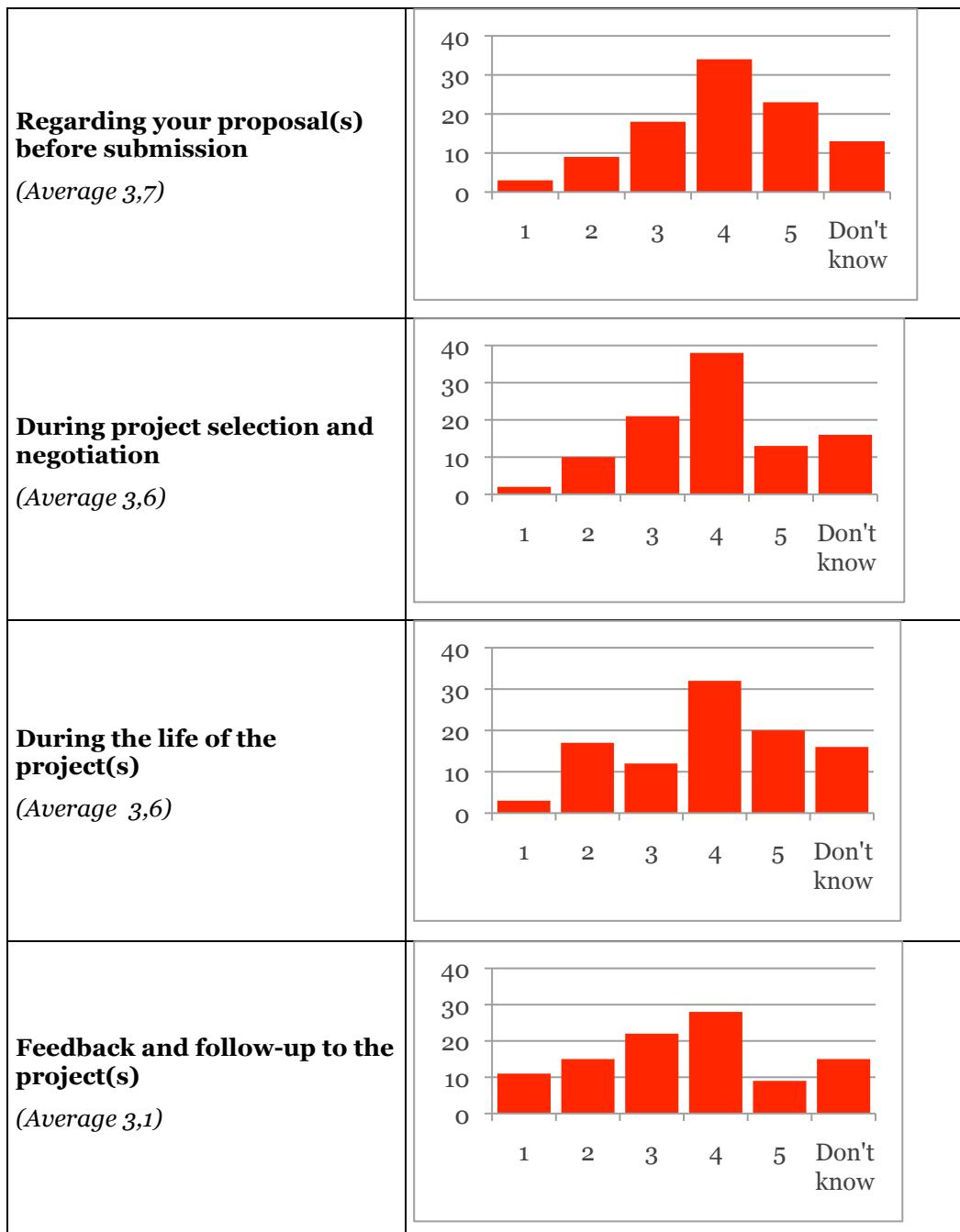
4.4 Reasons not to participate in RCN projects

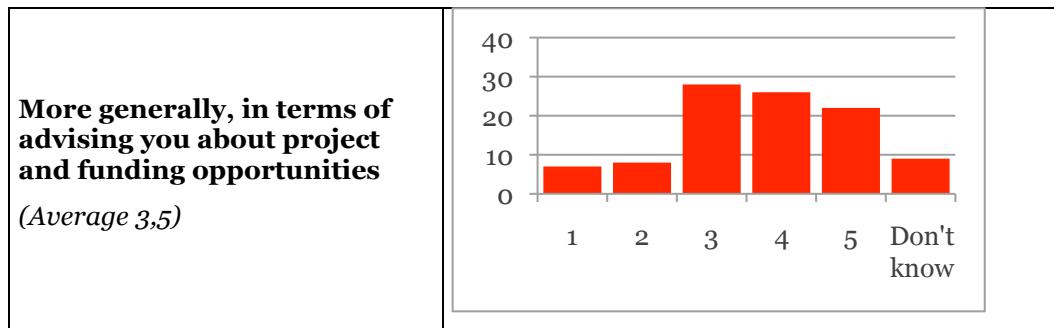
Fourteen respondents belong to the Lost Mod group, i.e. are companies that according to data have not had funding from RCN since the mid-2000s. Those 14 were asked why they stopped receiving funding. Unfortunately **the material on why companies 'leave' RCN is relatively thin**: six of the 14 companies claim the data from RCN to be wrong; they have received funding relatively recently. Another two companies do not know or do not provide an answer.

Six respondents tell why they have not received funding. Two of them say it should be seen as a coincidence; they have not succeeded with their applications to RCN, but still work in the same field, partly with the same partners as in the previous RCN projects, and have funding from other sources. Two respondents claim the main reason to be changed internal strategies; they have prioritised other activities. Finally, two respondents, both small research intensive biotechnology companies, have stopped applying because they do not find RCN's current strategies good enough. One of them finds that RCN prioritises 'themes' that do not fit their needs and have too rigid annual deadlines for applications, and the other says the company stopped applying after that RCN declared that since the company was good at attracting private funding it did not need RCN-funding. The respondent strongly disagrees.

5. Assessment of RCN procedures and services

Figure 10: Assessment of RCN help, advice and services (Absolute numbers, most satisfied = 5)



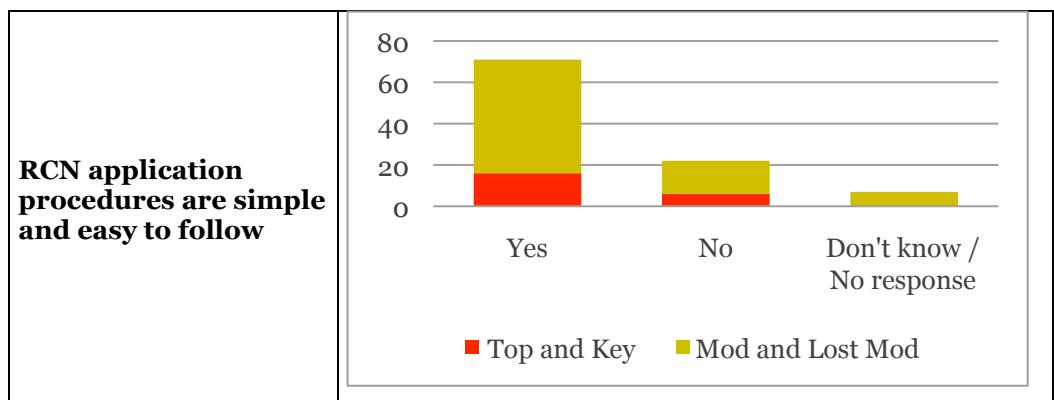


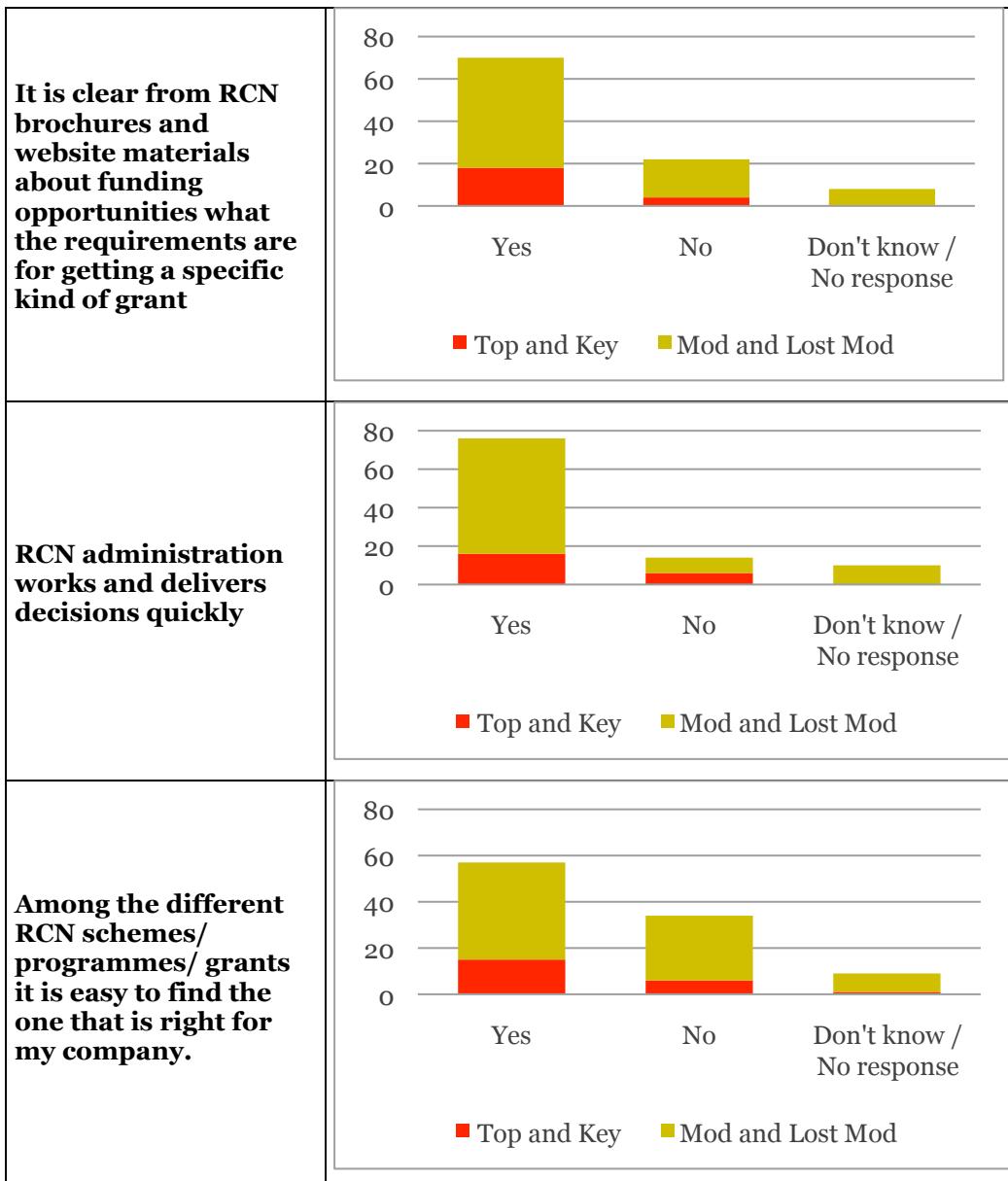
Respondents are generally **pleased with the help, advice and service they receive from RCN**, see Figure 10. The high scores are received all through the interaction process. RCN in particular receives many high scores regarding advice early in the process; before, during or just after the application phase. One question rendered a slightly lower rating: the respondents were less satisfied with feedback and follow-up to the projects than with other interaction. This response seems to concern advice and general support services less than documentation; quite a few respondents remarked that RCN seemed quite uninterested in getting to know what came out of the projects they funded. Low scores usually come from the same companies, i.e. companies that give RCN poor grades all over.

The respondents were also asked whether or not they agreed with four statements on RCN, see Figure 11. The respondents are **generally pleased with RCN procedures and information**, just like on the previous point; all statements received overall positive responses. The respondents in particular find the RCN administration to work and deliver decisions quickly. The respondents were least satisfied with the possibilities to find the right scheme/programme/grant. It seems like the negative responses on information often relate to the structure of the RCN webpage, which several respondents find difficult to navigate, and several others observe would be difficult to navigate 'if I would not be dealing with RCN as often as I do now'.

When interpreting the results both on this and the previous question, the reader should bear in mind the characteristics of the group of respondents. Most interviewees were specialised in R&D funding and had extensive experience of interacting with various public R&D funders. To some extent that strengthens the positive results: the grading was probably largely made after a comparison with other public funders in Norway. To some extent the sample might also make the results on information overly positive, many respondents had much experience of RCN projects and quite a few had also over the years developed good contact with individual staff at RCN; their information channels are therefore considerably better than are those of potential newcomers.

Figure 11: Assessment of RCN procedures and information (Absolute numbers)



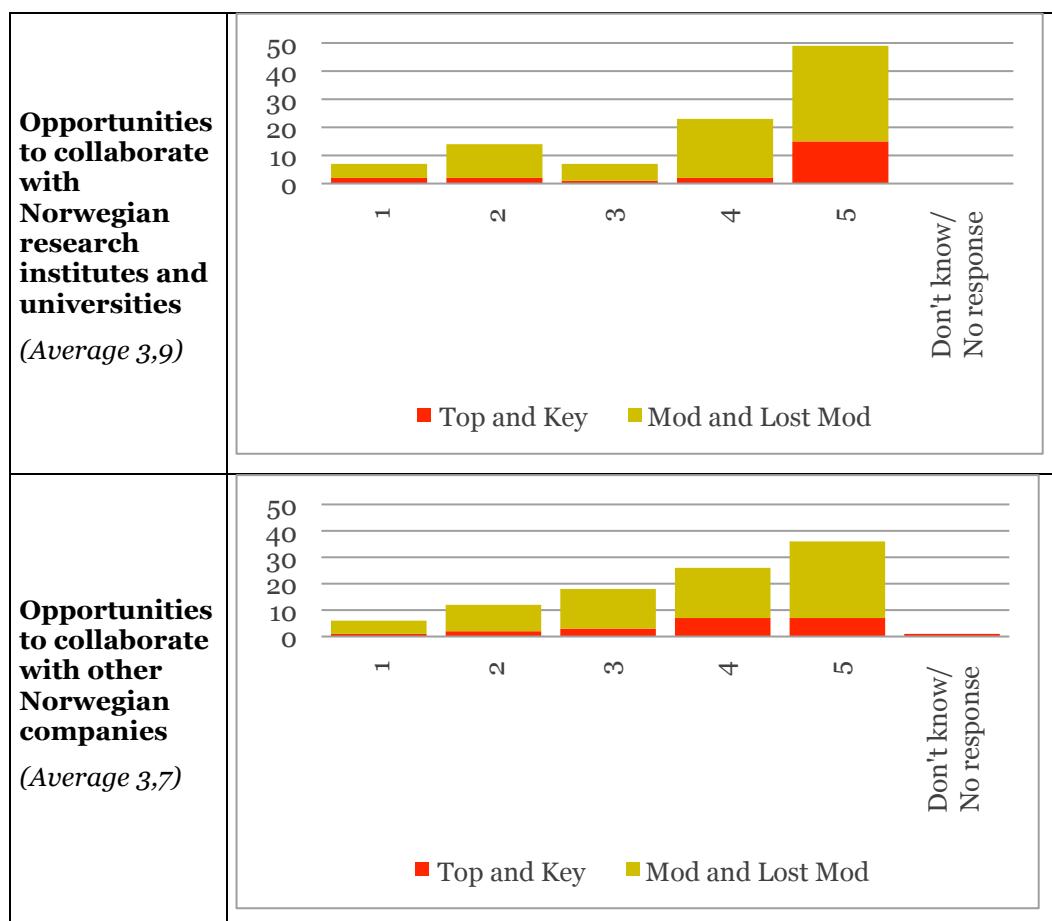


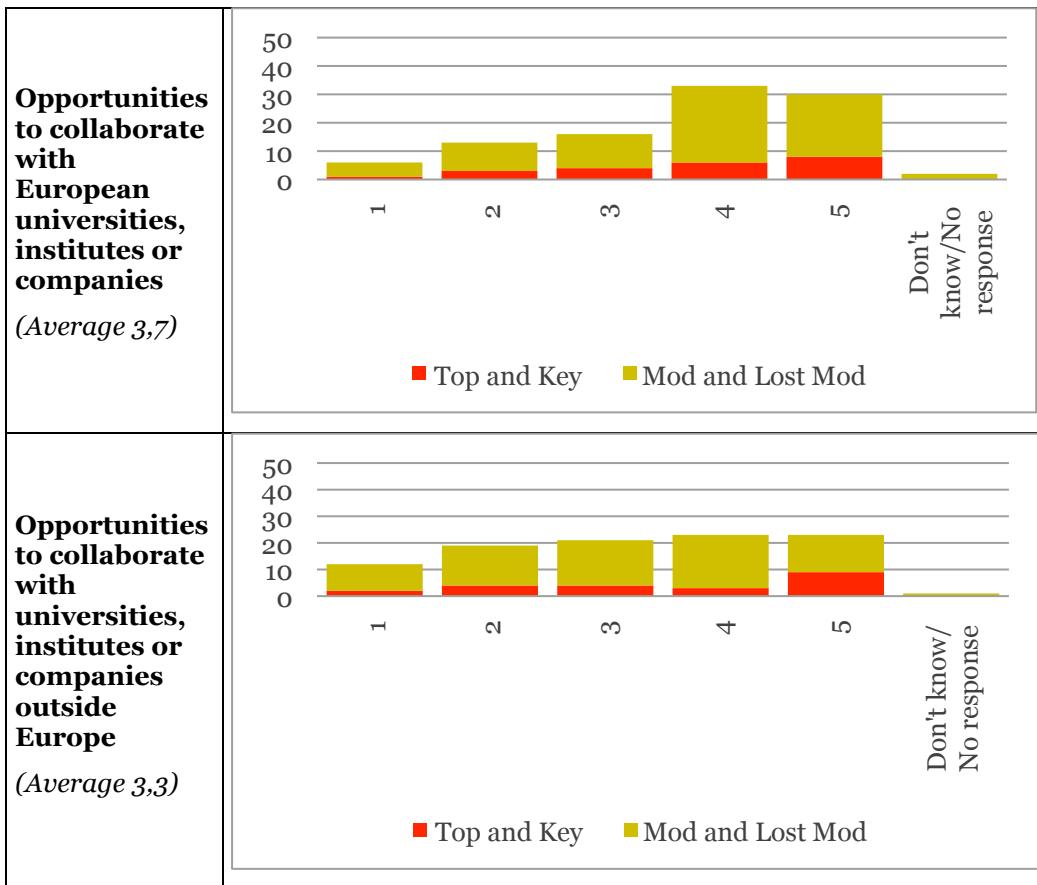
6. Future needs

The respondents were also asked about their future needs, and how RCN could possibly help them. Figure 12 shows the response on a question where the interviewees were asked to grade how important it was for them that RCN offered possibilities to collaborate with different types of partners. The response renders four main messages, below. The reader should also look at section 1.3 to learn about future needs of respondents.

Firstly, there is a '**distance decay**' as companies generally are most interested in opportunities to collaborate within Norway, followed by Europe, and finally the rest of the world. Secondly, companies are considerably **more interested in collaborating with Norwegian research institutes and universities than with Norwegian companies**. This holds especially true for the Top and Key companies, which probably on average are a bit more technologically advanced and more internationally competitive than the Mod and Lost Mod companies. Thirdly, there is **no difference between interests in collaborating with Norwegian companies and with European partners**. This indicates that most respondents, also smaller companies, are quite international. It is unclear to what extent the result is an effect of the European category including both companies and public research organisations. Fourthly, **Top and Key companies are a bit more interested in international collaborations** than are Mod and Lost Mod, probably because they are more internationally competitive.

Figure 12: Interest in future collaborations (Absolute numbers, Most relevant = 5)





There is **little difference between sectors**, see Table 4. This might partly be an effect of the small number of respondents in three of the categories. The agriculture and fishery companies were on average more oriented towards Norwegian research institutes and universities than were companies in the other sectors. Companies in the service and oil and gas sectors were the least nationally oriented. Respondents in the service and oil and gas sectors also put lower grades overall; this should probably be interpreted as they are slightly less dependent on public support for R&D than are companies in the other sectors.

The reader should notice that a couple of respondents replied to this questions on the grounds what they thought RCN should do rather than what their company needed, e.g. "RCN is funded by Norwegian tax payers and should therefore fund on national level, not European/international", and therefore put a low score on foreign opportunities even if their company had significant interest in such collaborations. However, almost all companies responded in the intended way: in relation to the needs of their company.

Table 4: Interest in future collaborations, per industry sector (Average score, Most relevant = 5)

	Manu-facturing (N=37)	Oil & Gas (N=5)	Agri & Fish (N=9)	Services (N=46)	Other (N=3)
Opportunities to collaborate with Norwegian research institutes and universities	4,0	3,8	4,6	3,7	5,0
Opportunities to collaborate with other Norwegian companies	3,7	3,2	3,8	3,8	4,7
Opportunities to collaborate with European universities, institutes or companies	3,7	3,2	3,8	3,7	4,7
Opportunities to collaborate with universities, institutes or companies outside Europe	3,3	3,4	3,2	3,3	3,0

7. Conclusions and Recommendations

Almost all respondents cite the need to solve technological problems as a main reason to apply to RCN. This is important to all companies, but seems most important to smaller companies, which have a shorter planning horizon and often turn to RCN to access competence they do not possess in the company. A majority of companies also find the networking aspect as such important, which most importantly concerns the development of networks – mainly person-based – with researchers at public research organisations, but to some extent also in other companies. Capacity development of company staff is usually an indirect effect, but is also actively sought by many companies. Using RCN-funded projects as a base for recruitment mainly seems to be a concern for larger companies, in part since their turnover of personnel in absolute terms is higher than in smaller companies, in part since they have more resources to employ PhDs.

Most respondents focus on reducing technological risks, which includes both exploring technologies the company uses, and expanding knowledge about other technologies of possible use – which also includes to learn which roads are *not* to be taken. Much fewer respondents see RCN projects as a way to reduce commercial risks, or to design or develop products. That pattern is generally a positive one: RCN is supposed to target companies at a relatively early stage in their R&D processes. In that respect they appear to be successful. In the evaluation of RCN we made in 2001 the risk of funding too much product development was noted; eleven years later we do not see that as a threat anymore.

Reducing commercial risks could certainly fit into an RCN project; in that case the project should include companies that sell or buy each other's' products or services. We have in other evaluations noted that such projects tend to be highlighted as having a high success rate: the context of application is present and there are several partners with strong common interests and complementary skills. It is notable that very few companies state other companies as main sources for project ideas, which indicates that this type of consortia are quite rare – and, arguably, often not wanted by the companies, who want to decide more on their own.

The most common critique of RCN concerns demanding or uncertain application processes. The key concern for RCN is to be a legitimate and trusted actor. Companies believe that RCN should do what it can to reduce costs to them for writing unsuccessful proposals. Some suggested greater use of two-stage application processes. It is also very important that RCN communicates all criteria clearly and do what it can to avoid 'unfairness' where one class of applicant, e.g. public research organisations, is treated differently from others. It is seen as important to make sure that reviewers really are experts in the field. Reviewing commercial opportunities is a notoriously difficult task, and several respondents criticise the capacity of RCN on that point, suggesting that more use of industry researchers in relevant committees would be a good solution.

Several respondents are unhappy with the timing of call deadlines – a point that was reiterated in industrial interviews. Some would like to see more of open calls running throughout the year, and not just deadlines once or twice per year. A couple of them have lost promising projects since their partner companies could not wait. Also, a handful of companies remark that decisions on projects in BIA should come earlier in the year; the decisions often come just after most companies have set their budgets, which is unfortunate..

A few respondents criticise RCN for having a too great a belief in the technological competence of researchers in public research organisations and not seeing that the competence in the companies might be at least as high. They argued that there are

cades where for example the companies could take a stronger lead also in more basic projects.

It is notable that one respondent in the defence industry finds it practically impossible to get support from RCN. The main reason is most certainly that the Ministry of Defence does not fund RCN. However, this issue also concerns industrial development, and the defence industry sometimes has very high competence in advanced generic technologies. This situation should thus be an issue of concern also for other ministries, such as the NHD.

The respondents were quite highly international. The difference between the number of companies which would like to see RCN offer opportunities for European collaborations was not much lower than the share of companies that wanted opportunities for collaborations within Norway. There were also many companies that wanted to see opportunities for collaborations also elsewhere. We also note that a large number of respondents had participated in EU Framework programmes.

With regard to European opportunities, it is notable that a few small companies find EU-support much more favourable than support from RCN, both because of considerably more generous funding, and because the EU lets them pick PRO-partners more freely.

The respondents were generally pleased with the advice, help and service they received from RCN. RCN in particular receives many high scores regarding advice early in the process. The respondents were however a bit less satisfied with feedback and follow-up to the projects, and quite a few respondents felt that RCN was not very interested in learning what came out of the projects they funded. This however seems to be a minor concern for those companies, since almost none of them brought up the issue in the first, open parts of the interviews. Similarly, the respondents were overall happy with RCN procedures and information, which includes efficient administration and clear communication. One point received more negative responses than the other ones – that on the ease of finding the right programmes. We note that the large number of programmes and complexity of the RCN webpage seem to be the factors triggering the negative responses; at least the webpage should be possible to improve. That said, on the whole we find that RCN does a good job – high scores on almost all points is a good indicator that RCN enjoys high legitimacy in industry.

The positive attitude and competence of RCN staff includes flexibility when the companies for various reasons would like to change the project plan. This flexibility clearly is a positive feature and helps RCN to build legitimacy and trustful relations in the Norwegian research system. One respondent observed, given the little chance for many companies to have a proposal funded, and the often strict project formats that RCN requires, the respondent has an incentive to submit a proposal he does not really like but fits the requirements, and hope to change it afterwards. To several companies Innovation Norway seemed to work the other way around: easier to get funded, but difficult to change a project plan. Given the different aims of RCN and Innovation Norway, that difference however seems understandable – and the suggestion to harmonise the application formats of RCN and Innovation Norway, which came up in a couple of interviews, in the same way seems a bit odd.

To summarise, we find that the respondents in general are happy with RCN. That certainly is a positive result. We have observed a few points on which we see reasons for RCN to improve. But we also note, the other way around, the importance of not disrupting a well-functioning system; changes should be made with this in mind. We find that most companies have learned the routines and which information channels to use, and what support there is – those observations speak in favour of only doing minor changes. The most important point, with which we like to conclude this report, is that RCN should be careful to watch the culture of openness and fruitful dialogue that we see in the Norwegian research and innovation system. That most certainly is an asset that must not be depleted.

We make the following recommendations.

- RCN should alter the call deadlines for company-orientated bottom-up research (user-directed and KMB projects) so that these calls are either continuously open or there are at least four calls per year. That will make them more relevant to industrial timescales
- Consider introducing an optional two-step procedure in these schemes, where RCN can feed back on a short outline proposal ahead of the submission of full-scale proposals
- Explore the opportunities to exploit the networking dimension of industrial innovation projects by clustering projects into small programmes

Appendix A : Questionnaire

R&D strategy and resources

1. **Short discussion** around these points:
 - R&D strategies: In-house, collaborations, etc
 - Externally funded R&D
 - Reasons to apply for RCN funding
 - Future research and innovation support needs

Relevance of RCN activities and funding

2. **Which of the RCN instruments that your company have not used are still relevant to your company (Y/N)**
 - a. RCN Brukerstyrт innovasjonsprosjekt
 - b. RCN Prosjektableringsstøtte (for deltagelse i EU-program, Eureka)
 - c. RCN Forprosjekt
 - d. RCN Sentrum for Framragende Innovasjon (SFI)
3. **Which of the following types of research and innovation funding has your company actually used? (Y/N)**
 - a. SKATTEFUNN
 - b. EU-Rammeprogram
 - c. Eureka
 - d. Nordisk InnovasjonsCenter (formerly Nordisk Industrifond)
 - e. Other (Please specify ...)
4. **Which of the instruments that you have not used are still relevant to your company (Y/N)**
 - a. SKATTEFUNN
 - b. EU-Rammeprogram
 - c. Eureka
 - d. Nordisk InnovasjonsCenter (formerly Nordisk Industrifond)
5. **Irrespective of whether you have used them or not, how relevant to your company is research and innovation support from (1-5; 0)**
 - a. Innovation Norway
 - b. SIVA
6. **To what extent does RCN have research and innovation support available that is relevant to your company? (1-5)**
7. **According to our data, your company stopped receiving RCN funding since the mid-2000s. What were the reasons?**
8. **In your experience of doing RCN-funded project, what organisation was/is usually the main source of the project idea?**
 - a. Your company

- b. Another company
- c. Support organisation such as a research institute, university or industrial association (eg Abelia), or other?

Have the other two types of organisations (your company, another company, support org) also been sources for project ideas? (Y/N)

Assessment of RCN procedures and services

- 9. How would you describe the help, advice and service your company got from RCN (Very poor to Very good; 1-5)**
 - a. Regarding your proposal(s) before submission
 - b. During project selection and negotiation
 - c. During the life of the project(s)
 - d. Feedback and follow-up to the project(s)
 - e. More generally, in terms of advising you about project and funding opportunities
- 10. Do you agree or disagree with these statements about RCN procedures and information? (Y/N)**
 - a. RCN application procedures are simple and easy to follow
 - b. It is clear from RCN brochures and website materials about funding opportunities what the requirements are for getting a specific kind of grant
 - c. RCN administration works and delivers decisions quickly
 - d. Among the different RCN schemes/programmes/grants it is easy to find the one that is right for my company.
- 11. How important is it for you that RCN offers the following information and grant opportunities in the future? (1-5)**
 - a. Opportunities to collaborate with Norwegian research institutes and universities
 - b. Opportunities to collaborate with other Norwegian companies
 - c. Opportunities to collaborate with European universities, institutes or companies
 - d. Opportunities to collaborate with universities, institutes or companies outside Europe

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