The Research Council of Norway

Impact evaluation of the Research Council of Norway's main measures to support Norwegian participation, PES2020 and STIM-EU

Improving Norway's Performance in the EU Framework Programme

Evaluation
STIM-EU and PES2020

technopolis |group|

5 October 2018

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Summary

The Research Council of Norway (RCN) commissioned Technopolis Group to conduct an impact evaluation of its two main support measures to enhance Norwegian participation in Horizon 2020 (H2020), Project Establishment Support (PES2020) and STIM-EU (the measures), under the seventh Framework Programme (FP7) and H2020 (until end of 2017). The overall objective of the evaluation was to assess whether, and to what extent, the measures fulfil their objectives, both on their own and together. The evaluation was also to assess organisation, administration and cost efficiency of the measures and to provide recommendations for the future.

The evaluation entailed document studies, registry analyses (of eCorda, Eurostars and RCN data), web surveys, interviews and an international outlook. The evaluation, which was supported by an international reference group appointed by the evaluation team and by an Advisory Committee appointed by RCN, was conducted between February and September 2018.

Political context

Although not an EU member state, Norway has participated in the FPs since the beginning of 1994. Norway's financial contribution to the FPs is explicit and quite substantial, which has contributed to a policy focus on making the most of the FP association. The government's 2014 Strategy for research and innovation cooperation with the EU therefore sets four qualitative objectives and in addition the quantitative ambition that Norway should bring back 2 percent of the competitive funds in H2020.

PES2020

PES2020 aims to improve the **quality of Norwegian FP proposals**, to increase the **number of proposals**, and to increase the **number of Norwegian proposers**. The bulk of the PES2020 budget goes to co-funding of H2020 proposals, followed by positioning and mobilisation activities.

Any organisation that may receive RCN funding is eligible for PES2020 support, but research institutes and higher education institutions (HEIs) dominate as recipients, followed by industry. RCN awards annual block grants to frequent proposers among HEIs, hospital trusts and institutes. Infrequent FP proposers, mainly companies, may receive grants directly from RCN. The PES2020 budget has increased substantially under H2020. The SINTEF Group and the three largest HEIs together have received 42 percent of the total PES2020 support so far.

The evaluation shows a positive development in terms of the scale of Norwegian FP activity, mainly driven by HEIs and industry, and in terms of new FP participants, mainly companies. In contrast, the quality of Norwegian FP proposals has declined slightly relative both to overall FP averages and to four comparator countries. The evaluation concludes that PES2020 is indeed associated with increased FP activity, with some additional proposers, and with slight quality improvements to proposals. However, these relationships do not all apply equally to all stakeholder categories. Overall, the positive associations are the strongest for companies and for the least FP-active HEIs.

PES2020 is appropriately organised and administered. RCN's current relative administration cost of 1 percent is indeed quite low, and the opportunities to reduce it further seem limited. However, RCN's low administration cost is to a degree a result of RCN having "outsourced" administration to block grant recipients. The administration for individual PES2020 beneficiaries is marginal.

STIM-EU

STIM-EU aims to increase **Norwegian institutes' FP participation**, to increase their **project coordination**, to increase their **collaboration with companies**, and to increase their **collaboration with public organisations**.

Any institute eligible for RCN funding is eligible for STIM-EU support. STIM-EU provides extra funding from RCN based on contracted FP funding, with additional bonuses for coordination and for partnering with companies and public organisations. The overall rationale for the measure is the very low base funding of the institutes that receive base funding from RCN, and their resulting inability to cope with the 25 percent overhead cap in H2020. The STIM-EU budget has also increased substantially under H2020. The technical-industrial institutes clearly dominate as STIM-EU recipients, and the SINTEF Group has received 54 percent of the total STIM-EU support so far in H2020.

The evaluation shows a positive development in the direction of all STIM-EU objectives except for partnering with public organisations where the evidence is inconclusive. The evaluation concludes that STIM-EU has indeed led to more H2020 proposals since the measure improves institutes' financial conditions for H2020 participation, and the evidence suggests that the bonus for partnering with companies *may* have had a positive effect. When it comes to the bonuses for coordination and for partnering with public organisations, the evidence does not support conclusive assessments on any STIM-EU impact.

STIM-EU is very efficiently organised and administered by RCN, and it is also very easy to administer for recipients. RCN's current relative administration cost of just above 0.1 percent is extremely low, and the opportunity to reduce it further seems very limited.

International outlook

The international outlook included case studies of Austria, Germany, the Netherlands and Denmark.

The main lesson pertaining to PES2020 is that as countries and their research communities gradually have learnt how to succeed in the FPs, public support is no longer needed and has been phased out. Norway and Denmark are unusual in still providing general proposal-writing support. Most such schemes focus on beginners to the FPs or aim at fostering particular types of partnerships.

The Norwegian logic for STIM-EU is clear: the measure is cheaper and more effective than to increase the institute sector's overall level of base funding. This measure addresses a structural issue. A similar measure would make sense in Denmark (which does not have such a scheme), but not in the Netherlands (which does).

The measures' rationales

The predecessors to PES2020 were established at a time when the FPs were new and largely unknown to Norwegian stakeholders. The PES measure has clearly succeeded in helping Norwegian FP participants to become quite skilled, but PES-like measures aim to foster behavioural additionality and should therefore be phased out once they have succeeded. Norway's repeat FP participants clearly have acquired the skills needed to succeed, but there will always be new organisations wanting to participate in the FPs, and there is a case for supporting them for a limited time while they also learn how to play the game. There will also be new individual participants within FP-active organisations who need support. Such organisations' internal FP support functions therefore fill an important function that should remain in place, but it is time for the skilled HEIs to shoulder these costs themselves. Their internationally very generous government base grants for R&D indicate that they have the resources for this – just like their less well-funded counterparts in countries that do not enjoy PES-like measures do.

The rationale for STIM-EU is quite different and lies in the RCN-base-funded institutes' financial situation. Institutes in most comparable countries probably have little problem dealing with H2020's cap on eligible overhead costs since their base funding percentages give them sufficient ability to co-fund H2020 projects. In contrast, their Norwegian counterparts – particularly the industrially oriented ones that also tend to have the highest overhead costs – have very little capacity to do so given their low level of base funding. These institutes' problem is structural and will remain as long as these conditions exist, and learning will not help alleviate it. STIM-EU is necessary if Norwegian institutes are to participate in the FPs more than occasionally.

Recommendations

We propose that the two measures are left intact until the end of H2020, and that RCN announces the revised measures for Horizon Europe as soon as possible to give stakeholders time to adapt and prepare themselves. Our recommendations focus on discontinuing PES support for the stakeholder types where potential behavioural additionality appears to be the lowest, maintaining PES support for the stakeholder types that are still on the steep end of the learning curve, and to strengthen STIM-EU since the institutes probably have the greatest potential to increase Norwegian FP participation – often in collaboration with additional Norwegian partners.

The recommendations are directed to both the Ministry of Education and Research (MER) and RCN.

PES under Horizon Europe

- Limit PES eligibility to:
  - The least FP-active HEIs
  - Hospital trusts
  - Beginners among institutes and SMEs
- Exclude the most FP-active HEIs. Internal FP support functions and possibly dedicated grants will continue to be needed by individuals who are new to the FPs, but it is time for the HEIs to shoulder these costs themselves
- Excluding institutes (less beginners) from PES is contingent on the PES funds currently going to institutes being used to increase the STIM-EU funding percentage
- Exclude large companies and repeat FP participants among SMEs. A company will participate in a proposal if it makes business sense and a PES grant should not influence such a business decision (except for beginners among SMEs)

STIM-EU under Horizon Europe

- Increase the funding percentage for institutes that are part of RCN's base funding system by reallocating the funds withdrawn from the PES measure. Given that institutes have different levels of actual overhead costs, the resulting percentage should be individually adapted – or as a minimum adapted to each of the four institute groups. This exercise should take any changes in financial rules in Horizon Europe into account, and may also warrant additional government funding
- Discontinue the present bonus scheme:
  - An institute ought to receive un-earmarked base funding as far as possible and be allowed to decide for itself what is best for the institute (and its clients) in terms of FP participation
  - Bonuses for partnering make no sense if partnering does not make business sense, in which case partnering must be considered artificial and undesired
  - The logic for rewarding FP project coordination is different from rewarding partnering. If coordination is truly considered a political priority, such a bonus may be warranted – this is also a structural issue – but then it should be increased considerably to reflect the actual costs
- The base funding situation and actual overhead costs of the 14 institutes that receive base funding directly from the government should be investigated individually before deciding on whether they should continue to be eligible for STIM-EU funding, and if so to what extent

Sammendrag

På oppdrag for Norges forskningsråd (NFR) har Technopolis Group gjennomført en effektevaluering av Forskningsrådets to viktigste støtteordninger for økt norsk deltakelse i Horisont 2020 (H2020), Prosjektetableringsstøtte (PES2020) og STIM-EU (støtteordningene). Evalueringen har sett på perioden for det 7. rammeprogrammet (FP7) og H2020 (frem til utgangen av 2017). Det overordnede målet med evalueringen har vært å vurdere hvorvidt, og i hvilken grad, støtteordningene oppfyller sine mål, både hver for seg og sammen. Evalueringen har også omfattet å vurdere organisasjon, administrasjon og kostnadseffektivitet for støtteordningene samt å komme med anbefalinger for fremtiden.

Evalueringen har omfattet dokumentstudier, registeranalyser (av eCorda, Eurostars og data fra NFR), nettbaserte spørreundersøkelser, intervjuer og en internasjonal sammenligning. En internasjonal referansegruppe utnevnt av evalueringsteamet og et rådgivende utvalg utnevnt av NFR har bistått evalueringen. Arbeidet ble gjennomført i perioden februar til september 2018.

Politisk kontekst

Selv om Norge ikke er medlem av EU, har landet deltatt i rammeprogrammene siden begynnelsen av 1994. Norge bidrar med en eksplisitt og høyst betydelig kontingent til rammeprogrammene, noe som har bidratt til et politisk fokus på å få mest mulig igjen for tilknytningen. Regjeringens strategidokument «Strategi for forsknings- og innovasjonssamarbeidet med EU. Horisont 2020 og ERA» fra 2014 formulerer derfor fire kvalitative mål i tillegg til en kvantitativ ambisjon om at Norge skal få tilbake 2 prosent av de konkurranseutsatte midlene i H2020.

PES2020

PES2020 har som mål å forbedre **kvaliteten på norske rammeprogramsøknader**, øke **antallet søknader**, og øke **antallet norske søkere**. Størstedelen av PES2020-budsjettet går til medfinansiering av søknader til H2020, etterfulgt av posisjonerings- og mobiliseringsaktiviteter.

Alle organisasjoner som kan motta finansiering fra NFR er kvalifisert til å motta støtte fra PES2020. Forskningsinstitutter og høyere utdanningsinstitusjoner (UoH) dominerer imidlertid blant mottakerne, etterfulgt av industrien. NFR gir årlige rammebevilgninger til hyppige søkere i UoH-sektoren, blant helseforetak og institutter. Sjeldnere søkere til rammeprogrammene, hovedsakelig bedrifter, kan få tilskudd direkte fra NFR. PES2020-budsjettet har økt betydelig i løpet av H2020. SINTEF-gruppen og de tre største høyere utdanningsinstitusjonene har til sammen mottatt 42 prosent av den totale PES2020-støtten hittil.

Evalueringen viser en positiv utvikling når det gjelder omfanget av norsk rammeprogramaktivitet, hovedsakelig drevet av UoH og industrien, samt når det gjelder nye rammeprogramdeltakere, hovedsakelig bedrifter. Kvaliteten på norske rammeprogramsøknader har derimot gått noe ned både sammenlignet med det generelle gjennomsnittet for rammeprogrammene og i forhold til fire sammenligningsland. Evalueringen konkluderer med at PES2020 er forbundet med økt rammeprogramaktivitet, enkelte nye søkere, og små kvalitetsforbedringer når det gjelder søknadene. Effektene fordeler seg imidlertid ikke likt på alle sektorer. Generelt er den positive påvirkningen sterkest når det gjelder bedriftssektoren og de minst aktive innenfor rammeprogrammene i UoH-sektoren.

PES2020 er hensiktsmessig organisert og administrert. NFRs nåværende relative administrasjonskostnad på 1 prosent er svært lav, og muligheten for å redusere denne ytterligere virker begrenset. Den lave administrasjonskostnaden er imidlertid til en viss grad et resultat av at NFR har «outsourcet» administrasjon til mottakerne av rammebevilgninger. Mengden administrasjon i forbindelse med PES2020-støtte til enkeltpersoner er marginal.

STIM-EU

STIM-EU har som mål å øke **norske institutters rammeprogramdeltakelse**, øke instituttenes grad av **prosjektkoordinering**, øke instituttenes **samarbeid med bedrifter**, og øke instituttenes **samarbeid med offentlig sektor**.

Alle institutter som kvalifiserer til NFR-finansiering er også kvalifisert til STIM-EU-støtte. STIM-EU bevilger ekstra NFR-midler på bakgrunn av kontraktsfestet finansiering fra EU, med tilleggsbonuser for koordinering og samarbeid med næringsliv og offentlig sektor. Det overordnede rasjonalet bak støtteordningen er den svært lave basisfinansieringen til instituttene som mottar basisbevilgning fra NFR, og den medfølgende manglende evnen til å leve med 25 prosent i overhead-kostnader som stipulert i H2020. Også budsjettet til STIM-EU har økt betydelig i løpet av H2020. De teknisk-industrielle instituttene dominerer tydelig blant STIM-EU-mottakerne, og SINTEF-gruppen har mottatt 54 prosent av den totale STIM-EU-støtten så langt i løpet av H2020.

Evalueringen viser en positiv utvikling når det gjelder alle de oppsatte målene for STIM-EU, bortsett fra når det gjelder samarbeid med offentlig sektor – der er evidensgrunnlaget mangelfullt. Evalueringen konkluderer med at STIM-EU har ført til flere H2020-søknader ettersom støtteordningen forbedrer instituttenes økonomiske betingelser for å delta i H2020, og evidensgrunnlaget peker i retning av at bonusen for samarbeid med bedrifter *kan* ha hatt en positiv effekt. Når det gjelder bonusene for koordinering og samarbeid med offentlig sektor, er ikke evidensgrunnlaget tilstrekkelig til å vurdere eventuelle effekter av STIM-EU.

STIM-EU er svært effektivt organisert og administrert av NFR, og ordningen er også svært enkel å administrere for støttemottakerne. NFRs nåværende relative administrasjonskostnad på like over 0,1 prosent er ekstremt lav, og muligheten for å redusere denne ytterligere virker svært begrenset.

Internasjonal sammenligning

Den internasjonale sammenligningen har omfattet casestudier av Østerrike, Tyskland, Nederland og Danmark.

Den viktigste lærdommen knyttet til PES2020 er at etter som landene og deres forskersamfunn gradvis har lært seg hvordan man lykkes i rammeprogrammene, har offentlig støtte blitt overflødig og dermed faset ut. Norge og Danmark skiller seg ut ved fortsatt å tilby generell støtte til søknadsskriving. De fleste tilsvarende ordninger fokuserer på nybegynnere i rammeprogramsammenheng eller retter seg mot å fremme bestemte typer partnerskap.

Den norske logikken bak STIM-EU er tydelig: støtteordningen er billigere og mer effektiv enn en økning av det generelle nivået på basisbevilgningene til instituttsektoren. STIM-EU adresserer et forhold av strukturell karakter. En lignende støtteordning ville gitt mening i Danmark (som ikke har noen tilsvarende ordning), men ikke i Nederland (som har det).

Rasjonalet bak støtteordningene

Forgjengerne til PES2020 ble etablert i en tid hvor rammeprogrammene var nye og stort sett ukjente for norske aktører. PES-ordningen har tydelig lyktes i å hjelpe norske rammeprogramdeltakere med å bli temmelig dyktige, men ettersom tiltak som PES har som mål å fremme adferdsaddisjonalitet, burde de fases ut når målene er nådd. Det er tydelig at tilbakevendende norske rammeprogramdeltakere har tilegnet seg de nødvendige ferdighetene for å lykkes. Det vil imidlertid alltid finnes nye organisasjoner som vil delta i rammeprogrammene, og disse burde støttes i en begrenset periode mens de lærer seg spillet. I tillegg vil det finnes nye enkeltpersoner innenfor rammeprogramaktive organisasjoner som har behov for støtte. Disse organisasjonenes interne støttefunksjoner for rammeprogramdeltakelse har derfor en viktig funksjon og burde opprettholdes, men det er samtidig på tide at de dyktige aktørene i UoH-sektoren står for kostnadene til dette selv. De internasjonalt sett svært generøse statlige basisbevilgningene til FoU indikerer at aktørene har ressurser til dette – akkurat som deres mindre velfinansierte motparter i land som ikke har gleden av tilsvarende ordninger har.

Rasjonalet bak STIM-EU er helt annerledes og henger sammen med den økonomiske situasjonen til instituttene som mottar basisbevilgning fra NFR. Instituttene i de fleste sammenlignbare land har neppe store problemer med å leve med H2020s regler for dekning av overhead-kostnader siden de mottar basisbevilgninger som gjør dem i stand til å medfinansiere prosjekter i H2020. Deres norske motstykker derimot – særlig de industriorienterte, som også pleier å ha de høyeste overhead-kostnadene – har i svært liten grad kapasitet til å gjøre det samme på grunn av det lave nivået på basisbevilgningene. De norske instituttene har en strukturell utfordring som vil bestå så lenge forholdene er de samme, og ingen læring vil bidra til å endre situasjonen. STIM-EU er en nødvendig ordning dersom norske institutter skal delta i rammeprogrammene oftere enn av og til.

Anbefalinger

Vi foreslår at de to støtteordningene videreføres i sin nåværende form frem til avslutningen av H2020, og at NFR kunngjør de reviderte støtteordningene for Horisont Europa så tidlig som mulig slik at aktørene får tid til å tilpasse seg og forberede seg. Anbefalingene fokuserer på å avvikle PES-støtte til de aktørtypene som har lavest potensial for adferdsaddisjonalitet, opprettholde PES-støtte til de aktørtypene som fortsatt befinner seg i den bratte enden av læringskurven, og å styrke STIM-EU ettersom instituttene trolig har størst potensial for å øke norsk rammeprogramdeltakelse – ofte i samarbeid med andre norske partnere.

Anbefalingene er rettet både mot Kunnskapsdepartementet (KD) og NFR.

PES under Horisont Europa

- Begrens PES til å gjelde
  - UoH-aktørene med lavest rammeprogramaktivitet
  - helseforetak
  - nybegynnere blant institutter og SMB-er
- Ekskluder UoH-aktørene med størst rammeprogramaktivitet. Det vil fortsatt være nødvendig med interne støttefunksjoner for rammeprogramdeltakelse og muligens dedikerte tilskudd til enkeltpersoner som ikke er kjent med rammeprogrammene, men det er på tide at UoH-aktørene står for kostnadene til dette selv.
- Å ekskludere institutter (unntatt nybegynnere) fra PES avhenger av at PES-midlene som i dag går til instituttene i stedet blir brukt til å øke det prosentvise tilskuddet fra STIM-EU.
- Ekskluder store bedrifter og tilbakevendende rammeprogramdeltakere fra SMB-sektoren. Bedriftene vil delta i søknader dersom det gir forretningsmessig mening. PES-tilskudd burde ikke påvirke slike forretningsmessige avgjørelser (bortsett fra når det gjelder nybegynnere i SMB-sektoren).

STIM-EU under Horisont Europa

- Øk tilskuddsprosenten for institutter som mottar basisbevilgning fra NFR ved å reallokere midlene som blir tatt ut av PES-ordningen. Siden nivået på faktiske overhead-kostnader varierer mellom instituttene, burde prosentandelen tilpasses individuelt – eller i det minste tilpasses hver av de fire instituttgruppene. Man bør ta hensyn til eventuelle endringer i de økonomiske reglene i Horisont Europa, og kanskje også supplere med ytterligere statlig finansiering.
- Avvikle dagens bonusordning:
  - Et institutt bør i størst mulig grad motta en basisbevilgning som ikke er øremerket, og selv få bestemme hva som er best for instituttet (og instituttets kunder) når det gjelder deltakelse i rammeprogrammet.
  - Bonuser for partnerskap gir ikke mening dersom partnerskap ikke gir mening rent forretningsmessig; i slike tilfeller er partnerskap å betrakte som kunstig og uønsket.

  - Logikken bak å belønne koordinatoransvar i rammeprogramprosjekter er annerledes enn logikken bak å belønne partnerskap. Hvis koordinering virkelig er en politisk prioritering, kan en slik bonus være berettiget, men i så fall burde den økes betraktelig for å gjenspeile de faktiske kostnadene. Dette er også et strukturelt spørsmål.

- Situasjonen når det gjelder basisbevilgninger og faktiske overhead-kostnader for de 14 instituttene som mottar basisbevilgning direkte fra regjeringen burde undersøkes individuelt før man bestemmer hvorvidt instituttene fortsatt burde kvalifisere til å motta STIM-EU-midler, og i tilfellet i hvilken grad.

1 Introduction

1.1 Assignment

The Research Council of Norway (RCN) commissioned Technopolis Group to conduct an impact evaluation of its two main support measures to enhance Norwegian participation in Horizon 2020 (H2020), Project Establishment Support (PES2020) and STIM-EU (the measures). The evaluation was to assess the time period from the start of the seventh Framework Programme (FP7) until the end of 2017. The overall objective of the evaluation was to assess whether, and to what extent, the measures fulfil their objectives, both on their own and together. The evaluation was also to assess organisation, administration and cost efficiency of the measures, and to provide recommendations for the future.

1.2 Empirical data sources and methods

The evaluation employed the following data sources and analysis methods:

- **Document studies**: These included policy documents, previous studies and evaluations of or pertaining to the two measures, as well as RCN's descriptions of the measures' evolution. The evolution of the two measures is briefly summarised in Appendix A
- **Registry analyses**: A notable part of the analyses concerned acquiring, analysing and linking eCorda data (for the Framework Programme, FP) and Eurostars data on proposals and projects with data on recipients of PES2020 and STIM-EU funding. This was used to profile the use of the measures over time and the evolution of Norwegian participation in FP proposals, and then to investigate correlation and causality between the two. The main report describes the main findings of the registry analyses, whereas the details are provided in Appendix B
- **Web surveys**: Six web surveys which yielded a total of 877 responses. Two of the surveys targeted H2020 proposers that had received PES2020 support, two H2020 proposers that had *not* received PES2020 support (control groups), one managers of PES2020 block grants, and one managers of STIM-EU recipients. The main report summarises the main findings of the web surveys, while the details are provided in Appendix C
- **Interviews**: Interviews were conducted with 33 representatives of RCN, individual PES2020 beneficiaries, managers of PES2020 block and STIM-EU grants, institute management, and representatives of foreign agencies/ministries. Appendix D lists the interviewees
- **International outlook**: Country case studies were conducted to investigate FP-support strategies and measures in Denmark, the Netherlands, Austria and Germany. The case studies were mainly based on document studies and interviews with national agency/ministry representatives. The main findings of the country comparison are summarised in the main report, while the full case studies are provided in Appendix E
- **International reference group**: An invited reference group consisting of a selection of agency and ministry representatives from Denmark, the Netherlands, Austria and Germany assisted the team with the country case studies and participated in a workshop in Oslo together with representatives of RCN. Appendix D lists the members of the international reference group

RCN had appointed an Advisory Committee to advise the evaluation. The Committee met three times; its members are listed in Appendix D.

The evaluation was carried out between February and September 2018 by a core team consisting of Tomas Åström, Neil Brown, Markus Lindström, Helen Andréasson, Hanna Engblom and Erik Arnold. Tomas Åström was project manager and Erik Arnold quality controller. The team was supported by Anders Håkansson, Cristina Rosemberg Montes, Martin Wain, Brigitte Tiefenthaler, Kalle Nielsen and Marjolijn de Boer.

The team gratefully acknowledges support from a range of stakeholders that have helpfully assisted the evaluation team. These include 33 interviewees, 877 survey respondents, the Advisory Committee members, the international reference group, as well as a number of RCN staff members; in addition to

those named in Appendix D, Rune Rambæk Schjølberg has – again – been most helpful with supporting us with data.

1.3 Report structure

Following on this brief introductory chapter, **Chapter 2** outlines the political context and previous studies on the measures. **Chapter 3** presents the analyses for PES2020, starting with a brief description of the measure, followed by the main results of the registry analyses and the user survey (i.e. web surveys and interviews), an assessment of the organisation and administration of the measure, and lastly the conclusions of all the analyses of the measure. **Chapter 4** presents the analyses for STIM-EU using the same structure. **Chapter 5** summarises the main findings of the international outlook. **Chapter 6** reflects on the compound findings to ultimately arrive at the evaluation's recommendations. **Appendix F** summarises the abbreviations used in the report.

2 Background

2.1 Political context

Although not an EU member state, Norway became associated to the Framework Programmes (FPs) through the European Economic Area (EEA) agreement, which entered into force on 1 January 1994 thus bringing together the EU Member States and three of the European Free Trade Association (EFTA) States (Iceland, Liechtenstein and Norway) in a single market. Norway has thus participated in the FPs since the beginning of 1994, i.e. in FP4.

Norway's financial contribution to the FPs is calculated based on its gross domestic product (GDP) and it is paid explicitly; the annual cost for participating in H2020 is around €447m.[1] The fact that the cost is explicit and quite substantial has contributed to a clear policy focus on making the most of the FP association, and a series of research white papers and national strategies have therefore focused on the importance of increasing Norwegian participation to gain as much benefit as possible.

The 2005 research white paper *Vilje til forskning* (Commitment to research) highlighted that internationalisation of Norwegian research is a main objective of the government's research policy, and specifically emphasised the importance of active participation in the FPs.[2] The white paper led to the development of a Strategy for Norway's research collaboration with the EU, which set the objective for the 2007–2010 timeframe that Norwegian organisations should bring back funding from the competitive parts of the FP corresponding to Norway's contribution to the overall FP budget.[3]

The 2009 research white paper *Klima for forskning* (Climate for research) stated that participation in the FPs is a crucial part of the internationalisation of Norwegian research. The white paper reiterated the *juste-retour* objective for the 2007–2010 timeframe from the 2008 strategy but went on to note that this would be difficult to achieve.[4]

The 2013 research white paper *Lange linjer – kunnskap gir muligheter* (Long-term perspectives – knowledge provides opportunity) confirmed that participation in the FPs is the government's most important instrument for promoting internationalisation of Norwegian research. The white paper clarified that cooperation with Europe is essential, regardless of the form of association that Norway would choose for H2020.[5]

In 2014, Norway decided to associate itself with H2020, and shortly thereafter the government presented its Strategy for research and innovation cooperation with the EU, which set four qualitative objectives:[6]

- Participation shall increase the quality of Norwegian research and innovation and help Norwegian research and innovation succeed internationally
- Participation shall contribute to increased innovation capacity, value creation and sustainable economic development
- Participation shall contribute to improved social welfare and more sustainable social development through research and innovation that enable us to deal with major societal challenges
- Participation shall help to develop our own research and innovation sector, both through further development of policies and instruments and through new patterns of cooperation across national borders, sectors and fields

1 www.regjeringen.no/no/tema/europapolitikk/tema-norge-eu/okonomiske-bidrag/id684932/.

2 St.meld. nr. 20 (2004–2005), *Vilje til forskning*.

3 "Strategi for Norges samarbeid med EU om forskning og utvikling", MER, 2008.

4 St.meld. nr. 30 (2008–2009), *Klima for forskning*.

5 St.meld. nr. 18 (2012–2013), *Lange linjer – kunnskap gir muligheter*.

6 "Strategi for forsknings- og innovasjonssamarbeidet med EU. Horisont 2020 og ERA" ("Strategy for research and innovation cooperation with the EU. Horizon 2020 and ERA"), MER, 2014.

In addition, the government announced the ambition that Norwegian organisations should bring back 2 percent of the competitive funds in H2020, while noting that economic factors is not the main motive for participation. The strategy concluded that universities and university colleges, research institutes, hospital trusts and the private sector have significant potential for greater participation.

The 2014 white paper *Langtidsplan for forskning og høyere utdanning 2015–2024* (Long-term plan for research and higher education) emphasised the need to reinforce research and education to meet challenges and seize opportunities in the Norwegian knowledge society in the coming decade. The importance of continued internationalisation was stressed, and the white paper noted that for the 2 percent goal to be reached, the scope of Norwegian activities must increase radically. The white paper concluded that there is an inherent potential to increase the scope of participation in all sectors. In cooperation with RCN, the government therefore was to develop a set of measures and instruments to respond to the needs of various sectors, taking the Strategy for research and innovation cooperation with the EU as a point of departure. The white paper emphasised that different sectors have different needs. Research institutes were described as needing support to meet the gap between costs covered by European Commission (EC) funding and actual costs. Since the institutes play an important role in mobilising industry, support to institutes also was seen as a means to increase company participation. The higher education (HE) sector and the hospital trusts were described as needing information and support for positioning activities, writing proposals, and establishing and conducting projects. Industry's greatest need was said to be funding to mobilise companies to take part, and to assist them in establishing projects.[7]

The 2017 white paper *Industrien – grønnere, smartere og mer nyskapende* (A greener, smarter and more innovative industry) explains that Norway's competitiveness depends on its ability to use and exploit R&D results and technology developed in other countries, and states that FP participation is a means of facilitating this. The white paper argues that there is scope for increasing industry's H2020 participation in order to foster innovation capacity, value creation and sustainable economic development, including for small and medium-sized enterprises (SMEs). It also argues for effective cooperation between RCN and Innovation Norway (IN), in particular when it comes to SMEs. The strategy reiterates the two percent overall objective for Norwegian participation.[8]

In May 2017, the government opened a public consultation round (until September 2017) ahead of a revision of the long-term plan for research and higher education that is due to be presented in autumn 2018. The previous four-year periodicity of broad research white papers thus seems to have been replaced by long-term plans that are scheduled to be presented with the same regularity. However, research white papers, both broad and specific, also may be published when needed.

2.2 Previous studies on PES2020 and STIM-EU

A 2013 impact evaluation of seven of RCN's FP-support measures determined that PES under FP7 was quite effective in stimulating more and better proposals, whereas the effect on mobilising new proposers seemed somewhat elusive. The output additionality was determined to be high. The evaluation nevertheless proposed that PES perhaps ought to be limited to proposers in the greatest need, i.e. newcomers to the FPs, multi-partner[9] coordinators and SMEs. The evaluation also studied STIM-EU, but at the time the measure was so new that it was not possible to assess its efficiency. However, the evaluation concluded that the rationale for STIM-EU was apparent given the institutes' low base funding.[10]

7 St.meld. nr. 7 (2014–2015), *Langtidsplan for forskning og høyere utdanning 2015–2024*.

8 St.meld. nr. 27 (2016–2017), *Industrien – grønnere, smartere og mer nyskapende*.

9 In eCorda, the organisation that has a contract with the Commission is defined as coordinator. This is true also for projects where only one organisation participates, meaning that there is in practice no one to coordinate. By multi-partner (MP) proposals and projects, we refer to coordinators of consortia consisting of at least two separate legal entities.

10 T. Åström, A. Håkansson, G. Melin, P. Stern, P. Boekholt and E. Arnold, "Impact evaluation of the Research Council of Norway's support measures to increase participation in EU-funded research", RCN, 2013.

A 2016 report that studied what constitutes a competitive consortium concluded that the partners' track record in terms of FP success rate is key to success, as is the centrality of the partners (i.e. the total number of unique partners in FP projects) and the status of university partners (i.e. their size, publication citations and place in university rankings).[11] On the same note, a paper studying Norwegian H2020 participation concluded that the two main factors that increase the likelihood that a research organisation submits a successful proposal are prior FP participation (indicating persistence and learning effects from previous EU projects) and scientific reputation of the organisation.[12] While these two studies treated questions closely related to PES2020 and STIM-EU, they did not specifically address the measures themselves.

OECD's 2017 review of Norway's innovation policy highlighted the importance of STIM-EU for the H2020 participation of Norwegian institutes in general, and for the technical-industrial institutes in specific, based on their low level of base funding.[13]

A 2017 study analysed Norwegian participation in H2020 in health, ICT and industry with the aim of highlighting Norwegian weaknesses and opportunities for increasing participation. While not explicitly tasked with evaluating PES2020 or STIM-EU, the study inevitably assessed the two measures' role in stimulating Norwegian H2020 participation in the three topic areas. PES2020 seemed to be particularly important for SMEs, while STIM-EU was determined to be critical for institutes' H2020 participation. The study argued for increasing the funding percentage of STIM-EU, and for PES2020 to discontinue providing proposal grants in a few years' time, except to proposers in the greatest need (essentially the same ones as those favoured by the 2013 evaluation).[14]

[11] F. N. Piro, L. Scordato and D. W. Aksnes, "Choosing the right partners. Norwegian participation in European Framework Programmes," Report 2016:41, NIFU.

[12] S. G. Enger and F. Castellacci, "Who gets Horizon 2020 research grants? Propensity to apply and probability to succeed in a two-step analysis," *Scientometrics*, 109:1611–1638, 2016.

[13] "OECD Reviews of Innovation Policy: Norway", OECD, 2017.

[14] T. Åström, N. Brown, B. Mahieu, A. Håkansson, P. Varnai and E. Arnold, "Norwegian participation in Horizon 2020 in health, ICT and industry. A study on the potential for increased participation", RCN, 2017.

3 PES2020

3.1 Objectives and evolution

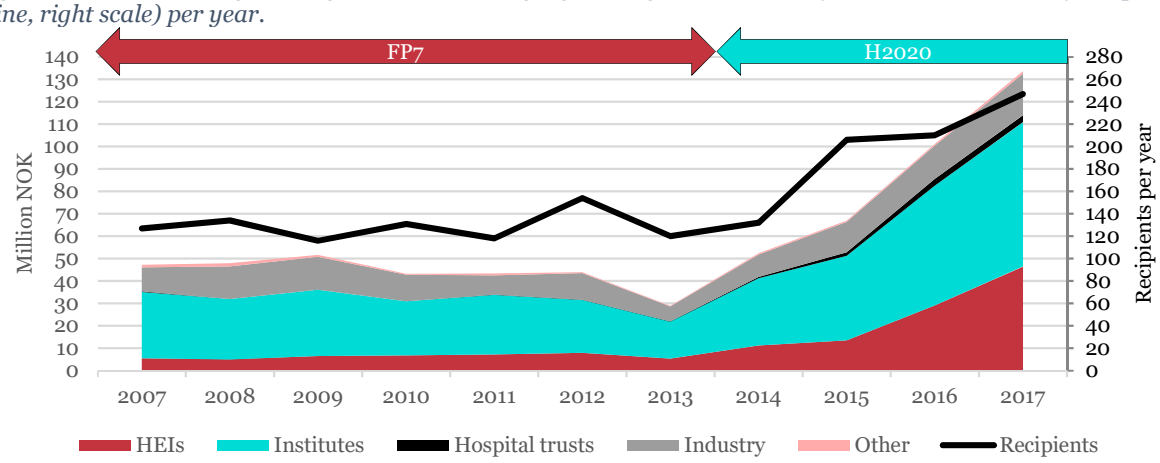
Project Establishment Support (*Prosjektetableringsstøtte*, PES) was launched in 2004 (under FP6) with the overall objectives of improving the **quality of Norwegian FP proposals**, increasing the **number of such proposals**, and increasing the **number of Norwegian proposers**. These objectives remain the same under PES2020 (as the measure has been renamed under H2020). While the emphasis, eligibility criteria and grant amounts have been adjusted several times since 2004 as described in Appendix A.1, PES2020 currently provides financial support to:

1. H2020-relevant travel and profiling
2. Participation in strategic processes
3. Preparing H2020 proposals
4. Preparing proposals for H2020 financial instruments

The bulk of PES2020 funding goes to preparation of H2020 proposals (item 3), followed by "positioning and mobilisation activities" that encompass items 1 and 2 above. The activities included in item 4 – small compared to the others – are not covered by this evaluation (as per agreement with RCN).

PES/PES2020 grants by stakeholder category under FP7 and H2020 are summarised in Figure 1, clearly illustrating a rapidly increasing budget under H2020, which obviously mainly has benefitted higher education institutions (HEIs) and institutes. So far in H2020 (until 2017), institutes have received 53 percent of the total PES2020 funding, HEIs 29 percent, industry 16 percent and hospital trusts 2 percent, but the trend during H2020 is that of an increasing share of the budget benefitting HEIs at the (relative) expense of the other categories. Under H2020, the number of recipient organisations has also increased notably.

Figure 1 PES/PES2020 grants by stakeholder category; total grants (areas, left scale) and number of recipients (line, right scale) per year.



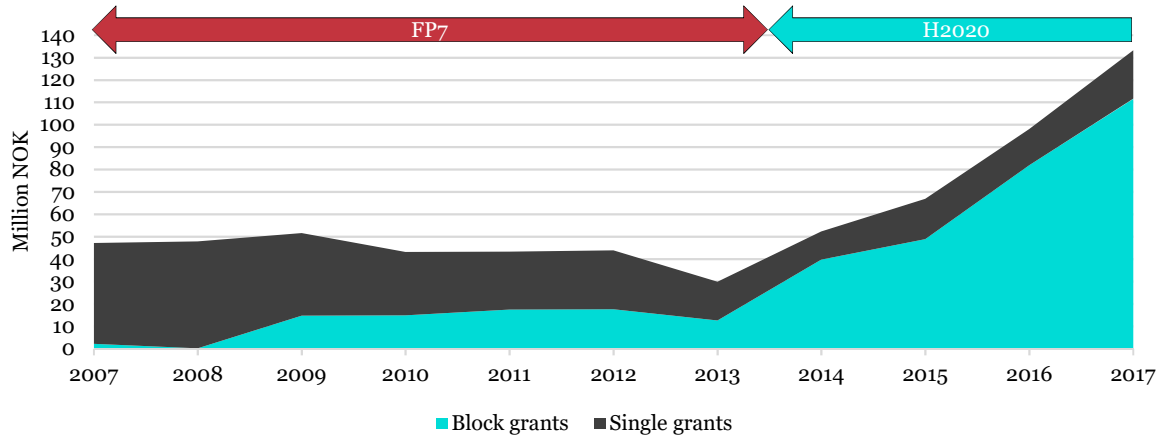
Source: Technopolis analysis of RCN data.

All categories of stakeholders receiving a PES/PES2020 grant may use it for explicit external costs, such as travel and consultancy services. HEIs and hospital trusts may not charge for the time invested by the researcher in items 1–3 above, whereas institutes and companies may do so. However, HEIs and hospital trusts may indirectly charge personnel costs by enlisting someone else – often another researcher and often from within the same department – take over *regular* duties, such as teaching, from the researcher working on items 1–3 (*frikjøp*).

Early on, RCN started awarding annual block grants to frequent proposers among HEIs to reduce its own bureaucracy, and institutes and hospital trusts were later given the same privilege, see Figure 2. Block grants are generally re-distributed within the block grant recipient's organisation according to

similar principles as RCN's direct grants (cf. Appendix A.1), but practices and grant amounts differ widely between organisations, a tendency that seems to have accelerated as RCN has given block grant recipients freer reins in recent years. Infrequent FP proposers may receive grants directly from RCN. Such single grant recipients are heavily dominated by companies, together with a smattering of lesser proposers from the HE and institute sectors, and a few organisations that fall into an "other" category.

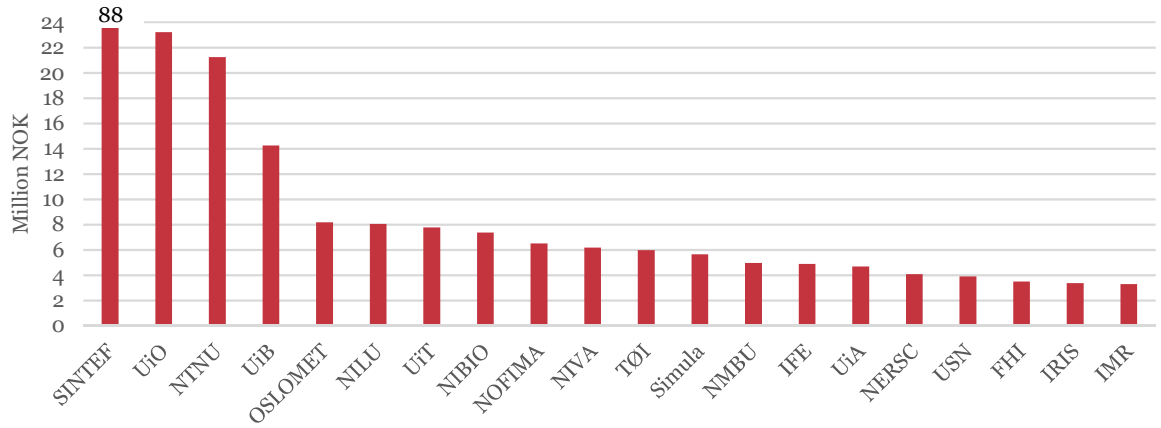
Figure 2 PES/PES2020 grants awarded as single and block grants.



Source: Technopolis analysis of RCN data.

Figure 3 shows the 20 largest PES2020 recipients, i.e. 2014–2017 (H2020) only. Note that the SINTEF Groups' column, which should end at NOK88m, has been truncated to facilitate legibility for the lesser recipients. The four largest recipients (SINTEF, UiO, NTNU and UiB) together account for 42 percent of the total PES2020 support so far. Abbreviations are summarised in Appendix F.

Figure 3 Top 20 PES2020 recipients.



Source: Technopolis analysis of RCN data.

3.2 Results and impacts

The results and impacts of the PES2020 measure have been assessed through registry analyses and through a user survey, and the findings of this dual approach are reported in succession.

3.2.1 Registry analyses

The registry analyses involved acquiring, analysing and linking eCorda data (FP7 and H2020 proposal information[15]) and data on recipients of PES2020 funding[16], before both profiling Norwegian FP proposal participation over time, and assessing evidence of correlation/causality between PES2020 support and H2020 activity. Specifically, the analyses have sought to address the following questions:

- Is the direction of travel in line with PES2020 objectives? Has proposal activity increased? Are there new FP participants? Has the proposal quality increased?
- Is there a positive correlation between H2020 performance and the introduction/increasing scale and breadth of PES2020? How does proposal participation compare between recipients and non-recipients?

The study was also asked to consider Norwegian involvement in the Eurostars programme, based on proposal data provided by the Eureka secretariat (covering 2008–2017). This data covers calls during the Eurostars 1 (E1) and 2 (E2) programmes, which largely align with FP7 and H2020. RCN provided a list of 210 PES2020 grants relating to the E2, which we have matched to Eureka data as far as possible[17].

Full details of the registry analyses, including data sources and further information on the analyses undertaken, are provided in Appendix B. This section provides a summary of the main findings.

3.2.1.1 Trends in PES support

Before looking at Norwegian FP activity, it is important to highlight several key points about PES support and its evolution over the FP7 and H2020 period. The evaluation is asked to assess the impact of PES2020 on Norwegian participation in H2020, compared with FP7. However, a similar PES measure existed throughout the period of FP7, so we are therefore not comparing an H2020 period *with* PES support with an FP7 period *without* it. In addition, the PES scheme has evolved regularly since it was first introduced as outlined in Section 3.1, meaning that there have been many variants of the measure during the period, rather than a single static measure. There has been significant growth in PES support over recent years, setting PES2020 apart from previous incarnations of the scheme (cf. Figure 1):

- Total PES funding disbursed each year remained relatively constant during FP7 (~NOK45m/year), but then increased during H2020 (~NOK130m/year by 2017). This increase is mainly additional funds going to HES (HEI) and, to a lesser extent, REC (research) organisations[18]
- The total number of PES recipient organisations each year remained reasonably constant during FP7 (~130 per year) but has then increased during H2020 (to 247 in 2017). This increase is driven mainly by a rise in the number of PRC (industry) organisations
- The proportion of Norwegian H2020 proposals with PES2020 support has also grown steadily during the past four years, to over half (54%) in 2017. The proportion of proposal *participations* with PES2020 support has similarly grown, from 32 percent in 2014 to 42 percent in 2017. The increase is driven mainly by HES (HEI) and, to a lesser extent, REC (research) organisations

In summary, there is significantly more PES2020 support going to more organisations (particularly in the most recent years) than was the case with PES support during FP7. We therefore set out to explore whether there is evidence that this upward trend in support has impacted positively on the measure's objectives.

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15 The FP7 database (August 2015) covers the entirety of FP7, while the H2020 database (March 2018) covers only the first half of the programme. This was the latest available data but may be subject to revision as part of later releases.

16 RCN provided two separate sources of information on PES. A list of H2020 proposals, with those in receipt of PES2020 funding tagged and a database of PES grants to organisations over the FP7 and H2020 period.

17 The Eurostars Project ID is missing for 30% of the PES2020 grants; these have therefore been excluded from the analyses.

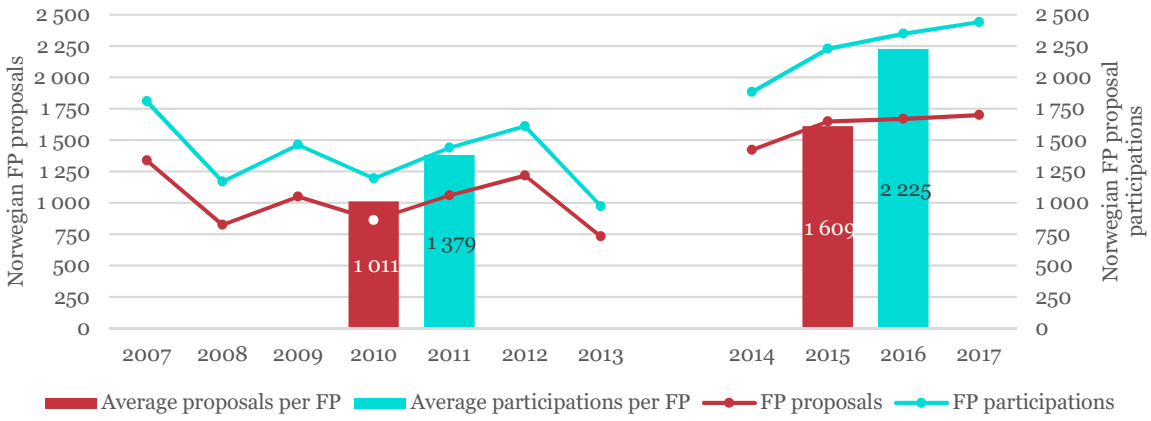
18 Stakeholder categories in eCorda: HES = Higher or secondary education organisation, PRC = Private for profit organisation (excl. education), REC = Research organisation, PUB = Public body (excl. research and education) and OTH = Other. While HES and PRC correspond well with Norwegian HEI and industry classifications, some research institutes are placed in the PUB category (rather than in the REC category, where they probably ought to be).

PES2020 seeks to increase Norwegian participation in H2020. This can be influenced by both the *volume* of proposal activity and by the *quality* of proposals. We look first at Norway's level of involvement in proposals over time, then at the number of individual proposers (i.e. the extent to which new organisations become FP active), and lastly at proposal quality.

3.2.1.2 Participation in FP proposals

Norway's absolute level of proposal activity has tended to increase over time (a positive direction of travel in relation to PES2020 objectives). Figure 4 plots the total number of Norwegian proposals (burgundy line) and proposal participations (turquoise line) over time. The columns show the annual averages for each FP to aid comparison between the scale of activity in FP7 and H2020. On average, across the seven years of FP7 there were 1,379 Norwegian participations in 1,011 proposals each year, while across the first four years of H2020 there were 2,225 participations in 1,609 proposals per year. There has consequently been a 59 percent increase in Norwegian proposal participations and a 61 percent increase in Norwegian proposals so far in H2020. There has also been a steady rise in the first years of H2020, from 1,883 participations in proposals (2014) to 2,440 participations (2017).

Figure 4 Norwegian FP proposals and FP proposal participations.

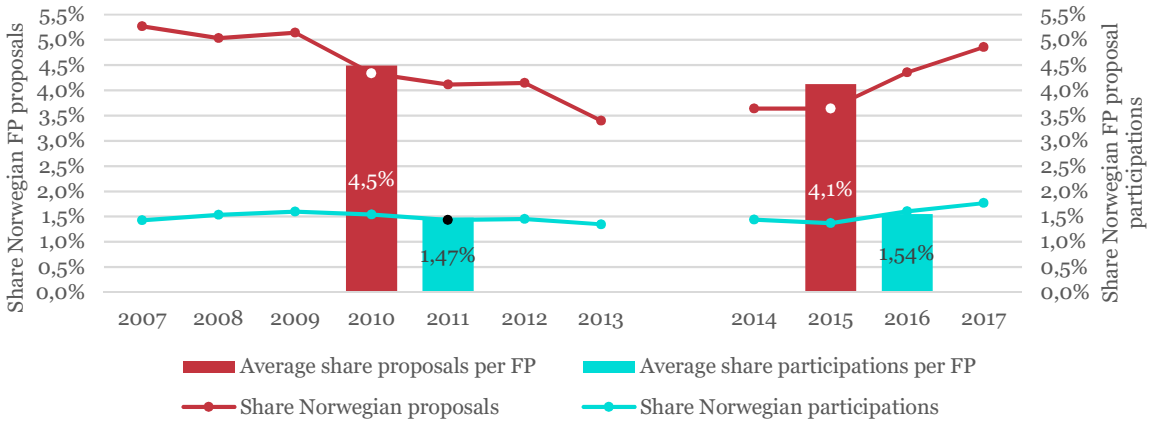


Source: Technopolis analysis of eCorda data.

All four main eCorda stakeholder categories have seen an increase in the average level of proposal participation since FP7, with the biggest increases (absolute and relative) seen amongst PRC (+150%) and HES organisations (+98%). Interestingly, as part of this growth, proposal activity has become a little more evenly distributed across the universities. Thus, the three largest and most FP-active universities (NTNU, UiO, UiB) have seen their share of HES proposal participations decrease from 79 (FP7) to 71 percent (H2020), while the FP activities of other universities have expanded more rapidly.

Because of differences between the two FPs (including their overall scale), it can be misleading to compare absolute levels of proposal activity. If we instead consider the relative rate of Norwegian participation (i.e. as a proportion of all countries), we remove some of the variability in the scale of overall activity between years or programme periods. Figure 5 illustrates that the picture for Norway is still generally of a positive direction of travel. The proportion of all proposals each year that Norway has participated in has dropped slightly from an average of 4.5 percent during FP7, to an average of 4.1 percent during H2020. However, at the same time, its share of proposal participations each year has increased, from 1.47 percent (FP7) to 1.54 percent (H2020). In addition, Norway's relative level of activity on both measures has risen during the first years of H2020, whereas the rates had tended to decline during FP7 (i.e. Norway appears to have reversed the negative trend in FP7).

Figure 5 Norwegian FP proposals and FP proposal participations as share of all.



Source: Technopolis analysis of eCorda data.

We have seen above that average annual proposal activity has tended to be higher during the first four years of H2020 than it was during the seven years of FP7. In addition, we have seen that there seems to be a positive increase in the scale of Norwegian proposal activity over the course of the first years of H2020. These broad trends align with those of the PES2020 measure, which on average has provided more funding to more organisations in each year of H2020 than it did during FP7, and where the scale and breadth of support has risen through the first years of H2020.

However, because the provision of PES2020 support is tied to the proposal being deemed eligible by the EC, it is difficult to conclude on the direction of causality based on these aggregate trends. To explore further the link between PES2020 and H2020 participation levels we used RCN data on PES2020-supported participations in H2020 proposals (equivalent data was not collected during FP7). Three different groups of Norwegian organisations were assessed (categorised according to the extent of PES2020 support), with their level of proposal participation activity in FP7 and H2020 compared. The results shown in Table 1 suggest that PES2020 support is associated with larger increases in proposal activity between FP7 and H2020. For the 132 organisations in Group 1 (who received PES2020 support for all their H2020 proposals), we see a five-fold increase in average annual participations between the two programmes. By comparison, the other two groups of organisations (with some or no PES2020 support for their H2020 proposals) only saw a smaller (approximately two-fold) increase.

Table 1 Change in proposal participation levels FP7 to H2020 according to extent of PES2020 funding.

	Group 1 – all H2020 participations PES-funded	Group 2 – some H2020 participations PES-funded	Group 3 – no H2020 participations PES-funded
Organisations in group	132	315	1 825
Total participations by group in FP7 (7 years)	51	6 121	1 760
Total participations by group in H2020 (4 years)	154	6 496	2 280
Average annual participations by group in FP7	7.3	874.4	251.4
Average annual participations by group in H2020	38.5	1 624.0	570.0
Change from FP7 to H2020	x 5.3	x 1.9	x 2.3

Source: Technopolis analysis of eCorda and RCN data.

Looking in more detail at different stakeholder types we find that this positive relationship between PES2020 support for all FP proposals and changing levels of FP activity is particularly strong for industry (a more than twenty-fold increase in average annual participations). By comparison, the difference between groups of PES2020- and non-PES2020-supported HES and REC organisations is

much smaller, at least at the aggregate level. However, if we dig deeper, we find that amongst the smaller, less FP-active HEIs, PES2020 support does appear to have a more dramatic effect on FP activity.

Looking at the individual organisations within each of the three groups, we also find that a clear majority (95%) of organisations in Groups 1 and 2 increased their participation levels between FP7 and H2020, while this was true of only 61 percent of the organisations that received no PES2020 funding for H2020 (Group 3). This pattern holds across all four main stakeholder types. This further supports the idea that PES2020 has encouraged/supported greater levels of H2020 proposal activity amongst its recipients – although it is clearly not the only driving factor.

Finally, Table 2 shows a summary of two sets of data split by stakeholder type. On the left-hand side, it shows the growth in PES2020 funding, while on the right-hand side it shows the growth in H2020 proposal participations. The table highlights the fact that – at the aggregate level – the biggest gains in H2020 participation levels have *not* been seen amongst stakeholder types that have benefited from the greatest increases in PES2020 funding. The growth in PRC (industry) proposal activity is many times greater than the growth in PES2020 funding, while in contrast, the rise in HES (HEI) participation is a mere third of the increase in its PES2020 funding. Also, within the HES group, the historically least active HEIs (who account for 9% of PES2020 funding) have increased participation levels to a greater extent than the historically most active (who have received 59% of PES2020 funding).[19]

Table 2 Change in average annual FP proposal participation compared with change in average annual PES funding between FP7 to H2020.

Stakeholder type	Increase in average annual PES funding		Stakeholder type	Increase in average annual FP proposal participation
Industry	28%		PRC	150%
Institutes	26%		REC	28%
HEI	298%		HES	98%
			A. Most active	*61%*
			B. Moderately active	*126%*
			C. Least active	*187%*
Norway	**60%**		**Norway**	**85%**

Source: Technopolis analysis of eCorda and RCN data.

A separate analysis of the Eurostars programme shows that average annual Norwegian proposal participation activity has also tended to be higher under H2020 (E2) than under FP7 (E1). There has also been a positive increase in the scale of proposal activity over the most recent three years of E2. Again, this is a positive direction of travel with regards to the PES2020 objective of increasing participation. As with the FP data, we explored the link between PES2020 and Eurostar proposal activity by creating three groups of organisations, based on the extent to which their E2 proposals received PES2020 funding (all proposals in the case of Group 1, some for Group 2 and none for Group 3). As can be seen in Table 3, the 99 organisations in Group 1 have seen a nearly five-fold increase in average annual participations between the two programmes. The 60 organisations in Group 2 have seen a nearly three-fold increase, while the organisations in Group 3 have seen a decline in participation.

The positive correlation between Eurostars proposal activity and PES2020 support is further supported by looking at the individual organisations in each of the three groups. Within the PES2020-funded groups (1 and 2), 92–95 percent of organisations increased their participation levels between the two programmes. By comparison, only 25 percent of the organisations that received no PES2020 funding increased their average participation levels between the two programmes.

[19] A: Most active: NTNU, UiO, UiB; B: Moderately active: UiT, NMBU, Oslomet, UiS, UiA, HSN; C: Least active: Others.

Table 3 Change in Eurostars participation levels FP7 to H2020 according to extent of PES2020 funding.

	Group 1 - all E2 proposals PES-funded	Group 2 - some E2 proposals PES-funded	Group 3 - no E2 proposals PES-funded
Organisations in group	99	60	287
Total participations by group in E1 (6 years[20])	36	100	366
Total participations by group in E2 (4 years)	117	182	105
Average annual participations by group in E1	6.0	16.7	61.0
Average annual participations by group in E2	29.3	45.5	26.3
Change from E1 to E2	x 4.9	x 2.7	x 0.4

Source: Technopolis analysis of eCorda and RCN data.

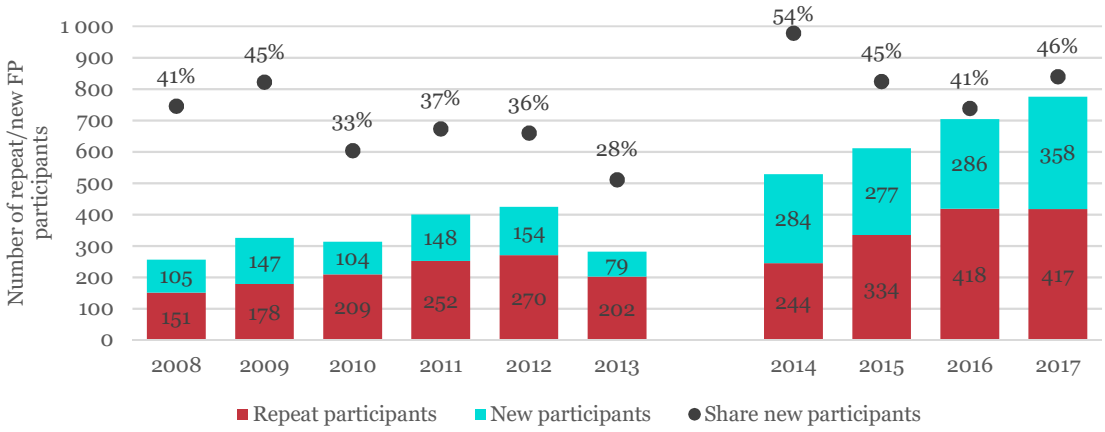
3.2.1.3 New FP participants

As part of its objective to increase Norwegian participation in H2020, PES2020 also seeks to increase the number of new Norwegian participants, i.e. expanding the population of FP-active organisations.

Figure 6 illustrates that the absolute number of new FP participants, i.e. those that have *not* participated in previous years (turquoise bars) is much higher in H2020 (301 per year on average) than in FP7 (132 per year on average), which is a positive direction of travel in relation to the PES2020 objective. Most new entrants are PRC, especially during H2020 when 87 percent or more of new proposers each year are companies. Industry is therefore predominantly driving the large (and rising) number of new participants.

The share of new participants, i.e. the proportion of organisations participating each year that are doing so for the first time (black dots), also tends to be higher in H2020 (46% per year on average) than in FP7 (37%). One might expect the new entrant proportion to decline over time, but this does not seem to be the case as we move to H2020. Perhaps PES2020 has played a role in this.

Figure 6 Number of new and repeat organisations participating in FP proposals, including the share that are new participants.



Source: Technopolis analysis of eCorda data.

In fact, we do find a clear difference between organisations based on whether (and the extent to which) they have received PES2020 support (based on the three groups of organisations introduced in the previous section). The great majority (88%) of organisations in Group 1 (where H2020 proposals were all PES2020-funded) had *not* participated in FP7 proposals, while this was true of only 59 percent of Group 2 (partly PES2020-funded) and just 44 percent of organisations in Group 3 (no PES2020 funding). This suggests that there is some correlation between new proposers to H2020 and PES2020 funding. However, it should be noted that new entrants to H2020 that received some PES2020 funding

[20] The duration of E1 was 2008–2013, i.e. one year shorter than FP7 (2007–2013).

(n=301) only account for a small proportion (28%) of all new entrants to the programme (n=1 089). The same is true if we just consider the dominant group of new entrants (companies); only 28 percent of all new PRC entrants were PES2020 recipients. Therefore, if PES2020 is playing a role in encouraging new entrants – in industry and beyond – it is by no means the only factor doing so.

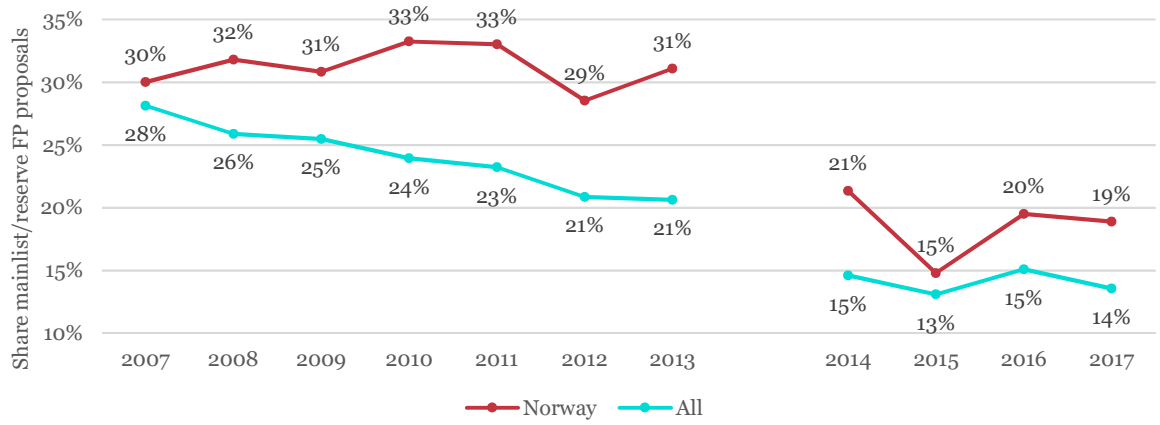
The separate analysis of the Eurostars programme shows that in each year (2008–2017), the majority (50%+) of Norwegian organisations participating in proposals are new to the FPs. However, there is a downward trend in the proportion of new proposers over time (which is expected given that the portfolio of past participants is expanding). Returning to the three groups of organisations participating in E2 proposals (grouped based on the extent of PES2020 funding), we find that the organisations in Group 1 (PES2020 funding for all E2 proposals) are more likely than average to be new proposers (i.e. they had not participated in E1 proposals). However, the proportion of new proposers in Group 2 (some PES2020 funding) is below the proportion of new proposers in Group 3 (no PES2020 funding), so it is difficult to draw any strong conclusions from this.

3.2.1.4 Quality of FP proposals

PES2020 also seeks to increase the quality of Norwegian proposals to H2020. We have used the EC's assessment classification for proposals as an indicator of quality, focusing specifically on proposals classified as "mainlist" or "reserve", i.e. those evaluated as of sufficient quality to be funded.

The absolute number of proposals that are mainlisted and reserved varies considerably year-on-year, but overall there is a slight increase (improvement) in the average number of "quality" proposals involving Norway between FP7 (292 per year) and H2020 (296 per year). The PES2020 objective of increasing quality relates to absolute numbers of proposals (i.e. more Norwegian proposals of higher quality), and so these statistics suggest a (slight) positive direction of travel. However, this perspective misses some of the wider context that is useful for assessing Norway's performance, since there has been an overall increase in budgets, as well as an overall increase in the number of proposals that are mainlisted/reserved between the two programmes. If absolute increases in quality proposals do not keep pace with these wider trends, then Norway's success rate and its overall share of funding may suffer. It is therefore necessary to also consider quality relatively, i.e. as a proportion of wider activity.

Figure 7 Proportion of FP proposals classified as mainlist/reserve for Norway and all countries.



Source: Technopolis analysis of eCorda data.

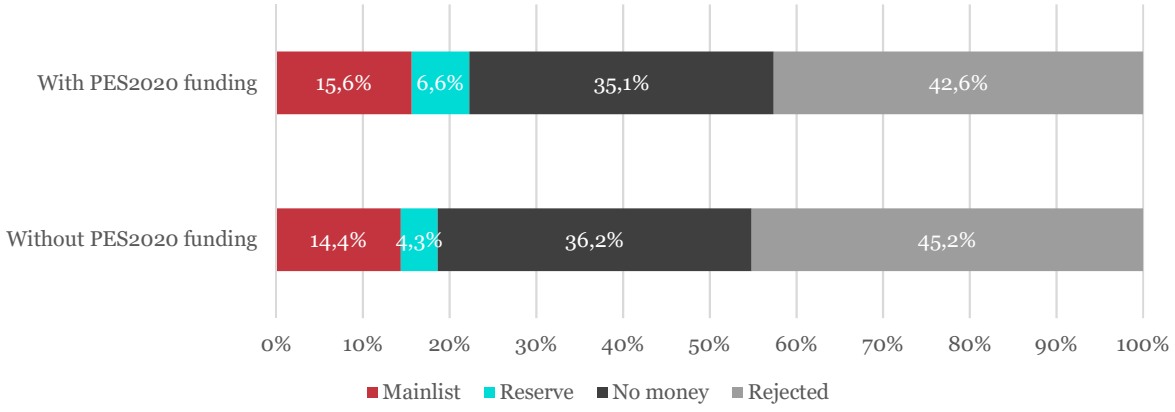
Figure 7 shows that the proportion of Norwegian proposals that are mainlisted/reserved (burgundy line) has fallen from FP7 (31% per year on average) to H2020 (19% per year). However, this is also true for all proposals (turquoise line). This suggests a change more generally between the FPs and the fall for Norway needs to be seen in this context. Importantly, the proportion of Norwegian proposals that are mainlisted/reserved is above the all-country average throughout FP7 (31% vs. 24% overall) and H2020 (19% vs. 14%). However, whilst Norway's relative performance improved over FP7 (i.e. the distance above the all-country average widened), it has remained relatively stable through H2020 so far. As such,

there is no indication from this data of a positive direction of travel for overall Norwegian proposal quality in H2020 (in relative terms).

The evaluation has also considered Norwegian performance in relation to Austria, Denmark, Germany and the Netherlands. Here the mainlist/reserve rates are closer to Norway's, and indeed follow similar trends over time. However, again, there is evidence of a decline in Norway's relative position. While during FP7, Norway's annual mainlist/reserve rate tended to sit within the middle of this group of countries, its performance has tended to be lower than most, if not all, of these countries in each year of H2020. The differences are small, but this does appear to be a negative trend from Norway's perspective and in terms of PES2020 objectives.

It is possible that two PES2020 objectives are working counter to each other, in the sense that by encouraging new (inexperienced) organisations to apply to H2020, Norway may be diluting the overall quality of its proposals (i.e. the average quality decreases). There is some evidence to support this hypothesis. For instance, we find that H2020 proposal participations of new organisations (that did not participate in FP7 proposals) are mainlisted/reserved less often than organisations that participated in FP7 proposals (16% and 21% of cases, respectively). If we take the PES objective to be an increase in the *absolute* number of "quality" proposals, then this diluting effect from new participants is not important. Some of the new entrants will be involved in quality proposals and this will help to increase the overall total (even if this is less often than for more experienced participants). However, if there is a desire to increase the *proportion* of proposals that are of sufficient quality to be funded, then efforts to increase new participants may be a drag on progress. Because new participants are in the minority, the effect is likely to be quite small (e.g. removing them entirely from the data would shift the H2020 line in the previous figure upwards by only around 2 percentage points). Also, as previously noted, the role of PES2020 in encouraging new participants is likely to be limited (only 28% of new entrants to H2020 have received PES2020 funding), so the impact specifically of PES2020 in dragging down overall mainlist/reserve rates is likely to be minimal. Increased competition (the number of proposals each year in H2020 is nearly double that of FP7) is likely to be a far more significant factor driving the drop in rates (for Norway and overall).

Figure 8 Evaluation classification of H2020 proposals with and without PES2020 funding.

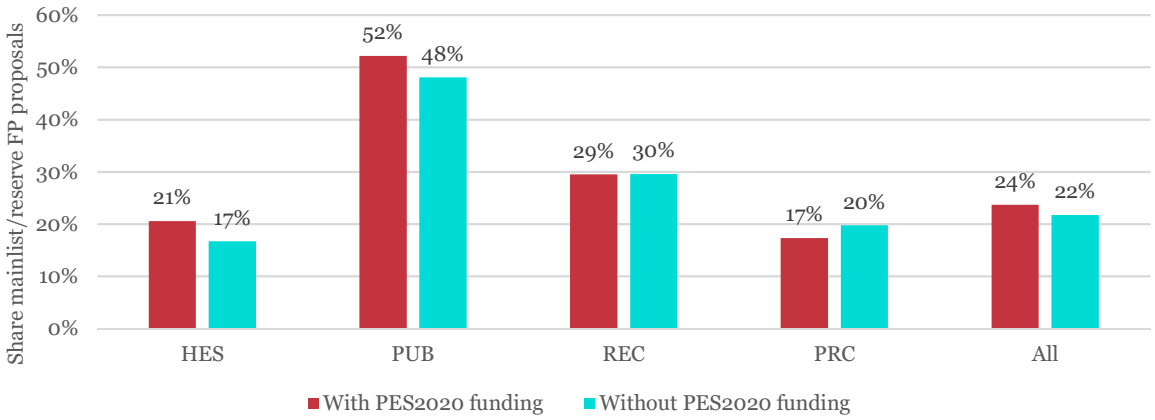


Source: Technopolis analysis of eCorda and RCN data.

Using information on PES2020-supported Norwegian proposals, it is possible to see a slightly better performance amongst those with support than without. As Figure 8 shows, a slightly higher proportion of proposals with PES2020 funding (granted to at least one Norwegian participant) are mainlisted/reserved (22.2%), compared with proposals without PES2020 funding (18.7%). This suggests that on average PES2020 is associated with slightly higher quality proposals. To investigate whether this also holds true for different stakeholder types we must consider proposal participations. Figure 9 thus shows mainlist/reserve rates for H2020 *proposal participations* with and without PES2020 support (whereas the previous figure was for *proposals*). This overall positive association

between PES2020 funding and mainlisted/reserved proposals holds for HES and PUB organisations, but the opposite is true for PRC and (to a lesser extent) REC organisations.

Figure 9 Proportion of H2020 proposal participations mainlisted/reserved with and without PES2020 funding.



Source: Technopolis analysis of eCorda and RCN data.

Within the HES category, the 15 least FP-active HEIs (Group C) show a greater difference in mainlist/reserve rates between PES2020-funded and non-PES2020-funded participations. For these HEIs, 24 percent of PES2020-supported participations are mainlisted/reserved, compared with just 14 percent of those that are not. By comparison, the difference for the three most active (Group A: 21% to 17%) and the six moderately active HEIs (Group B: 20% to 18%) is much smaller.

The results for the PRC category seem a little counterintuitive. However, having investigated this further, we believe that this anomaly is (at least in part) caused by the SME Instrument (SMEI). This is a key area for industry involvement in H2020 (it did not exist in FP7), but one where there has been a lot of competition and low success rates overall. It is also an instrument where organisations have often resubmitted proposals (with some improvement) if they have been unsuccessful in an earlier attempt. The rate of mainlisted SMEI proposals (~9% for Norway) is much lower than Norwegian rates in H2020 overall (~19%), so in that sense it is lowering the overall average (also for other countries). Moreover, because the SMEI was introduced in H2020 it is likely causing at least some of the overall fall in mainlist/reserve rates between FP7 and H2020 (again also for other countries). This just goes to demonstrate (though quite an extreme example) how difficult it is to compare H2020 with FP7. This is by no means the only instrument or programme to be introduced or changed from FP7 to H2020 – and there will be many reasons why comparing the two programmes is not entirely appropriate.

A second important point is that PES2020 support is only available once, but if SMEI proposals are submitted again and are successful then PES2020 support will still have played a role (given that a lot of the work that went into the earlier PES2020-supported proposal will remain). Of the 921 Norwegian SMEI proposals submitted over the first four years of H2020 many fewer are unique proposals (542 if we de-duplicate based on proposal acronym). Based on the data available (only four years), we see that 13 percent of these unique proposals have (on one of their submissions) been mainlisted. In addition, we can see that the SMEI proposals that received PES2020 support *at some point* are much more likely to be mainlisted (17%) than those that have not received any PES2020 support (9%). This is a strong indication of the value of PES2020 support, at least for SMEI.

The separate analysis of the Eurostars programme has also looked at the "project status" of proposals, which relates the outcome of the assessment process (as well as subsequent funding negotiations). Compared to the overall portfolio, proposals involving Norway tend to fare well with slightly above-average rates of approval (proposals assessed as being above the higher threshold). Approval rates, both for Norway and overall, vary from year to year with no consistent trend. However, comparing the E2 (H2020) to the E1 (FP7) period suggests that approval rates overall have increased slightly (from 36% of proposals to 42%), while Norway has seen a bigger increase (from 39% to 47%). Comparing the status

of Norwegian E2 proposals based on whether or not they received PES2020 funding, shows that the group with PES2020 support have on average achieved better quality than those without support. Specifically, nearly half (49%) of PES2020-supported Norwegian proposals have achieved an above-threshold assessment (i.e. worthy of funding), while the same is only true of 41 percent of Norwegian proposals that did not receive PES2020 support.

3.2.2 User survey

This section is based on web surveys and a number of interviews. Five surveys were conducted:

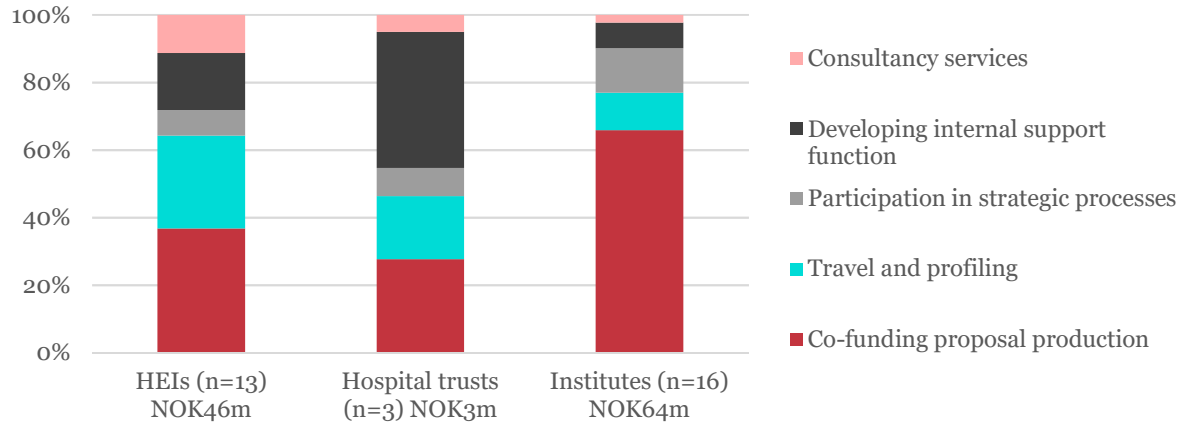
- Two surveys of individuals who had worked on H2020 proposals with a PES2020 grant: one survey to those who received the grant through a PES2020 block grant, and similar survey to those who received the PES2020 grant directly from RCN. We call these individuals *beneficiaries*
- Two surveys of individuals who had worked on H2020 proposals *without* a PES2020 grant: one to those with organisations that had a PES2020 block grant, and similar one to those with organisations that did *not* have a block grant. We call these individuals *non-beneficiaries*
- One survey of representatives of PES2020 block grant recipients' internal H2020 support functions (that manage/administer the block grants). We call these organisations *recipients* (to differentiate them from beneficiaries, who are individuals)

The findings are for the most part presented by Norwegian stakeholder category, i.e. HEIs, research institutes, hospital trusts and companies (which do not fully align with eCorda classifications). Survey results for hospital trusts are less robust than for the other categories due to a low number of respondents (as indicated in the subsequent figures). Interviewees included beneficiaries from all stakeholder categories, representatives of block grant recipients' internal H2020 support functions from all eligible stakeholder categories, senior management and R&D directors of institutes, and RCN staff. Details of the surveys and additional results are provided in Appendix C, while interviewees are listed in Appendix D.

3.2.2.1 Use of PES2020 block grant

Figure 10 illustrates how organisations receiving PES2020 block grants used the grant in 2017. The red part of the columns refers to specific H2020 proposals, whereas the other categories refer to activities that are not proposal-specific. There is little doubt that the proposal-specific grants to some degree also have been used to pay for travel and consultancy costs.

Figure 10 Use of PES2020 block grant in 2017 according to representatives of internal H2020 support functions (total grants per stakeholder category indicated).



Source: Web survey.[21]

[21] Note the small number of respondents from hospital trusts, which nevertheless corresponds to a 75% response rate; in 2017 there were only four hospital trusts with block grants.

HEIs and hospital trusts obviously used the block grant for activities that are not proposal-specific to a much greater extent than institutes. Both HEIs and hospital trusts spent a notable share of the grant on H2020-relevant travel and profiling, as well as on expanding the capacity and/or qualifications of the internal H2020 support function – the latter particularly in hospital trusts. In contrast, institutes primarily used the block grant to co-fund preparation of individual H2020 proposals, which holds true both for institutes that received large grants and those that received smaller ones. All three stakeholder categories used rather small shares of the grant to buy consultancy services and to participate in H2020-relevant strategic processes, although it is likely that part of travel and profiling may be considered as contributing to strategic processes. Nevertheless, HEIs appear to be the most likely to buy consultancy services and institutes the most prone to participate in H2020-relevant strategic processes.

Although Figure 10 suggests some significant differences between stakeholder categories, our interviews reveal that there are also differences within the categories, and in particular in how the internal H2020 support function is funded and consequently how much of the PES2020 grant that is redistributed internally. According to one interviewee, the internal support function is entirely funded through the PES2020 block grant, according to another it is quite dependent on the grant, and according to others it is not at all dependent on the block grant. Phrased differently, some organisations invest substantial internal funds (in addition to the block grant) to stimulate H2020 participation, whereas others invest less and instead use part of the PES2020 grant to fund the support function. However, interviews also reveal that far from all institutes have a central support function, but rather that H2020 support is provided at department level or equivalent, and often by peers rather than by dedicated support personnel. To varying degrees, such distributed support seems to exist also in HEIs and hospital trusts.

Our interviews show that internal H2020 support functions largely provide the same type of services to their proposers (in addition to proposal-production grants), including courses, reading of draft proposals, advice on formalities and interview training for proposers that have been summoned to such by the EC. Most organisations seem to award considerably smaller grants than RCN (which seems reasonable since HEIs and hospital trusts may not charge for the proposal writer's time – though they may charge personnel costs through *frikjøp*), whereas some institutes grant the same amounts as RCN. NTNU stands out in that it has not followed RCN's lead in awarding lump-sum proposal-writing grants. Moreover, NTNU uses a substantial share of its block grant to provide targeted support to groups that already have a solid H2020 track record (*gullkortgrupper*). NTNU has also devised an internal incentive system to stimulate H2020 participation, which funded through the results-based funding component (*Resultatbasert omfordeling*, RBO) of its government base funding grant.

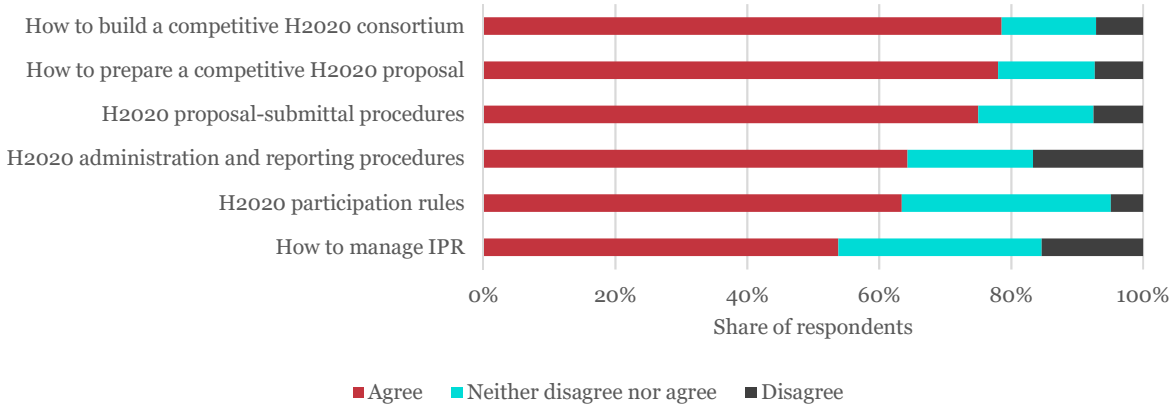
3.2.2.2 Results

Survey respondents representing PES2020 block grant recipients from all stakeholder categories agree that the block grant has made organisation management view the internal H2020 support function as a strategic asset. Particularly survey respondents from HEIs agree with this statement (84%), but respondents from institutes and hospital trust also agree (67% for both). Accordingly, a majority of survey respondents agree that the block grant has triggered more organisation-internal funds being invested in the internal H2020 support function. Institute representatives agree that the PES2020 block grants was quite important when the organisation decided to set up an internal H2020 support function (67% agree), whereas a third of respondents from HEIs and hospital trusts agree. Figure 11 illustrates that representatives of block grant recipients assess that the grant to a large extent has had positive impacts on the knowledge of the support function; there are few differences between stakeholder categories in these respects.

Individual PES2020 grant beneficiaries (i.e. individuals writing proposals) were asked what they used the grant for. Since institutes and companies may use the grant to pay for the time the beneficiary spent on proposal writing, this is what they most often did (82 and 73% respectively), followed by travel to meet consortium partners (49 and 38% respectively). In contrast, beneficiaries in HEIs and hospital trusts primarily used the grant to travel to meet consortium partners (66 and 78% respectively), and one in three HEI beneficiaries used the grant to pay someone to temporarily take on their regular responsibilities (*frikjøp*). One company in three used the grant to buy external consultancy services,

whereas one in five HEI beneficiaries did the same. These findings are mirrored in beneficiary interviews, and we learnt that HEIs and large companies used external consultants mainly for language editing and assistance with proposal writing.

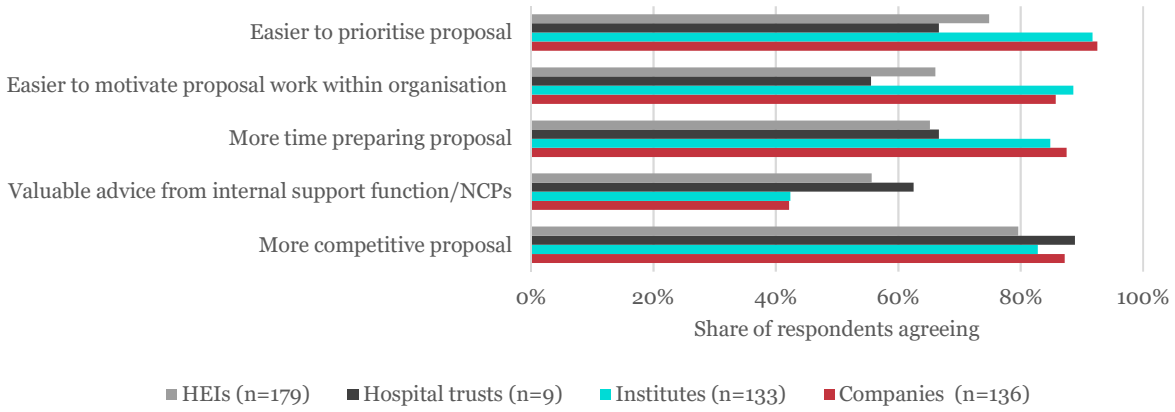
Figure 11 Share of representatives of PES2020 block grant recipients agreeing that the block grant has contributed to the internal H2020 support function becoming more knowledgeable in terms of... (n=41)



Source: Web survey.

Beneficiaries were also asked what the PES2020 grant meant for themselves. Figure 12 shows that a large majority of respondents from all stakeholder categories agree that the grant made it easier for them to prioritise working on the H2020 proposal, as well as to motivate within the organisation to do so. Beneficiaries in institutes and companies are particularly prone to agree with this. This is as expected, since proposal writing to a much lesser degree is part of the daily chores in companies and – to some extent – institutes (than in HEIs and hospital trusts), and hence a greater need to legitimise working on an H2020 proposal. Even though a majority of respondents from all categories agree that the grant enabled them to spend more time on the proposal, this is particularly true for institutes and companies, which is most likely due to them being able to use the grant to pay for the time for spent on the proposal.

Figure 12 Share of beneficiaries agreeing to what the PES2020 grant meant for them and their organisation.



Source: Web surveys.[22]

[22] Note that for this and all subsequent figures showing responses by stakeholder category:

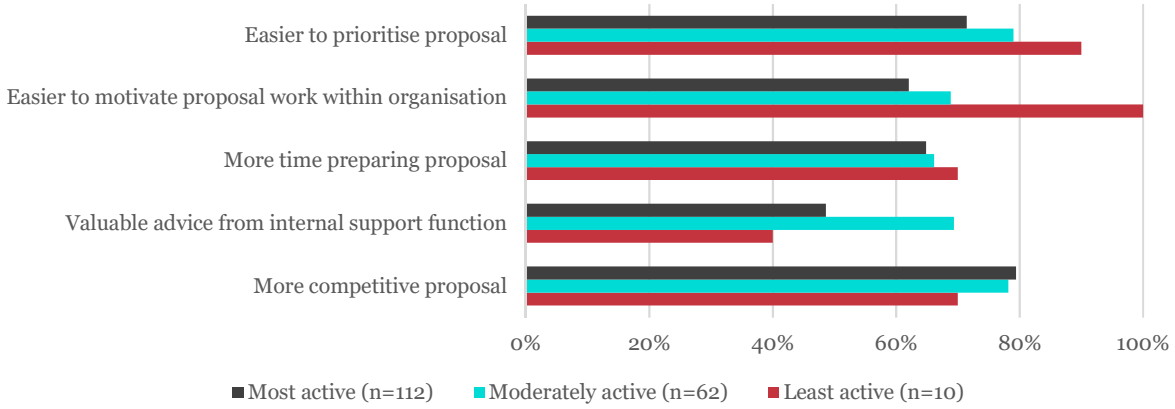
- Results represent the share of respondents that selected Fully agree *or* Agree from a five-tiered Likert scale.
- Results for hospital trusts rely on very few responses and should therefore be interpreted judiciously.
- Alternatives have been abbreviated for readability; full survey questions and alternatives are provided in Appendix C.

Beneficiaries in HEIs, hospital trusts and institutes were first asked if the organisation had an internal H2020 support function and if they answered yes, they were asked whether they received valuable advice from the support function in connection with applying for or receiving the PES2020 grant. A majority of beneficiaries in HEIs and hospital trusts agreed, whereas fewer in institutes did. Beneficiaries in industry were instead asked if they received valuable advice from Norway's National Contact Points (NCPs); only a minority did. It should be noted that these responses only refer to advice in connection with the PES2020 grant, not whether they had received advice on any other occasion. Between 80 and 90 percent of beneficiaries in all stakeholder categories believe that the PES2020 grant resulted in a more competitive H2020 proposal. Interviewees explain that the increased proposal competitiveness was due to the grant enabling them to attend face-to-face meetings within the consortium, to spend more time researching and writing the proposal, and to hire external consultants. An SME representative notes that the grant enabled it to buy market reports, which gave an edge compared to other proposers.

Non-beneficiaries indicate that having received a PES2020 likely would have resulted in a more competitive H2020 proposal, mainly for non-beneficiaries from institutes (86%) and companies (76%), whereas this belief is less firmly anchored among non-beneficiaries from HEIs (55%) and hospital trusts (40%). This follows the trends shown in Figure 12, with the dividing line going between institutes and companies on the one hand and HEIs and hospital trusts on the other hand, thus suggesting that the PES2020 additionality is the highest the former two. Having said that, a majority of non-beneficiaries from all stakeholder categories agree that a PES2020 grant would have made it easier both to prioritise working on the H2020 proposal and to motivate within the organisation to work on the H2020 proposal. Nevertheless, one in four non-beneficiaries from HEIs and one in six non-beneficiaries from hospital trusts believe that receiving a PES2020 grant would have made no difference whatsoever, so opinions obviously differ.

Looking more closely at HEI responses, Figure 13 reveals that – with the exception of effect on proposal competitiveness – beneficiaries in the three historically most FP-active HEIs (NTNU, UiO, UiB) experience effects to a lesser extent than beneficiaries in less FP-active HEIs. Beneficiaries in the least FP-active HEIs tend to see the largest effects, with the interesting exception of advice from the internal support function. A hypothesis that we do not have evidence to verify is that this is because these HEIs do not (yet) have very experienced support functions.

Figure 13 Share of HEI beneficiaries, grouped by FP activity, agreeing to what the PES2020 grant meant for them and their organisation.



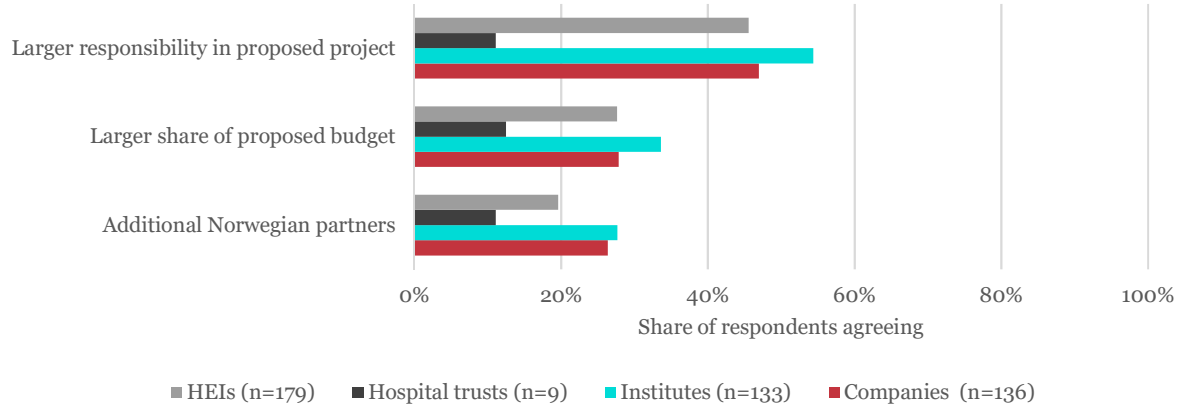
Source: Web surveys.[23]

Figure 14 shows that around half of beneficiaries from institutes, companies and HEIs believe that the PES2020 grant resulted in their organisation taking on larger responsibility in the H2020 proposal. It is therefore surprising that considerably fewer beneficiaries judge that the grant resulted in their

[23] Note the small number of respondents from the least active HEIs.

organisation getting a larger share of the proposed EC budget. Moreover, the figure shows that the grant only to a limited extent resulted in additional Norwegian partners (but this is not a PES2020 objective).

Figure 14 Share of beneficiaries agreeing to what the PES2020 grant meant for them and their organisation.



Source: Web surveys.

Beneficiaries were also asked what (hypothetically) would have happened had they not received a PES2020 grant. A majority from all stakeholder categories suggest that the H2020 proposal would have been submitted anyway but that it would have been less competitive, though a third of companies say that the proposal would not have been submitted. Overall, only 14 percent of survey respondents believe that an equally competitive proposal would have been submitted. However, one in five (20%) beneficiaries in the most and moderately FP-active HEIs believe that an equally competitive proposal would have been submitted, but only one in ten (11%) in the least FP-active HEIs do. By the same token, around one in five beneficiaries in the most and moderately FP-active HEIs (19 and 17%, respectively) state that the proposal would not have been submitted, whereas as many as one in three (33%) in the least FP-active HEIs do.

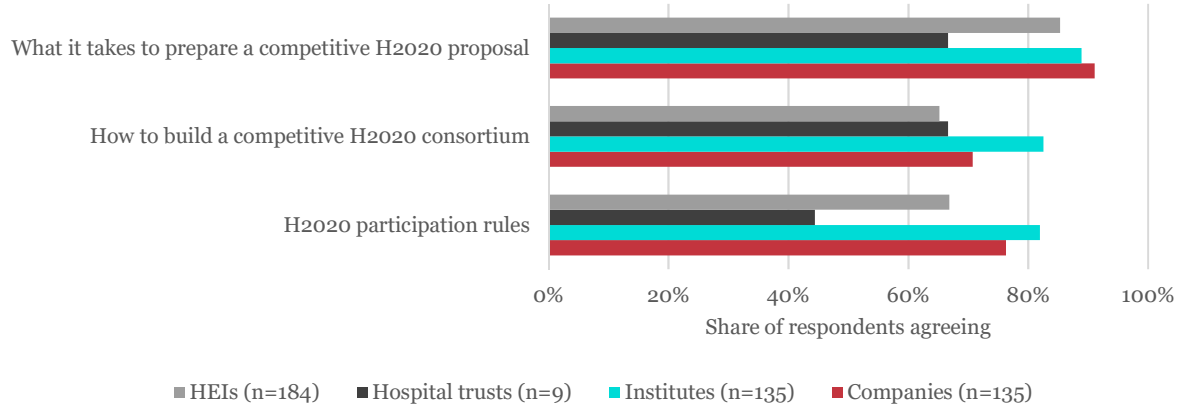
An SME interviewee explains that the proposal would have been submitted anyway to secure future business opportunities. A large company representative agrees and points out that the grant is of limited importance for a go/no-go decision since it only covers part of the costs for proposal production. Interviewees largely support the notion that the absence of a PES2020 grant would have had negative impact on the proposal's competitiveness.

3.2.2.3 Impacts

Asking beneficiaries for longer-term, or second-order, impacts of receiving a PES2020 grant perhaps may be considered a bit far-fetched, but we did so anyway given the nature of RCN's impact logic for the measure. We will get back to why such questions may be considered problematic and how to interpret survey results, and ultimately to what this means in light of PES2020's impact logic.

Figure 15 illustrates that beneficiaries from all stakeholder categories strongly agree that the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 have increased their knowledge of how to produce competitive H2020 proposals. Most of them also believe that they have become more knowledgeable on how to build a competitive consortium and on H2020 participation rules. Overall, company and institute beneficiaries seem to have benefitted the most and beneficiaries from hospital trusts the least (but recall the small number of respondents from this category).

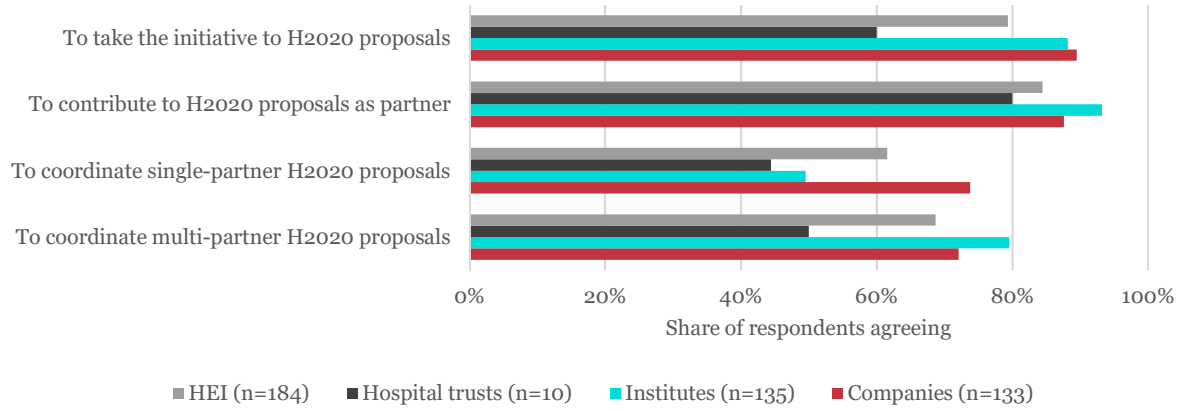
Figure 15 Share of beneficiaries agreeing that the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made them more knowledgeable in terms of…



Source: Web surveys.

In interviews, beneficiaries were asked similar questions (but in more general terms). Most interviewees explain that preparing an H2020 proposal indeed is a valuable experience, and that knowledge and skills increase with time. However, interviewees emphasise that this of course happens also when you prepare an H2020 proposal without a PES2020 grant. However, one may argue that the existence of PES2020 means that more individuals gain such knowledge and skills.

Figure 16 Share of beneficiaries agreeing that the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made them more competent and qualified…



Source: Web surveys.

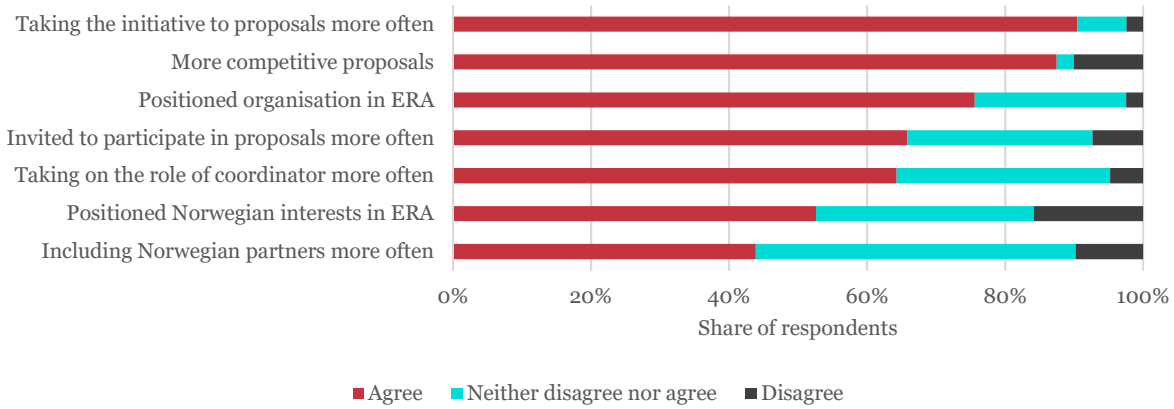
Figure 16 illustrates that beneficiaries regard themselves as more competent and qualified as H2020 proposers as a result of the experiences gained in preparing H2020 proposal(s) part-funded by PES2020. A large majority of beneficiaries agree that these experiences have made them more competent and qualified to take the initiative to additional H2020 proposals and to contribute to H2020 proposals as partners. Beneficiaries from all stakeholder categories claim to have become more confident to take on the role as proposal coordinator. When it comes to single-partner proposals, companies and HEIs are the most confident, likely due to the main single-partner instrument being the most relevant to them (SMEI for companies and European Research Council (ERC) and Marie Skłodowska-Curie action (MSCA) grants for HEIs; this is confirmed by survey responses which reveal that beneficiaries from companies and HEIs to a notable extent had coordinated single-partner proposals, whereas few beneficiaries from institutes and hospital trust had). Interestingly, companies and HEIs have become more confident to coordinate multi-partner proposals, but institutes the most confident. According to interviews with institute management and HEI support functions, mobilisation

and matchmaking activities funded through the PES2020 block grant have encouraged more researchers to coordinate proposals.

Around one in three beneficiaries also see impacts in terms of expanded networks with Norwegian organisations, but impacts on international networks are (of course) much stronger. A clear majority of all stakeholder categories believe that their network with foreign HEIs and/or institutes have benefitted, with the strongest responses from beneficiaries in institutes, HEIs and hospital trusts. A majority of beneficiaries in companies and institutes indicate that their network with foreign companies have benefitted. As previously noted, even though beneficiaries to a large extent are positive regarding what they have learnt in terms of knowledge and skills, as well as on extended networks, it is difficult to attribute these to the PES2020 grant.

Figure 17 illustrates that representatives of PES2020 block grant recipients believe that the grant has had positive impact on the organisation's H2020 participation. Nine in ten respondents agree that the block grant has contributed to the organisation taking initiative to H2020 proposals more often, as well as coordinating and participating in more competitive H2020 proposals. More than six in ten respondents agree that the organisation is being invited to participate in H2020 proposals more often, as well as taking on the role of coordinator of H2020 proposals more often. Representatives of HEIs are particularly positive in the latter respect. However, the block grant does not seem to have had a very significant impact in terms of including additional Norwegian partners in proposals (which again is not a PES2020 objective). Three in four respondents agree that the block grant has contributed to the organisation positioning itself in the European Research Area (ERA); this is evident for all stakeholder categories, but in particular for HEIs (85%). Respondents are less prone to agree that the block grant has contributed to positioning Norwegian interest in the ERA.

Figure 17 Share of representatives of PES2020 block grant recipients agreeing that the PES2020 block grants have contributed to impacts for the organisation as a whole (n=41).



Source: Web survey.

3.2.2.4 Future of PES2020

Beneficiaries were asked what they believe would happen if PES2020 grants were not available in the future. Four in five survey respondents from all stakeholder categories claim that they would submit fewer FP proposals, particularly beneficiaries from institutes (88%) and hospital trusts (100%[24]). One in ten respondents selected "equally many" and the same share "no" proposals. Moreover, nearly nine in ten beneficiaries (86%) believe that they would submit less competitive proposals; quite few (14%) believe that they would submit equally competitive proposals. These findings are to a large extent mirrored in interviews. An HEI beneficiary notes that the absence of a PES2020 grant would decrease the quality of the proposals, leading to a lower success rate, which eventually would discourage proposers from writing proposals. A majority of institute beneficiaries state that even though they would

[24] Based on five responses only.

continue to submit proposals without PES2020 support, there would be fewer proposals due to fewer travelling and networking opportunities.

Interviewees representing internal support functions also foresee fewer and less competitive proposals without PES2020, but the picture is not uniform. While some interviewees predict doom, others argue that more experienced researchers would continue writing proposals as before, and with limited impact on proposal quality. Particularly representatives of institute management tend subscribe to the latter view and argue that there would not be much impact on proposal quality, possibly on average even an improvement since questionable proposals might be aborted. The foreseen impact on the internal support function follows the same pattern as the degree of dependency on the block grant described in the beginning of this section, from catastrophe to limited impact. The organisations where little internal funding is invested in H2020-support activities are foreseen to be hit hard, whereas others believe they would cope and hope for some internal funds being allocated to compensate.

Given the nature of these questions, we must account for the possibility that some survey respondents (and possibly also some interviewees) may have chosen to respond tactically. Although we certainly believe that there would be a risk of somewhat fewer and somewhat less competitive proposals if PES2020 support were not available in the future, experience tells us that – at an aggregate level – respondents to self-serving questions such as these overall tend to exaggerate in terms of the extent of the correlation. We therefore advise the reader to interpret the future-related results with a healthy level of scepticism.

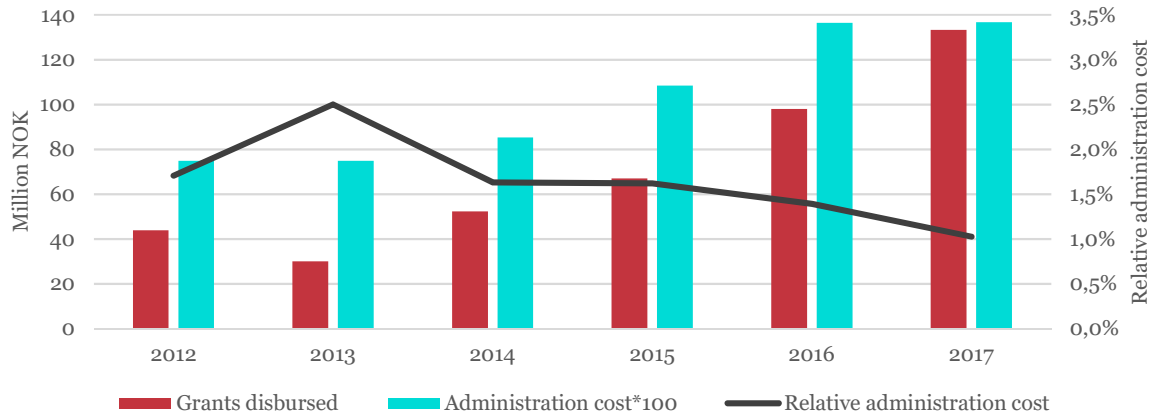
3.3 Organisation and administration

PES2020 is managed by a small team at RCN, for the moment consisting of six individuals that all work part-time with PES2020, resulting in 2.4 full-time equivalents (FTEs). The team is supported by NCPs in assessing single PES2020 proposals.

Already during FP7, RCN implemented simplifications in its implementation of PES to reduce its own administration. By 2009, eligibility for block grants was extended to all HEIs, hospital trusts and institutes, and by 2010 the requirement for audit certificates was abolished. These simplifications have continued during H2020. Since 2014, the vast majority of the PES2020 budget has been disbursed through block grants (cf. Figure 2), and since 2015 companies have received grants as *de minimis* support. Since 1 May 2017, single grants are awarded as lump sums, meaning that cost reporting is no longer required for single grants. On the same note, block-grant holders may award internal grants for proposal production as lump sums, and they need no longer report these costs (but they still must report costs for positioning activities and other initiatives to strengthen their H2020 participation). The effect of these successive simplifications is obvious in Figure 18, which shows that although the administration costs (in the figure multiplied by 100 for readability) have increased each year since the last year of FP7 (2013), costs have risen slower than the total grants disbursed meaning that the relative administration costs have fallen (the black line). By comparing this figure with Figure 2, we see that the decline in relative administration costs since 2013 closely follow the trend of a diminishing share of the budget being disbursed through single grants.

It is clear that RCN has striven – during both FP7 and H2020 – to reduce its own administration costs, and a relative administration cost of 1 percent is quite low (and much lower than for RCN's thematic programmes, although PES2020 certainly ought to be much easier to manage than a thematic programme). RCN's simplifications have to a degree meant that block grant recipients have had to shoulder more administration (though simultaneously receiving greater freedom to prioritise), but some simplifications have also benefitted beneficiaries (no need for audit certificates, lump-sum grants).

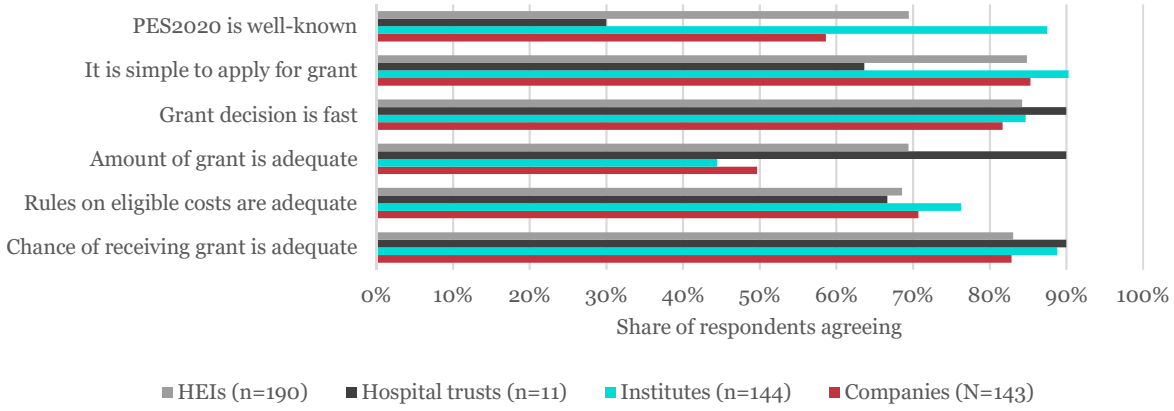
*Figure 18 PES/PES2020 grants and administration costs*100 (columns, left scale) and the relative administrative costs (line, right scale).*



Source: Technopolis analysis of RCN data.

All interviewees representing internal support functions clearly state that they are most content with the PES2020 block grant. Having said that, several of them believe that the block grant proposal template is poorly considered and difficult to use, while others consider it acceptable. Most interviewees spontaneously bring up that they do not understand how RCN determines the size of the grants awarded and ask for transparency. Most, but not all, find reporting requirements reasonable, but wonder why RCN cannot instead retrieve some of the information asked for directly from eCorda. All interviewees agree that the fact that RCN's award decisions come a few months into the calendar year is a problem, both in budgeting and in practice having to allocate money that they cannot be sure of receiving; could multi-year grants be a solution? Some organisations have ceased requiring internal PES2020 proposals altogether, instead basing automatic lump-sum grants on eCorda data.

Figure 19 Share of beneficiaries agreeing that…



Source: Web surveys.

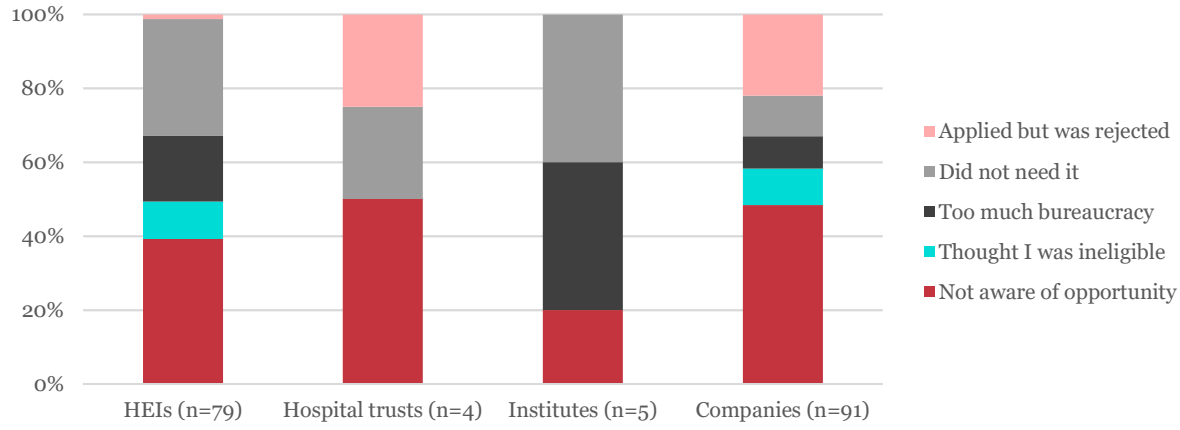
If we then turn to the perspective of individual beneficiaries, we find that many are of the opinion that the PES2020 funding opportunities are not well known, see Figure 19. For HEIs, hospital trusts and institutes, the organisations themselves have the main responsibility for informing potential H2020 proposers of the opportunity, and it seems clear that hospital trusts have quite some work left to do in this respect, whereas the more experienced H2020 participants that dominate the HEI and institute categories have been more successful. That not quite three in five companies consider that the PES2020 funding opportunity is well known indicates that there is a need for RCN to continue spreading the word. Beneficiaries in hospital trusts and (to a lesser extent) HEIs are mostly content with grant amounts, whereas beneficiaries from the two stakeholder categories that may use the grant to pay for the proposal

writer's time (institutes and companies) are notably less satisfied, which seems logical. Overall, beneficiaries largely seem quite content when it comes to administrative aspects.

In the survey, we asked individual beneficiaries to estimate how much time they spent on applying for and reporting on the PES2020 grant. For HEIs, hospital trusts and institutes this means applying and reporting to the organisation's internal support function, for companies applying and reporting to RCN. For HEIs, hospital trusts and institutes, the average time to apply was 3 h for hospital trusts, 6 h for HEIs and 7 h for institutes, and for reporting 3 h for hospital trusts and HEIs and 4 h for institutes. Companies on average spent 12 h on applying and 8 h on reporting, i.e. around double as much as for those applying and reporting internally. It would seem reasonable to assume that these numbers will drop following the change to lump-sum grants after 1 May 2017. We filtered survey responses by PES2020 proposal date, but ended up with too few responses dated after 1 May to verify this.

We asked non-beneficiaries why they had not received a PES2020 grant. Figure 20 illustrates that the most common reason – for all categories together – was that they were not aware of the opportunity, followed by "did not need it" and "too much bureaucracy".[25] The latter seems odd considering the marginal administration burden reported in the previous paragraph; perhaps some "fake news" abound? The rather large share of rejected proposals from companies is likely due to them not fulfilling the basic eligibility criteria, e.g. by applying too late.

Figure 20 Share of non-beneficiaries on reasons for not received a PES2020 grant.



Source: Web surveys.

3.4 Conclusions

3.4.1 Impact on FP proposal participation

There has been an increase in the scale of Norwegian proposal activity between FP7 and H2020 and over the first years of H2020, both in absolute terms and relative to all-country totals. This represents a positive direction of travel that aligns with increases in the scale/breadth of the PES2020 measure. The positive trend has been largely driven by significant (relative) increases in HES (HEI) and PRC (industry) proposal participation, although all stakeholder categories are doing more in absolute terms. Within the HEI sector, FP activity has become more evenly distributed, with the less FP-active HEIs increasing their proposal participation at a higher rate. As a result, the share of HEI proposal participations that are accounted for by the most FP-active HEIs has dropped in H2020.

PES2020 support is associated with increases in proposal activity between FP7 and H2020. Nearly all organisations that received PES2020 funding have increased their participation levels, while this is true for fewer organisations that received no PES2020 funding. In addition, the group of organisations that received PES2020 support for all their H2020 proposals have seen a five-fold increase in annual participation between FP7 and H2020, compared to a less than three-fold increase amongst

[25] Note the very few responses for hospital trusts and institutes.

organisations not in receipt of PES2020 funding. The positive relationship between PES2020 and increased H2020 proposal activity is particularly strong for industry and amongst the least FP-active HEIs.

Although the user survey suggests that PES2020 makes it easier to focus on H2020 proposals, a majority of PES2020 beneficiaries of all stakeholder types believe that they would have submitted their most recent H2020 proposal also without the PES2020 grant. However, a third of companies and a third of the least FP-active HEIs argue that they would not have submitted a proposal would without the grant, thus suggesting that PES2020 is the most important for these stakeholder (sub-)categories to participate in H2020.

3.4.2 Impact on new FP participants

The total number of Norwegian organisations that each year participate in FP proposals for the first time is much higher in H2020 than during FP7, with the great majority of these new entrants being companies. The proportion of proposers that are new to the FPs is also greater in H2020 than in FP7. Both measures suggest a strong positive direction of travel in relation to PES2020 goals, with the overall trend aligning with increases in the scale/breadth of the PES2020 measure.

A majority of organisations that received PES2020 funding had *not* participated in FP7 proposals, while a (modest) minority of other organisations that did not receive PES2020 funding were new proposers during H2020. This suggests that PES2020 funding supports/encourages additional new proposers. However, PES2020-funded new proposers only account for a quarter of all new entrants to H2020, so PES2020 clearly is not the only enabling factor.

3.4.3 Impact on FP proposal quality

The absolute number of "good quality" Norwegian proposals submitted each year has remained stable from FP7 to H2020, but as a proportion of all proposals involving Norway the rate has fallen. In addition, while the Norwegian rate of quality proposals has remained above the all country average throughout FP7 and H2020, the "lead" has narrowed. Norway's performance against the four comparator countries has also worsened slightly in H2020. There is therefore no indication in the data of a positive direction of travel in terms of overall proposal quality.

There is, however, some evidence to suggest that PES2020-supported proposals (on average) perform slightly better than those without PES2020 support. This is particularly true for the group of least FP-active HEIs, and to a lesser extent for public organisations. Companies also seem to do better with PES2020 support, once SMEI re-submissions are accounted for. We therefore conclude that there is a slight positive association between PES2020 and proposal quality.

In the survey, PES2020 beneficiaries of all stakeholder types almost unanimously argue that PES2020 support increases proposal competitiveness, and only a minority believe that they would have submitted an equally competitive proposal without the grant, particularly among beneficiaries in the least FP-active HEIs. Since the quality improvements established by the registry analyses for most stakeholder categories tend to be considerably weaker than survey results seem to suggest, we presume that the user accounts include a degree of wishful thinking. Moreover, it is quite possible to improve the competitiveness of a proposal, but still not enough for it to be considered good enough for funding.

3.4.4 Organisation and administration

It appears as if PES2020 is appropriately organised and administered by RCN, and consecutive simplifications have been implemented to gradually reduce the Council's, and to some extent its grant recipients', administration costs. RCN's current relative administration cost of 1 percent is indeed quite low, and the opportunities to reduce it further without risking misuse seem limited. However, RCN's low administration cost is to a degree a result of RCN having "outsourced" much administration to block grant recipients. Whether this practice increases systemic efficiency is difficult to say, but the subsidiarity principle suggests that it has. The administration costs for individual PES2020 beneficiaries is so marginal that it seems unrealistic to reduce it further, and PES2020 beneficiaries largely seem quite

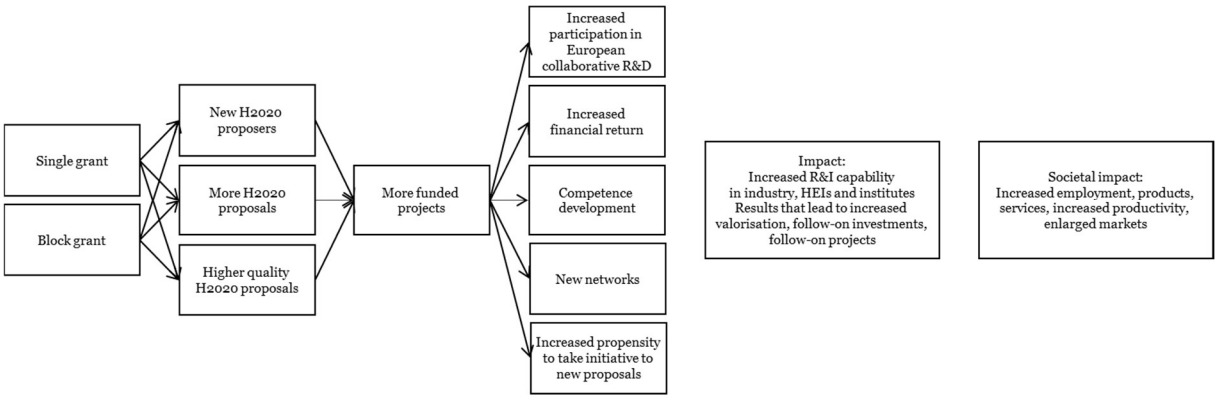
content when it comes to administrative matters. Moreover, with the introduction of lump-sum grants in 2017 beneficiaries' reporting needs have been abolished.

The measure is perhaps not as well known (outside the institute sector) as one might want, but this is mainly the responsibility of the internal H2020 support functions of HEIs and hospital trusts. Informing industry about the PES2020 funding opportunity is clearly RCN's responsibility, but this is essentially a Sisyphus task; it will never be completed given new FP entrants and new companies.

3.4.5 Summary

The evidence summarised above shows a positive direction of travel in terms of the scale of Norwegian FP activity, mainly driven by increases in HEI and industry proposal participation, and in terms of new FP participants, mainly driven by companies. In contrast, the quality of Norwegian FP proposals has decreased slightly relative both to overall FP averages and to comparator countries. Given that the scale of Norwegian FP activity (and the number of organisations that participate) increased during H2020, more funded projects should result as foreseen in RCN's impact logic (Figure 21) despite the slow relative decline in proposal quality. We may also conclude that the subsequent impacts of the impact logic should follow, but the question is whether and to what extent these then can be attributed to PES2020.

Figure 21 PES2020 impact logic.



Source: RCN (translated by Technopolis).

The evidence suggests that PES2020 is indeed associated with increased FP activity, with some additional proposers, and with slight quality improvements to proposals. However, these relationships do not all apply equally to all stakeholder categories. Overall, the positive associations are the strongest for companies and for the least FP-active HEIs.

4 STIM-EU

4.1 Objectives and evolution

STIM-EU was introduced in 2012 (under FP7) with the twofold objective of **increasing research institutes' FP participation** and simultaneously increasing collaboration between institutes and industry to also increase company FP participation. At the time, STIM-EU provided extra funding from RCN to institutes based on FP funding granted by the EC, and there was an additional bonus to institutes that had a Norwegian company as partner in the same FP project. The overall rationale for the measure was the very low base funding for the 48 institutes receiving their base funding though RCN[26], lower than in almost all comparable countries. The eligibility criteria and grant amounts have been adjusted several times since 2012, as detailed in Appendix B. In the following, we summarise the main changes over the years.

For the first two years, STIM-EU was available only to the 48 institutes receiving base funding from RCN, plus five additional institutes, and the annual STIM-EU budget was capped, meaning that the measure was a "zero-sum game" and an institute did not know beforehand how much the grant would amount to since it depended on the FP7 successes of the other eligible institutes. In 2014 all institutes eligible for RCN R&D funding became eligible also for STIM-EU funding, which translated into an 85 percent increase in the number of eligible institutes (but 90% of the STIM-EU budget remained earmarked for the original institutes), and a bonus for institutes coordinating FP projects was introduced (the one for company collaboration remained). The same year, RCN started calculating STIM-EU funding based on eCorda data (October issue), meaning that institutes no longer had to submit proposals to receive the grant.

Following intense criticism during FP7, the EC set out to simplify its financial rules for H2020. The rules were indeed simplified compared to previous FPs, including fixing the overhead ("indirect costs") to 25 percent for all stakeholder types.[27] For institutes with expensive infrastructure this resulted in a significantly reduced cost coverage. While this affected institutes regardless of country, the impact was more severe for Norwegian institutes given their very low base funding and the resulting lower tolerance to reduced cost coverage – or, if you wish, a greater need for co-funding of FP projects. After lobbying by the Norwegian institute sector, STIM-EU was modified to compensate for the change in financial rules. The result was that since 2015 STIM-EU provides a funding level of 33.3 percent in addition to the EC funding granted, resulting in a greatly increased budget for the measure. Moreover, all institutes eligible for RCN R&D funding have since then been treated as equals. In addition to the compound amount corresponding to the 33.3 percent, an amount equal to 8 percent of the overall annual STIM-EU budget is set aside for bonuses disbursed in proportion to EC funding granted, meaning that the bonus system remains a zero-sum game. The 8 percent in this new bonus system rewards institutes as follows:

- 4% is set aside for **collaboration with a Norwegian company**
- 2% is set aside for **collaboration with a Norwegian public organisation**
- 2% is set aside for **coordination**

The three bonuses are cumulative. In the new system the bonus for company collaboration was made weaker (to allow for introduction of the other bonuses within the same budget). Since 2016, STIM-EU grants are granted based on signed EC contracts (rather than EC funding decisions), which resulted in a one-time time lag.

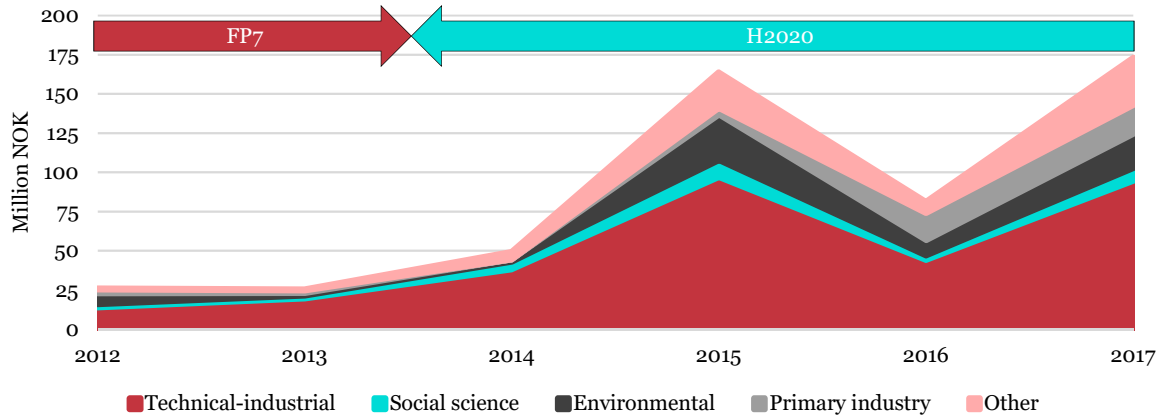
Figure 22 shows the STIM-EU grants disbursed by institute group (the areas lie on top of one another), highlighting the dominance of the technical-industrial institute group. The figure also illustrates the dramatic increase in funding following the change from zero-sum game with a set budget to a (mostly)

[26] There are more institutes than these 48, including 14 that receive their base funding directly from the government.

[27] "Factsheet: Rules under Horizon 2020", European Commission, 2013.

fixed funding percentage and a massively increased budget in 2015 (233% increase), as well as the one-time delay introduced by the 2016 change from basing the grant on EC funding decisions to signed contracts (which does not change the total amount of STIM-EU funding under H2020, only the timing of disbursements).

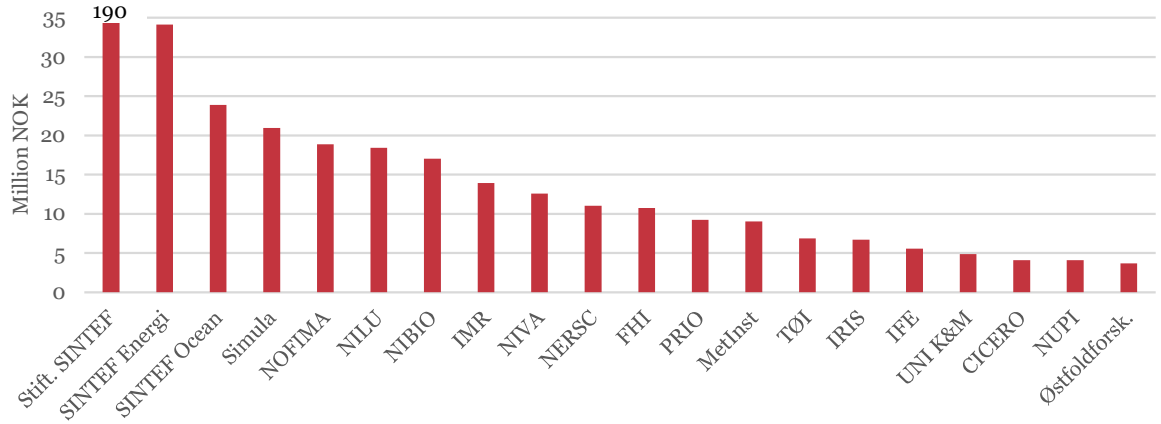
Figure 22 STIM-EU grants by institute group.



Source: Technopolis analysis of RCN data.

Figure 23 shows the 20 largest STIM-EU recipients in H2020, i.e. 2014–2017. Note that SINTEF Foundation's column has been truncated for readability and ends at NOK190m. The figure illustrates that STIM-EU grants are awarded to the SINTEF Group's different legal entities, in contrast to the PES2020 grant which is awarded as a single grant to the entire SINTEF Group (cf. Figure 3; the same goes for three other institutes that belong to more than one institute group (IRIS, Uni Research, Norut), but they do not make it into top 20). The SINTEF Group has received 54 percent of the total STIM-EU support so far in H2020 (including SINTEF Industry in place 21).

Figure 23 Top 20 STIM-EU recipients.



Source: Technopolis analysis of RCN data.

4.2 Results and impacts

4.2.1 Registry analyses

As with PES2020, registry analyses have supported the assessment of the impact of STIM-EU funding. This involved acquiring, analysing and linking eCorda data (FP7 and H2020 proposals)[28] and data on

[28] The FP7 database (August 2015) covers the entirety of FP7, while the H2020 database (March 2018) covers only the first half of the programme. This was the latest available data but may be subject to some revision as part of later data releases.

organisations eligible for STIM-EU support[29]. Through this, the analyses have sought to profile Norwegian institute participation in FP7 and H2020 proposals over time, as well as assess evidence of correlation/causality between STIM-EU and H2020 activity. Specifically, it has sought to address the following questions:

- Is the direction of travel positive (i.e. in line with objectives of STIM-EU)? Has the participation of Norwegian institutes in proposals increased? Have there been increases in the extent to which institutes coordinate proposals and partner with Norwegian companies and public organisations?
- Is there a positive correlation between H2020 performance (improvements in the above areas) and the introduction/expansion of STIM-EU (eligibility and accompanying bonuses)? We focus on the *possibility* of STIM-EU funding (i.e. eligibility and available bonuses), rather than the receipt of funding, as it is the former which should drive the desired change in behaviour

This section provides a summary of the main findings of the registry analyses. Full details, including data sources used and further information on the analyses, are provided in Appendix B.

Before looking at Norwegian FP activity, it is important to highlight several key points about STIM-EU support and its evolution, which form the context to this analysis. As described in Section 4.1, the measure has evolved since its introduction in 2012, so it is not a static scheme and some aspects have only been introduced very recently. The measure has also expanded its scale and breadth over time, with increases in the number of eligible institutes, as well as the total value of funding disbursed.

The following analyses are based on a total of 89 institutes that have been eligible for STIM-EU funding at some point in the 2012–2017 period, including 48 institutes that have received funding. When the measure was established, the list of eligible institutes was largely limited to those receiving their base funding from RCN. There have been a small number of additions/subtractions to the list every year since (e.g. for mergers), but the main extension came in 2014, when 41 additional institutes became eligible (although 90% of funding was still earmarked for the base-funded institutes for a further year). For some of the analyses we have therefore considered differences between:

- Group 1: The 48 institutes eligible from the start of in 2012
- Group 2: The 41 institutes becoming eligible at some point subsequently, mostly in 2014

Because the first group has been eligible for funding for two or three years longer than the second, and because of the broad split between the two groups in terms of whether or not they receive base funding from RCN, we hypothesised that the two groups might look somewhat different in terms of their use of the measure and associated FP participation profile, and have explored this as part of the analyses.

The analyses also consider differences between institutes that receive base funding directly from the government and those that receive base funding from RCN, as well the different institute groups with the latter category.

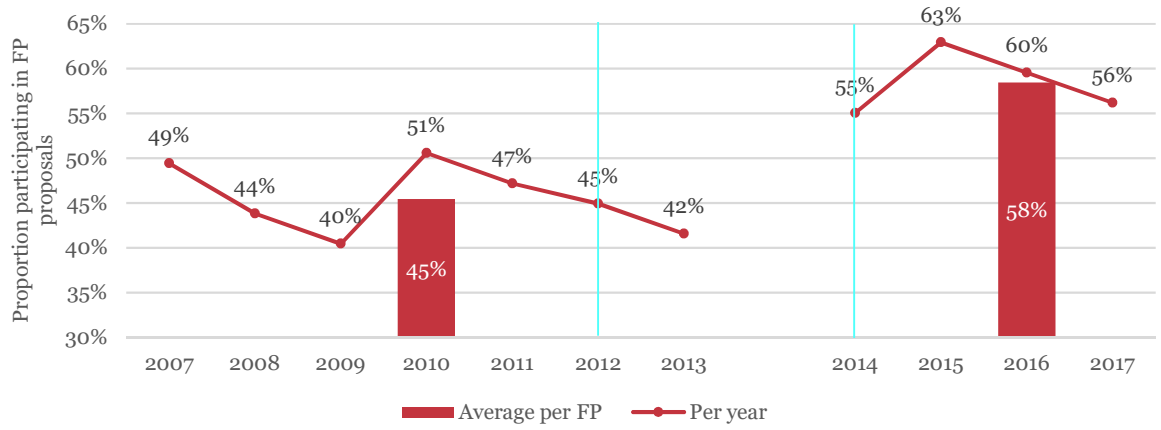
4.2.1.1 Participation in FP proposals

We assessed whether STIM-EU eligibility has had an impact on FP proposal activity, first by looking at the probability that institutes participate at all in FP proposals, and then at their level (volume) of participation. Figure 24 shows that during FP7 45 percent of the 89 institutes participated in proposals each year, while in H2020 this has increased to 58 percent. Vertical lines show when the main groups of institutes became eligible for STIM-EU. There is no evident impact in 2012, when the first group of institutes became eligible for STIM-EU funding – but this may reflect a time lag between becoming eligible and the resulting impact on submitted proposals becoming visible in eCorda. There is a more evident jump in participation from FP7 to H2020, which aligns with the second main cohort of

[29] RCN provided annual lists of the institutes eligible for the STIM-EU measure (2012–2016), as well as separate information on beneficiary organisations of STIM-EU funding (2012–2017). The two datasets have been combined to arrive at a full list of relevant institutes, with details of which years they were eligible for/a beneficiary of STIM-EU funding (see Table 10 in Appendix B).

institutions becoming eligible for support although here, but the picture is muddled by a simultaneous shift in the size and structure of the FPs more widely, as well as by the aforementioned major changes to the STIM-EU measure.

Figure 24 Proportion of 89 STIM-EU-eligible institutes participating in FP proposals each year.

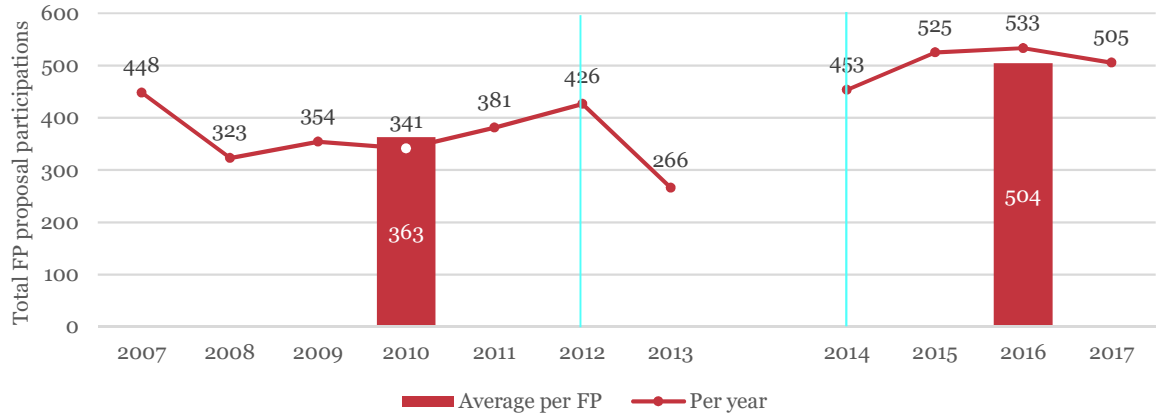


Source: Technopolis analysis of eCorda and RCN data.

We also assessed whether STIM-EU eligibility has had an impact on the extent to which institutes participate in FP proposals (i.e. where institutes participate in proposals, is the number of proposals they are involved in each year increasing?). We found that participating institutes averaged 9.0 participations each per year during FP7, and a slightly higher 9.7 participations each per year in H2020. The rate has also increased year on year during H2020.

The combination of an increase in the proportion of institutes that participate in proposals and an increase (on average) in the number of participations that each engages in has resulted in an overall 39 percent increase in annual proposal participations by eligible institutes from FP7 to H2020 (participations per year rose from 363 to 504), see Figure 25. This increased level of proposal activity amongst eligible institutes is a positive direction of travel in terms of the STIM-EU objective of increased institute participation, and it is likely to have been encouraged (at least in part) by STIM-EU eligibility.

Figure 25 Total participations in proposals each year by the 89 STIM-EU-eligible (at some point) institutes.



Source: Technopolis analysis of eCorda and RCN data.

It is worth noting that the institutes that became eligible in 2012 (Group 1) have historically had much higher participation levels on average than those becoming eligible later. Group 1 averaged 6.2 proposal participations each (including non-participating institutes) per year in FP7, while Group 2 averaged only 1.6. However, both groups have seen a similar relative growth in average participation between FP7 and

H2020. The average annual rate of participation by Group 1 has increased by 39 percent (6.2 to 8.6) between FP7 and H2020, while Group 2 has increased by 44 percent (1.6 to 2.3).

Similarly, the group of eligible institutes that receive base funding from RCN have historically been much more active than those that receive base funding from the government. This is partly because there are more organisations (45 compared with 14), but even on a per-institute basis, the RCN-base-funded institutes have tended to be more active (6.4 participations each per year in FP7, compared with 3.3). Both groups have seen an increase in participation levels between FP7 and H2020, with RCN-funded institute participation increasing by more in absolute terms, but government-base-funded institute participation increasing more relatively (i.e. compared to their – lower – FP7 base).

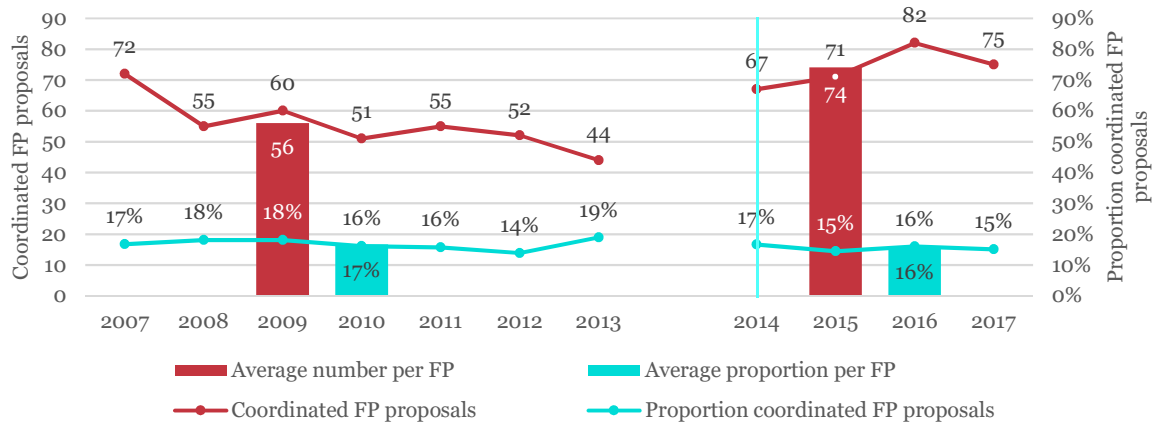
Institutes within the four groups receiving base funding from RCN have also had very different FP participation levels historically. The most active – the technical-industrial institutes – averaged 14.4 participations each per year in FP7, while environmental and primary industry institutes averaged 9.2 and 7.0 respectively. The participation levels of social science institutes (1.7 each per year) during FP7 was much lower. Each institute group has seen an increase in participation levels from FP7 to H2020, but the largest absolute changes occurred amongst primary industry institutes (from 7.0 to 12.9 participations each per year) and technical-industrial institutes (from 14.4 to 19.0 participations each per year).

4.2.1.2 Coordination of FP proposals

In exploring whether STIM-EU has increased the extent to which institutes coordinate FP proposals, we have considered only multi-partner proposals; the other two-thirds of all H2020 proposals involve just one organisation, who is – by default – the coordinator.

The number of institute-coordinated proposals – burgundy in Figure 26 – tended to decline across the period of FP7, from 72 in the first year to 44 in the last, while the number in each of the first four years of H2020 has been higher, at 67 or more each year. As such, the average number of proposals led each year in H2020 (74) is significantly higher than in FP7 (56). This 32 percent increase in proposal coordinators per year between the two programmes is below the 41 percent increase seen by Norway overall (all organisations). Nevertheless, it is a positive direction of travel in terms of STIM-EU objectives, and the introduction of a STIM-EU bonus for coordination in 2014 (indicated by the vertical line) may have played a role in this.

Figure 26 STIM-EU-eligible institutes coordinating multi-partner proposals (total and proportion of all participations).



Source: Technopolis analysis of eCorda and RCN data.

It is worth noting that institutes with base funding from RCN have increased the number of proposals coordinated each year by a third (from 47 per year in FP7 to 62 per year in H2020), while the

coordination activity of government-funded institutes has increased even more rapidly (a near trebling in annual activity, from 3.6 per year in FP7 to 10 per year in H2020).

There are also differences across RCN's institute groups, with technical-industrial and social science institutes increasing annual coordination numbers from FP7 to H2020 (a 47% and 34% rise respectively), while primary industry and environmental institutes have seen a decrease (of -13% and -20%).

Turquoise in Figure 26 shows the proportion of all institute multi-partner proposal participations each year where the institute acts as the coordinator. On average this has dropped slightly, from 17 percent in FP7 to 16 percent in H2020. Therefore, while these institutes are taking on the coordinator role more often in absolute terms in H2020, this has not kept pace with their increased scale of institute participation in proposals more generally. Much of the additional proposal activity is as a participant, rather than coordinator.

During FP7 there were clear differences in coordination rates between institutes that receive base funding from RCN (18%) and those that receive funding from the government (9%). However, the difference has reduced considerably (to 16% and 15% respectively) in H2020, as the rate for government-funded institutes has increased by more than half, while the rate for RCN institutes has fallen slightly.

Across RCN's institute groups, only the technical-industrial institutes have increased their coordination *rate* between the two FPs (from an already above average 17.5% in FP7 to 19% in H2020). The rate for social science institutes has fallen slightly (from 11.9% to 11.4%), while the rates for environmental institutes (16.0% to 10.8%) and primary industry institutes (20.8% to 9.9%) have fallen more significantly between FP7 and H2020, taking both well below the institute average.

Finally, it is worth noting that the number of the 89 eligible institutes that coordinated at least one multi-partner proposal has increased each year in H2020, from 19 to 24, while the average per year in H2020 (21) is above that of FP7 (18). There are also nine institutes that have coordinated a multi-partner proposal for the first time in H2020. These are positive trends in relation to STIM-EU objectives.

4.2.1.3 Partnering with companies

STIM-EU seeks to increase the extent to which institutes partner with Norwegian companies in (multi-partner) FP proposals, with a bonus system in place since the start of the measure 2012. Upon introduction of the new bonus scheme in 2015, the bonus for company partnering was weakened. The timings of the changes are indicated with vertical lines in Figure 27. The burgundy line shows the number of participations each year from STIM-EU-eligible institutes in proposals that also involved a Norwegian company[30]. There is a clear difference between FP7 (where on average each year there were 77 such institute participations) and H2020 (where the average was 155). There is also a clear upward trend during H2020 so far.

The number of participations with companies by institutes with RCN base funding has more than doubled from FP7 (62.1 per year on average) to H2020 (130), while the number from government-funded institutes has increased considerably more (from 4.9 per year, to 17.8; a fourfold increase).

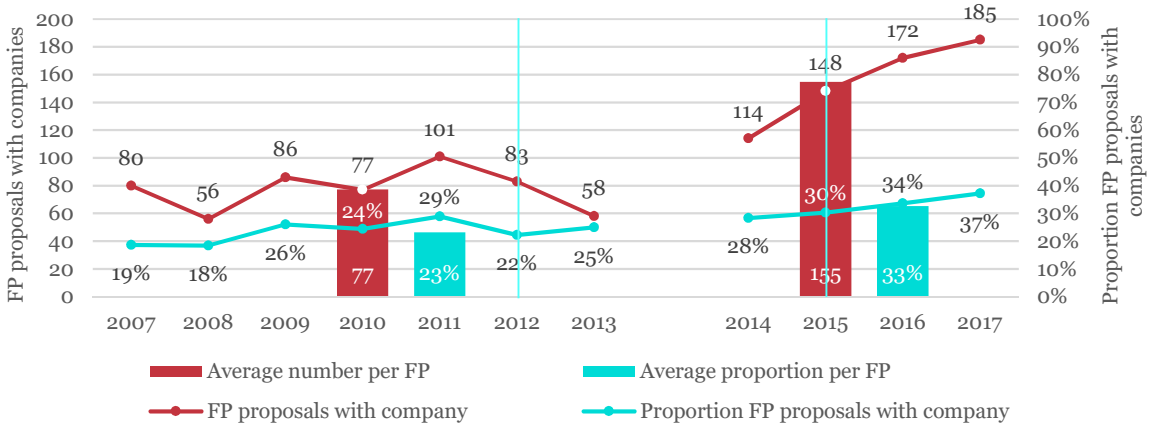
More than half of the increase in company partnering relates to the technical-industrial institute group. The average number of participations with company partners for these institutes was 52 per year during FP7, which has risen to 96 per year in H2020. However, all of the other RCN institute groups have seen a bigger *relative* increase in their company partnering. Environmental and primary industry institutes have more than doubled their annual rate between FP7 and H2020, while the rate for social science institutes has more than trebled (from 4.4 in FP7 to 14.3 per year in H2020).

As a proportion of all multi-partner proposal participations by institutes, there is also an improvement over time, see turquoise line in Figure 27. In FP7, just 23 percent of institute multi-partner proposal participations involved a Norwegian company, while in H2020 this rate has increased to 33 percent.

[30] As operationalised with the PRC category in eCorda.

There has also been a steady rise each year between 2012 (when 22% had company partners) and 2017 (when 37% had company partners). This period aligns with the introduction of the STIM company bonus in 2012.

Figure 27 STIM-EU-eligible institutes partnering with companies (total and proportion of all multi-partner participations).



Source: Technopolis analysis of eCorda data.

The proportion of participations with companies is higher amongst institutes with RCN base funding (23% in FP7 and 33% in H2020) than those with government base funding (13% and 26% respectively). However, relatively (i.e. compared to the position in FP7) the increase between the FPs has been greater for government-funded institutes.

The increase in company partnering rates between FP7 and H2020 is also seen across all of RCN's institute groups. The largest increase was amongst social science institutes (a 16 percentage point rise), followed by technical-industrial and environmental institutes (+11 percentage points each) and primary industry institutes (+7 percentage points).

These results show a clear positive direction of travel in terms of increased involvement of Norwegian companies in institute proposals in H2020. Differences between the two FPs may explain some of the change (company participation has increased significantly more generally), but the fact that STIM-EU-eligible institutes have increased their company partnering rate (from 23% to 33%) to a greater extent than have the wider group of organisations classified as institutes in eCorda (REC; 25% to 30%), would suggest that the STIM-EU bonus may also have played a role.

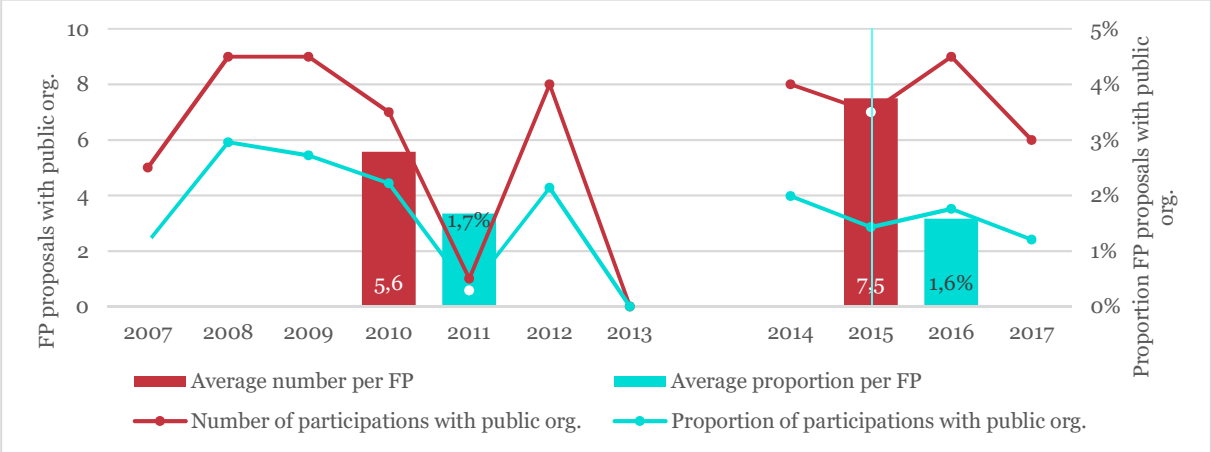
4.2.1.4 Partnering with public organisations

STIM-EU also seeks to increase the extent to which institutes partner with Norwegian public organisations in H2020 proposals, with a bonus system introduced as recently as in 2015 (vertical line in Figure 28), which means that it may be too soon to see any impact within the data currently available.

Figure 28 charts the number of participations each year for STIM-EU-eligible institutes in proposals that also involved a public organisation[31]. The numbers involved are small and there is quite some variability between years. However, during FP7 institutes participated 5.6 times per year on average in proposals together with public organisations, while for H2020 the equivalent figure is a third higher (7.5). However, although the H2020 rate is slightly higher than in FP7 (a positive trend in terms of STIM-EU objectives), there is no obvious change at the time of the introduction of the bonus (2015) or shortly after this. In addition, it is worth highlighting that the scale of public-organisation partnering remains minimal compared to the several hundred research institute participations in multi-partner proposal each year overall.

[31] As operationalised with the PUB category in eCorda.

Figure 28 STIM-EU-eligible institutes partnering with public organisations (total and proportion of all multi-partner participations).



Source: Technopolis analysis of eCorda data.

As a proportion of all multi-partner proposal participations by institutes (turquoise in the figure), there is actually a slight decline in average institute-public-organisation partnering levels between FP7 (1.7% of institute participations) and H2020 (1.6%), as well as a downward trend in the first years of H2020. There is therefore no evidence available so far that the STIM-EU bonus has had the intended impact.

4.2.2 User survey

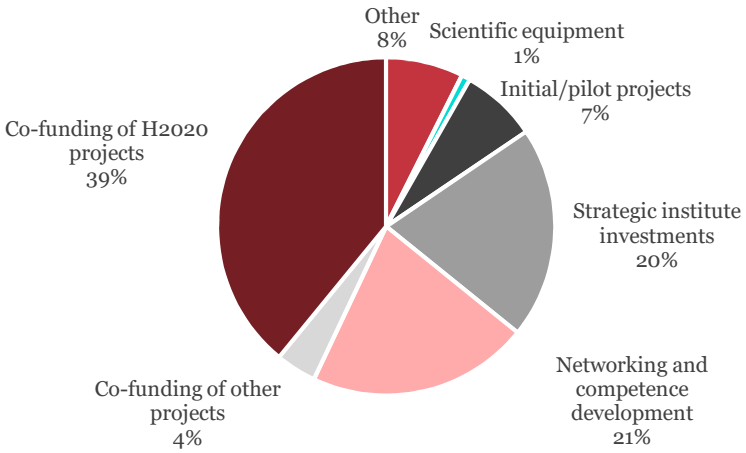
This section presents the empirical findings of a web survey and a number of interviews. The survey targeted institutes that had received a STIM-EU grant at least one year in the period 2015–2017. Survey respondents were administrators responsible for internally distributing and for reporting to RCN on the use of the STIM-EU grant, and there was a maximum of one survey response per institute (cf. discussion by Figure 23 on institutes with activities in more than one of RCN's institute groups). Interviewees were a mixture of senior management, R&D directors, STIM-EU administrators and RCN staff. The interviews on the one hand focused on a selection of the most H2020-active institutes from all institute groups, and on the other hand on some of the least H2020-active institutes. The details of the surveys are provided in Appendix C and the interviewees are listed in Appendix D.

4.2.2.1 Use of STIM-EU grant

Web survey respondents were asked how the STIM-EU grant was used in 2017 (or the most recent year). The grant may be used for the same purposes as the base grant, and the categories in Figure 29 are the ones used in RCN's annual base-grant reporting template. The figure illustrates that the institutes used about 40 percent of the grant to co-fund the H2020 project that resulted in the grant. It should be noted that this is at aggregated level, and that around a third of the institutes (36 percent) used 80 percent or more of the grant for such co-funding, while more than half of the institutes (53 percent) did not at all use the grant for this purpose. Overall, a fifth of the grant was used for networking and competence development (21 percent) and an equal share for strategic institute investments (20 percent). Some institutes used the entire grant for these two purposes, while others did not at all use the grant for these purposes. We cannot explain the large variations in responses between institutes, since there does not seem to be any clear patters between the four institute groups, and none between institutes that received large grants and ones that received small ones (i.e. frequent and infrequent H2020 participants).

Interviewees explain that they use part of the STIM-EU grant to cover costs at the central level of the institute, but in general the grant goes to the organisational unit that hosts the H2020 project that released the grant, and the unit's management is free to use it as it sees fit. The interviews give the impression that most institutes consider the grant equal to their base funding – which it is indeed formally an extension of since 2015.

Figure 29 Use of STIM-EU grant in 2017 (or most recent year) according to representatives of STIM-EU grant recipients.



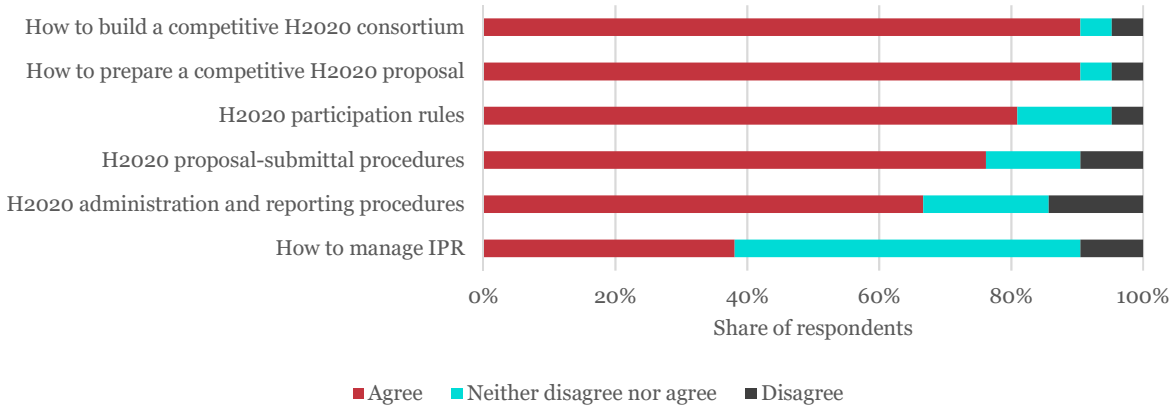
Source: Web survey.

4.2.2.2 Results

The survey of STIM-EU administrators reveals that nearly half of the institutes (45%) do not have an internal H2020 support function. Nevertheless, the majority that do have one include 16 out of the top 20 STIM-EU recipients (cf. Figure 23), highlighting the unsurprising circumstance that most of the ones that do not are not very frequent H2020 participants. However, it was up to the respondents to make their own interpretation of what constitutes an "internal H2020 support function", so these results should be interpreted with some caution. The interviews indicate that there are large variations between institutes in aims and scope of the support function, and several interviewees explain that H2020 support is decentralised to department or group level where support tends to be provided by experienced FP participants rather than by a dedicated support function or person. Few interviewees from institutes that have a support function say they use the STIM-EU grant to cover part of the costs of the support function.

Almost all survey respondents that responded that they have an internal H2020 support function (90%) agree that the STIM-EU grants have made organisation management view the support function as a strategic asset. A majority of these survey respondents (71%) agree that the STIM-EU grants have triggered more organisation-internal funds being invested in the support function, and a majority (60%) that the grants were quite important when the organisation decided to set up an internal H2020 support function. Figure 30 illustrates that survey respondents that have an internal H2020 support function assess that the grants have had strong impact on the knowledge of the support function.

Figure 30 Share of STIM-EU administrators that have an internal H2020 support function agreeing that the grants have contributed to the support function becoming more knowledgeable in terms of… (n=20)



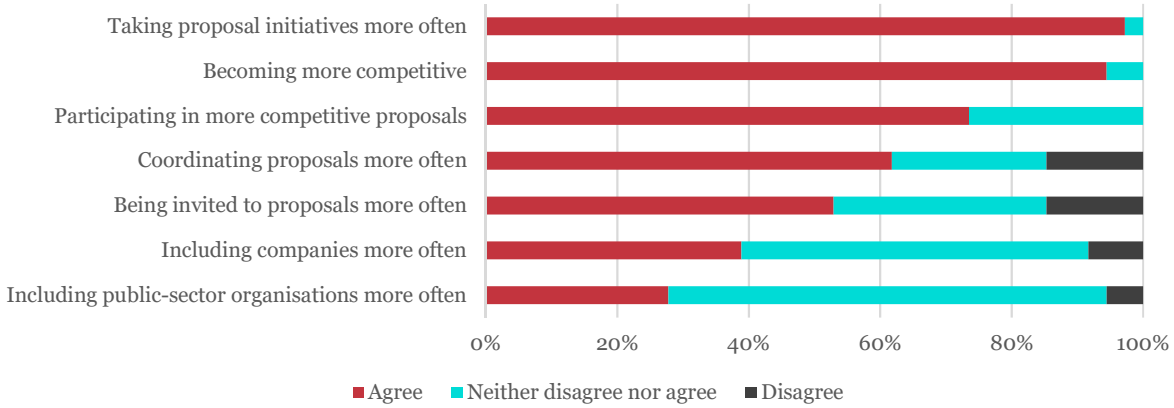
Source: Web survey.

4.2.2.3 Impacts

In contrast to for PES2020, it is rather straightforward to pinpoint impacts of the STIM-EU measure due to its very different logic.

Starting with survey results, Figure 31 shows how STIM-EU administrators assess the impacts of the grant on the institute's H2020 participation. (Note that these results include all survey respondents, not only the ones that say they have internal support function.) There is obviously consensus on STIM-EU resulting in institutes taking the initiative to H2020 proposals more often (97 percent agree) and that it makes institutes more competitive (94% agree). Moreover, a clear majority (74%) agree that STIM-EU has led to the institute coordinating and/or participating in more competitive H2020 proposals, and a majority (62%) that the measure has led to the institute taking the role of coordinator more often. However, respondents are far less prone to agree that STIM-EU has led to the institutes including Norwegian companies or public organisations more often (39% and 28%, respectively). In general, recipients of large STIM-EU grants are more positive in their responses than institutes that have received smaller grants.

Figure 31 STIM-EU administrators on the measure's impact on the organisation's H2020 participation (N=36).



Source: Web survey.

Interviewees – who we believe are closer to the craft of H2020 proposal writing than STIM-EU administrators – are quite sceptical as to any connection between STIM-EU and proposal quality. Most of them fail to see such a logic and point out that this is where PES2020 may play a role. In contrast, interviewees emphatically agree that STIM-EU makes them more frequent H2020 participants and argue by explaining the underlying financial realities. The effective cost coverage they get in H2020 projects is not sufficient even with STIM-EU. The main reason for this is that the permissible overhead rate is set to 25 percent, which is far below most institutes' real overhead. This means that other activities somehow must compensate. RCN projects provide full cost coverage (meaning no loss, but also no profit that could be used to offset the loss in H2020 projects), so the remaining options are the very meagre base funding (that only lasts so far, and also needs to be used for other strategic investments) and commercial assignments for private clients. This means that there is a limit to how much H2020 funding – with the accompanying need for co-funding – that an institute can bear and still make ends meet.

Interviewees explain that institutes must participate in H2020 continuously to develop their competence (which private clients are said to understand and therefore accept to pay a premium for commercial assignments), but the extent of H2020 participation is ultimately determined by financial realities and STIM-EU is consequently extremely important – despite not being sufficient to achieve full cost coverage, at least for institutes with high overhead and low level of base funding. On the same note, an institute that has made a profit for several consecutive years may be able to increase its H2020 participation somewhat by reinvesting past profits to co-fund H2020 projects, whereas an institute that has been less successful financially may have to scale down its H2020 ambitions.

Most interviewees agree that the bonus for including a Norwegian company is important but argue that it does not have a strong effect on their behaviour since they try to include Norwegian companies anyway; it plainly makes sense from a business point of view, at least for technical-industrial institutes. The bonus for coordination is said to be appreciated, and it is certainly not unimportant, but considering that the cost of coordinating an H2020 project are so high, the bonus only covers a small share of the actual cost and the bonus is therefore not a strong enough incentive to change behaviour. The bonus for including a Norwegian public organisation has according to interviewees rarely been an issue; it is generally so difficult to entice public actors to participate that this bonus is all but irrelevant. In conclusion, interviewees largely agree that STIM-EU's bonus system does not influence the institute's H2020 participation behaviour, in part because the incentives the bonuses provide are considered too weak. Some interviewees mention that this is to some extent due to them not being fully known beforehand (being part of a zero-sum game) and therefore not budgeted upon, whereas others declare that this is merely a mild annoyance.

4.2.2.4 Future of STIM-EU

A large majority of survey respondents, i.e. STIM-EU administrators, (86%) argue that the institute would submit more FP proposals if the STIM-EU funding percentage were increased, and almost equally many (85%) that they would submit fewer proposals if the funding percentage were decreased. Such responses could perhaps be brushed off as self-serving, but the underlying financial realities described in the previous section make such responses credible. Interviewees strongly argue that a reduction in the funding percentage immediately would have to lead to a reduction in H2020 participation. Most survey respondents (70%) also believe that a higher funding percentage would lead to more competitive FP proposals but, as mentioned above, interviewees are not so sure about whether there is such a connection.

4.3 Organisation and administration

STIM-EU is essentially managed by one person on a part-time basis assisted by others as needed, resulting in approximately 0.5 FTE. From the start, STIM-EU was designed to be resource efficient from RCN's point of view, using eCorda data to calculate grants. The first two years institutes had to submit proposals, but this requirement was abolished in 2014 thus somewhat reducing institutes' and RCN's administrative burden. The administrative efficiency has not been materially affected (for either party) by the inclusions of additional institutes and changes to the bonus for partnering and coordination. The introduction of a fixed grant percentage in 2015 – though not for the bonuses – means that institutes enjoy better financial predictability.

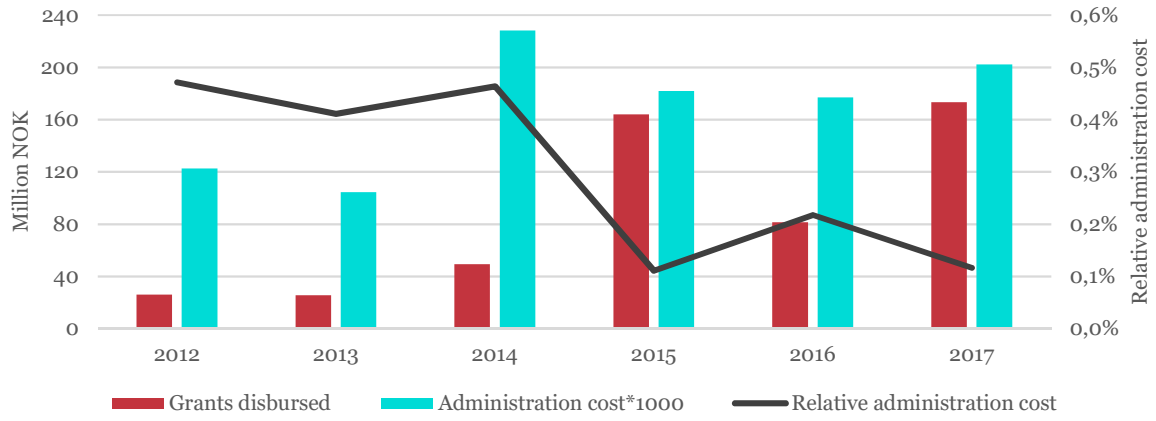
As already mentioned, an institute is free to use the STIM-EU grant in the same way that it uses its base grant, but it must annually report how it has been spent. Interviewees say that administration and internal distribution of the grant – typically to the organisational unit that hosts the H2020 project – as well as reporting to RCN, is very easy.

Figure 32 shows that although the administration costs for STIM-EU (in the figure multiplied by 1 000 for readability) have increased since the last years of FP7 (2012–2013), they have risen slower than the total grants disbursed meaning that the relative administration costs have fallen (the black line). The peak in administration costs in 2014 corresponds to preparations ahead of H2020, including the revision of the measure to set funding percentage and new bonus system.

In the survey STIM-EU administrators were queried on to what extent they were aware of STIM-EU's features. Almost all (97%) claimed to be aware that of the fact that STIM-EU provides an additional 33.3 percent RCN funding to funding awarded by the EC, see Figure 33. The figure further illustrates that more than four in five respondents (84%) are aware of the bonus for coordination, but only slightly more than every other respondent is aware of the bonuses given to institutes that participate together with a Norwegian company (54%) and a Norwegian public organisation (51%); the fact that the three bonuses are cumulative i.e. that an institute can receive all three bonuses for the same H2020 project, is at the same level (54%). This means that around half of the institutes are not aware of the full potential of STIM-EU. As expected, institutes that have received large STIM-EU grants are generally more aware of

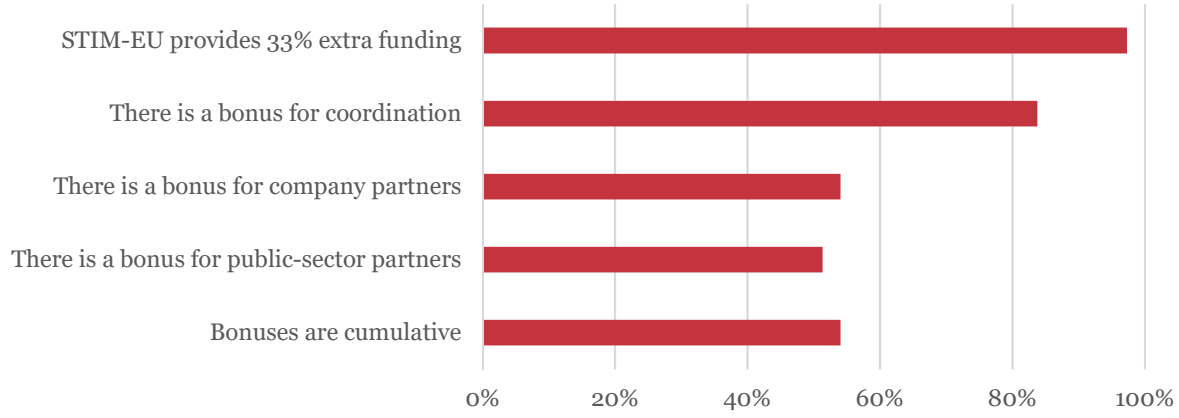
the bonus system than institutes that have received smaller grants. The institutes' lack of awareness of the bonus system is mirrored in the interviews, where some interviewees claim to be completely unaware, or only "indirectly aware", of the bonuses.

*Figure 32 STIM-EU grants and administration costs*1 000 (columns, left scale) and the relative administrative costs (line, right scale).*



Source: Technopolis analysis of RCN data.

Figure 33 Representatives of STIM-EU recipients on their awareness of the measure's bonus system (N=37).



Source: Web survey.

Both survey results and interviews suggest that there is a need for further information on STIM-EU, and for the institutes that are infrequent H2020 participants there seems to be a great need for information on all aspects of the measure. Given that survey results reflect administrators' knowledge of the measure, it seems reasonable to fret that this knowledge is not better entrenched further down the organisational hierarchy. This indicates that there is a need for RCN to continue spreading the word and for institute administration and management to spread to the word internally. Interviewees from infrequent H2020 participants point to additional obstacles to their low level of H2020 activity, including lack of internal support function resulting in unawareness of H2020 opportunities, that their specialties mainly are of national interest and lack of management dedication to FP participation.

4.4 Conclusions

4.4.1 Impact on proposal activity

There is no evident impact on the FP proposal activity of the STIM-EU-eligible institutes in 2012 when the measure was introduced, but there is a clear increase between FP7 and H2020 in the proportion of the STIM-EU-eligible institutes that participate in proposals, as well as an increase in the number of

participations that each institute engages in each year. This has resulted in a significant overall increase in annual proposal participations from FP7 to H2020. This increase coincides both with an extension to another set of institutes in 2014 (Group 2) and with a change to the STIM-EU measure in 2015 making it much more generous than before. While the 2012 tranche of eligible institutes (Group 1) have historically had much higher participation levels (even pre-STIM-EU) than those becoming eligible later (Group 2), both groups have seen similar growth in average annual participations between FP7 and H2020. Survey respondents believe that STIM-EU has had a strong impact on proposal activity and interviewees convincingly explain, based on financial realities, why this is the case.

In relative terms, institutes that receive base funding directly from the government have increased their participation more from FP7 to H2020 than institutes that receive base funding from RCN. Within the latter category, the primary industry institutes have (on average) seen the biggest relative increase between FPs.

Overall, we conclude that there has been a strong positive direction of travel in terms of institute participation between FPs. Based on empirical data, we cannot confirm any impact on proposal activity under FP7, but it is likely that STIM-EU eligibility and funding has encouraged the increased proposal activity seen under H2020, and this increase is easily explained by financial realities.

4.4.2 Impact on proposal coordination

The proportion of STIM-EU-eligible institutes that coordinate a multi-partner proposal each year has increased in H2020, while the average per year in H2020 is also above that of FP7. This coincides with the introduction of the bonus for coordination. The number of times that institutes act as proposal coordinator has also increased from FP7 to H2020. However, relative to their overall FP participation level, the rate of coordination has fallen slightly. Therefore, while more institutes are taking on the coordinator role and they are doing so more often in H2020, this has not kept pace with the increased scale of their participation in proposals more generally. Most survey respondents believe that STIM-EU has led to the institute taking the role of coordinator more often. Interviewees agree to a degree, but they argue that the incentive is too weak to be effective, since the bonus only compensates for a sliver of the actual cost of coordination.

Both institutes that receive base funding directly from the government and those that receive base funding from RCN have increased the number of coordinated proposals per year, but the former have seen a much greater increase (from a much lower level). Among RCN's institute groups, the technical-industrial and social science institutes have increased annual coordination numbers from FP7 to H2020, while the remaining two groups have seen a decrease.

Overall, we conclude that there has been a positive direction of travel in terms of institute coordination since the introduction of the STIM-EU bonus. More of the eligible institutes are coordinating proposals and they are doing so more often in H2020 than in FP7. STIM-EU may have played a role in this development, but the empirical evidence does not provide the foundation for a clear assessment on the degree of effectiveness of the bonus for coordination.

4.4.3 Impact on partnering with companies

There is a clear difference (doubling) between FP7 and H2020 in the absolute number of participations each year from STIM-EU-eligible institutes that partner with Norwegian companies, and there is also a clear upward trend between years in H2020. Moreover, there is an increase between FPs in the proportion of all institutes participations that involve a Norwegian company. The rate has been rising steadily since 2012, when then STIM-EU bonus was first introduced. Survey respondents and interviewees agree that the STIM-EU bonus for partnering with a company does have an effect on their behaviour, but they do not think that it is very strong incentive.

While the institutes that receive base funding from RCN have more than doubled the number of participations with companies, the ones that receive base funding directly from the government have almost quadrupled theirs (again from a much lower level). While more than half of the increase in

company partnering relates to the technical-industrial institute group that has almost seen a doubling per year, all of the other RCN institute groups have seen a bigger relative increase.

There has been an increase in partnering with companies following the introduction of this particular bonus, suggesting that it *may* have had a positive effect on developments. However, the timing of the bonus (it was introduced from the start) and of the subsequent increase in partnering (which coincided with the shift from FP7 to H2020, as well as the introduction of the SMEI) make it difficult to draw conclusions on the specific role of the bonus on the observed increase in partnering.

4.4.4 Impact on partnering with public organisations

The picture with regard to public organisation partnering is less clear. While there does appear to have been an increase in such partnering activity by STIM-EU-eligible institutes between FP7 and H2020, there is no evident change during H2020 (i.e. either side of the introduction of the bonus in 2015). As a proportion of all multi-partner proposal participations, there is actually a slight decline in average partnering levels between FP7 and H2020, as well as a downward trend in the first years of H2020. However, there are too few data points to draw any conclusions from the data (especially since there ought to be a time lag between changes to the measure and impacts being visible in proposal submission data). Survey respondents and interviewees are largely sceptical as to this bonus component affecting their behaviour.

Based on the empirical evidence at hand, we cannot conclude anything on the potential effect of this bonus component.

4.4.5 Organisation and administration

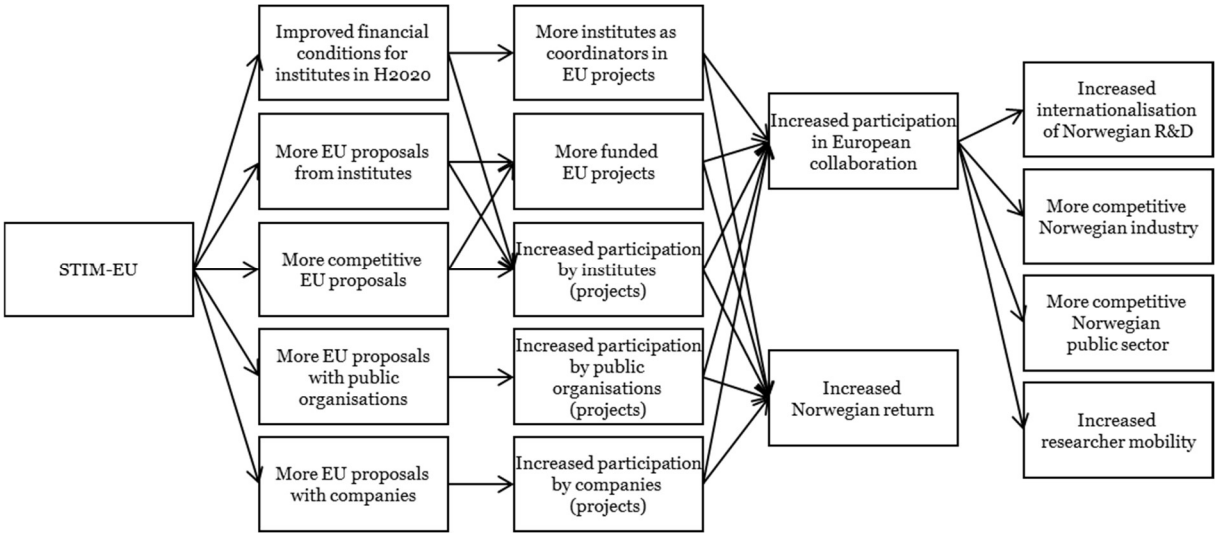
Our overall conclusion is that STIM-EU is very efficiently organised and administered by RCN, and it is also very easy to administer for recipients. RCN's current relative administration cost of just above 0.1 percent is extremely low, and the opportunity to reduce it further seems very limited. While the STIM-EU measure as such is quite well known in the institute sector, the bonus system is not. This is a task for both RCN and the institutes themselves to address.

4.4.6 Summary

The empirical evidence summarised above shows a positive direction of travel in the direction of all STIM-EU objectives except for partnering with public organisations where the evidence is inconclusive. We may thus also infer that the second- and third-order effects shown in RCN's impact logic will logically follow, see Figure 34. The question is to what extent these positive developments can be attributed to STIM-EU.

In summary we conclude that the STIM-EU measure does indeed improve institutes' financial framework conditions for H2020 participation, which in turn leads to more H2020 proposals. This may have indirectly supported an increase in coordination and partnering (as a natural consequence of an overall increase in institute activity). The registry analyses indicate that the bonus for partnering with companies *may* have had a mild positive effect on developments – despite the scepticism emerging from the user survey – but the timing of the bonus and the increase in partnering make it difficult to conclude on the specific role of the bonus on the observed increase in partnering. When it comes to the bonuses for coordination and for partnering with public organisations, as well as results in terms of increased proposal competitiveness (which is not explicitly a STIM-EU objective), then the evidence at hand does not support conclusive assessments. This does not mean that STIM-EU does not contribute in these respects, only that we cannot conclude whether this is the case (or not).

Figure 34 STIM-EU impact logic.



Source: RCN (translated by Technopolis).

5 International outlook

This chapter summarises the case studies of Austria, Germany, the Netherlands and Denmark. The full cases are in Appendix E. Comparative data about FP participation are shown in Appendix E.5.

5.1 Introduction

The comparator countries – like Norway and the whole of the EU15 – have been going through a learning process with the FPs. As a background to the empirical part of this chapter, we set out in this introduction some "stylised facts" that emerge from international experience of beginning to participate in the FP.

In the early stages, would-be national participants need to understand the FP, then learn how to participate. Building and entering networks is an important part of this process, which is why in earlier periods than that considered here, many countries ran partner-search schemes, especially for smaller companies. As the national population of people with FP experience grows, so they are able to take over much of the mentorship of potential national proposers – especially when they work in large companies or in the larger research institutions such as universities, which develop and fund their own internal FP proposal support service as part of organisation-wide research management. Constant changes and a significant flow of information from the EC about the FPs (and other related programmes) mean that some countries find it worthwhile to provide a national information service to all. The NCPs are also vital links to individual members of the research community everywhere, so much of the information flow they provide is not widely visible.

While, therefore, the intrinsic need for support is large in the early years, it declines as the system learns. There is always a supply of "beginners", but the strong organisations look after them internally. That is more difficult for smaller and less well-resourced organisations to do. Typically, those who need help are therefore in the more peripheral research organisations and in SMEs. Hence, over time the support effort shrinks to focus on these beginners.

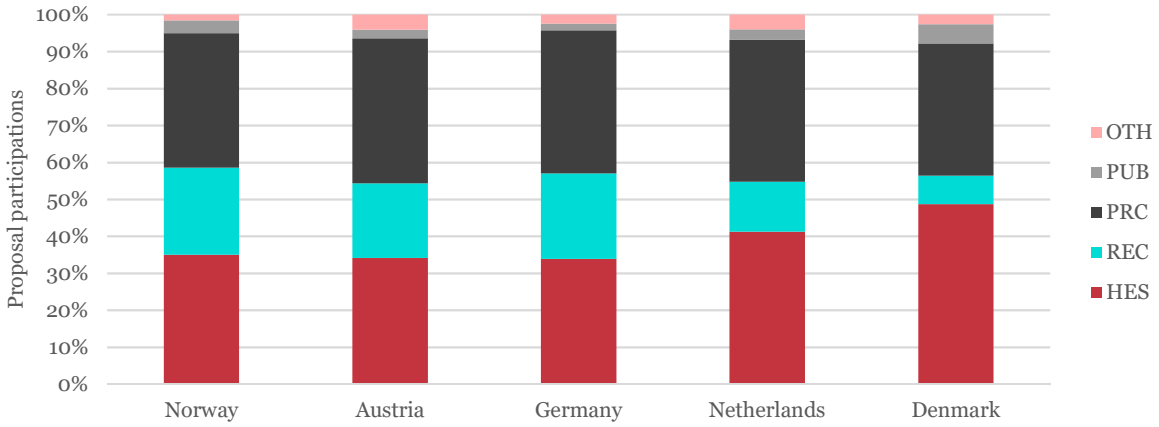
Two other reasons for supporting FP proposers or grant recipients are visible. The first is the case where the authorities want to focus collaborative effort in certain directions. Germany offers support to those building FP networks with a small number of countries that it regards international or diplomatic priorities. This is an extension of national scientific diplomacy and has, *per se*, little to do with Germany's objectives in relation the FP. The second is the unusual case of STIM-EU, where a subsidy is intended to encourage participation by compensating for the applicants' lack of the institutional funding that would be needed in order to cope with the low rate of overheads the FP permits, so that every success in the FP costs the participant money.

5.2 Participation in H2020

Norway and the four comparator countries have all made large numbers of proposals to H2020 to date, but the larger countries have more national participants per proposal (Germany = 1.75, the Netherlands = 1.56) than the small countries (1.35–1.38). Figure 35 shows how proposal participations break down among stakeholder categories. This reflects the importance of the institute sector in Norway, Austria and Germany and the fact that government laboratories in Denmark have been integrated into the HE sector. Normalising proposal participations by the number of researchers in each country shows that Norway lags slightly behind the Netherlands and Denmark, see Figure 36. German researchers have less than half the propensity of others to participate in H2020, so H2020 contributes a much smaller fraction of the national research effort.

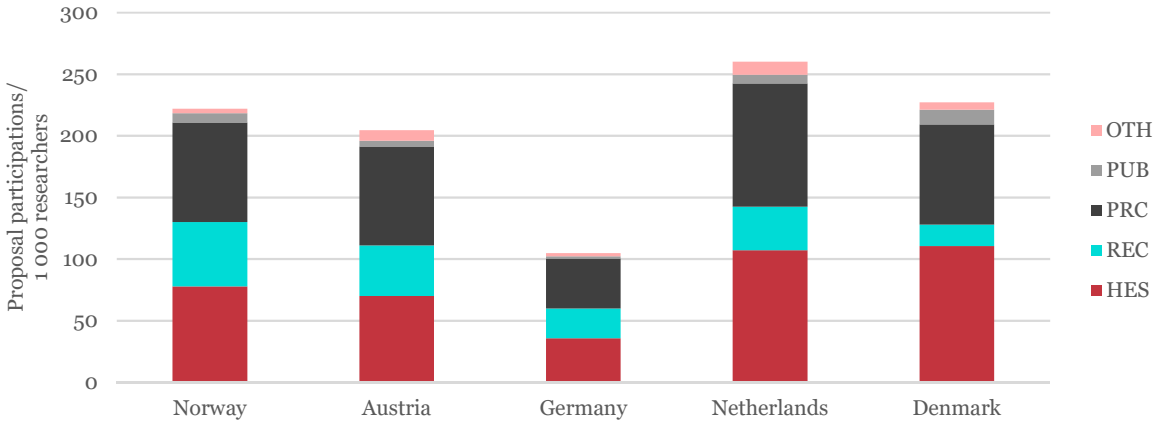
Figure 37 illustrates that Norwegian companies have notably lower success rates than the average for companies in the four comparator countries (but the same as Danish ones). Norwegian HEIs lag very slightly behind those in the other countries, while the institutes are ahead by the same small margin.

Figure 35 Proposal participations in H2020 by stakeholder category.



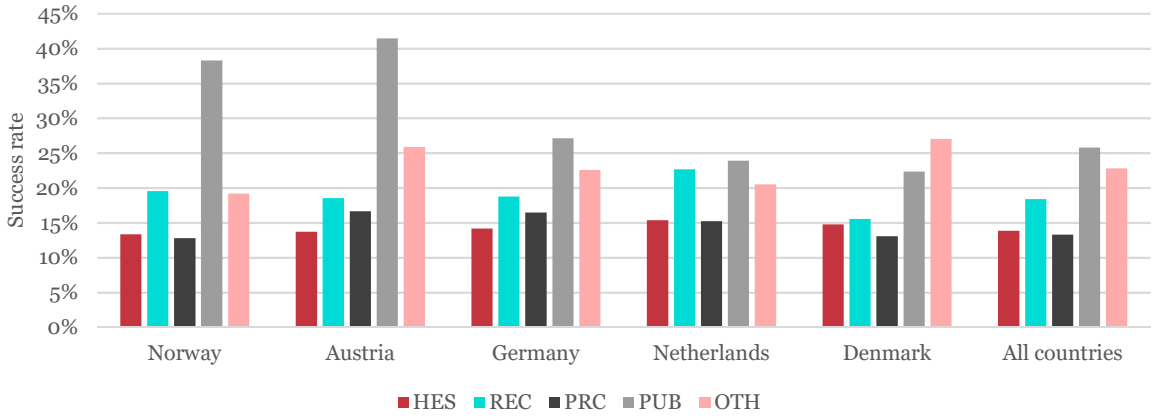
Source: Technopolis analysis of eCorda data.

Figure 36 Proposal participations per 1 000 researchers in H2020.



Source: Technopolis analysis of eCorda and Eurostat data.

Figure 37 Success rates in H2020.



Source: Technopolis analysis of eCorda data.

Given that the comparator countries all have strong research and innovation systems, Norway's comparative performance is good. H2020 is more important to small countries than large ones because they have fewer national resources, so there are good reasons not only for Norway but also Austria, the Netherlands and Denmark to strive for high participation rates. For all countries, however, there is a

simple arithmetic that suggests small investments in measures to increase participation have the potential to bring large returns in the form of H2020 participation.

5.3 The institute sector

Norway has chosen to provide its large institute sector with a co-funding incentive for participation in H2020. This should be especially important to the technical-industrial institutes whose institutional funding is very low by international comparison and whose thematic focus fits well with H2020. With the exception of Denmark, the comparator countries also have large institute sectors. However, their institutional funding is much more generous than that of the Norwegian institutes. *A priori*, therefore, we would expect Denmark to co-fund H2020 participation and the other countries not to do so. As the next Section shows, the facts do not bear out this idea.

5.4 Support instruments

Table 4 summarises the support instruments used in Norway and the comparator countries.

The Netherlands and Denmark have formal mechanisms for influencing the agenda of the FPs. Denmark's reference groups feed back on draft work programmes – a stage in the articulation of the FPs when almost everything is already decided. All the countries lobby but much of this is done by informal means. All have formal networks of NCPs who both feed information into the EC and back to potential participants. The importance of this function is not questioned.

Most provide an FP information service (Germany has two) and offer training about how to propose and manage FP projects. (The Austrian one is well-regarded internationally as a source of information about EU research policy.) All provide formal sources of advice, but Norway seems to be unique in organising mutual learning and support networks. Austria still offers help with finding partners, but the other countries appear to have abandoned this function.

Grants for networking and travel in order to meet actual and potential proposal partners have mostly been consolidated into proposal-writing subsidies.

Norway and Denmark offer general proposal-writing subsidies. Denmark also has subsidy schemes focusing on organisations and networks new to the FP, while Germany uses such subsidies to promote cooperation with particular geographies and to attract SMEs. Austria has abandoned proposal-writing subsidies in the belief that research-performing institutions had become mature enough not to need support and were therefore free-riding.

ERC participation has high status and is strongly valued. Norway and Denmark have schemes that support failed ERC proposers in improving their proposal. The research councils in Austria, Germany and the Netherlands have national funding schemes that provide a similar career-development structure to the ERC but with smaller grants. In effect, failed ERC proposals can be downsized and submitted to the national research council's so there is an alternative mechanism for dealing with failure.

Co-funding for FP participation is provided only in Norway and the Netherlands. In Norway this clearly compensates the institutes for their low level of base funding, but the Danish institutes which are in the same financial position get no subsidy. The Netherlands provides subsidy to universities as well as institutes on the argument that their institutional funding is inadequate, even though in fact these are high by international standards.

Our interviews suggest that the comparator countries are largely satisfied with their schemes, though the portfolio has evolved a little over time, adapting to the changing shape of the FPs and the degree of maturity of proposers. The administrative costs of the various schemes are mostly borne by larger organisations, so we have not been able to obtain specific data about them. (Some point data are shown in the individual case studies.)

Table 4 Use of FP participation support instruments in Norway, Austria, Germany, the Netherlands and Denmark.

Instrument	Norway	Austria	Germany	The Netherlands	Denmark
Influencing the FPs or its Work Programmes. advocacy	Reference groups, NCPs as experts in Programme Committees			RVO, Neth-ER	Reference groups
NCP network	RCN	FFG-EIP	BMBF	RVO	DASHE Euro-Center
Information service	National H2020-webpage, Newsletters	Era Portal Austria ERA-Helpdesk	BMBF EU-Büro DfG KoWi	Neth-ER	DASHE EU-Denmark support
Training service	Path to Excellence	FFG-EIP	DfG KoWi		DASHE Euro-Center
Advice	RCN	FFG-EIP	DfG KoWi	RVO	DASHE Euro-Center
Mutual learning	EU-networks National meetings for local EU-advisors				(EU-Denmark Support)
Partner search		FFG-EIP			
Networking, travel	Part of PES2020		Part of proposal-writing		Part of proposal-writing
Strategic intelligence for research performers		FFG-EIP ERA-Dialog			
General proposal-writing subsidy	PES2020				EUopStart
Targeted proposal-writing subsidy	Assistance to selected proposers through PNO		Geographic and UAS*, SMEs		EU-Denmark Hjemtag Horizon-2020-net KIC-Start**
ERC resubmission support	FRIPRO				DFF Danish ERC-Program
Mainstream FP participant co-funding	STIM-EU/RBO			NWO SEO-Regeling	

* BMBF offers subsidy for proposals with partners in EU13, North and South America, Asia-Pacific and for German universities of applied science. Commercial organisations and SMEs can apply under two of these schemes and SMEs under one.

** EU-Denmark Hjemtag funds first-time applicants to the FP. Horizon-2020-net funds established Danish networks. KIC-Start funded EIT KIC project applications was abandoned as there was little uptake of the scheme.

5.5 Lessons from the comparisons

Lessons from this comparison are:

- Norway's comparative FP performance is good and not in itself a cause for alarm. Other parts of this report suggest, nonetheless, that there is untapped potential to increase participation and therefore the direct economic return Norway obtains from its contribution to the FP budget
- Influencing the FP agenda is possible but largely through informal means. If influence is to be effective it needs to be exerted early in the process. This is a black art about which little is written
- The formal NCP network is a vital transmitter of information, strongly valued for its ability to understand the detail of the FPs and inform individual proposers appropriately
- The FPs are complex and difficult to understand. An information service can be valuable in disseminating the formal opportunities and rules of the game. Advice also appears to be important because many of the rules of participation are unwritten
- Training probably is not needed for the bulk of experienced FP participants, but is needed in order to help inexperienced organisations enter
- Partner search was provided by many countries in earlier years but appears largely to have been abandoned. A hypothesis is that those unable to find partners also lack the competence – and especially the networks – needed to compete successfully in the FP
- In Austria, FFG provides annual dialogue meetings with the research performers to provide a strategic perspective on their FP participation and how to improve it. We suspect such advice is useful but lack evidence to support that idea
- Norway and Denmark are unusual in still providing a general proposal-writing subsidy. Most such schemes are focused on those trying to enter the FP for the first time or aimed at fostering particular types of partnerships
- ERC resubmission support potentially has high leverage but should be considered in the context of national funding systems – it is not in itself good or bad *per se*
- The Norwegian logic for institute co-funding is clear: it is cheaper and more effective to do this than to increase the overall level of base funding. We can see why a similar measure would make sense in Denmark (which does not have such a scheme) but not in the Netherlands (which does)
- Overall, FP support systems should distinguish between structural measures and those that are related to change in the FPs and learning among participants:
  - Structural, permanently-needed functions include the NCPs, information provision and advice, as well as STIM-EU-style co-funding, to which the alternative is to change the institute base funding system
  - Other measures should be connected to the way participants learn and should focus on beginners at the level of organisations and the introduction of new FP instruments. Except in the latter case, support should not be offered to experienced participants: they do not need it. Support such as PES2020 can even be argued to impede the development of HEIs' management and mentoring of research by crowding out the use of their own institutional funding

6 Discussion and recommendations

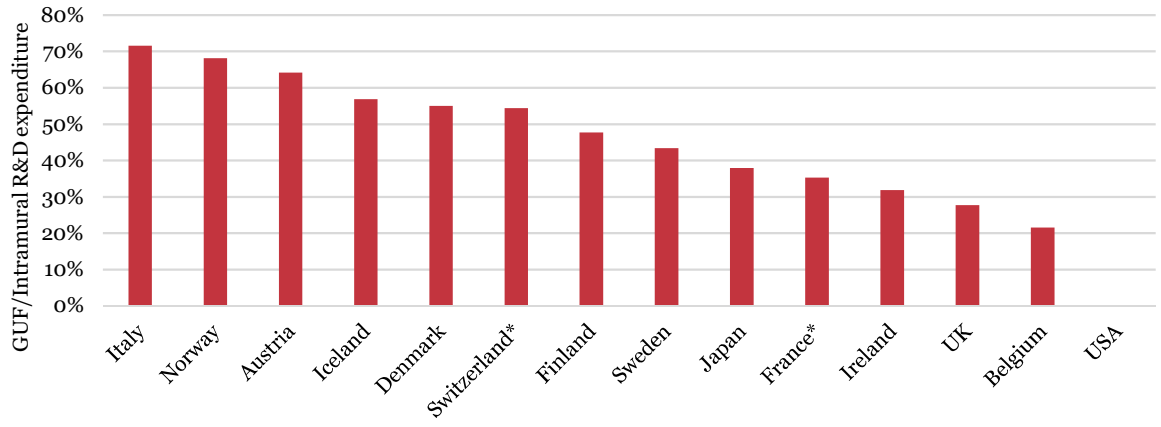
Norway's FP participation has developed favourably under H2020 in terms of scale of activity and in terms of the number of participating organisations. While Norwegian proposals remain competitive and above the all-country average, there has been a relative decline in quality since the beginning of FP7. The evidence presented in this report suggests that the PES2020 measure is indeed associated with increased FP activity, with some additional proposers, and with slight improvements in proposal quality (thus presumably slowing the relative overall decline). However, these impacts are not equally distributed among stakeholder categories, and they are the most obvious for companies and for the least FP-active HEIs.

The FP participation of Norwegian research institutes has also developed favourably under H2020 in terms of overall participation, coordination of multi-partner proposals and partnering with Norwegian companies. There is no doubt that the STIM-EU measure has contributed to the overall increase in FP participation, and this is also likely to have (indirectly) supported an increase in coordination and partnering. The impact of the individual bonuses, however, is less clear. There is no evident increase in coordination or in the extent of partnering with public bodies following the introduction of bonuses for these aspects. There has been an increase in partnering with companies, suggesting that this bonus *may* have had a positive effect on developments. However, the timing of the bonus (it was introduced from the start) and of the subsequent increase in partnering (which coincided with the shift from FP7 to H2020, as well as the introduction of the SMEI) make it difficult to draw conclusions on the specific role of this bonus on the observed increase in partnering.

6.1 Stakeholders' national funding contexts

The evaluation asked to assess PES2020 and STIM-EU in light of the stakeholder categories' respective national funding contexts. We investigated these contexts in quite some detail in an assignment for RCN a year ago and will therefore just summarise and – where warranted – update the findings of that report as background to our subsequent recommendations.[32]

Figure 38 Public general university funds (GUF) as share of total intramural R&D expenditure in the HE sector 2015.



Source: Eurostat. *2014.

Starting with the HEIs, Figure 38 illustrates that the share of public general university funds (GUF) in the HE sector's total intramural R&D expenditure is higher in Norway than in almost every other country. GUF is tantamount to government base funding to HEIs for R&D, and in addition to GUF government R&D funding is secured in (national) competition. If we consider all government funding

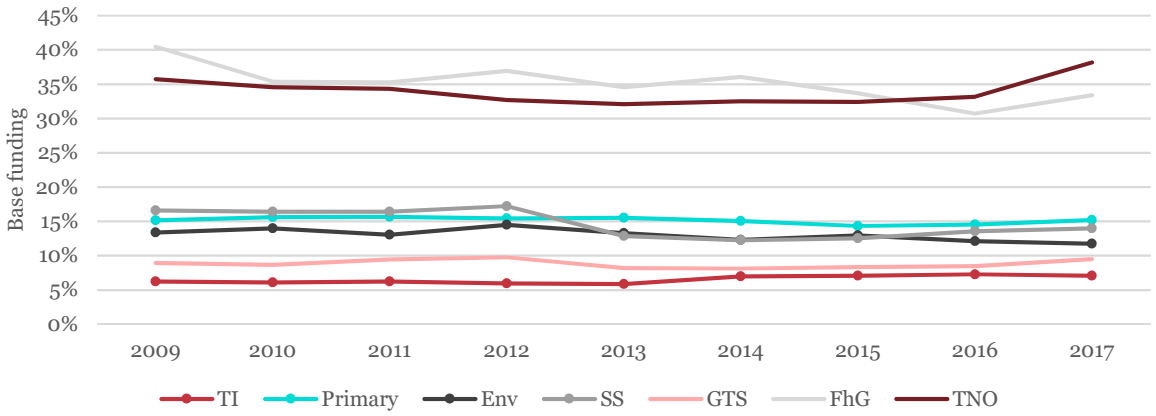
[32] T. Åström, N. Brown, B. Mahieu, A. Håkansson, P. Varnai and E. Arnold, "Norwegian participation in Horizon 2020 in health, ICT and industry. A study on the potential for increased participation", RCN, 2017.

for R&D, the Norwegian HE sector reached 89 percent in 2015, which is a higher proportion than in any other comparable country (including Italy).

The GUF data in Figure 38 is for the entire HE sector, and NIFU's national statistics reveal that the proportion of GUF in intramural R&D expenditure was 64 percent for universities, 74 percent for university colleges, and 83 percent for university hospitals (2015).

The base funding situation for the Norwegian institutes that are part of RCN's base funding system is dramatically different. On average in the time period shown in Figure 39, the technical-industrial (TI) institutes have had a mere 7 percent in base funding, whereas the other three institute groups (Primary (industry), Env(ironmental) and social science (SS)) have had twice as high a proportion (though the Environmental institutes have fared worse in the last couple of years). Only the Danish GTS Group survives at an equally low level (9% on average). In stark contrast, Dutch TNO and German Fraunhofer-Gesellschaft (FhG) enjoy just over a third on average, and the Austrian technical-industrial institutes 30–60 percent (not shown in figure).

Figure 39 Base funding as share of turnover for selected institute groups.



Source: Technopolis analysis of institute annual reports.

These Norwegian base funding percentages refer to the base funding that is funnelled through RCN's base funding system, but government funding benefits institutes also through other channels. NIFU's national statistics show that the institutes that for statistical purposes are classified as "serving government" – all the environmental, all but one of the social science, all but two of the primary industry institutes, and three of the technical-industrial ones, as well as 36 "other institutions" – received 58 percent of their income from the government plus 23 percent in competition from RCN (2015). In contrast, the institutes "serving enterprises" – the remainder, dominated by the technical-industrial institutes – received a mere 11 percent from the government plus 24 percent in competition from RCN. This further underlines the financial vulnerability of the industrially oriented institutes. It should be noted that there are 14 additional institutes that receive base funding directly from the government, but we lack information on their individual financial situations.

The base funding systems for Norwegian HEIs, hospital trusts and RCN-base-funded institutes all include results-based funding components that provide financial incentives for FP participation. The "value" of EU funding in the HEIs' RBO system has varied considerably between years; in 2018, NOK1 in EU funding results in an extra NOK1.003, down from NOK1.374 in 2017.[33] The regional health authorities have a similar results-based component that rewards EU income at a level that is said to correspond to the RBO system. RCN's institute base funding system includes a financial incentive for foreign income, i.e. also private income. This incentive is much weaker than that of the RBO system;

[33] "Orientering om forslag til statsbudsjettet 2018 for universitet og høgskolar", MER, 2017; "Orientering om forslag til statsbudsjettet 2017 for universitet og høgskolar", MER, 2016.

according to SINTEF interviewees, it is "miniscule" and is said to lead to extra base funding of around NOK0.01 for each NOK1 in foreign income.

To sum up, Norwegian HEIs and hospital trusts have very benign funding situations, whereas the RCN-base-funded institutes live in a much harsher financial context, particularly the industrially oriented ones. This means that the potential need for public support to participate in the FPs vary a lot.

6.2 The measures' rationales

The predecessors to PES2020 were established at a time when the FPs were new and largely unknown to Norwegian stakeholders. Few had any first-hand experience of FP participation and the need to gradually learn how to succeed in the FP game was great. The situation was similar in most other countries, which established their own PES-like measures to help proposers learn, and as they did most of these measures were discontinued. Norway has lagged behind other countries on this journey, possibly due to more pronounced EU scepticism, but the PES measure has clearly succeeded in helping Norwegian FP participants to become quite skilled, as evidenced by above-average FP performance. PES-like measures aim to foster behavioural additionality and should therefore be phased out once they have succeeded. Norway's repeat FP participants clearly have acquired the skills needed to succeed, and they consequently no longer need PES. However, there will always be new organisations wanting to participate in the FPs, and there is a case for supporting them for a limited time while they also learn to how play the game. On the same note, there will always be new individual participants within FP-active organisations who need support. These organisations' internal FP support functions therefore fill an important function that should remain in place, but it is time for the skilled HEIs to shoulder these costs themselves. Their internationally very generous government base grants for R&D indicate that they have the resources for this – just like their less well-funded counterparts in countries that do not enjoy PES-like measures do.

The rationale for STIM-EU is quite different and lies in the institutes' base funding situation highlighted by Figure 39. Institutes like TNO, Fraunhofer-Gesellschaft and the Austrian technical-industrial institutes probably have little problem coping with H2020's 25 percent cap on eligible overhead costs, since their base funding percentages give them sufficient ability to co-fund projects. In contrast, their Norwegian counterparts – particularly the industrially oriented ones that also tend to have the highest overhead costs – have very little capacity to do so given their low level of base funding. The Norwegian institutes' problem is structural and will remain as long as these conditions exist, and learning will not help alleviate it. STIM-EU is necessary if Norwegian institutes are to participate in the FPs more than occasionally. There is no doubt that an increase beyond the current 33.3 percent would facilitate increased FP participation. There is of course a level beyond which FP participation will not increase further, but it is impossible to say based on the present empirical evidence what this percentage is, and this "optimum" will of course vary between institutes. Whether the 14 institutes that receive base funding directly from the government need STIM-EU is beyond the scope of this evaluation.

6.3 Recommendations

In the following, we recommend modifications to both PES and STIM-EU, but we propose that the measures are left intact until the end of H2020, and that RCN announces the revised measures for Horizon Europe as soon as possible to give stakeholders time to adapt and prepare themselves. Our recommendations focus on discontinuing PES support for the stakeholder types where potential behavioural additionality appears to be the lowest, maintaining PES support for the stakeholder types that are still on the steep end of the learning curve, and to strengthen STIM-EU since the institutes probably have the greatest potential to increase Norwegian FP participation – often in collaboration with additional Norwegian partners.

The recommendations are directed to both the Ministry of Education and Research (MER) and RCN.

6.3.1 PES under Horizon Europe

- Limit PES eligibility to proposers who have not yet learnt how to be competitive in the FPs, namely:

  - HEIs in Group C (least active) and Group B (moderately active), possibly excluding the top FP participants in Group B[34]
  - Hospital trusts
  - Beginners among institutes and SMEs, e.g. by limiting eligibility to two PES grants
- Excluding HEIs in Group A (and possibly the top ones in Group B) is based on them not needing PES support. These HEIs have become very skilled and competitive FP participants. It is inconceivable that management would not find ways to continue to support FP participation where needed, since it is an important source of income (from both the EC and the RBO system) and internationalisation. One way to foster continued FP participation would be to copy NTNU's internal incentive system to stimulate individual researchers to participate in the FPs. Internal FP support functions and possibly dedicated grants will continue to be needed by individual researchers who are new to the FPs, but it is time for these HEIs to shoulder these costs themselves
- Excluding institutes (less beginners) from PES is contingent on the PES funds currently going to institutes being used to increase the STIM-EU funding percentage (see first bullet in next section). There is a possibility that this may create some degree of liquidity strain on some institutes, but this should be manageable if there is ample time to adapt to the revised measures
- Excluding large companies and repeat FP participants among SMEs is justified by them not needing the support. Either a company will participate in a proposal because it makes business sense, or it will not, and a PES grant will not – indeed should not – influence such a business decision (except for beginners among SMEs)

6.3.2 STIM-EU under Horizon Europe

- Increase the funding percentage above 33.3 percent for institutes that are part of RCN's base funding system by reallocating funds withdrawn from the PES measure. Given that institutes have different levels of actual overhead costs, the resulting percentage should be individually adapted – or as a minimum adapted to each of RCN's four institute groups. This exercise should take any changes in financial rules in Horizon Europe into account, and may also warrant additional government funding (to complement that redirected from the PES measure)
- Discontinue the present bonus scheme:
  - This recommendation is based in the belief that an institute ought to receive un-earmarked base funding as far as possible and when it comes to STIM-EU be allowed to decide for itself what is best for the institute (and its clients) in terms of FP participation
  - Bonuses for partnering make no sense if partnering does not make business sense – in which case partnering must be considered artificial and undesired. On the other hand, if partnering indeed does make business sense the institute will draft Norwegian partners from industry and/or the public sector anyway. Moreover, the extent of such partnering will increase (in absolute terms) if the STIM-EU funding percentage is increased because the institutes' overall FP participation will increase
  - The logic for rewarding FP project coordination is a bit different from rewarding partnering. If coordination is truly considered a political priority such a bonus may be warranted – this is again a structural issue, while bonuses for partnering is not – but then the bonus should be increased considerably to reflect the actual costs of coordination. This will be expensive, if the bonus is to be effective
- The base funding situation and actual overhead costs of the 14 institutes that receive base funding directly from the government should be investigated individually before deciding on whether they should continue to be eligible for STIM-EU funding, and if so to what extent (percentage)

[34] A: Most active: NTNU, UiO, UiB; B: Moderately active: UiT, NMBU, Oslomet, UiS, UiA, HSN; C: Least active: Others.

Appendix A Evolution of the measures

A.1 Project Establishment Support

This appendix describes the main elements of the evolution of Project Establishment Support (PES), which under H2020 has been renamed PES2020. The sources of this description are RCN documents and discussion with RCN staff responsible for the measure.[35] The appendix does not claim to include all features and changes over the years, but rather focuses on what is considered important for this evaluation.

FP6

2004 (out of scope for evaluation)
PES was introduced by merging various related schemes within RCN. The new measure focused on institutes, HEIs and "other organisations that were considered natural EU proposers".

Grant amounts varied from NOK50k to NOK500k, and RCN covered up to 50% of actual costs. Proposals for all FP6 instruments were eligible. A single PES proposal was required in case of multiple Norwegian participants.

2005 (out of scope for evaluation)
HEIs became eligible for block grants, but (at the time) only universities applied (and were granted) block grants.

2006 (out of scope for evaluation)
There were no FP calls, but NOK13.5m were awarded to some 50 projects for positioning activities.

FP7

2007
Essentially all types of organisations were eligible for PES grants to produce one FP7 proposal at a time ("single proposers"), whereas universities received block grants.

Grant amounts varied from NOK15k to NOK500k, and RCN covered up to 50% of actual costs. Grants were disbursed upon presentation of confirmation submission to the EC and accrued costs. 20% extra was awarded for contract negotiations.

2009
Large numbers of single PES proposals led to RCN extending eligibility to apply for block grants to university colleges, institutes and regional health authorities that had ambitions to take on the role of coordinator, work package leader or task leader in at least three FP7 proposals per year (which also meant that they could no longer apply for single PES grants).

PES was concentrated to proposals to FP7 calls, *randsoneaktiviteter*[36], EUREKA and EEA-related research calls. Proposals to ICT-parts of CIP and other EU research calls ceased to be eligible. Positioning activities were no longer supported.

2010
Several changes were introduced (due to vastly increased demand in 2009):

- Maximum annual grant to institutes without block grants was capped to NOK500k (i.e. if in larger need, apply for block grant)

[35] "PES: Forslag til justering av ordningen", RCN, 2010; "Bakgrunnsnotat – evaluering av PES2020 og STIM-EU", RCN, 2018.

[36] The Norwegian word *randsoneaktiviteter* refers to the various activities and programmes that lie outside FP7's Cooperation, Ideas, People, Capacities and Euratom core programmes, e.g. Article 185 and Joint Technology Initiatives.

- Maximum annual grant to companies was capped to NOK500k (which was expected to affect only 8 companies looking at grants disbursed 2007–2009)
- Maximum grant to proposal coordinators was reduced from NOK500k to NOK350k, plus NOK50k for contract negotiations
- Maximum grant to proposals for mid-sized projects was reduced from NOK200k to NOK150k, but *only for projects with Norwegian coordinator*, plus NOK50k for contract negotiations
- Maximum grant to coordinators of proposals for small projects was NOK100k, plus NOK20k for contract negotiations
- Maximum grant to partners remained NOK50k. Proposals with several Norwegian partners and for work package or task leaders amounts up to NOK50k and NOK100k were possible
- For *randsoneaktiviteter*:
  - Maximum grant to coordinators of JTI proposals was NOK100k, plus NOK20k for contract negotiations
  - Maximum grant to partners was NOK50k, plus NOK20k for contract negotiations
  - Maximum grant for EUREKA and Eurostars proposals was NOK50–100k depending on role
- Additional grants could be awarded to Norwegian coordinators for contract negotiations
- Audit certificates ceased to be a requirement

H2020

December 2013

- PES under H2020 – PES2020 – is launched:
  - Directly tied to EC funding
  - Covers work on proposals that are fully or partly funded through H2020, including Eurostars2, JTIs AAL and COST
  - Does NOT cover JPIs, ERA-NETs or Interreg
  - Proposals must be deemed eligible for funding (by the EC) for the PES2020 grant to be distributed
  - If proposal is over threshold = extra bonus
  - If proposal is retained for funding by the EC (leading to negotiations) = extra bonus
- Single PES2020 proposers may receive a maximum of NOK500k per year. These proposers are mainly companies, public organisations and small HEIs/institutes/hospital trusts
- Most of PES2020 funding (78% by 2017) is distributed through block grants to frequent H2020 proposers among HEIs, institutes and hospital trusts/regional health authorities. Block grants may be used to build capacity and knowledge about H2020 within the organisation, to position the organisation and to produce proposals

1 June 2014

- PES2020 funding for proposals to SME Instrument phase 1 is introduced (previously only to phase 2 proposals)

15 September 2014

- A company can only receive PES2020 funding for SME Instrument phase 1 or phase 2
- PES2020 funding to SME Instrument phase 2 is only distributed if the proposal receives a score of at least 12 (over threshold)

1 January 2015

- Up to 15% of block grants may be used for strengthening of the internal support system (grants offices) (but several organisations spend more than that on positioning activities)
- Companies start receiving PES2020 funding as *de minimis* support. A company can receive a maximum of €200k over three fiscal years

May 2015 (out of scope for evaluation)

- *Proposals to financial instruments included. These are proposals from venture capitalists and the like that intend to fund Norwegian SMEs. Only five such grants have been awarded*

1 January 2016

- Overall budget is almost doubled (from NOK65m to NOK 123.5m)
- A large part of the budget increase is used to further strengthen the main H2020 participants' mobilisation activities, which particularly benefits HEIs, as well as to launch two new calls in April

April 2016 (out of scope for evaluation)

- *Two new calls are announced (both still open):*
  - *NOK5m is earmarked for strategic positioning in areas not covered by any of RCN's thematic programmes. This refers to positioning of all relevant Norwegian actors (i.e. not positioning of a specific organisation) through participation in e.g. technology platforms, JPIs, PPPs, JTIs etc.*
  - *NOK5m is earmarked for travel to H2020-relevant events – this call is not open to block grant holders*

1 May 2017

- PES2020 grant amounts are increased (doubled for coordinators of MP proposals, less for others). This change mainly affects single proposers, but the amounts act as upper bounds for internal proposers of block-grant holders; however, in practice block-grant holders generally award lower grants than RCN's maximums
- PES2020 grants are awarded as lump sums, so reporting of costs is no longer required for single proposers
- Block-grant holders need no longer document their costs for proposal production. The block grant is based on the number of proposals submitted in a year. Support for positioning activities and other initiatives to strengthen H2020 participation is granted in addition. HEIs and hospital trusts have great freedom in how they spend their PES2020 grants. For research institutes, this part is limited to 15% of the block grant (or more if they ask for it)
- The bonus for above-threshold proposals remains, but bonus for "if deemed fundable by the EC" is discontinued. Block-grant holders are free to give the bonus to their internal H2020 proposers

2018 (out of scope for evaluation)

- *The over-threshold requirement for PES2020 funding of SME Instrument phase 1 and phase 2 to be distributed is removed*

A.2 STIM-EU

This appendix describes the main elements of the evolution of STIM-EU. The sources of this description are RCN documents and discussion with RCN staff responsible for the measure.[37] The appendix does not claim to include all features and changes over the years, but rather focuses on what is considered important for this evaluation.

FP7

2012

- Open to institutes that receive their base funding from RCN (through the rules for state base funding) and five additional institutes
- Only EC funding from FP7 Cooperation may be included in the calculations of STIM-EU funding, which are based on EC funding awarded for the entire duration of projects
- Institutes that collaborate with a Norwegian company receive a 50% bonus (meaning that eligible EC funding is multiplied by 1.5; companies that are majority-owned by the institute do not count)
- Institutes must submit proposals to receive STIM-EU funding
- STIM-EU is a "zero-sum game" where the funding ratio depends not only on the available budget, but also on the total amount requested by all institutes together

2013

- An FP7 project may only be counted once
- Norwegian companies must be formal partners for institutes to receive the 50% bonus

H2020

2014

- Open to any institute that may receive RCN funding, but a minimum of 90% of the total STIM-EU budget remains earmarked for institutes that receive their base funding from RCN (through the rules for state base funding)
- Only EC funding from H2020 Social Challenges, LEIT and FET + remaining FP7 Cooperation are included in the calculations of STIM-EU funding
- Institutes that coordinate projects receive a 20% bonus (meaning that eligible EC funding is multiplied by 1.2)
- Institutes must no longer submit proposals, since RCN calculates STIM-EU funding directly from eCorda data

2015

- Open to any institute that may receive RCN funding, but the 90:10 budget division implemented in 2014 is removed (due to large budget increase); all institutes are treated the same way
- Funding from almost the entire H2020 is included in the calculations of STIM-EU funding: RIA, IA and CSA instruments plus MSCA and ERC. Partnership activities where the EC share of funding is traceable (including JTIs) are also included
- STIM-EU provides a set funding ratio of 33.3% (NOK1 in EC funding yields another NOK0.33 from RCN), but 8% of the total STIM-EU budget is set aside for bonuses as follows (so the bonus pot is still as a zero-sum game):
  - 4% to institutes that collaborate with a Norwegian company
  - 2% to institutes that collaborate with a Norwegian public-sector organisation

[37] "Bakgrunnsnotat – evaluering av PES2020 og STIM-EU", RCN, 2018.

  - 2% to institutes that coordinate projects

  Bonuses are distributed in proportion to institutes' EC funding. The new bonus scheme is designed to use the same share of the overall STIM-EU budget as the original company collaboration bonus from 2012 (8%), meaning that the new company collaboration bonus is weaker than the old one

- STIM-EU funding is formally treated as an extension of institutes' base funding

2016

- Calculation of STIM-EU funding is based on signed contracts (no longer on awarded projects, which results in a time-lag in STIM-EU funding)

Appendix B Registry analyses

B.1 Introduction

A note on terminology

Proposals vs Participations: A proposal to the Framework Programme will often be submitted from a consortium of organisations. Each organisation's involvement in that proposal is termed a "participation". The total number of proposal participations is therefore greater than both the total number of unique proposals submitted and the total number of unique organisations involved.

The relevant unit (participations or proposals) is made clear in the text of the analysis. Because individual proposals will often involve more than one Norwegian partner, we tend to focus on "participations" rather than "proposals", as this provides a fuller picture of Norwegian involvement.

Multi- vs Single-Partner Proposals: Around two-thirds of proposals to H2020 involve just one organisation[38], who is - by default - the proposal coordinator. This is somewhat different to a situation where several organisations are involved, and where the proposal and the consortium are coordinated by a lead partner. We term these two types of proposal "single-" and "multi-partner" respectively.

All proposals are included within the analysis unless the text specifically indicates that "multi-partner" proposals (only) are the unit of analysis. For example, when analysing coordination rates or the involvement of Norwegian companies in the proposal activity of Norwegian institutes, we focus only on "multi-partner" proposals (i.e. we exclude all proposals that involve just one organisation).

Organisational types - The main stakeholder categories available in eCorda are: HES (Higher or Secondary Education Organisation), PRC (Private for Profit Organisation (excluding education)), REC (Research Organisation), PUB (Public Body (excluding research and education) and OTH (Other).

The registry analysis workpackage concerned acquiring, analysing and linking eCorda data (FP7 and H2020 proposal information) and data on recipients of PES2020 and STIM-EU funding. The main purpose of this work was to support the assessment of the measures' impact, by:

1. **Profiling Norwegian participation** in FP7 and H2020 proposals over time, e.g. in terms of the number, quality and type (coordinator/partner) of participation, and intra-Norwegian partnering
2. Analysing changes in FP7/H2020 participation and seeking **evidence of correlation / causality** in relation to the two funding measures (PES2020 and STIM-EU). For example:
   - Is the direction of travel positive (i.e. are changes in Norway's FP participation in line with objectives of the measures)?
     - For PES2020: has the number and quality of proposals increased? Are there new entrants to the Framework Programme over time?
     - For STIM-EU: has institute participation in H2020 increased, including as coordinators [from 2014] or in partnership with Norwegian companies [from 2012] or public bodies [from 2015]?
   - Is there a positive correlation between H2020 performance (improvements in the above areas) and the introduction / increasing scale and breadth of the support measures? How does proposal participation compare between support beneficiaries and non-beneficiaries?

This appendix sets out details of the registry analysis work undertaken. It begins with an overview of the main data sources and a basic profiling of data on support funding and beneficiaries, before setting out analyses of FP7/H2020 participation in relation to PES2020 and then STIM-EU support.

[38] This is particularly the case in certain areas (e.g. most ERC, MSCA and SME instrument proposals involve one organisation).

B.2 Data sources

This section sets out the main data sources that have been employed in undertaking the registry analysis. They include information relating to Framework Programme participation (FP7 and H2020) and to support scheme beneficiaries and funding (PES and STIM-EU).

B.2.1 Framework Programme participation data

RCN have provided the study team with full **eCorda databases**, covering all proposals and projects (and participations in these from all countries) during FP7 and H2020. The FP7 database (August 2015, final release) covers the entirety of this programme, while the H2020 database (March 2018 release) covers only the first half of the programme (which will continue until 2020).

RCN have also provided the study team with versions of the eCorda data for FP7 and H2020, covering Norwegian activities only. These **RCN versions** of the databases have been "cleaned". This includes corrections to the names and unique identifier numbers of Norwegian organisations and the addition of RCN classifications for organisational types. The latter includes some reallocation of organisations between categories (e.g. 18% of Norwegian participations that are by public bodies [according to eCorda] have been reclassified as participations by the "Instituttsektor" by RCN). Table 5 summarises the extent of reallocation across all organisational categories between the two sources.

In addition, RCN informed the study team that invalid proposals and those relating to the first of two-step application processes had been removed from the RCN version of the H2020 data, while additional proposal partners (e.g. third parties and affiliates) had also been added. As a result, the RCN version of the H2020 database includes 10% fewer Norwegian proposals and 5% more Norwegian participations than the original eCorda data.

Table 5 Organisation classification by eCorda and RCN – Norwegian H2020 proposal participations

eCorda classification RCN classification	HES	REC	PRC	PUB	OTH	Total
Higher Education Sector (UoH-sektor)	3,091	1	30	2		**3,124**
Research Institute (Instituttsektor)	15	2,236	98	55	15	**2,419**
Business (Næringsliv)	9	20	2,904	11	26	**2,970**
Public bodies (Øvrige offentlige)	4	5	96	145	7	**257**
Others (including Health Trusts)	200	74	156	105	101	**636**
Added by RCN (net)	+191	+230	+25	+15	+3	**+464**
Total	**3,319**	**2,336**	**3,284**	**318**	**149**	**9,406**

eCorda H2020 data – EC and RCN versions

The RCN versions of the eCorda data only cover Norwegian participation. Because of the cleaning process (which has therefore only been undertaken for Norway), this version of the data cannot be compared with overall statistics (i.e. H2020 all countries). The removal of certain (e.g. invalid) proposals also means that the RCN versions may provide a misleading picture on some metrics (e.g. assessing quality based on evaluation outcome – which includes 'invalid' proposals as a category). We have therefore elected to mainly use the original eCorda data for the registry analysis. Where RCN data is used instead this is clearly indicated.

To analyse **participation over time**, we look both at the level of programme periods (FP7 overall, vs H2020 to date) and at annual trends. The year of proposal submission is missing from FP7 data, and so we have used the relevant call closure date to identify a year for each proposal. In the analysis, we include all proposals to calls closing in the seven years 2007 to 2013 (for FP7) and the four years 2014 to 2017 (for H2020). A small number of calls fall outside of these periods (e.g. H2020 calls that remain open until the end of 2020) and the proposals for these have been excluded from the analysis.

We are using the March 2018 release of H2020 proposal data (the latest available at the time the analysis was undertaken). This ought to include all proposals submitted during 2017. However, there is the

possibility that subsequent releases of data will include some updated information. This would likely be minimal and therefore have little impact on the overall trends and statistics in this report.

The Participant Identification Code (PIC) number used in eCorda is intended to be a **unique reference number** for individual organisations and is useful for tracing participation through time. PIC numbers are available for all Norwegian participations in proposals during H2020. However, in the FP7 eCorda data, PIC numbers are only available for 8,109 of the 9,658 Norwegian participations in proposals. Using the European Commission's online PIC search[39], we have managed to fill much of the missing data, increasing the number of entries with PIC numbers to 9,156, but some gaps remain.

We have looked in more detail at the activities of **Norwegian universities (HES),** by splitting them into three broad groups based on their overall number of H2020 proposal participations, as follows[40]:

- HES Group A: Organisations with high levels of activity (400+ proposal participations each in the first four years of H2020). This group includes just three organisations.

Table 6 HES Group A: Most active Norwegian universities in H2020 proposals

Organisation	FP7 proposal participations (call deadlines 2007-13)	H2020 proposal participations (call deadlines 2014-17)
Norges Teknisk-Naturvitenskapelige Universitet (NTNU)	761	874
Universitetet i Oslo (UiO)	972	821
Universitetet i Bergen (UiB)	553	407
Grand Total	**2,286**	**2,102**

- HES Group B: Organisations with intermediate levels of activity (50-250 proposal participations each in the first four years of H2020). This group includes six organisations.

Table 7 HES Group B: Moderately active Norwegian universities in H2020 proposals

Organisation	FP7 proposal participations (call deadlines 2007-13)	H2020 proposal participations (call deadlines 2014-17)
Universitetet I Tromsoe (UiT)	189	235
Norges Miljo-Og Biovitenskaplige Universitet (NMBU)	180	152
Oslo Metropolitan University (OSLOMET)	14	102
Universitetet I Stavanger (UiS)	80	67
Universitetet I Agder (UiA)	58	65
Hogskolen I Sorost-Norge (HSN)	0	53
Grand Total	**521**	**674**

- HES Group C: Organisations with low levels of activity (30 or fewer proposal participations each in the first four years of H2020). This group includes 15 organisations.

[39] https://ec.europa.eu/research/participants/portal/desktop/en/organisations/register.html#

[40] We have excluded those organisations marked in eCorda as 'HES', but that are in fact health trusts, companies or research institutes.

Table 8 HES Group C: Least active Norwegian universities in H2020 proposals

Organisation	FP7 proposal participations (call deadlines 2007-13)	H2020 proposal participations (call deadlines 2014-17)
Nord Universitet	12	30
Hogskulen Pa Vestlandet	0	26
Hogskolen I Ostfold	4	14
Stiftelsen Handelshoyskolen Bi	9	14
Arkitektur Og Designhogskolen I Oslo	2	12
Norges Handelshoyskole	16	12
Høgskolen I Narvik	0	11
Høgskolen I Hedmark (Hihm)	18	9
University Centre In Svalbard	24	9
Norges Idrettshogskole	4	8
Hogskolen I Innlandet	0	7
Hogskolen I Lillehammer	8	6
Hogskolen I Molde	5	6
Hogskulen For Landbruk Og Bygdeutvikling Sa	1	3
Forsvarets Høgskole	0	2
Grand Total	**103**	**169**

We return to these groupings below in relation to PES support.

B.2.2 Eurostars participation data

On the request of RCN, the Eureka secretariat have provided the study team with basic data on all proposals (and proposal participations) to the **Eurostars programme** between 2008 and 2017, including the 'project status' of each proposal, which indicates the outcome of the proposal assessment process[41]. The data covers 18 separate calls over the period of Eurostars 1 ("E1") and Eurostars 2 ("E2") (equivalent to periods of FP7 and the first half of H2020 respectively). There were 6,245 proposals submitted in total, with Norway participating in 637 of these (345 in E1 and 292 in E2). Some proposals involved multiple Norwegian participants, and there were 903 Norwegian proposal participations in total (out of a total of 20,338). These Norwegian proposal participations involved 446 unique Norwegian organisations.

In addition, RCN have provided a list of **PES2020 grants** relating to the Eurostars programme. This covers E2 (H2020) only, but PES funding was provided for Eurostars during the FP7 period also. There are 210 PES2020 grants listed for E2 proposals, but the only way to connect this PES information with the Eurostars proposal database is through the Eurostars Project ID, which is missing for 30% of the PES2020 grants. We have had to assume that any E2 proposal participations that cannot be matched to the PES grants database did not receive a PES2020 grant.

An analysis of Eurostars participation is presented later in this appendix and mentioned, where relevant, in the main body of the report.

B.2.3 PES beneficiary data

RCN have provided two separate sources of information on PES beneficiaries.

[41] The small number of applications that were vetoed or rejected for unspecified reasons have been excluded from the analysis.

The **H2020 eCorda database** for Norway (RCN version) introduced above includes a tag that indicates whether or not individual proposals (i.e. one or more of the Norwegian applicants involved) have benefited from PES2020 funding. The study team have used other beneficiary data to also tag individual Norwegian applicants as to whether or not they received PES2020 funding (as not *all* Norwegian participants in a PES2020-funded proposal will necessarily be PES2020 beneficiaries themselves). This beneficiary tagging is only available for H2020 (as details of individual applications supported through PES funding was not recorded during FP7), meaning that we only have four years of data and no FP7 comparison. In addition, as it is the RCN-version of the eCorda data that is tagged, participation metrics cannot be compared with H2020 overall (i.e. all countries).

RCN have also provided data which details all organisations that have received **PES grants**. It gives the total amount granted each year, as well as the split between block and single grants, for each organisation (the information for FP7 and H2020 is provided separately). The database only provides organisation level statistics, with no details the individual proposals or proposers are concerned. We know from the H2020 "tagged" data (above) that even where an organisation receives block-grant PES funding, that does not mean that all (or even a majority) of their proposal activity will be (directly) supported through the scheme (e.g. during H2020, just one-third of the University of Oslo's proposal participations are tagged as PES-funded, despite this organisation receiving block grant funding).

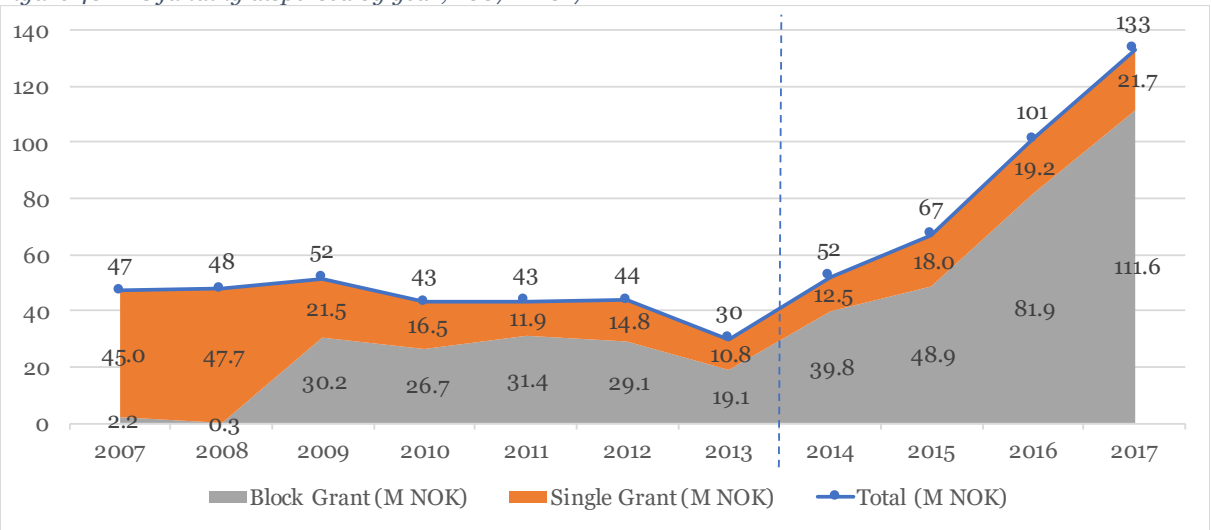
Basic grant / beneficiary profiling

The study is asked to assess the impact of PES2020 on Norwegian participation in H2020, in comparison with FP7. It is therefore important to note that the PES support measure also existed throughout the period of FP7 (and indeed replaced various other associated schemes that pre-dated this). We are therefore not comparing an H2020 period *with* support, with an FP7 period *without* it. In addition, the scheme itself has evolved regularly since it was first introduced (expanding its scope, changing requirements, introducing funding caps, adding various bonuses, etc.), which means that really we are considering many different variants of the scheme, rather than a single static measure.

Nevertheless, there has been a significant growth in both the scale and the breadth of the PES measure during H2020. As shown in the three figures below, total PES funding dispersed each year remained relatively constant during FP7 (at approximately 40M NOK/yr), but then increased rapidly during H2020 (reaching around 130M NOK/yr by 2017). Similarly, the total number of recipient organisations each year remained reasonably constant during FP7 (117-154 per year), but has then increased during H2020 (to 247 in 2017). As a result, the proportion of Norwegian proposals involving PES2020 funding has grown steadily during the past four years, to over half (54%). The proportion of Norwegian proposal participations with PES2020 funding has similarly grown, from 32% in 2014 to 42% in 2017 (driven mainly by HES and, to a lesser extent, REC organisations).

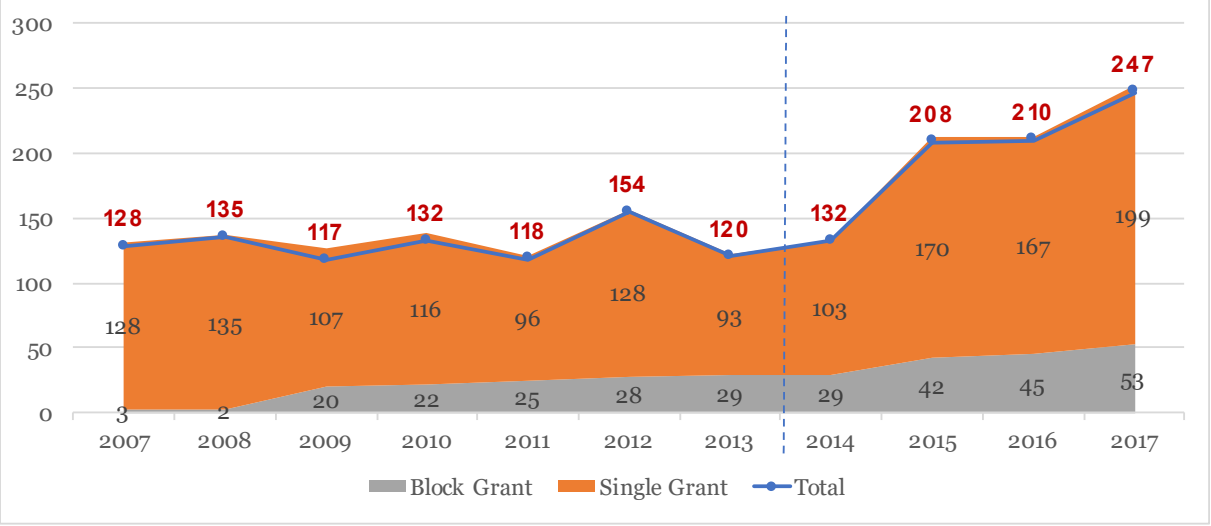
As a result of these trends, there is significantly more support, going to more organisations, through PES2020 (particularly in the most recent years) than was the case with PES support during the period of FP7. We can therefore explore through the registry analysis whether this recent upward trend in support has impacted positively on the scheme's objectives in terms of H2020 participation.

Figure 40 PES funding dispersed by year, 2007 – 2017



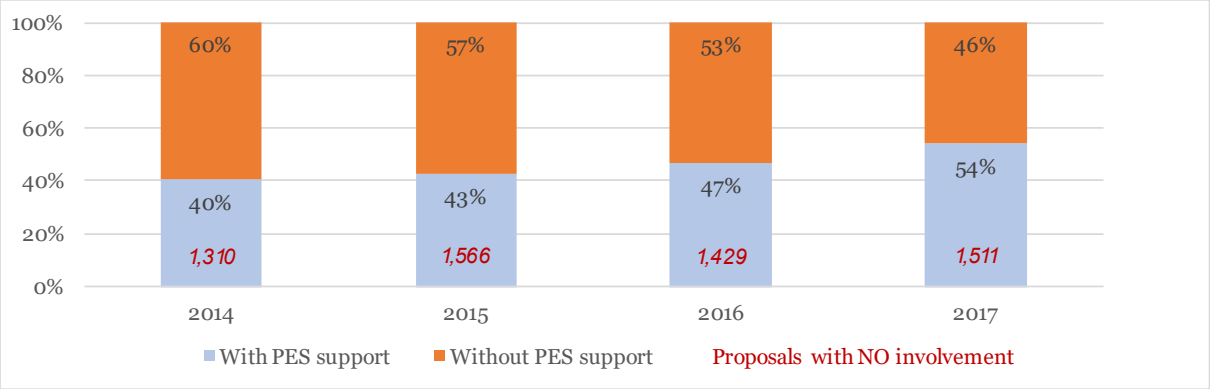
Source: RCN data on PES funding dispersals

Figure 41 PES beneficiary organisations by year, 2007 – 2017



Source: RCN data on PES funding dispersals

Figure 42 Proportion of Norwegian proposals with PES2020 funding by year, 2014-2017

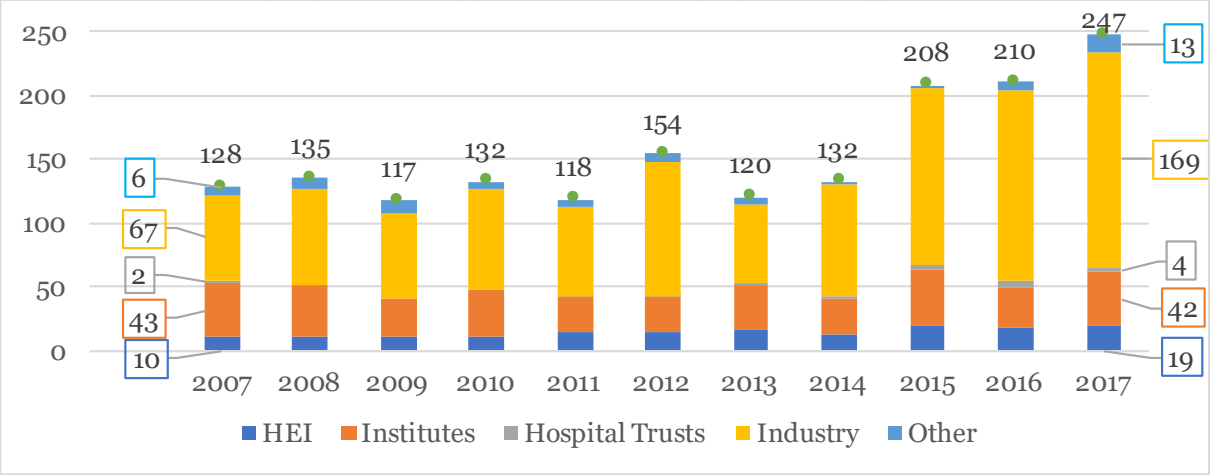


Source: H2020 eCorda data (RCN version)

As can be seen in Figure 43 (PES beneficiaries by organisation type), most of the growth in beneficiary organisations has come from the industry sector. The number of industry beneficiaries of PES more than

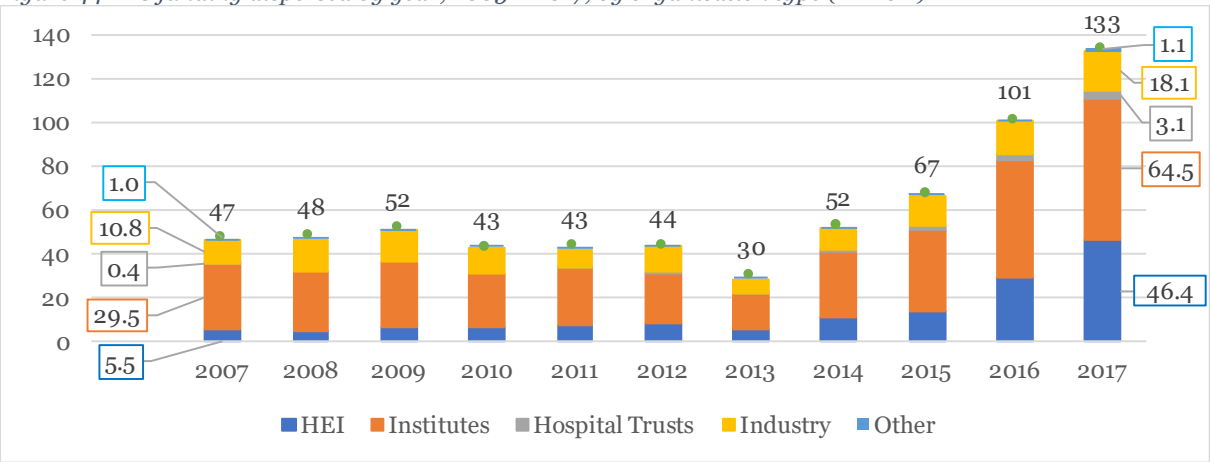
doubled from 67 in 2007 to 169 in 2017 (meaning the sector accounts for 86% of the overall increase in beneficiaries between these two years). The number of HEIs and Hospital Trusts also doubled between these two years, but the absolute number of organisations involved is much smaller. The number of institute beneficiaries has remained reasonably stable throughout the period.

Figure 43 PES beneficiary organisations by year, 2005 – 2017, by organisation type



By comparison, Figure 44 (PES funding by organisation type) shows that most of the increase in funding has been driven by HEIs and, to a lesser extent, by Institutes. Funding to industry has nearly doubled (from 10.8M NOK in 2007 to 18.1M NOK in 2017), but in absolute terms, this only accounts for a small part (~11%) of the overall increase in funding over the period.

Figure 44 PES funding dispersed by year, 2005 – 2017, by organisation type (M NOK)



Amongst our three **grouping of universities** (grouped based on levels of H2020 proposal activity), there is some variation as to the extent to which H2020 activity is supported through PES2020 (see Table 9). While nearly two-thirds of participations by the moderately-active organisations involve PES2020 funding, this is only true for approximately one third of the participations from the most and least active organisations. In addition, while all organisations in the most and moderately active groups (A and B) make some use of PES2020, there are five organisations amongst the least active (one-third of the total) that have not used PES2020 for any of their proposal participations in the period covered (a total of 40 participations across these five organisations).

Table 9 Extent of PES2020 supported activity, by university grouping

	A: Most Active 400+ H2020 participations	B: Moderately Active 50-250 H2020 participations	C: Least Active <30 H2020 participations
Number of organisations	3	6	15
H2020 proposal participations	2,102	674	169
% of H2020 proposal participations with PES2020 support	36%	62%	33%
(min and max within group)	26% - 52%	45% - 88%	0% - 78%
Number within group not receiving any PES2020 support	0	0	5

B.2.4 STIM-EU data

RCN have provided annual lists of the institutes that were **eligible** for the STIM-EU measure, covering the period 2012 to 2016 (the number eligible nearly doubled during this period). RCN have also provided separate information on **beneficiary** organisations of STIM-EU funding between 2012 and 2017 (the number of beneficiary organisations has also nearly doubled), including the total amount of funding received (if any), by each institute, each year. The two datasets have been combined by the study team in Table 10 below, where a blue cell indicates eligibility and a green cell indicates eligibility *and* funding in a given year.

There have been several mergers of institutes over the period covered, and we have used the resulting combined organisation as the unit of analysis. There are also several institutes that have become ineligible during the period because they merged into Oslo Metropolitan University[42], and these have been excluded from the analysis. As a result, the **analysis is based on a total of 89 organisations that have been eligible** for STIM-EU funding (at some point) and 48 organisations that have received some funding from the scheme. The Participant Identification Code (PIC) number has been identified for nearly all organisations – allowing traceability through FP7 and H2020 data. The remaining 14 institutes (marked * in the table) could not be found in a search of eCorda data or the European Commission's online PIC search. Some may never have participated in FP proposals.

The final column indicates: the 45 institutes that receive **base funding** from RCN (marked "RCN") and their relevant Arena(s); as well as the 14 institutes that receive base funding directly from Government ("GOV")[43]. These groupings are used within the analysis.

Table 10 STIM-EU: eligible (blue) and beneficiary (green) organisations per year, 2012-2017

Name	2012	2013	2014	2015	2016	2017	Any Year	RCN base funding and Arena(s); GOVernment base funding
Agderforskning								RCN -Social science
Chr. Michelsens Institutt (CMI)								RCN -Social science
Christian Michelsen Research AS (CMR)								RCN - Technical-industrial
CICERO Senter for klimaforskning (CICERO)								RCN - Environmental
Forskningsstiftelsen Fafo (FAFO)								RCN -Social science
Fridtjof Nansens Institutt (FNI)								RCN - Social science
Havforskningsinst *[Incl. Nasjonalt institutt for ernærings- og sjømatforskning (NIFES)]*								GOV
Institutt for energiteknikk (IFE)								RCN - Technical-industrial

[42] Norsk institutt for by- og regionforskning (NIBR), Statens institutt for forbruksforskning (SIFO) and Norsk institutt for forskning om oppyekst, velferd og aldring (NOVA).

[43] Note that 2 of the 14 Government funded institutes (Arkivverket and Nasjonalbiblioteket) do not appear within the list of STIM-EU eligible institutions, so only 12 organisations are marked GOV.

Name	2012	2013	2014	2015	2016	2017	Any Year	RCN base funding and Arena(s); GOVernment base funding
Institutt for fredsforskning (PRIO)								RCN - Social science
Institutt for samfunnsforskning (ISF)								RCN - Social science
International Research Institute of Stavanger (IRIS) *[Incl. IRIS Teknologi and IRIS Samfunnsforskning]*								RCN - Social science; Technical-industrial
Møreforskning *[Incl. Møreforsking Ålesund AS and Møreforsking AS]*								RCN - Social science
Nansen Senter for miljø og fjernmåling (NERSC)								RCN -Environmental
Matforskningsinstituttet (Nofima)								RCN - Primary industry
Nordisk institutt for studier av innovasjon, forskning og utdanning (NIFU)								RCN - Social science
Nordlandsforskning								RCN - Social science
Norges Geotekniske Institutt (NGI)								RCN - Technical-industrial
Norsk institutt for bioøkonomi (NIBIO) *[Incl. Bioforsk and Norsk Institutt for Skog og Landskap]*								RCN - Primary industry
Norsk institutt for kulturminneforskning (NIKU)								RCN - Environmental
Norsk institutt for luftforskning (NILU)								RCN - Environmental
Norsk institutt for naturforskning (NINA)								RCN - Environmental
Norsk institutt for vannforskning (NIVA)								RCN - Environmental
Norsk Regnesentral (NR)								RCN - Technical-industrial
Norsk utenrikspolitisk institutt (NUPI)								RCN - Social science
Northern Research Institute (NORUT) *[Incl. NORUT Narvik]*								RCN - Social science; Technical-industrial
NTNU samfunnsforskning								RCN - Social science
Østfoldforskning AS								RCN - Social science
Østlandsforskning								RCN - Social science
RURALIS Institutt for Rural og RegionalForskning (Norsk senter for bygdeforskning)								RCN - Primary industry
Samfunns- og næringslivsforskning AS (SNF)								RCN - Social science
SINTEF Energi AS								RCN - Technical-industrial
SINTEF Industry *[Incl. SINTEF Petroleumsforskning AS and Tel-Tek]*								RCN - Technical-industrial
SINTEF OCEAN *[Incl. SINTEF Fiskeri og havbruk AS and Norsk marinteknisk Forskningsinstitutt AS (MARINTEK)]*								RCN - Technical-industrial
Statens arbeidsmiljøinstitutt (STAMI)								GOV
Statens institutt for rusmiddelforskning (SIRUS)								
Stift. SINTEF *[Incl. SINTEF- Stiftelsen for industriell og teknisk forskning ved Norges tekniske høgskole]*								RCN - Technical-industrial

Name	2012	2013	2014	2015	2016	2017	Any Year	RCN base funding and Arena(s); GOVernment base funding
Stiftelsen Frischsenteret for samfunnsøkonomisk forskning (FRISCH)								RCN - Social science
Telemarksforskning Bø								RCN - Social science
Forskningsinstitutt for seismologi og anvendt geofysikk (NORSAR)								RCN - Technical-industrial
Transportøkonomisk institutt (TØI)								RCN - Environmental
Trøndelag Forskning og Utvikling AS								RCN - Social science
*Uni Rokkansenteret								RCN - Social science
Vestlandsforsking								RCN - Social science
Veterinærinstituttet								RCN - Primary industry
Arbeidsforskningsinstituttet AS (AFI)								
*SINTEF Teknologi og Samfunn								RCN - Social science
*Telemarksforskning Notodden								RCN - Social science
Norsk institutt for landbruksøkonomisk forskning (NILF)								
Akvaplan-niva AS								
*Arbeiderbevegelsens arkiv og bibliotek								
*Atferdssenteret - Norsk senter for studier av problematferd og innovativ praksis AS								
*Centre for Advanced Study								
*Det Norske Nobelinstitutt								
*Flymedisinsk institutt								
Forsvarets forskningsinstitutt (FFI)								GOV
GenØk - Senter for biosikkerhet								
*Kreftregisteret, Institutt for populasjonsbasert kreftforskning								GOV
*Legeforeningens forskningsinstitutt								
Meteorologisk institutt								GOV
Nasjonalt folkehelseinstitutt *[Incl. Nasj. Kunnskapssenter for helsetjenesten]*								GOV
Nasjonalt kunnskapssenter om vold og traumatisk stress								
*Norges Bank								
Norges Geologiske Undersøkelse (NGU)								GOV
Norges vassdrags- og energidirektorat (NVE)								GOV
Norner Research AS								
Norsk Landbruksrådgiving								
*Norsk lokalhistorisk institutt								
Norsk Polarinstitutt								GOV
Norsk samfunnsvitenskapelig datatjeneste								
Papir- og fiberinstituttet AS (PFI)								

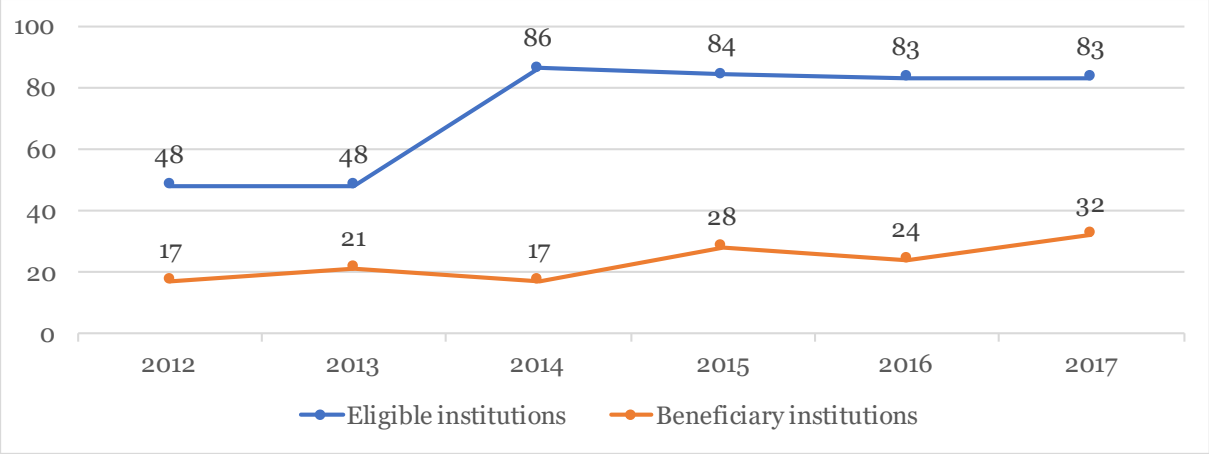
Name	2012	2013	2014	2015	2016	2017	Any Year	RCN base funding and Arena(s); GOVernment base funding
*Riksarkivet								
Senter for interkulturell kommunikasjon (SIK)								
Senter for økonomisk forskning AS								
Senter for studier av Holocaust og livssynsminoriteter								
Simula Research Laboratory								GOV
Simula School of Research and Innovation								
SINTEF Raufoss Manufacturing AS								RCN - Technical-industrial
Statens strålevern								GOV
Statistisk sentralbyrå								GOV
*Stiftelsen Kirkeforskning								
Stiftelsen Norsk Luftambulanse (SNLA)								
Stiftelsen TISIP								
Teknova AS								
Treteknisk								
UNI Research AS *[Incl. UNI Research CIPR]*								RCN - Technical-industrial; Environmental; Social science
*SINTEF NBL AS								
Stiftelsen Polytec								
SP Fire Research AS								
UNI Research Polytec AS								
Total Eligible	**48**	**48**	**86**	**84**	**83**	**83**	**89**	
Total Beneficiaries	**17**	**21**	**17**	**28**	**24**	**32**	**48**	

Basic grant / beneficiary profiling

As with the PES scheme, the STIM-EU measure has evolved since its introduction (in 2012, towards the end of FP7), for example by expanding the scope of FP coverage and introducing additional bonuses for coordination and partnering. It is therefore also not a static scheme. Also, it has expanded its scale and breadth over time (see Figure 45 and Figure 46 below), with increases in the number of eligible institutes (particularly from 2013 to 2014), the number of beneficiary organisations (which tends to be around one-third of those eligible) and the total value of funding dispersed (with the exception of 2016[44]). Note that the main increase in the number of beneficiaries and in the total value of grants (which occurs in 2015) lags one year behind the main increase in the number of eligible institutes (which occurred in 2014), suggesting a time delay from eligibility to influence of the scheme on submitted proposals (i.e. scheme funding).

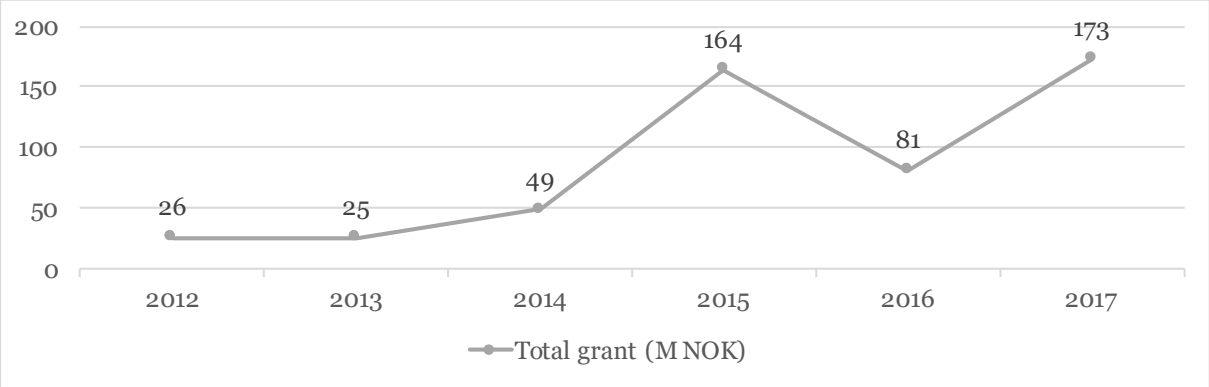
44 When a change to the funding arrangements (change from awarded projects to signed contracts as the basis for STIM-EU calculation) led to a temporary reduction in awards allocated in relation to this particular year.

Figure 45 STIM-EU eligible and beneficiary organisations by year, 2012-17



Source: Technopolis, based on RCN information on eligible organisations and data on beneficiary organisations

Figure 46 Total STIM-EU grant value by year, 2012-17



Source: Technopolis, based on RCN information on beneficiary organisations

When STIM-EU was established in 2012, the list of eligible institutes was largely limited to those that received base funding from RCN. While there have been a small number of additions and subtractions from the list of eligible institutes in every year since (e.g. to reflect mergers), the main extension came in 2014, when an additional ~40 organisations became eligible (although 90% of funding was still earmarked for base-funded institutes for a further year). For some of the analysis we have therefore considered differences between **two main groups**:

- Group 1: The 48 organisations (once mergers are included) that were eligible from the start of the STIM-EU scheme in 2012
- Group 2: The 41 other organisations that have become eligible at some point subsequently (mostly in 2014)

Because the first group has been eligible for funding for two or three years longer than the second, and because of the broad split between the two groups in terms of whether or not they receive base-funding from RCN, we hypothesised that the two groups might look somewhat different in terms of their use of the scheme and associated FP participation profile, and have explored this as part of the analysis.

For the purposes of analysis, we have also assumed that there may be a **time lag** of at least a year between eligibility for STIM-EU funding and any impact on FP participation. Funding allocations at the end of year 3 (for example) are decided based on proposals submitted between Yr2 Q4 and Yr3 Q3. It is therefore unlikely that there can yet be any attributable change in participation data for those organisations becoming eligible for the first time in Y3. We therefore analyse participation of institutes bearing in mind this potential time lag.

B.3 PES analysis

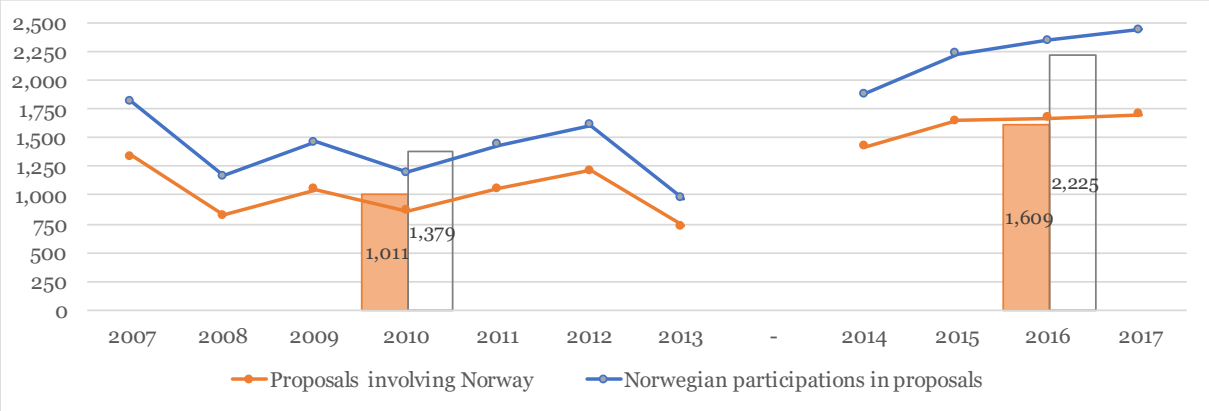
B.3.1 Participation in proposals

PES2020 seeks to increase the level of Norwegian participation in H2020. This can be influenced by both the volume of proposal participation activity and by the quality (and therefore likelihood of success) of these proposals. We look here at Norway's involvement (participation) in proposals over time. The level of quality (which is a separate objective of PES2020) is assessed in the next section.

Have levels of Norwegian proposal activity increased in H2020?

Overall, Norway's absolute **level of proposal activity** has tended to increase over time (a positive direction of travel in relation to PES objectives). On average (see columns in Figure 47), across the seven years of FP7 there were 1,379 Norwegian participations in 1,011 proposals each year, while across the first four years of H2020 there were 2,225 Norwegian participations in 1,609 proposals per year (a 59% and 61% increase, respectively). Just during the first four years of H2020 there has also been a steady rise in Norwegian participation levels each year, from 1,883 participations in 1,421 proposals (2014), to 2,440 participations in 1,699 proposals (2017).

Figure 47 Norwegian proposals and participations in proposals by year, 2007-2017



Source: eCorda FP7 and H2020 data

All four main **categories of organisation** (HES, REC, PRC and PUB) in Norway have seen an increase in their average level of proposal participation activity between FP7 and H2020 (see table below), with the biggest increase (absolute and relative) seen amongst PRC and HES organisations. Companies in particular have been driving the growth in participations during H2020, increasing from 600 in the first year to nearly 1,000 in 2017.

The table also shows our three **groupings of universities** (based on H2020 activity levels)[45]. This shows an inverse relationship between activity levels and growth (i.e. the least active universities have nearly trebled their number of participations per year between FP7 and H2020, while the most active organisations have seen only a 61% increase between the two programmes).

[45] Note that the exclusion of health trusts (marked as HES in eCorda) from these groupings, means the breakdown does not necessarily align with HES overall figures.

Table 11 Average participations in proposals per year, FP7 vs H2020, by organisation type

	FP7 Average	H2020 Average	Change FP7-H2020
HES – Higher or secondary education	394	782	98%
➢ HES Group A (most active)	327	526	61%
➢ HES Group B (mid-active)	74	169	126%
➢ HES Group C (least active)	15	42	187%
REC – Research organisations	410	525	28%
PRC – Private for profit (excl. education)	323	807	150%
PUB – Public body (excl. REC/HES)	53	75	42%
Total*	**1,180**	**2,188**	**85%**

Source: eCorda FP7 and H2020 data. *Excludes "OTH – Other" and "n/a, meaning totals are slightly lower than in the figure above."

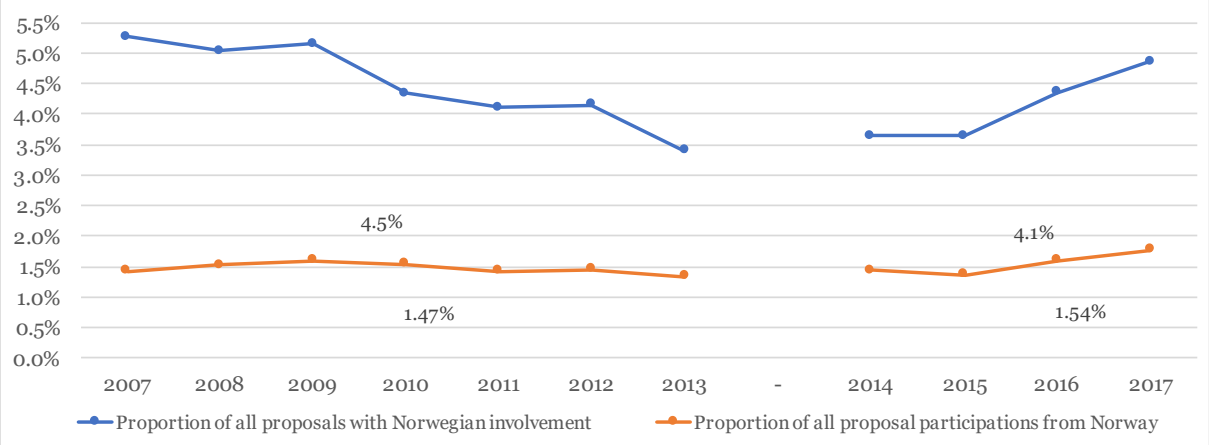
Have **relative** levels of Norwegian proposal activity increased in H2020?

The two Framework Programmes (FP7 and H2020) have many differences, including in their overall scale of activities (this is also true in relation to annual work programmes across the whole period). It is therefore perhaps a little misleading to compare absolute levels of proposal activity between the two (hence the clear break in the plot above between the end of one programme and the start of the next). [Although we should note that it is the absolute level of activity that is the stated PES objective.]

If we instead consider the **relative rate** of Norwegian participation (i.e. the proportion of *all* participations or proposals it accounts for), then this helps to remove variability in the scale of overall activity between years and between programme periods.

On this basis, the picture for Norway is still generally of a positive direction of travel (as per PES objectives). Its share of all proposals each year has dropped slightly from an average of 4.5% during FP7, to an average of 4.1% during H2020. However, its share of proposal participations each year has increased from 1.47% (FP7) to 1.54% (H2020). In addition, Norway's relative level of activity on both measures has risen during the first years of H2020, whereas the rates had tended to decline over time during the course of FP7 (i.e. Norway appears to have reversed a negative trend).

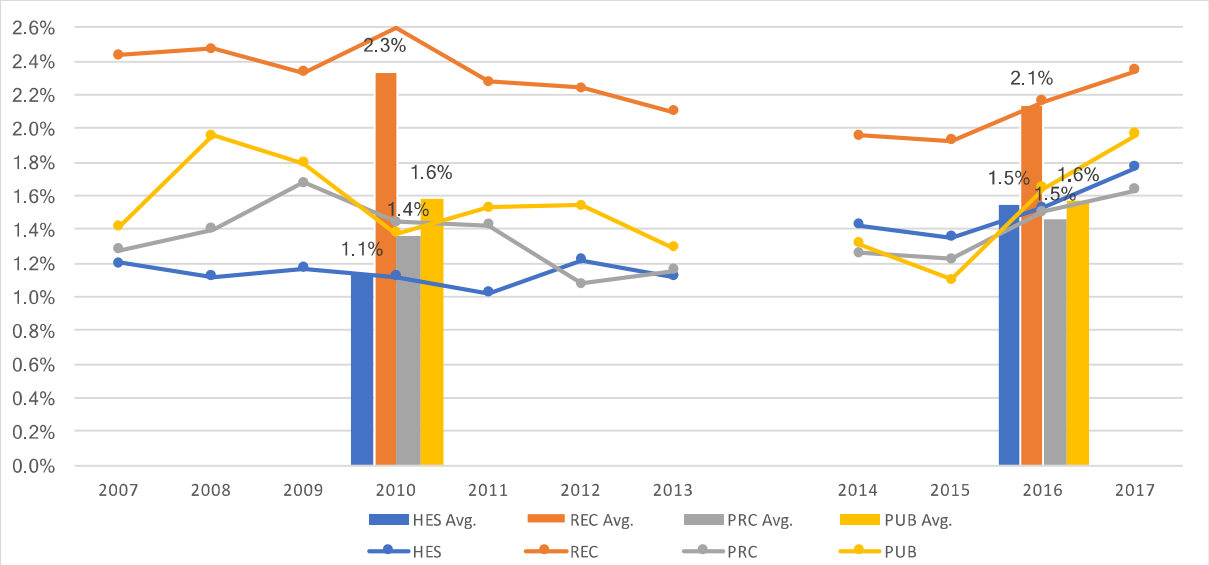
Figure 48 Norwegian proposals and participations in proposals as % of all, by year 2007-17



Source: eCorda FP7 and H2020 data

If we again consider overall trends by organisational types (e.g. Norwegian HES participations as a % of all HES participations in proposals), then the picture for Norway is more mixed. While average annual Norwegian HES participation rates have increased between the two programmes, the share of REC participations that Norway accounts for has declined. (Average annual PRC and PUB rates have changed little between FP7 and H2020). Rates for all four types of organisation have however improved during the first four years of H2020, suggesting a positive direction of travel over the past few years.

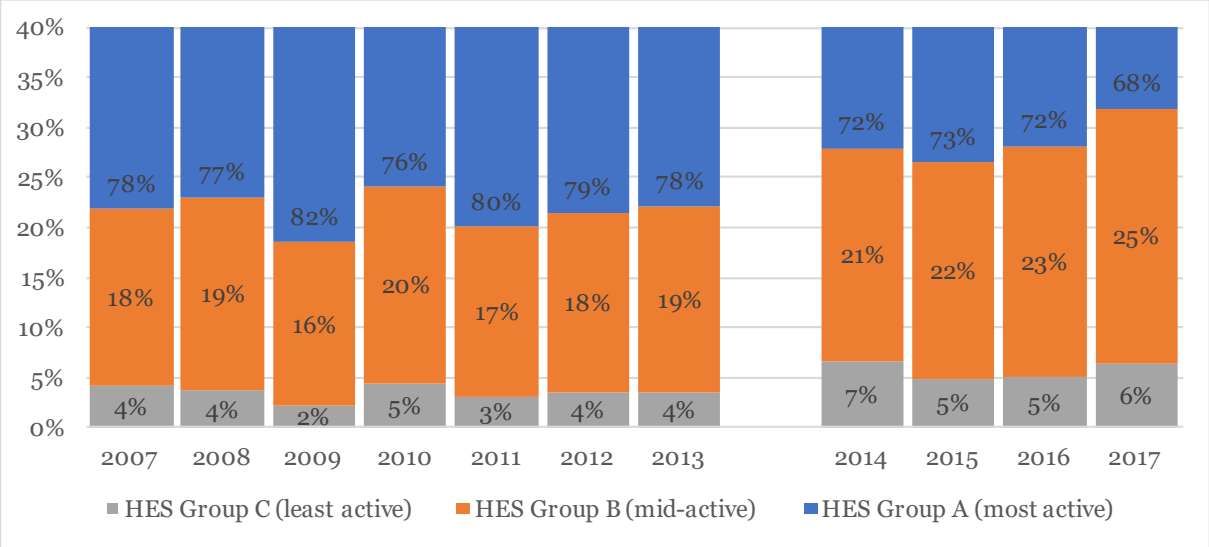
Figure 49 Proportion of all proposal participations by an organisation type that are accounted for by Norway, by year 2007-17



Source: eCorda FP7 and H2020 data. *Excludes "OTH-Other" and "n/a". Columns show an average of the annual percentages within a given programme period (FP7 or H2020).

The following figure shows how the division of activity between our three groupings of universities[46] has evolved over the same period (note that the scale has been truncated at 40% for legibility). This again shows that, despite the continued dominance of activity by the three universities in Group A, the organisations in the less active groups have gradually increased their relative level of proposal activity in H2020 compared with FP7.

Figure 50 Proportion of all Norwegian HES proposal participations by three groups of universities



Is there a positive correlation between PES2020 support and levels of proposal activity?

We have seen above that average annual Norwegian proposal participation activity has tended to be higher during the first four years of H2020 than it was during the seven years of FP7. In addition, we have seen that there has tended to be a positive increase in the scale of Norwegian proposal activity over

[46] Note that the exclusion of health trusts (marked as HES in eCorda) from these groupings, means the breakdown does not necessarily align with HES overall figures. The total of the three groupings is used as the denominator here, rather than the HES total.

the course of the first years of H2020. These broad trends align with those of the PES support scheme, which on average has provided more funding to more organisations each year during H2020 than it did during FP7, and where the scale and breadth of support has risen through the first years of H2020. However, because the provision of PES support is tied to the submission of eligible proposals it is difficult to conclude on the direction of causality based on these aggregate trends.

To explore further the link between PES and FP7/H2020 participation levels we have utilised the information on PES2020 supported applicants to H2020. The H2020 data (RCN version) suggests that there were 1,513 Norwegian organisations (de-duplicated based on their unique PIC number) participating in H2020 proposals. Of these, 447 (30%) received PES2020 funding for one or more of their proposal participations (including 132 organisations that received PES2020 funding for *all* of their H2020 proposal participations). The remaining organisations did not receive PES2020 funding during this period.

Based on this, we have formed 3 groups of Norwegian organisations:

- Group 1: Organisations that received PES2020 funding for all (100%) of their H2020 proposal participations 2014-17. There are 132 organisations in this group.
- Group 2: Organisations that received PES2020 funding for some, but not all (1-99%) of their H2020 proposal participations. There are 315 organisations in this group.
- Group 3: Organisations that did not receive PES2020 funding for any H2020 proposal participations 2014-17. There are 1,825 organisations[47] in this group (who have participated in FP7 and / or H2020 proposals). Some may have received PES funding for some / all of their FP7 applications, but RCN did not collect this level of information at the time.

Taking the organisations within each of these groups, we have analysed the average number of times that they participated in proposals each year, in FP7 and then in H2020, and then compared the two.

As can be seen in the following table, the 132 organisations in Group 1 collectively participated 51 times in FP7 proposals and 154 times in H2020 proposals. They therefore participated on average 7.3 times per year in FP7 and 38.5 times per year in H2020. This represents a five-fold increase in average annual participations by this group between the two programmes.

Group 2, which includes organisations that received PES support for *some* of their H2020 proposal participations (this includes many of the large block grant holders – hence the large participation numbers) saw a nearly two-fold increase (x 1.9) between the programmes, while for Group 3 the increase was slightly larger (x 2.3).

Table 12 Participation levels (FP7 to H2020) by extent of PES funding

	Group 1 - all H2020 applications PES-funded	Group 2 - some PES-funded H2020 applications	Group 3 - no PES-funded H2020 applications
Organisations in group	132	315	1,825
Total proposal participations by whole group in FP7 (2007-13)	51	6,121	1,760
Total proposal participations by whole group in H2020 (2014-17)	154	6,496	2,280
Average annual proposal participations by whole group in FP7	7.3	874.4	251.4
Average annual proposal participations by whole group in H2020	38.5	1,624.0	570.0
Change	x 5.3	x 1.9	x 2.3

[47] Note, this includes organisations participating in FP7 proposals but not H2020 proposals and therefore don't appear in the RCN H2020 database (hence the number is larger than the 1,513 organisations quoted for this database).

There are some differences across organisational types. The following table shows the change in average annual proposal participations by each group and organisation type, from FP7 to H2020. For companies, the group with 100% PES2020 funding has seen a substantially higher increase in participation levels than either of the other groups (some PES2020 funding or no PES2020 funding). While for universities and research institutes, those with PES funding have seen a bigger increase in participation than those without, but the difference is more muted.

Table 13 Change in average annual participation (FP7 to H2020) by extent of PES funding and organisation type

	Group 1 - all H2020 applications PES-funded	Group 2 - some PES-funded H2020 applications	Group 3 - no PES-funded H2020 applications
PRC	23.3	4.5	3.3
HES	1.75	1.80	1.4
REC	0.7	1.4	0.5
PUB	5.3	1.7	2.1
OTH	0.6	2.1	1.3
All	5.3	1.9	2.3

The following table looks at the individual organisations within each of the three groups, and shows the proportion that saw an increase / no change / decrease in their average annual participation levels between FP7 and H2020. Again, there is a clear difference visible between the groups. Within the PES-funded groups (1 and 2), 95% of organisations increased their participation levels between the two programmes. By comparison, only 61% of the organisations that received no PES funding for H2020 increased their average participation levels between the two programmes.

Table 14 Organisations seeing increase/decrease in average annual participation levels (FP7 to H2020) by extent of PES funding

	Group 1 - all H2020 applications PES-funded	Group 2 - some PES-funded H2020 applications	Group 3 - no PES-funded H2020 applications
Organisations in group	132	315	1,825
Proportion of group seeing **increased** average participation FP7-H2020 (including from 0)	95%	95%	61%
Proportion of group seeing **same level** of average participation FP7-H2020	0%	1%	1%
Proportion of group seeing **decrease** in average participation FP7-H2020 (including to 0)	5%	4%	38%

This pattern holds across all four main organisational groups (see Figure 51), with a much greater proportion of PES2020-funded organisations seeing increased participation (FP7 to H2020) than is the case for non-PES2020-funded organisations.

Figure 51 Organisations seeing increase/decrease in average annual participation levels (FP7 to H2020) by extent of PES funding, by organisation type

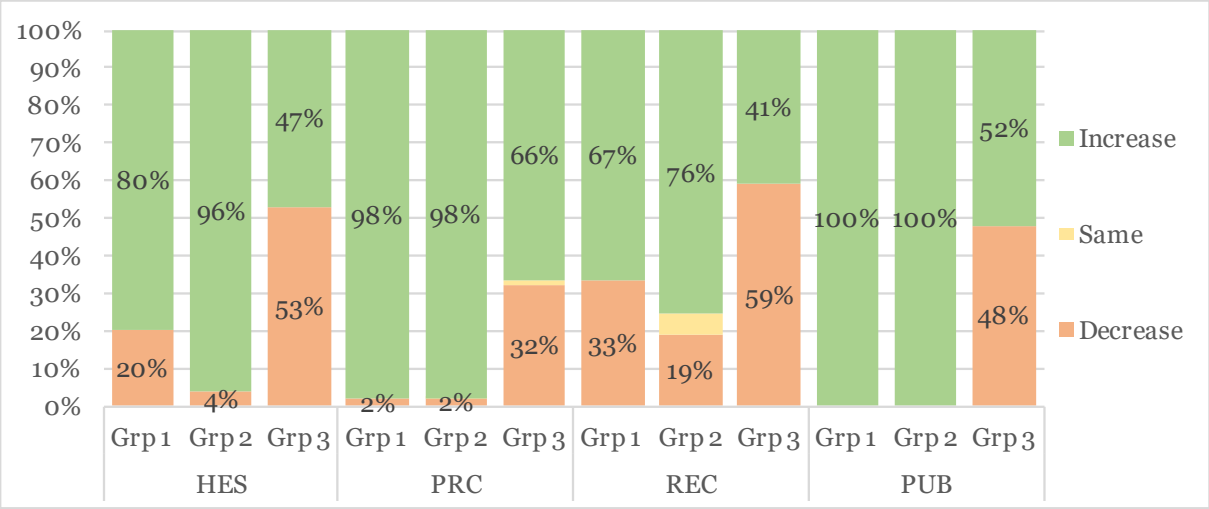


Table 15 looks in even greater detail at the **sub-set of universities** that have been least active in H2020 (Group C – those with 30 or fewer proposal participations). It is interesting to look at this grouping (rather than Group A or B), because here there is quite some variability between organisations as to whether, and to what extent they have accessed PES2020 support for their proposal participations.

The table shows how each organisation's average annual number of proposal participations has changed from FP7 to H2020. So, the final row shows that Group C overall has increased its average annual participations from 14.7 per year in FP7 to 42.3 per year in H2020 (making the H2020 level 2.6-times higher than FP7, and increase of 160%).

In the table, we also separate out those that have not received any PES2020 funding (shown first), from those that have received some PES2020 funding (for anywhere between 7% and 78% of their H2020 proposal participations). We see that amongst the no-PES sub-group of six organisations that there has been a small change (+30%) in annual participation levels from FP7 to H2020, plus one new entrant to H2020. By comparison, amongst the PES-using sub-group of nine organisations there has been a much larger (+350% increase), as well as three new entrants to H2020.

Table 15 Change in average annual participation (FP7 to H2020) by extent of PES funding – Least active universities

Row Labels	% of H2020 that is PES supported	FP7 participations (avg/yr)	H2020 participations (avg/yr)	Increase in annual rate of participation
Forsvarets Høgskole	0%	0.0	0.5	New entrant
Hogskulen For Landbruk Og Bygdeutvikling Sa	0%	0.1	0.8	3.0
Norges Idrettshogskole	0%	0.6	2.0	2.0
Hogskolen I Lillehammer	0%	1.1	1.5	0.8
Norges Handelshoyskole	0%	2.3	3.0	0.8
University Centre In Svalbard	0%	3.4	2.3	0.4
Group C - No PES	**0%**	**7.6**	**10.0**	**1.3**
Høgskolen I Narvik	27%	0.0	2.8	New entrant
Hogskulen Pa Vestlandet	46%	0.0	6.5	New entrant
Hogskolen I Innlandet	71%	0.0	1.8	New entrant
Arkitektur Og Designhogskolen I Oslo	8%	0.3	3.0	6.0
Hogskolen I Ostfold	43%	0.6	3.5	3.5
Nord Universitet	53%	1.7	7.5	2.5
Stiftelsen Handelshoyskolen Bi	7%	1.3	3.5	1.6
Hogskolen I Molde	67%	0.7	1.5	1.2
Høgskolen I Hedmark (Hihm)	78%	2.6	2.3	0.5
Group C - Some PES	**43%**	**7.1**	**32.3**	**4.5**
Group C (All)	**33%**	**14.7**	**42.3**	**2.9**

Finally, the following table shows two sets of data already reported above, but presented together to aid comparison. On the left hand side, it shows the growth in PES funding for each of the different organisational types, while on the right hand side it shows the growth in proposal participations for each of these groups. As can be seen, the growth in PRC proposal activity is many times greater than the growth in PES funding between FP7 and H2020, while the increase in institute/REC participation is on a par with the funding increase to this organisational type. In contrast, the rise in higher education institute participation is a third of the size of the increase in PES funding to this group. However, the table also highlights that within the HEI/HES group, the historically less active organisations have increased participation levels to a greater extent than the historically most active.

Table 16 Change in average annual proposal participation (FP7 to H2020), compared with change in average annual PES2020 funding – by organisational type

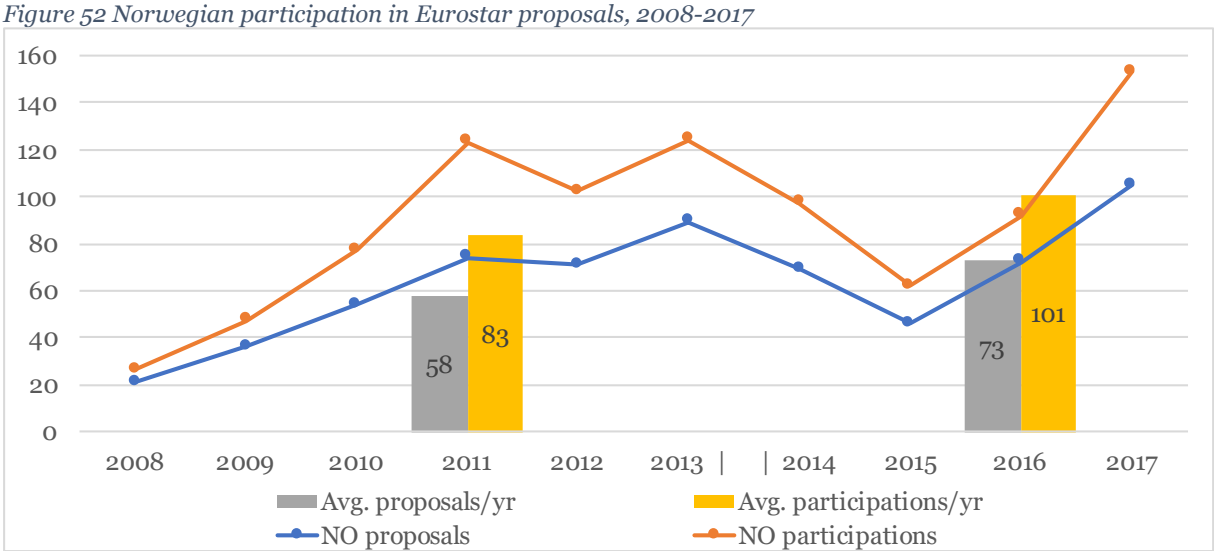
	Increase in average annual PES2020 funding (FP7-H2020)			Increase in average annual proposal participations (FP7 - H2020)
Industry	28%		PRC	150%
Institutes	26%		REC	28%
HEI	298%		HES	98%
			A) Most active	*61%*
			B) Mid active	*126%*
			C) Least active	*187%*
Norway	**60%**		**Norway**	**85%**

Have levels of Norwegian proposal activity increased in the Eurostars programme?

Norway participated 903 times in 637 proposals over a 10-year period (2008-2017).

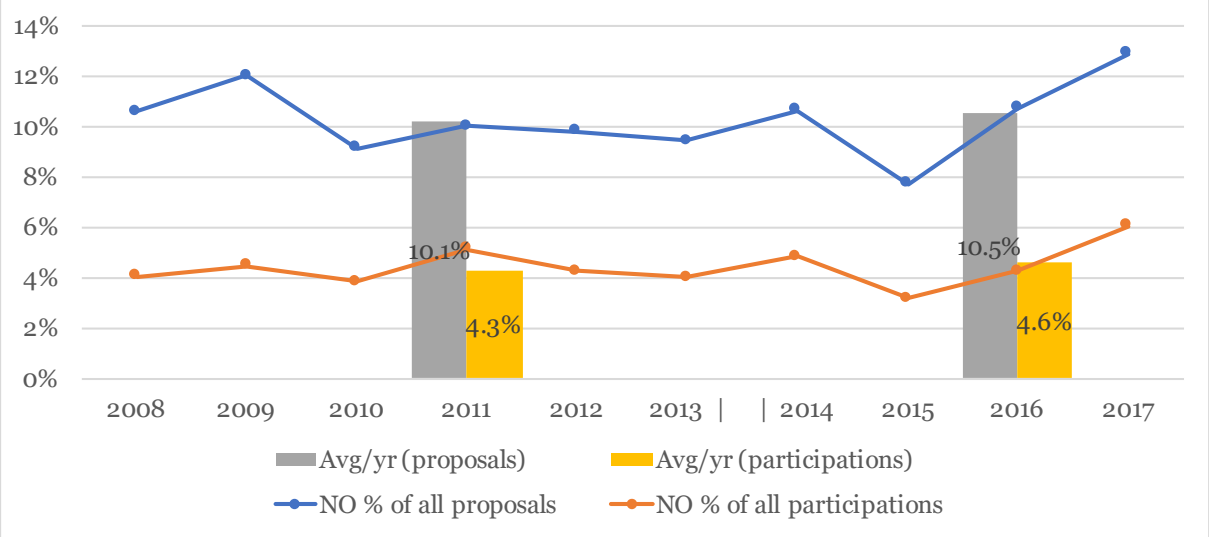
There is no clear trend in Norway's participation over time – in some years it has increased, in others it has decreased. However, over the longer term, there appears to be an upward tendency. The average number of Norwegian proposal participations per year in the H2020 period (n=101) is higher than the average number per year in the FP7 period (n=83). Similarly, the average number of proposals that Norway is involved in has increased to 73 per year (H2020) from 58 per year (FP7).

Figure 52 Norwegian participation in Eurostar proposals, 2008-2017



An increase is also seen overall (i.e. across all countries) between the FP7 and H2020 periods, but the shift is not as significant. So, while Norwegian annual participations increased by 21% between FP7 and H2020, all annual participations only increased by 12%. Similarly, while the average annual number of Norwegian proposals increased by 27% between the two periods, the average annual number of proposals overall only increased by 12%. As a result, the proportion of all proposal participations accounted for by Norway has increased from 4.3% per year (average during FP7) to 4.6% per year (average during H2020). Similarly, the proportion of all proposals involving Norway has increased from 10.1% to 10.5%.

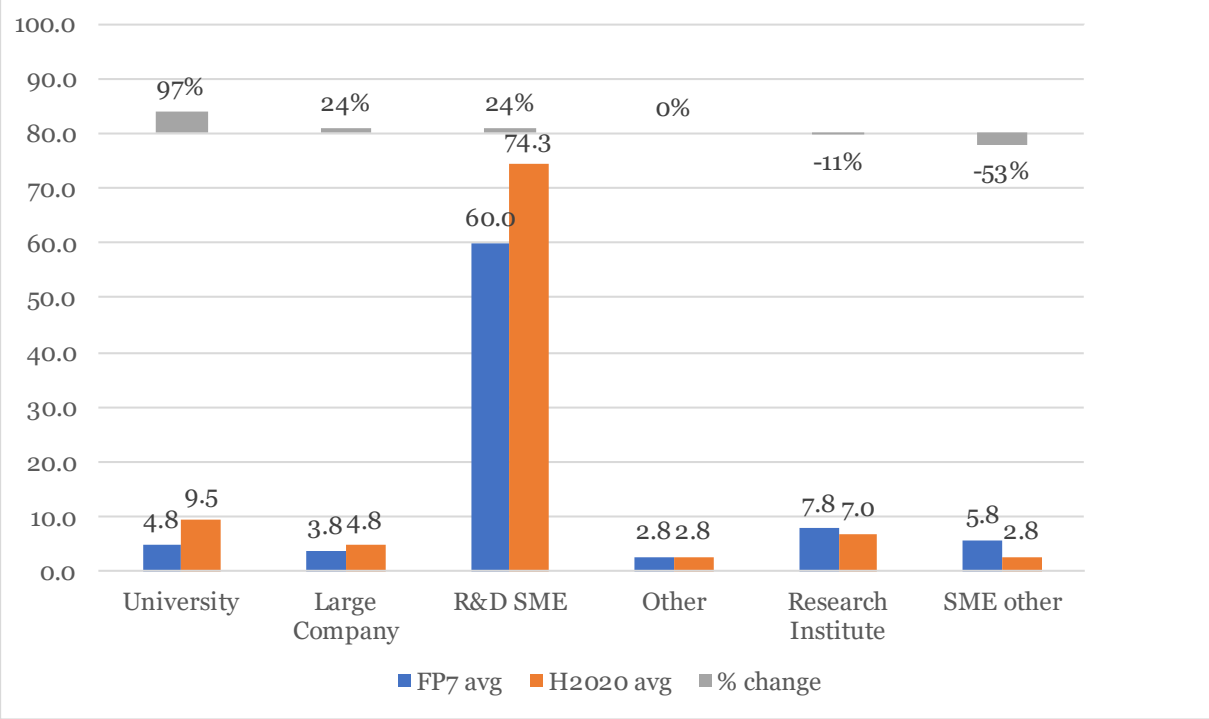
Figure 53 Norwegian participation in Eurostar proposals, 2008-2017 – proportion of all participations



The change in the scale of activities between the FP7 and H2020 period varies quite significantly between different organisational types, with the growth in overall Norwegian activity being driven in absolute terms mainly by SMEs, and in relative terms mainly by increased University activity.

Norwegian universities have become much more active over time, nearly doubling their annual rate of participation during H2020, compared with FP7. Large companies and research-intensive SMEs have also seen an increase over time (although as a proportion of FP7 rates, the increase is less significant). By comparison, the annual number of participations by Norwegian research institutes and non-research-intensive SMEs have fallen between the two periods.

Figure 54 Norwegian participation in Eurostar proposals, FP7/H2020 – by organisation type



Is there a positive correlation between PES2020 support and levels of Eurostars proposal activity?

We have seen above that average annual Norwegian proposal participation activity in relation to Eurostars 2 has tended to be higher than it was for Eurostars 1. In addition, we have seen that there has tended to be a positive increase in the scale of Norwegian proposal activity over the course of the most recent three years of Eurostars 2. This appears to be a positive direction of travel with regards to the PES2020 objective of increasing participation.

To explore the link between PES2020 and Eurostar proposal participation levels we have utilised the information on PES2020 supported applicants to Eurostars 2. Specifically, we have split the 446 participating organisations into three groups, based on the extent to which they have made use of PES2020 funding for Eurostars 2 proposals. The groups are as follows:

- Eurostar group 1: Organisations that received PES2020 funding for all (100%) of their Eurostar-2 proposal participations 2014-17. There are 99 organisations in this group
- Eurostar group 2: Organisations that received PES2020 funding for some, but not all (1-99%) of their Eurostar-2 proposal participations. There are 60 organisations in this group
- Eurostar group 3: Organisations that did not receive PES2020 funding for any Eurostar-2 proposal participations 2014-17. There are 287 organisations[48] in this group (who have participated in Eurostar-1 and / or Eurostar-2 proposals). Some may have received PES funding for some / all of their Eurostar-1 applications, but this information is not available

Taking the organisations within each of these groups, we have analysed the average number of times that they participated in proposals each year, in Eurostar-1 and then in Eurostar-2, and then compared the two.

As can be seen in the following table, the 99 organisations in Group 1 (who's E2 proposals were all PES2020 funded) collectively participated 36 times in E1 proposals and then 100 times in E2 proposals. They therefore participated on average 6.0 times per year in E1 and 29.3 times per year in E2. This represents a nearly five-fold increase in average annual participation between the two programmes. Group 2, which includes organisations that received PES2020 support for some (but not all) of the E2 proposals have also seen an increase in average annual participations, from 16.7 per year in E1 to 45.5 per year in E2 (a nearly three-fold increase). Lastly, those organisations in Group 3 have seen a decline in their average annual participations between the two programmes. In E2 they are involved in less than half the number of proposals per year as they were during E1.

These results suggest that PES2020 support is associated with increased proposal activity.

Table 17 Participation levels (FP7 to H2020) by extent of PES funding

	Group 1 - all E2 proposals PES-funded	Group 2 - some PES-funded E2 proposals	Group 3 - no PES-funded E2 proposals
Organisations in group	99	60	287
Total proposal participations by whole group in E1(2008-13)	36	100	366
Total proposal participations by whole group in E2 (2014-17)	117	182	105
Average annual proposal participations by whole group in E1	6.0	16.7	61.0
Average annual proposal participations by whole group in E2	29.3	45.5	26.3
Change in yearly average (E1 to E2)	X 4.9	X 2.7	X 0.4

[48] Note, this includes organisations participating in Eurostar-1 proposals but not Eurostar-2 proposals.

The following table looks at the individual organisations within each of the three groups, and shows the proportion that saw an increase / no change / decrease in their average annual participation levels between E1 and E2. Again, there is a clear difference visible between the groups. Within the PES2020-funded groups (1 and 2), 92-95% of organisations increased their participation levels between the two programmes. By comparison, only 25% of the organisations that received no PES2020 funding for E2 increased their average participation levels between the two programmes.

Table 18 Organisations seeing increase/decrease in average annual participation levels (E1 to E2) by extent of PES2020 funding

	Group 1 - all E2 proposals PES-funded	Group 2 - some PES-funded E2 proposals	Group 3 - no PES-funded E2 proposals
Organisations in group	99	60	287
Proportion of group seeing **increased** average annual participation from E1 to E2 (including from 0)	95%	92%	25%
Proportion of group seeing **same level** of average annual participation from E1 to E2	0%	2%	0%
Proportion of group seeing **decrease** in average annual participation from E1 to E2 (including to 0)	5%	7%	75%

B.3.2 New entrants to H2020 proposals

As part of its objective to increase Norwegian participation in H2020, PES2020 also seeks to increase the number of *new* Norwegian participants (i.e. expanding the population of FP-active organisations. To examine this objective, we have used PIC numbers to determine unique organisations[49].

To what extent have *new* Norwegian organisations participated in H2020 proposals?

The following figure charts the number of unique organisations that are participating in proposals submitted in each year of FP7 and H2020. It also shows the number (and proportion) of these organisations that have not participated in proposals in previous years (back to 2007).

It suggests that the number of new entrants each year is much higher in H2020 (301 per year on average across four years) than in FP7 (132 per year on average, if we ignore 2007). The *proportion* of organisations that are 'new' also tends to be higher in H2020 (46% per year on average, compared with 37%). If we were able to include previous participations in FP6 as well, then this would likely further decrease the FP7 new entrant percentages.

[49] Despite efforts by the study team to complete the large number of missing PIC numbers in the FP7 eCorda data, there still remain ~500 participations (5% of the total) where no PIC number could be identified.

Figure 55 Number of organisations participating in proposals –and the proportion that are 'new' to the FP

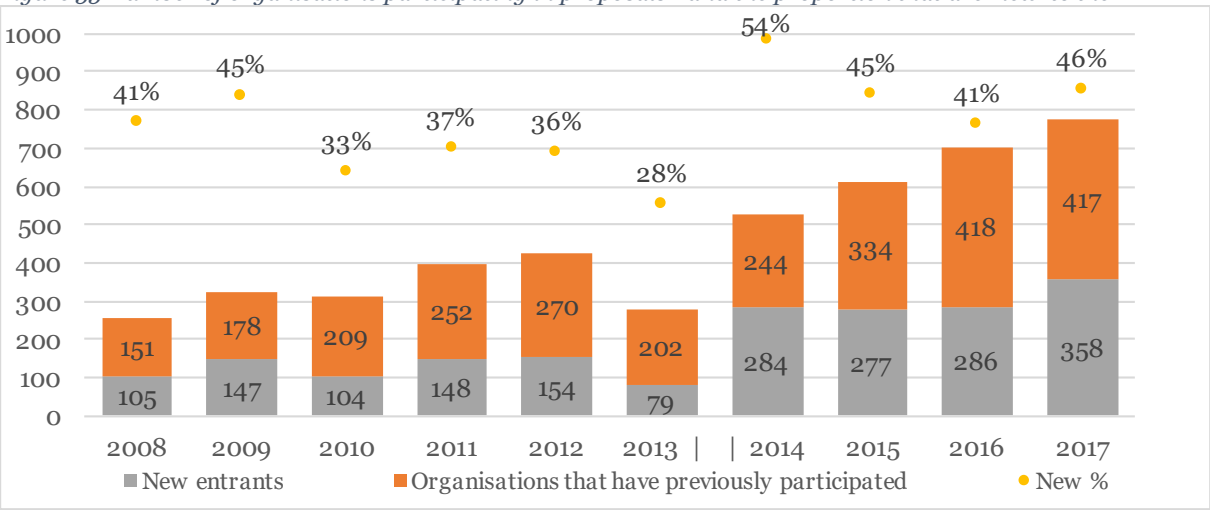
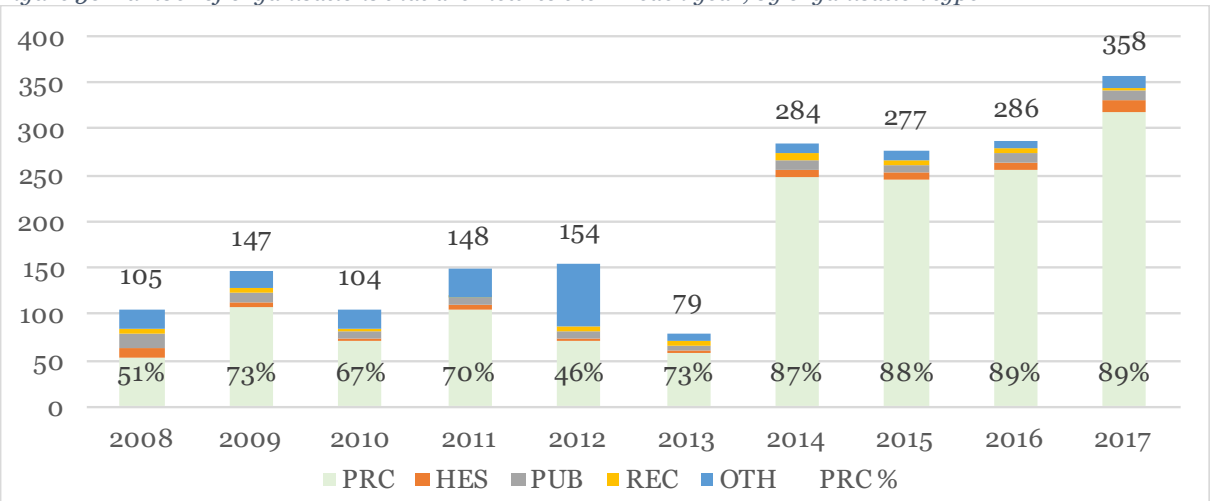


Figure 62 plots just the new entrants from the figure above and shows the breakdown by different organisation types. This highlights that the vast majority of new entrants are companies (PRC). This is particularly true during the years of H2020, when 87% or more of the new proposers each year come from industry. Therefore it is industry that is predominantly driving the large (and rising) number of new entrants to the Framework Programme shown above.

Figure 56 Number of organisations that are 'new' to the FP each year, by organisation type



The PRC new entrants to H2020 are spread across nearly all sub-programmes, but are particularly concentrated in ICT, MSCA, FOOD and ENERGY (these four programmes collectively account for just over half of all H2020 proposal participations by new PRC entrants). Similarly, new PRC entrants are applying through a range of different instruments, with approximately one-quarter each to RIA, IA, the SME Instrument and other instruments (mainly JTIs and MSCA).

(These patterns are not, however, new entrant specific – similar results are found for PRC organisations that have participated in the FP previously).

Is there a positive correlation between PES2020 support and new applicants?

Returning to the three groups of organisations participating in H2020 proposals (grouped based on the extent to which their participations were PES-funded), the following table summarises the extent to which each group of organisations had previously participated in FP7 proposals.

This shows that those organisations in receipt of PES2020 funding are more likely to be new entrants to the Framework Programme (i.e. they had not participated in FP7 proposals). A majority of organisations in Group 1 (88%) and Group 2 (59%) had not participated in FP7 proposals (i.e. they were new entrants to H2020). By comparison, a majority of organisations in Group 3 (56%, who did not receive PES2020 funding) *had* previously participated. This suggests there is some correlation between new applicants to H2020 and PES funding.

However, it is worth noticing that the number of PES-funded new entrants (301) is relatively small compared to the number of organisations applying to H2020 for the first time without PES support (788). This means that only 28% of new entrants to H2020 have received PES2020 funding (the proportion is the same –28% - if we just look at new company [PRC] entrants to H2020). Therefore, if PES is playing a role in encouraging new entrants – it is by no means the only factor doing so.

Table 19 Organisations participating in H2020 proposals with / without PES support - % that had not participated in FP7

	Group 1 - all H2020 applications PES-funded	**Group 2 - some PES-funded H2020 applications**	**Group 3 - no PES-funded H2020 applications [excludes those with no H2020 applications at all**	**All organisations**
Total organisations participating in H2020 proposals	132	315	1,801	2,248
Of these:				
• Organisations that had participated in FP7 proposals	16	130	1,013	1,159
• Organisations that had not participated in FP7 proposals (i.e. new entrants at H2020)	116	185	788	1,089
Proportion of total that are new entrants to H2020	88%	59%	44%	48%

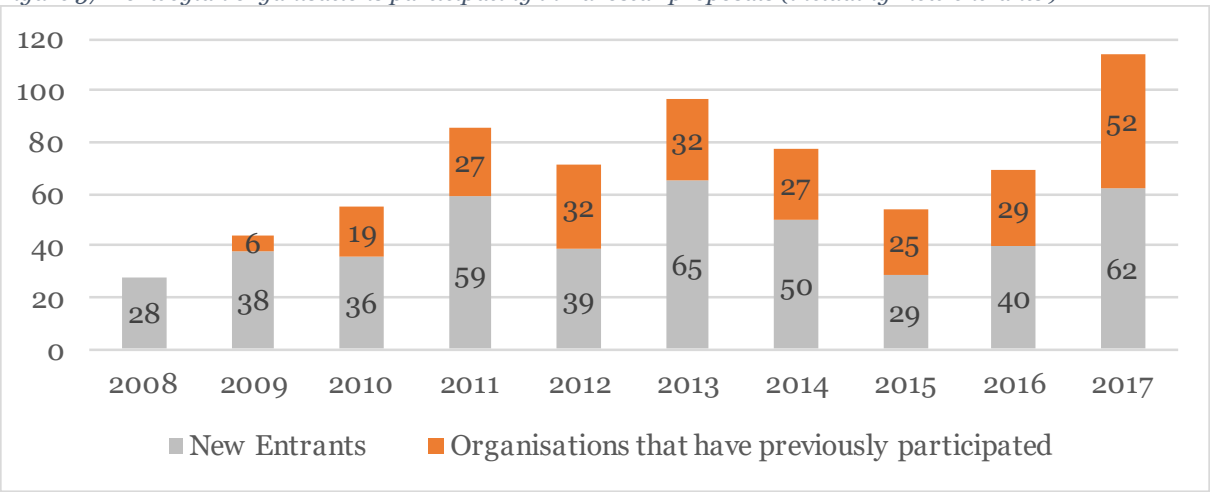
To what extent have *new* Norwegian organisations participated in Eurostars proposals?

We have identified 446 unique Norwegian organisations participating in Eurostars proposals over the period 2008-17. This includes:

- 328 research-intensive SMEs
- 29 other SMEs
- 29 large companies
- 24 research institutes
- 21 universities
- 15 other organisations

Each year, the majority (50%+) of the Norwegian organisations participating in Eurostars proposals are new to the programme, however, there is a downward trend in the proportion of new entrants over time (which might be expected given that the portfolio of past participants is expanding).

Figure 57 Norwegian organisations participating in Eurostar proposals (including 'new entrants')



Is there a positive correlation between PES2020 support and new applicants?

Returning to the three groups of organisations participating in E2 proposals (grouped based on the extent to which their participations were PES-funded), the following table summarises the extent to which each group of organisations had previously participated in E1 proposals.

This shows that those organisations in Group 1 (in receipt of PES2020 funding for all E2 proposals) are more likely than average to be new entrants to E2 (i.e. they had not participated in E1 proposals). However, proportion of Group 2 (some PES2020 funding) that are new entrants is below the proportion of Group 3 (no PES2020 funding) that are new entrants. It is therefore difficult to draw any strong conclusions from this.

Table 20 Organisations participating in E2 proposals with / without PES2020 support - % that had not participated in E1

	Group 1 - all E2 proposals PES-funded	Group 2 - some PES-funded E2 proposals	Group 3 - no PES-funded E2 proposals [excluding those with no E2 proposals at all]	**All organisations**
Total organisations participating in E2 proposals	99	60	78	237
Of these:				
• Organisations that had participated in E1 proposals	17	21	18	56
• Organisations that had not participated in E1 proposals (i.e. new entrants at E2)	82	39	60	181
Proportion of total that are new entrants to E2	83%	65%	77%	76%

B.3.3 **Proposal quality**

PES2020 seeks to increase the quality of Norwegian proposals to H2020. eCorda data indicates the **evaluation classification** for each proposal, which provides a broad indication of relative quality between proposals. The main categories are:

- Mainlist – to be funded, subject to contract
- Reserve list – will fund if money becomes available (i.e. if mainlist proposals are withdrawn or additional budget becomes available

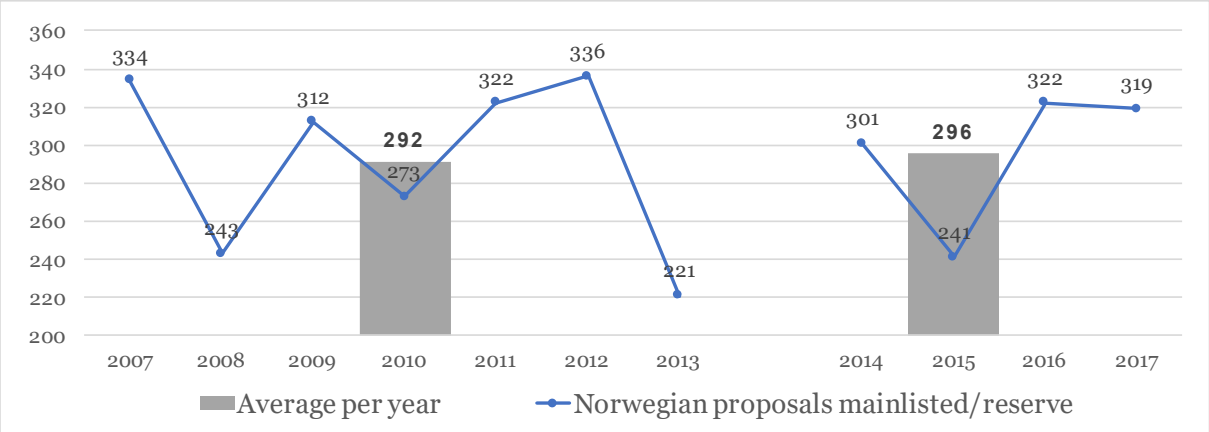
- No money [used H2020 only] – All other proposals above threshold score, but not included above
- Rejected – ineligible proposals, proposals below threshold and [for FP7 only] other proposals above threshold but not included above

We have focused our analysis on the proportion of proposals that fall within the first two categories, mainlist and reserve (i.e. those that are evaluated as being of sufficient quality to be funded, regardless of whether they eventually are).

Have levels of Norwegian proposal quality increased in H2020?

The following figure shows the **number** of Norwegian proposals each year that were mainlisted / reserved, as well as the average per year for each FP. There is quite some variability between the years, but overall we see a slight increase (improvement) in the average number of 'quality' Norwegian proposals between FP7 (292 per year) and H2020 (296 per year). There is therefore a slight positive direction of travel in absolute terms.

Figure 58 Number of Norwegian proposals classified as mainlist/reserve, by year (2007-17)



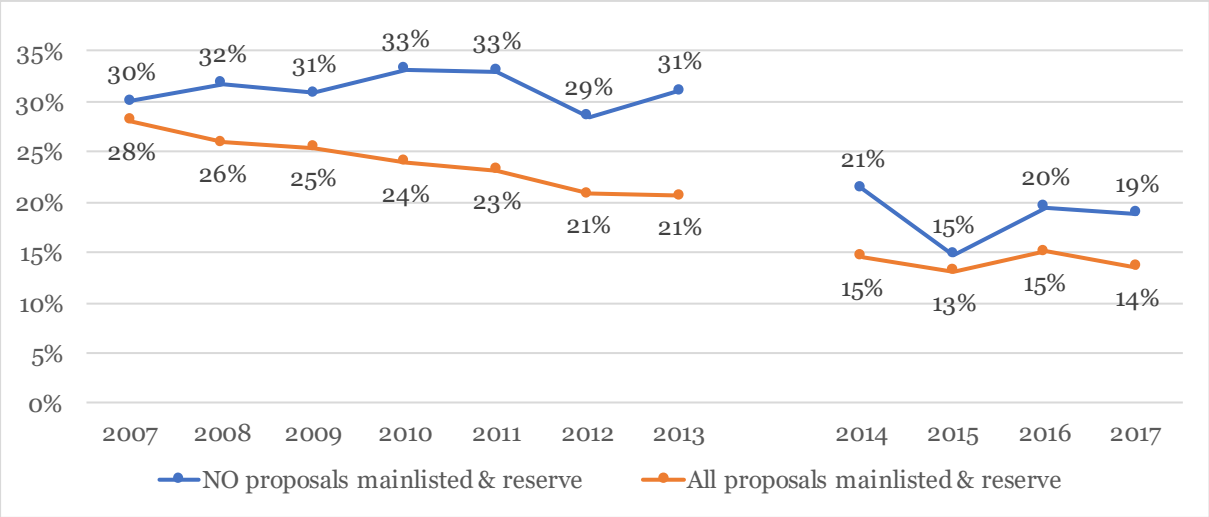
The PES objective of increasing quality (as worded) relates to absolute numbers of proposals (i.e. more Norwegian proposals of higher quality). However, this perspective misses some of the wider contextual picture that is useful for assessing Norway's performance. For instance, there has been an overall increase in the budget available for H2020 (compared with FP7), as well as an overall increase in the number of proposals that are mainlisted / reserved. If absolute increases in quality proposals in Norway do not keep pace with these wider trends, then its success rate and funding drawdown percentage may suffer. It is therefore useful to also consider the quality of Norwegian proposals relatively (i.e. as a proportion of wider activity).

The following figure shows the **proportion** of Norwegian proposals each year that were mainlisted/reserved (blue line). This suggests a decline from FP7 (31% per year on average) to H2020 (19% per year on average). However, the orange line (proportion of all proposals) shows that over time there has also tended to be a decline in the proportion of proposals that are mainlisted / reserved overall (from 24% per year in FP7 to 14% per year in H2020). The drop for Norway needs to be seen in this context.

The plot also shows that the proportion of Norwegian proposals that are mainlisted/reserved is above the all-country average throughout FP7 (across this period 31% of proposals involving Norway were main- or reserve-listed, compared to 24% for all countries). During the first four years of H2020, Norway also performs above average, with 19% of proposals main/reserve listed, compared with 14% of all proposals. However, whilst Norway's *relative* performance improved during the course of FP7 (i.e. the gap between Norway and the all country-average widened), the gap has remained reasonably stable through H2020 so far.

As such, Norway has historically outperformed the all country average (and continues to do so in H2020), but the situation does not seem to be improving further – if anything it is getting worse. There are therefore no indications from these data of a positive direction of travel for overall Norwegian proposal quality between FP7 and H2020.

Figure 59 Proportion of proposals classified as mainlist/reserve, by year (2007-17) – Norway vs all

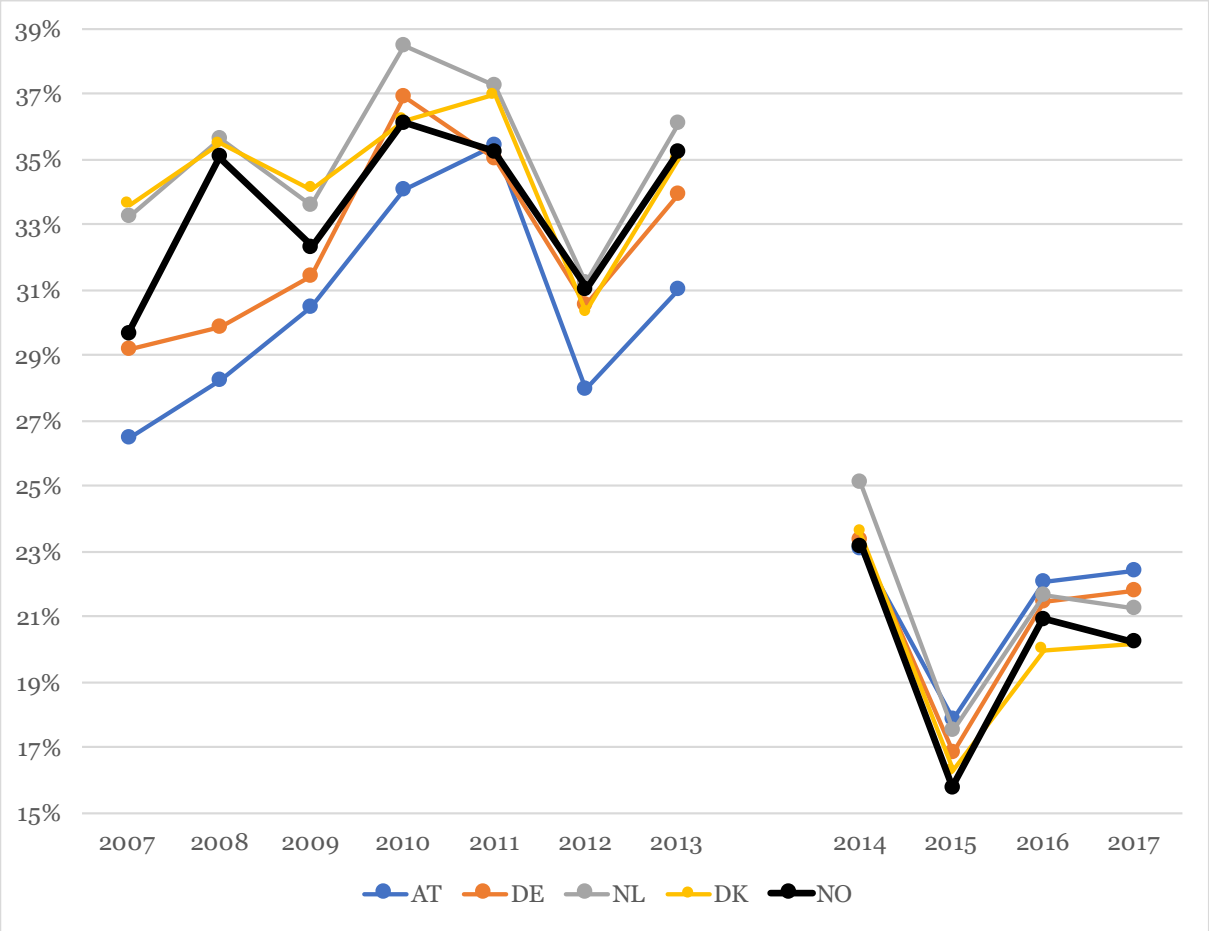


The following figure repeats the analysis, but for *participations* in proposals. The thick black line plots the proportion of Norwegian proposal participations that are mainlisted or reserve, and follows a similar trend to proposals (as shown above). The proportion of all proposal participations in FP7 that are mainlisted/reserved is 33%, while the equivalent figure for H2020 is 20%.

Rather than the all country average, this figure also plots the same results for the four comparator countries used elsewhere in this study. The rates for these countries much more closely match Norway's than the all country average did, and indeed the trend for each of these four comparators is broadly similar to Norway over time.

There is some variation between years, and generally only a percentage point or so difference between countries. However, in general the plot does suggest that while Norway tended to perform in the middle of this pack of countries throughout FP7 – perhaps even improving in the last couple of years – its performance has tended to be lower than most / all of these countries in each year of H2020. The differences – particularly in H2020 are small – but this does appear to be a negative trend from Norway's perspective and in terms of PES objectives.

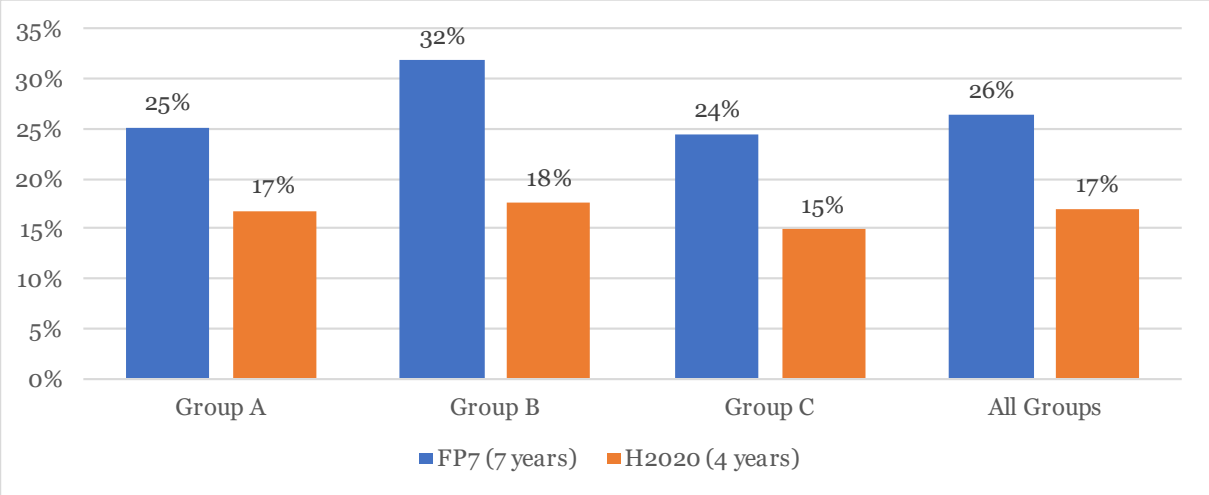
Figure 60 Proportion of proposal participations classified as mainlist/reserve, by year (2007-17) – Norway vs comparator countries



In total, 1,257 Norwegian proposal participations were mainlisted in the first four years of H2020. These collectively requested €631.2M in **EC contributions** (for the Norwegian participation only). This represents 2.1% of total EC contributions requested across all mainlisted proposals in these years.

Finally, we consider the extent to which proposals are mainlisted/reserved amongst our **three sub-groups of universities.** As the following figure shows, all three groups have seen a drop in mainlist/reserve rates between the two programme (from 26% of proposal participations to 17% overall). However, it would appear that Group A (the three most active universities) have minimised this drop to just eight percentage points. This is a much smaller decrease than for Norwegian participations overall (which experienced a 14 percentage point fall between the two programmes). It is also smaller than the fall seen by universities in Group B or C (a 14 and 10 percentage point fall respectively).

Figure 61 Proportion of proposal participations classified as mainlist/reserve, FP7 and H2020 – by groups of universities



It is possible that two of the **PES objectives are working counter to each other**, in the sense that by encouraging new (inexperienced) organisations to apply to H2020, Norway may be diluting the overall quality of its proposals (i.e. the average quality decreases).

There is some evidence in the data to support this theory. We find that H2020 proposal participations of new entrant organisations (those that did not participate in FP7 proposals) are mainlisted / reserved in 16% of cases, while the H2020 proposal participations of other organisations (those that have also participated in FP7 proposals) are mainlisted / reserved more often (in 21% of cases).

If we take the PES objective to be an increase in the *absolute number* of 'quality proposals', then this diluting effect is not important. Some of the new entrants will be involved in 'quality proposals' and this will help to increase the overall total (even if this is less often than for more experienced players).

However, if there is a desire to increase the *proportion* of proposals that are of sufficient quality to fund, then efforts to increase new entrants may be a drag on progress. Because new entrants are in the minority, the effect is likely to be quite small (e.g. removing them would shift the H2020 NO line in the previous chart upwards by ~2 percentage points). Also, as previously noted, the role of PES in encouraging new entrants is likely to be limited (only 28% of new entrants to H2020 have received PES2020 funding), so the impact specifically of PES2020 in dragging down overall mainlist/reserve rates is likely to be minimal.

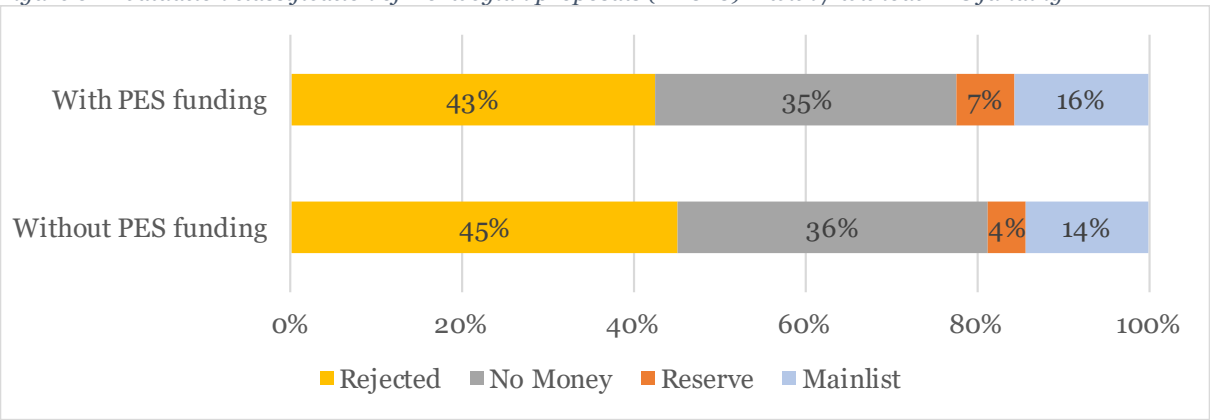
Increased competition (the number of proposals each year in H2020 is nearly double the number each year in FP7) is likely to be a far more significant factor driving the drop in mainlist / reserve rates between FP7 and H2020 (both for Norway, and overall).

<u>Is there a positive correlation between PES2020 support and levels of proposal quality?</u>

Details of PES support for individual applications is available for H2020. We have used this data to examine any difference in quality between PES and non-PES funded Norwegian proposals.

The following figure shows that a slightly higher proportion of Norwegian H2020 **proposals** with PES funding (granted to at least one Norwegian participant in the proposal) are **mainlisted** and reserve-listed (22% combined), compared with proposals without PES funding (19% combined). This is a significant difference and suggests that PES2020 funding is associated with slightly higher quality proposals, on average.

Figure 62 Evaluation classification of Norwegian proposals (H2020) – with / without PES funding

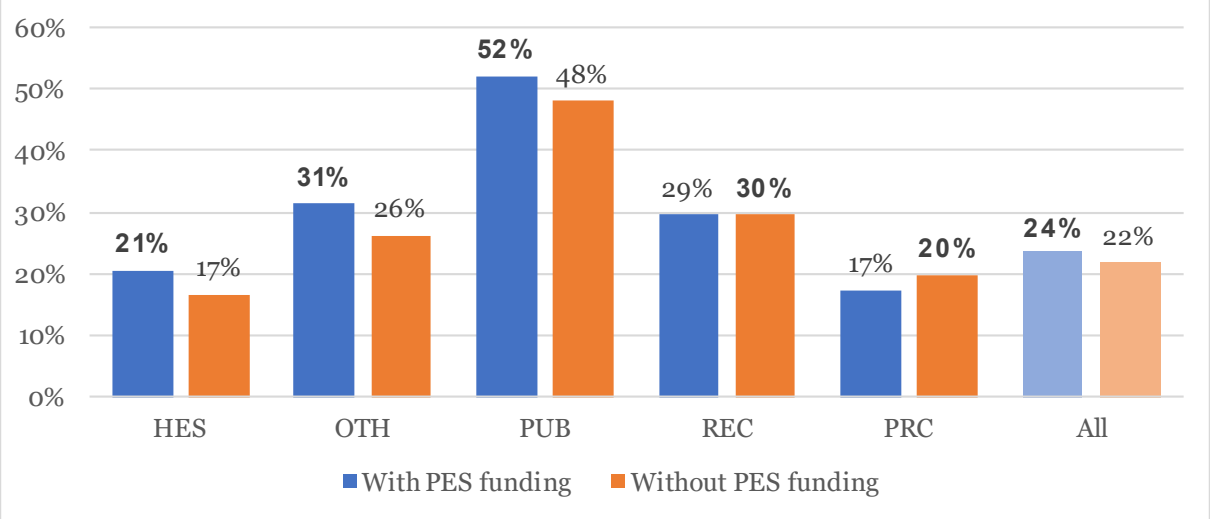


If we look by **organisation type** then proposal *participations*[50] from HES and PUB organisations are more likely to result in a mainlist/reserve classification with PES funding than without.

We have looked in more depth at the three sub-groups of universities and found that in each case the PES-funded participations are mainlisted/reserved more often than those without support. However, the difference is much greater for Group C (the 15 least active universities in H2020), where 24% of PES-supported proposal participations are mainlisted/reserved, compared with 14% of those without PES. For Group A the difference is 21% to 17% and for Group B it is 20% to 18% (i.e. a smaller gap).

The figure below also shows that the PES2020 association with higher quality does not hold for PRC and (to a lesser extent) REC organisations. We explore industry involvement (specifically in relation to the SME Instrument) a little further in the box below.

Figure 63 Evaluation classification of Norwegian proposal participations (H2020) – with / without PES funding, by organisation type



[50] Note the previous figure was based on *proposals*, so the headline rates are slightly different (23% of PES supported proposals were mainlisted/reserved, while 24% of PES supported proposals participations were mainlisted / reserved).

The SME Instrument

During the interim workshop for this study queries were raised about the SME instrument – a part of H2020 where there is notoriously a lot of competition and low success rates (in general, not just for Norway), and where organisations will often resubmit their proposals (with some improvement) if they have been unsuccessful in an earlier attempt.

One point that was raised about whether this is skewing success rates. Certainly the rate of mainlisted proposals here (~9% for Norway) is much lower than Norwegian rates in H2020 overall (~19%) – so in that sense it is lowering the overall average (in Norway, as it would for other countries). Also, because the SME Instrument was introduced in H2020 it is likely causing at least some of the overall fall in mainlist/reserve rates between FP7 and H2020 (again for Norway as for all countries). This just goes to demonstrate (through quite an extreme example) how difficult it is to compare H2020 performance with FP7 performance. This is by no means the only instrument or programme to be introduced or changed as we move from FP7 to H2020 – and there will be many reasons why comparing the two programmes is not entirely appropriate (even in programmes that appear to have been maintained across the two FPs).

A second related point was that PES support is only available once, but it was suggested that if SMEI proposals are submitted again and are successful, then PES support will still have played a role (given that a lot of the work that went into the earlier PES-supported proposal will still remain). This seems a reasonable assertion, and we have analysed this data more closely. eCorda shows that the 921 Norwegian SMEI proposals submitted over the first four years of H2020 actually relate to many fewer *unique* proposals (542 if we de-duplicate based on the proposal acronym). Based on the data available (i.e. covering 4 years), we see that 13% of these *unique* proposals have (on one of their submissions) now been mainlisted. In addition, we can see that those SMEI proposals that received PES support *at some point* are much more likely to have been mainlisted (17%) than those that have not received any PES support (9%). This is a strong indication of the value of PES support, at least within this area of the programme and for the type of organisation (companies) involved.

Have levels of Norwegian Eurostar proposal quality increased in H2020?

For each Eurostar proposal the 'project status' provides information on the outcome of the assessment process (as well as subsequent funding negotiations). This status is based on a scoring and ranking process – but data on the scores and ranks is too incomplete to analyse.

The explanation of each project status category is shown below. For the purposes of analysis we have grouped several categories (see final column), which allows us to understand the broad spread of proposal quality. We have also excluded the small number of proposals (n=33) that were marked as 'veto' or 'rejected', as the reasons for these are unclear.

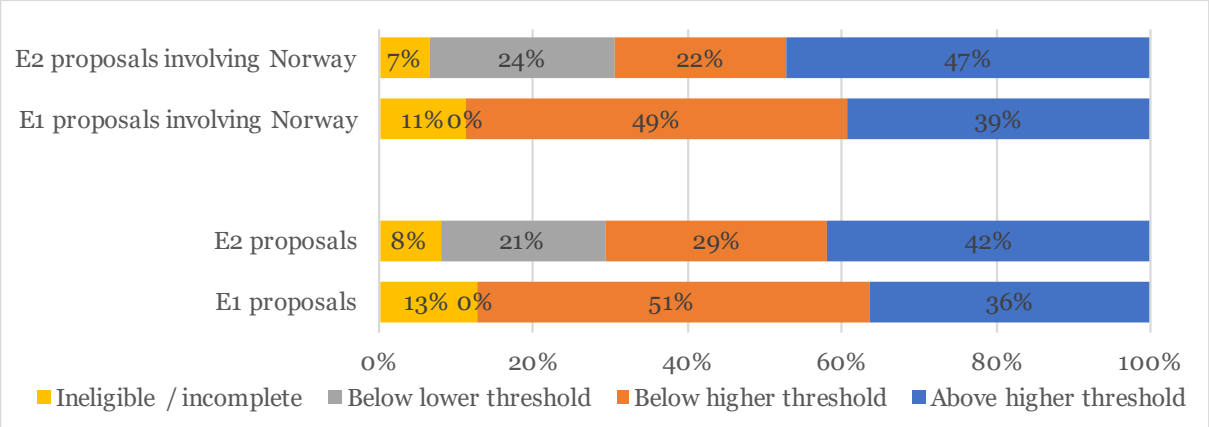
Table 21 Project status categories

Project Status	Explanation	Summary category
Approved	Above threshold and funding agreed	Above higher threshold
Withdrawn	Above threshold and funding agreed, but project with drawn due to changes in project (e.g. bankruptcy)	
Not funded	Above threshold, but funding not secured	
Unqualified	Below 2nd phase threshold (assessed by Independent Evaluation Panel)	Below higher threshold
Below threshold	Below 1st phase threshold (assessed by external experts) *[This categorisation was only introduced under E2]*	Below lower threshold
Ineligible	Ineligible application	Ineligible / incomplete
Incomplete	Incomplete application	
Other	Vetoed or rejected application for other reasons	*[excluded from analysis below]*

Compared to the overall portfolio, proposals involving Norway tend to compare favourably, with slightly above average rates of approval (proposals assessed as being above the higher threshold). [It is worth noting that one-third of those above the higher threshold are subsequently withdrawn or not funded. The rate for Norway is similar to the overall average].

Approval rates, both for Norway and overall, vary from year to year with no consistent trend. However, comparing the E2 (H2020) period to the E1 (FP7) period suggests that approval rates have increased slightly overall (from 36% of proposals to 42%), while Norway has seen a marginally bigger increase (from 39% of proposals to 47%).

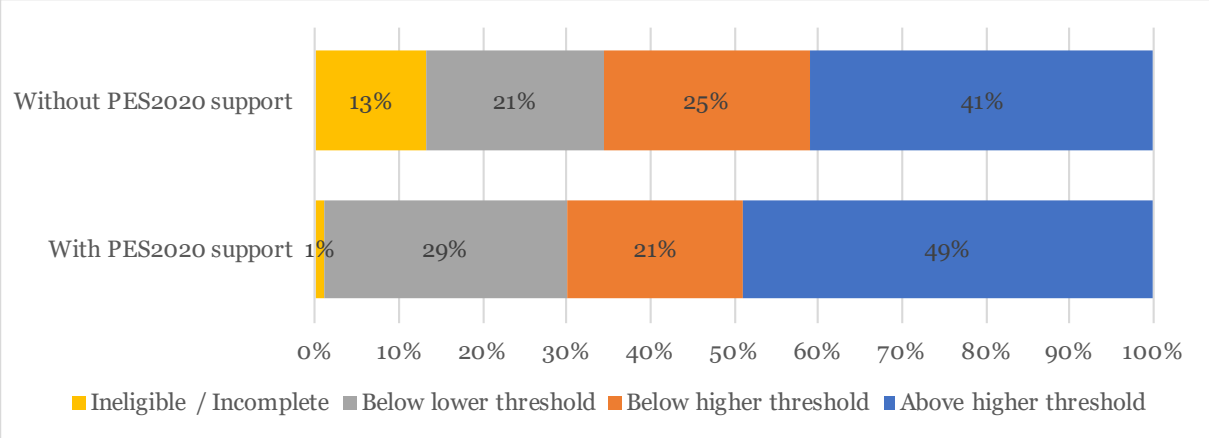
Figure 64 'Status' of proposals to Eurostars 1/2 – Norway vs all



<u>Is there a positive correlation between PES2020 support and quality?</u>

The following figure compares the status of Norwegian proposals to Eurostars 2, based on whether or not they received PES2020 funding. It shows that the group with PES2020 support have on average achieved better quality than those without support. In particular, nearly half (49%) of PES2020-supported Norwegian proposals have achieved an above higher threshold assessment (i.e. worthy of funding), while the same is only true of 41% of Norwegian proposals that did not receive PES2020 support.

Figure 65 'Status' of Norwegian proposals to Eurostars 2 – with and without PES2020 support



B.4 STIM-EU analysis

B.4.1 Proposal participation by Norwegian institutes

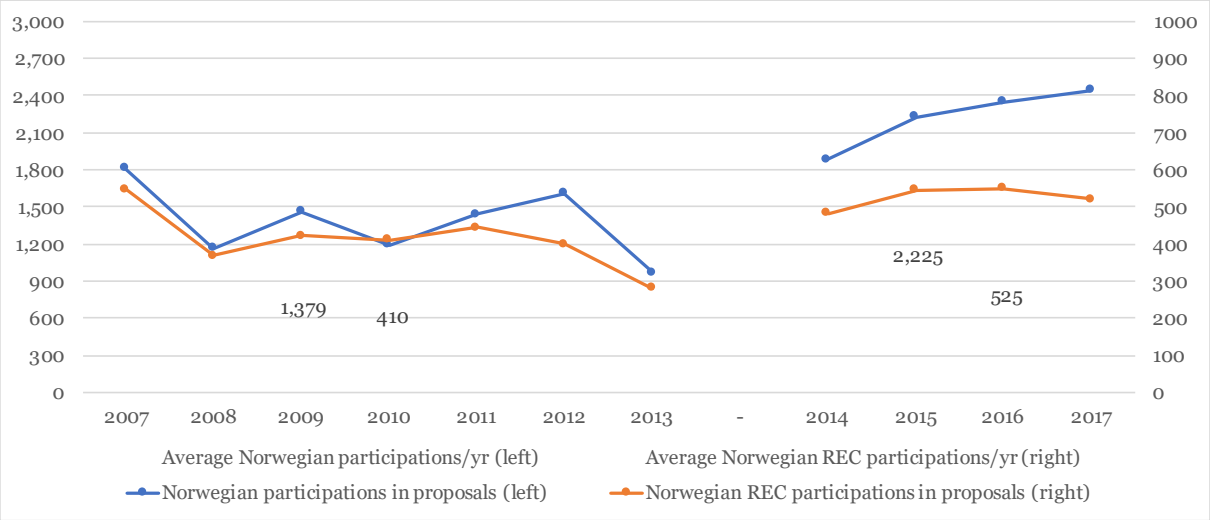
A core objective of the STIM-EU measure is to **increase the level of participation** by Norwegian research institutes in H2020. We therefore begin by looking at the participation of relevant Norwegian organisations over time, before looking more specifically at the inter-relationship between STIM-EU eligibility and this evolution in participation for the institutes concerned.

Have levels of proposal activity by Norwegian research institutes increased in H2020?

As was seen in the analysis of PES, Norway's absolute **level of proposal activity** has tended to increase over time, with a 59% increase in the average number of proposals submitted each year from FP7 to H2020 and a similar (61%) increase in the number of Norwegian proposal participations. During the first four years of H2020 there has also been a steady rise in Norwegian participations. Participation numbers for Norway overall are shown again in blue in Figure 66 below.

The trend for research organisations (REC – the eCorda classification that most closely aligns with the concept of research institutes in Norway) is similar to this overall picture (see Figure 66 in orange). The average number of Norwegian REC proposal participations each year has increased from 410 in FP7 to 525 in H2020 (an increase of 28%). There was also an upward trend in activity in the first years of H2020 – although the increase was not as significant as for Norway overall, and there has also been a fall in REC participations in the last year for which we have data (2017).

Figure 66 Norwegian participations in proposals by year, 2007-12 (overall and REC)

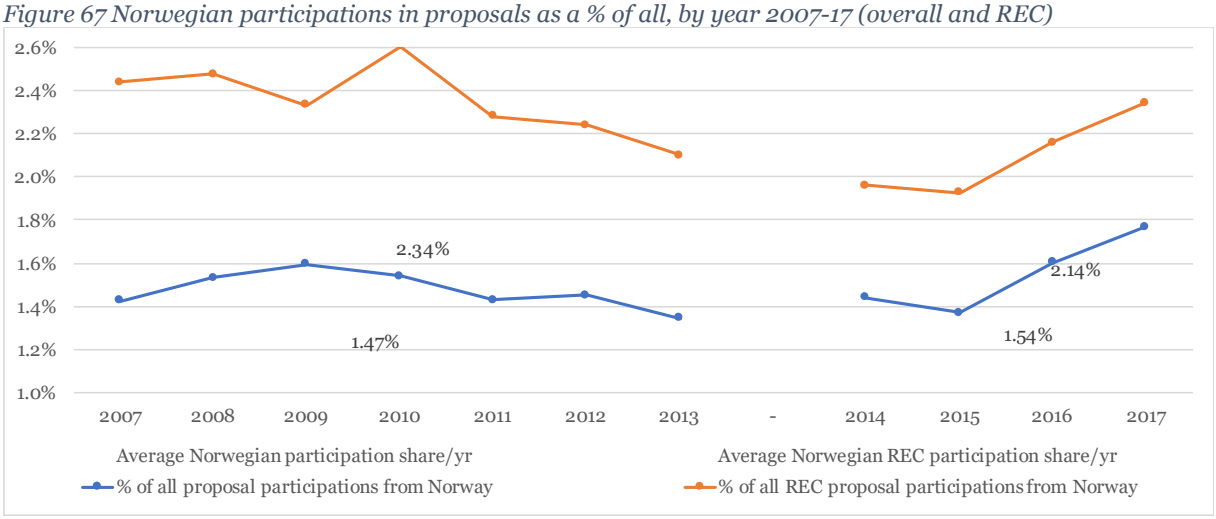


Source: eCorda FP7 and H2020 data

The **relative rate** of Norwegian participation (i.e. the proportion of all proposal participations it accounts for) has also increased (shown in blue in Figure 67). Overall, Norway's share of proposal participations each year has increased from 1.47% (FP7) to 1.54% (H2020), and has also increased in the first years of H2020 (from 1.44% to 1.77%), reversing a downward trend in the latter part of FP7.

The trend for research organisations (REC) (orange in Figure 67) is slightly different from the overall picture. The proportion of all REC proposal participations each year that Norway accounts for has fallen slightly from FP7 (2.34%) to H2020 (2.14%). However, Norway's share of REC participations has increased in the first four years of H2020 (from 1.96% to 2.34%), reversing a downward trend during FP7.

Figure 67 Norwegian participations in proposals as a % of all, by year 2007-17 (overall and REC)

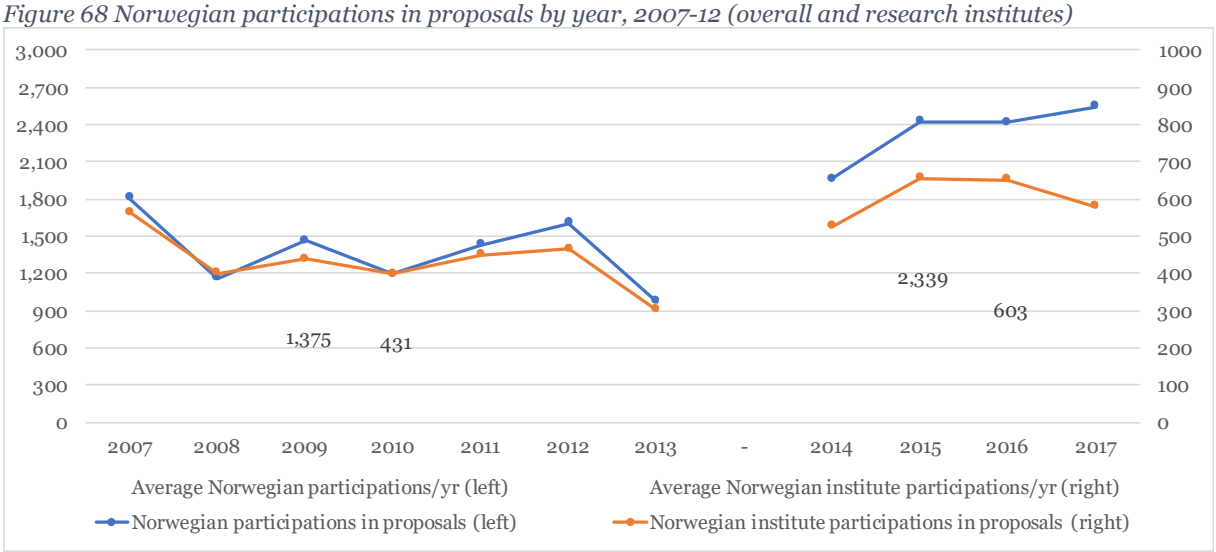


Source: eCorda FP7 and H2020 data

The RCN version of eCorda data contains the Norwegian classification of organisational types, including Research Institutes ("Instituttsektor"). However, the 'cleaning' process has also meant additional changes to the data (particularly for H2020), including the removal of ineligible proposals and the addition of other types of participant partner. This means that it may be inappropriate to look at trends across FP7 and H2020. It is also not possible to compare Norwegian activity with overall (all country) statistics and show e.g. the proportion of overall activity that Norway accounts for. Nevertheless, we have also considered this alternative data source for completeness.

Based on RCN classifications (see Figure 68), we see a substantial increase in the average number of participations per year for Norwegian research institutes (in orange) between FP7 (431 per year) and H2020 (603 per year). However, this increase (40%) is much smaller than that seen overall (all organisation types combined, in blue) in Norway (70%). Also, the upward trend in activity seen by Norway (overall) in the first four years of H2020 is not entirely reflected in research institute activity, which (as with REC data above) shows an initial increase, but then a fall in 2017.

Figure 68 Norwegian participations in proposals by year, 2007-12 (overall and research institutes)



Source: eCorda (RCN version) FP7 and H2020 data

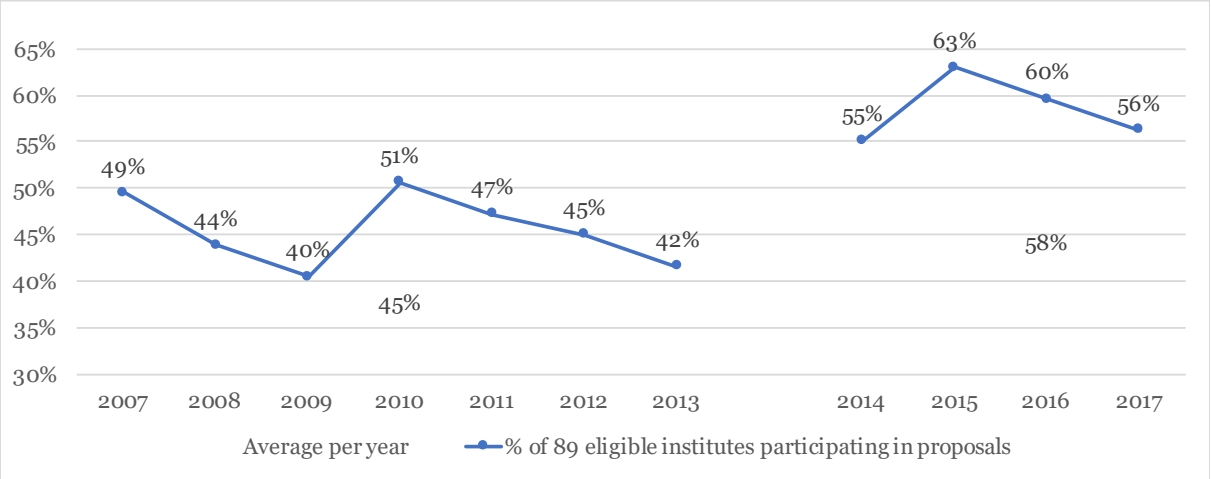
Is there a positive correlation between STIM-EU support and levels of proposal activity?

We have assessed more specifically whether STIM-EU eligibility has had an impact on the proposal activity of (eligible) Norwegian institutes, first by looking at the probability that these organisations participate in proposals at all, and then at their level (i.e. volume) of participations.

As was explained in the introduction to the STIM-EU measure, an increasing number of organisations have become eligible for this support over time. In particular, a first tranche of institutes became eligible in 2012, and there was then a near-doubling in the number of eligible institutes in 2014. There has been a small number of other changes in eligibility, but they are minor by comparison.

As Figure 24 shows, the proportion of these 89 organisations that have participated in FP7 and H2020 proposals each year has generally increased over time – and particularly between the two Framework Programmes. On average during FP7, 45% of the 89 institutes participated in proposals each year, while in H2020 this has increased to 58%. There is no evident impact in 2012, when the first group of institutes became eligible for STIM-EU funding – but this may reflect a time lag between becoming eligible and the resulting impact on submitted proposals becoming visible in eCorda.

Figure 69 Proportion of 89 STIM-eligible (at some point) institutes participating in proposals each year

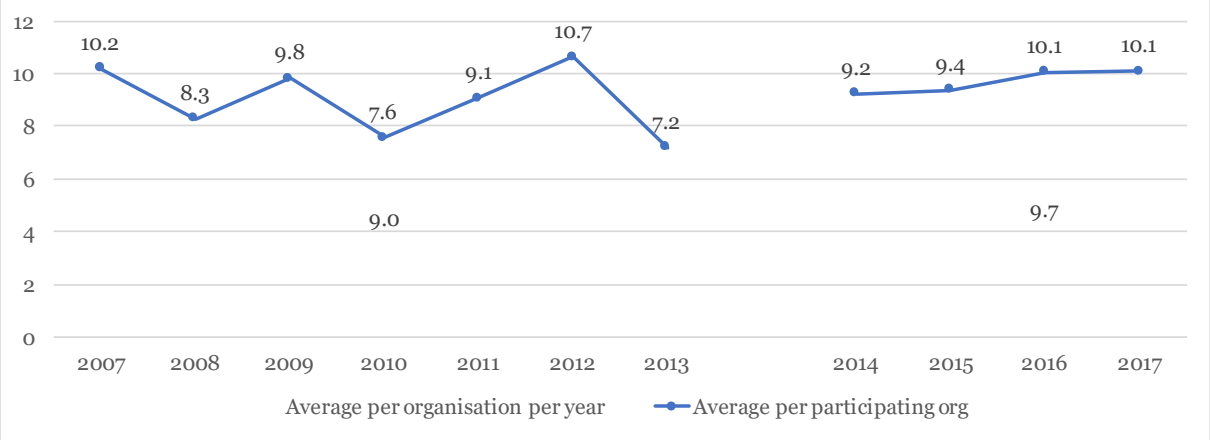


Source: eCorda data for FP7 and H2020. Based on population of 89 Norwegian research institutes that have been eligible (at some point) for STIM-EU funding. Vertical lines indicate first and second main groups of institutes becoming eligible for funding.

We have also assessed whether STIM eligibility has had an impact on **the extent to which institutes participate in proposals** to the Framework Programme (i.e. if institutes are participating in proposals, is the number of proposals they are involved in each year increasing).

The following figure shows the average number of participations each year, per participating institute. This shows that during FP7 participating institutes averaged 9.0 participations each per year, while in H2020 participating institutes averaged a slightly higher 9.7 participations each per year. The rate has also increased year on year during H2020.

Figure 70 Average number of participations in proposals each year per institute (amongst those participating)

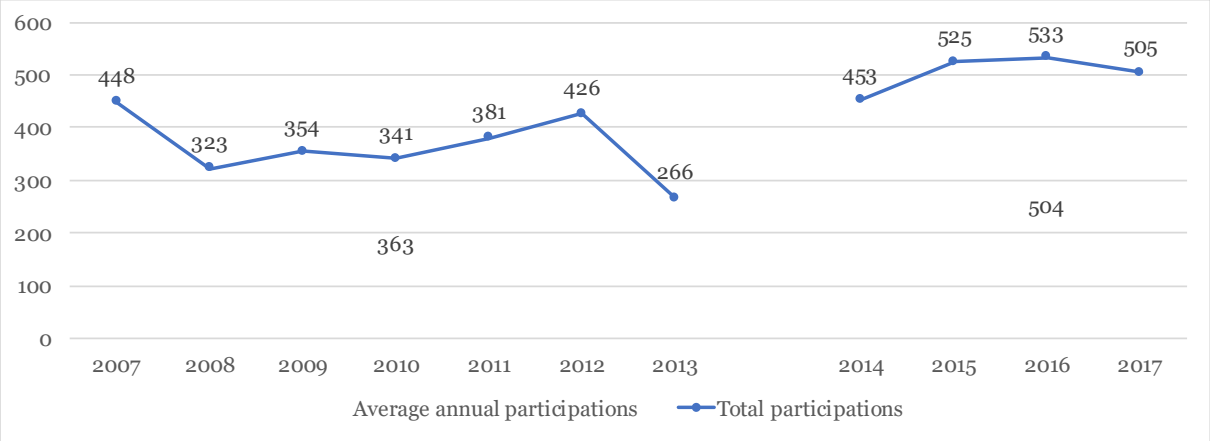


Source: eCorda FP7 and H2020 data.

Finally, the following figure shows the overall number of participations in proposals each year from the 89 STIM-eligible institutes. The combination of an increase in the proportion of the 89 eligible institutes that are participating in proposals, plus an increase (on average) in the number of participations that each engages in each year (as presented above), has resulted in the overall 39% increase in annual proposal participations from FP7 to H2020 (participations per year rose from 363 in FP7 to 504 per year in H2020).

These results suggest an increased level of proposal activity amongst this group of institutes in H2020, compared with FP7, which may have been encouraged by STIM-EU eligibility. However, we should note that the 39% increase in institute proposal participations (FP7 to H2020) is smaller than the 61% increase in proposal participations seen by Norway overall.

Figure 71 Total participations in proposals each year by the 89 STIM-eligible (at some point) institutes

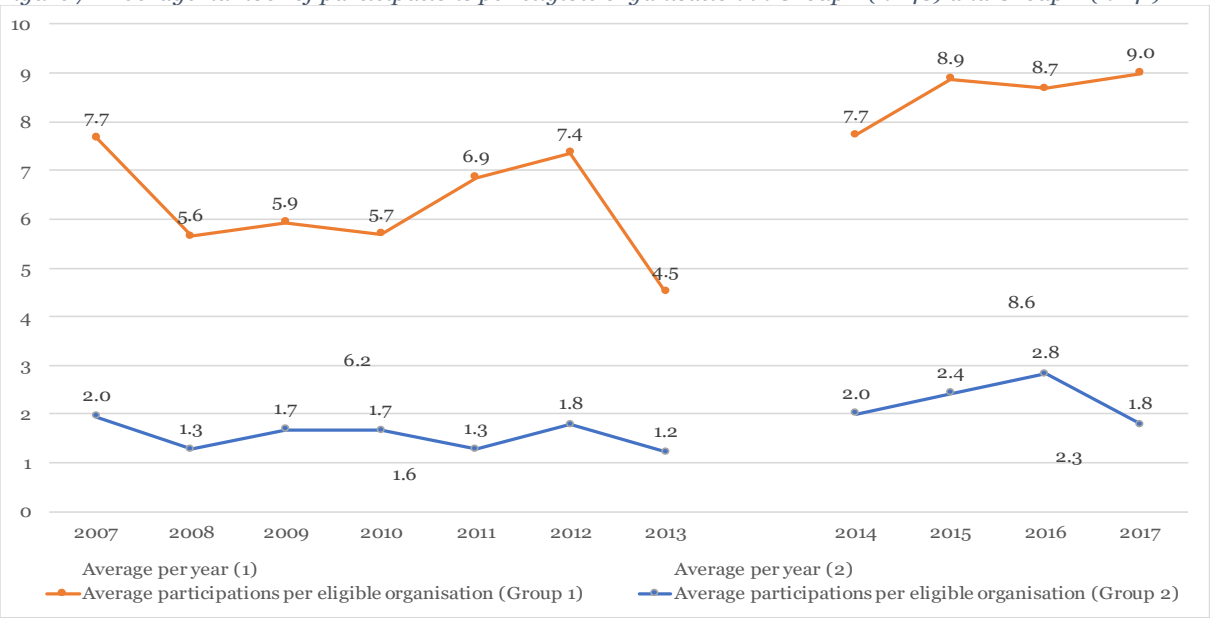


Source: eCorda FP7 and H2020 data.

It is worth noting that the **two main groups** of STIM-EU eligible institutes are quite different. Those that became eligible in 2012 have historically had much higher participation levels on average than those becoming eligible later. Group 1 (orange in Figure 72) averaged 6.2 proposal participations each (including non-participants) per year in FP7, while Group 2 (blue) averaged only 1.6.

Both, however, have seen a similar relative growth in average participation between FP7 and H2020. The average annual rate of participation by group 1 has increased by 39% (from 6.2 to 8.6) between FP7 and H2020, while Group 2 has increased by 44% (from 1.6 to 2.3).

Figure 72 Average number of participations per eligible organisation in Group 1 (n=48) and Group 2 (n=41)

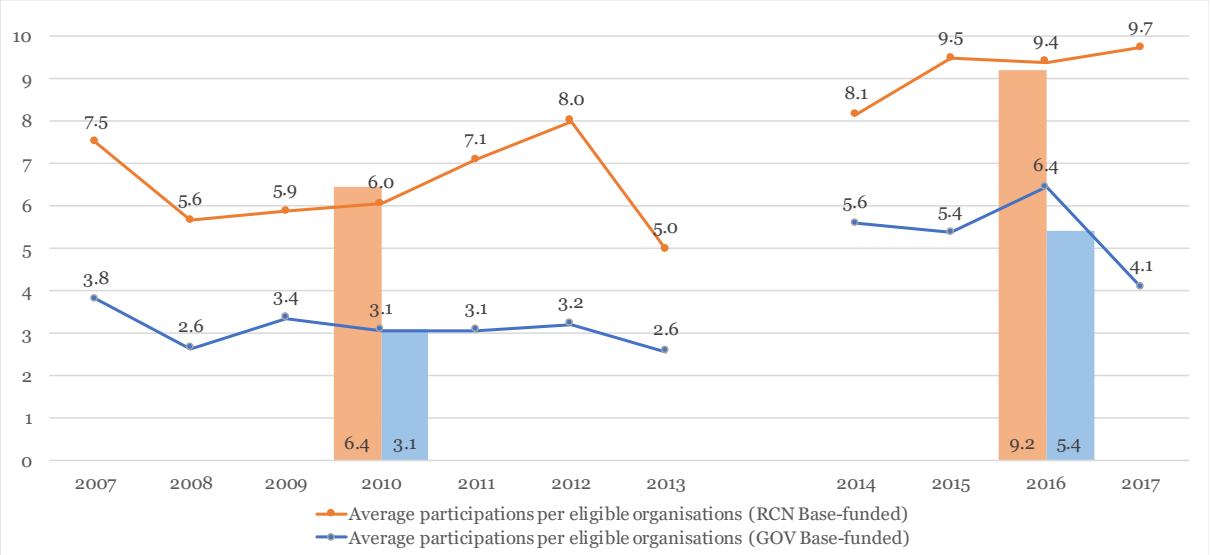


Source: eCorda FP7 and H2020 data.

Similarly, eligible institutes that receive **base funding** from RCN have historically been much more active than those that receive base funding directly from the Government. The overall scale of activity amongst RCN-funded institutions is much higher (290 participations per year in FP7) when compared with GOV-funded institutions (43 participations per year). There are many more RCN-funded institutes (45 compared to 14), but even on a per-institute basis, RCN-funded organisations have also tended to be more active historically (6.4 participations each per year in FP7, compared with 3.1).

As the following figure shows, however, relative growth in average participation between FP7 and H2020 has been higher amongst Government-funded institutes (but from a lower base). Average annual participations per Government-funded institute have increased from 3.1 to 5.4 between the two programmes (+ 74%), compared with an increase from 6.4 to 9.2 (+ 42%) for RCN-funded institutes.

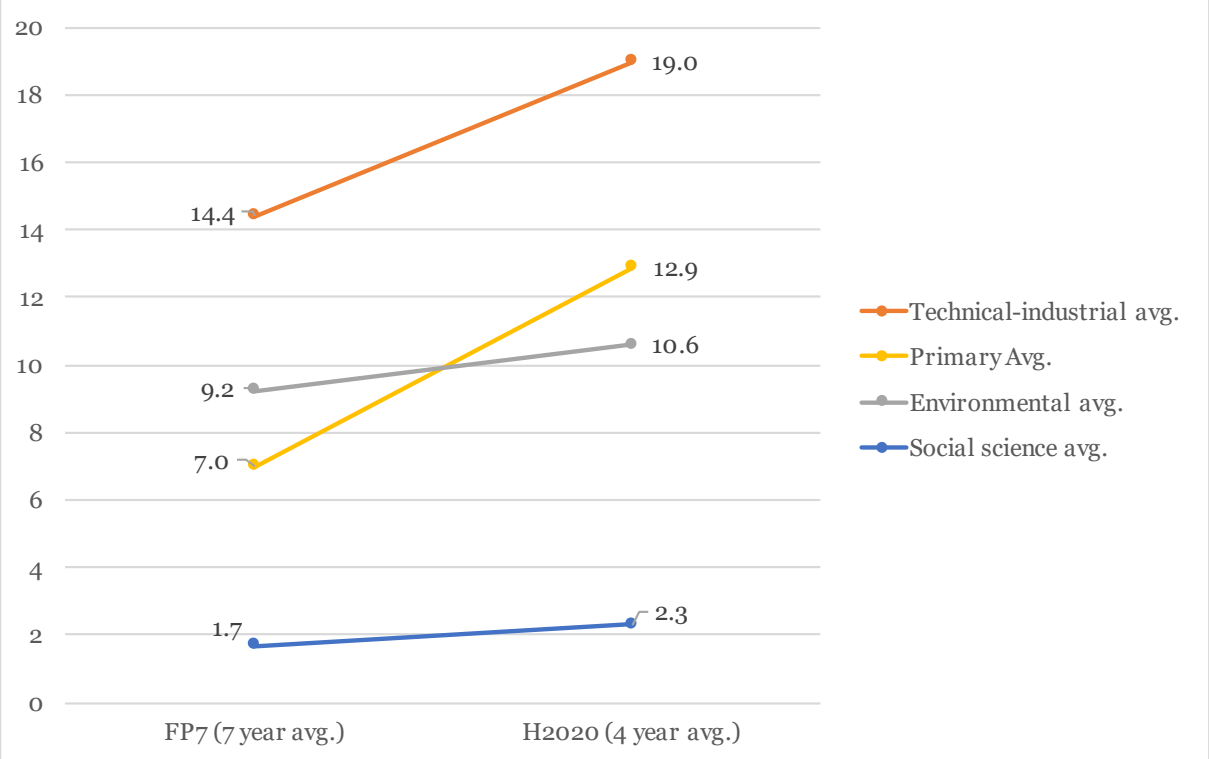
Figure 73 Average number of participations per organisation, RCN-funded institutes (n=45) and Government funded institutes (n=14)



Source: eCorda FP7 and H2020 data.

It is also worth noting the differences between RCN-funded institutes in different **Arenas**. As can be seen in the following figure, the average number of participations each year by eligible social science institutes (average per institute) is lower than for primary industry and environmental institutes, and much lower than technical-industrial institutes. There are also differences in the changing rates of participation between FP7 and H2020. While the average across all Arenas has risen between the two programmes, the largest absolute changes occurred amongst primary industry institutes (from 7.0 to 12.9 participations each per year) and technical-industrial institutes (from 14.4 to 19.0 participations each per year), while the largest relative change (+85%) was also seen amongst primary institutes.

Figure 74 Average number of participations per eligible organisation per year – in each Arena



Source: eCorda FP7 and H2020 data. Note that 3 of the eligible institutes are classified into more than one arena.

B.4.2 Proposal coordination by Norwegian institutes

STIM-EU seeks to increase the extent to which Norwegian institutes act as **coordinators** for H2020 proposals, with a bonus system introduced from 2014 (the start of H2020) to encourage proposal coordination amongst eligible institutes. We analyse below the rates of coordination amongst this type of organisation over time, before looking specifically at the link between STIM-EU and this evolution.

Have levels of proposal coordination by Norwegian research institutes increased in H2020?

Overall (all organisation types), Norway shows increased proposal coordination activity in H2020 compared with FP7. According to eCorda data (see summary in Table 22), the average number of Norwegian coordinators per year is much higher in H2020 (663) than in FP7 (330).

Also, the average number of Norwegian coordinators of *multi-partner* proposals (i.e. excluding those proposals only involving one organisation) is higher (239 compared with 170, a rise of 41%). As the overall number of Norwegian proposals in H2020 is higher than in FP7, Norway's *rate* of coordination has not grown by so much, but it has still risen slightly, from 20.0% of all multi-partner proposals in FP7 to 20.2% in H2020.

Norwegian research institutes also appear to have increased their coordination activity between the two programmes. The numbers differ slightly, depending on whether we look at REC organisations in the original eCorda data (Table 22), or Research Institutes in the RCN-amended data (Table 23), but the

same overall picture emerges for this type of organisation: the average number of coordinators of multi-partner proposals each year is higher in H2020 than it was in FP7; and the proportion of multi-partner proposals coordinated has also increased. (According to the REC classification this increase is larger than for Norway overall, while based on RCN data and the Research Institute classification the increase is smaller than for the country as a whole).

Table 22 Norwegian proposal coordination statistics, average per year (eCorda data)

	FP7	H2020
Norwegian proposal coordinators, average per year	330	663
Norwegian coordinators of multi-partner proposals, average per year	170	239
% of multi-partner **Norwegian** proposals coordinated	20.0%	20.2%
Norwegian **REC** proposal coordinators, average per year	79	108
Norwegian **REC** coordinators of multi-partner proposals, average per year	57	79
% of multi-partner Norwegian **REC** proposals coordinated	16.2%	17.4%

Source: eCorda FP7 and H2020 data

Table 23 Norwegian proposal coordination statistics, average per year (eCorda data – RCN version)

	FP7	H2020
Norwegian proposal coordinators, average per year	329	647
Norwegian coordinators of multi-partner proposals, average per year	170	259
% of multi-partner Norwegian proposals coordinated	20.0%	22.1%
Norwegian **Research Institute** proposal coordinators, average per year	92	89
Norwegian **Research Institute** coordinators of multi-partner proposals, average per year	61	71
% of multi-partner Norwegian Research Institute proposals coordinated	16.8%	17.2%

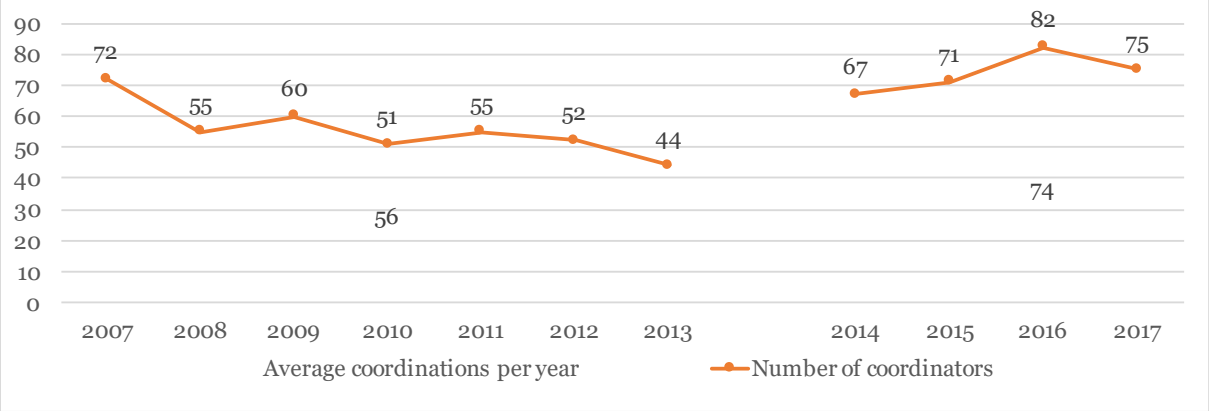
Source: eCorda FP7 and H2020 data (RCN version)

Is there a positive correlation between STIM-EU support and levels of proposal coordination?

The following figure charts the proposal **coordination numbers** for STIM-eligible institutes only (all 89 organisations that have become eligible at some point) across FP7 and H2020. Only multi-partner proposals are included. It shows that the number of proposals coordinated by this group of organisations tended to decline across the period of FP7, from 72 in the first year to 44 in the last, while the number in each of the first four years of H2020 has been higher, at 67 or more each year. As such, the average number of multi-partner proposals led by this group each year in H2020 (74) is significantly higher than in FP7 (56).

This 32% increase in the average number of proposals coordinated by eligible institutes each year between the two programmes is below the 41% increase seen by Norway overall. Nevertheless, it is a positive direction of travel in terms of STIM-EU objectives (an increase in coordination activity by Norwegian research institutes in H2020), and the introduction of a STIM-EU bonus for coordination in 2014 may have played a role in this.

Figure 75 Number of times STIM-eligible institutes coordinate multi-partner proposals each year



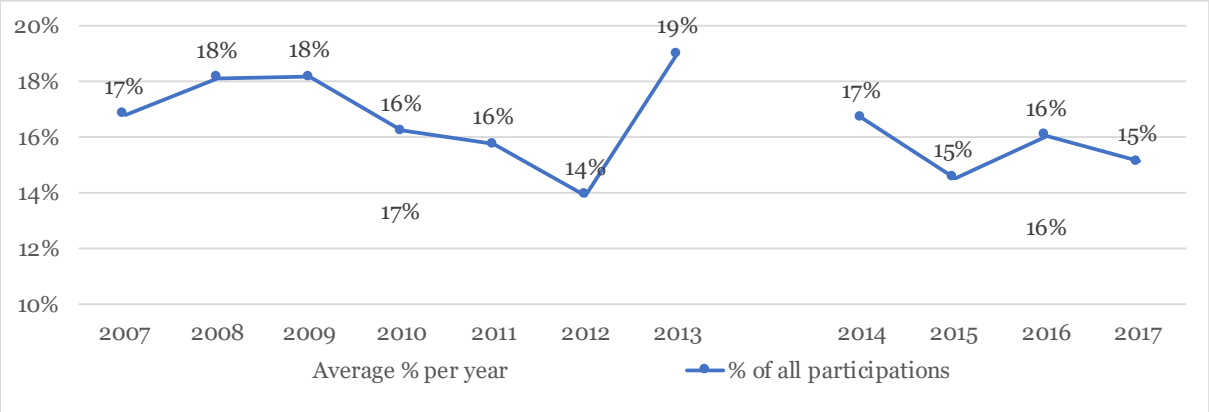
Source: eCorda FP7 and H2020 data

The total number of proposals coordinated by eligible institutes with RCN base funding in both FP7 and H2020 is much greater than the number coordinated by Government institutes. This partly reflects the much larger number of RCN-funded organisations, but even on a per-organisation basis the number is higher. However, while RCN-funded institutes (collectively) have increased the average number of multi-partner proposals coordinated each year by a third (from 47 per year in FP7 to 62 per year in H2020), the coordination activity of Government-funded institutes (collectively) has increased more rapidly (a near-trebling in annual activity, from 3.6 per year in FP7 to 10 per year in H2020).

Across the different Arenas, the technical-industrial and social science institutes have increased their average number of multi-partner proposals coordinated each year between FP7 and H2020 (by 47% and 34% respectively). By comparison, the average number has fallen for primary (-13%) and environmental institutes (-20%) between the two programmes.

Figure 76 shows these proposal coordinations **as a proportion** of all these institutes' participations in multi-partner proposals. There is more variability between years, but on average the proportion of multi-partner proposal participations each year where the institute acts as the coordinator has dropped slightly from 17% in FP7 to 16% in H2020. Therefore, while these institutes are taking on the coordinator role more often in absolute terms in H2020, this has not kept pace with their increased scale of participation in proposals more generally. Much of the additional proposal activity in H2020 is therefore as a participant, rather than coordinator.

Figure 76 Coordination – as a % of STIM-eligible institutes' multi-partner proposal participations each year



Source: eCorda FP7 and H2020 data

During FP7 there were clear differences in coordination rates between eligible institutes that receive base funding from RCN (18% of multi-partner proposals coordinated) and those that receive base funding from the Government directly (9%). However, the difference between the two in H2020 has

reduced considerably (to 16% and 15% respectively), as the coordination rate of RCN institutes has declined slightly, while the rate for Government institutes has increased by more than half.

Across the different Arenas, only the technical-industrial institutes have increased their coordination rate between the two programmes (from an already above average 17.5% in FP7 to 19% in H2020). The rate for social science institutes has fallen slightly (from an already low 11.9% to 11.4%), while the rates for environmental institutes (16.0% to 10.8%) and primary industry institutes (20.8% to 9.9%) have fallen more significantly between FP7 and H2020, taking both well below the institute average.

Figure 77 looks at the activities of **individual STIM-eligible institutes**. It shows that the proportion of the 89 eligible institutes that are coordinating a multi-partner proposal has increased each year in H2020, from 19 to 24, while the average per year in H2020 (21) is also above that of FP7 (18). This is generally a positive trend, although it should be noted that the highest rate across the two programmes was seen in the first year of FP7 (when 25 of the institutes coordinated a multi-partner proposal).

Figure 77 Number of STIM-eligible institutes coordinating multi-partner proposals

Source: eCorda FP7 and H2020 data

There are 9 organisations (from the list of 89) that have coordinated a multi-partner proposal in H2020 for the first time, having not done so in FP7. These are:

- Forskningsstiftelsen Fafo (FAFO)
- NTNU samfunnsforskning
- RURALIS Institutt for Rural- og RegionalForskning (Norsk senter for bygdeforskning)
- SP Fire Research AS
- Statens arbeidsmiljøinstitutt (STAMI)
- Stiftelsen Frischsenteret for samfunnsøkonomisk forskning (FRISCH)
- Teknova AS
- Treteknisk
- UNI Research Polytec AS

B.4.3 Research institutes partnering with Norwegian companies

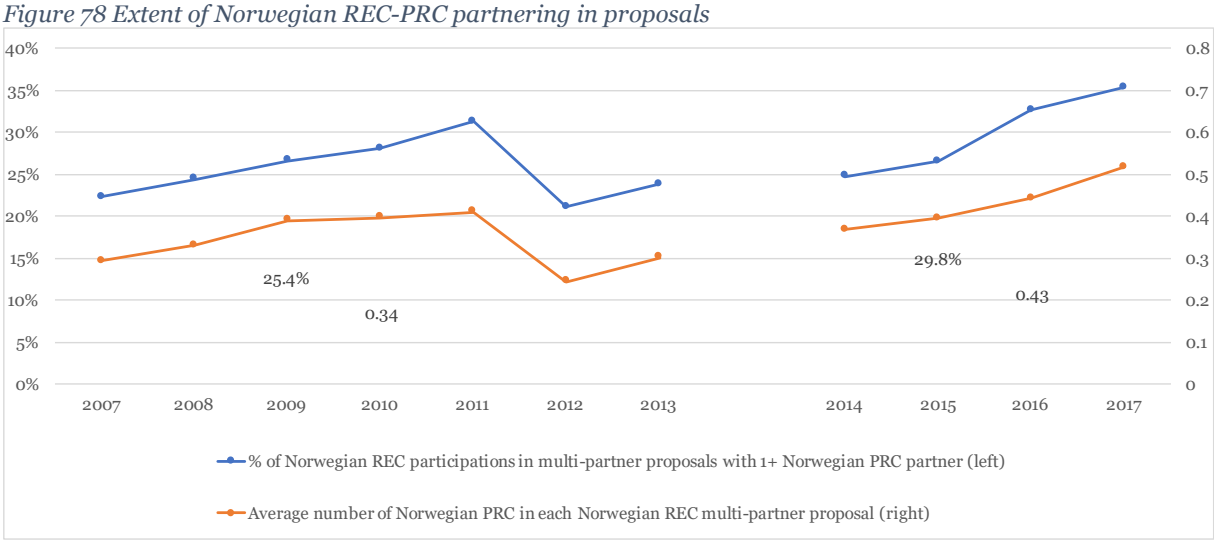
STIM-EU seeks to increase the extent to which Norwegian institutes **partner with Norwegian companies** in H2020 proposals, with a bonus system in place since the start of the scheme (2012) to encourage this. We look first at overall partnering activity over FP7 and H2020, before going on to look specifically at STIM-eligible institutes and the extent that they have partnered with companies.

Have levels of Norwegian research institutes partnering with companies increased in H2020?

According to eCorda data, the average proportion of Norwegian REC participations in FP7 multi-partner proposals each year that were partnered **with at least one Norwegian PRC** was 25%. This has risen to 30% per year on average, for the first four years of H2020. As Figure 78 shows (blue line), the rate of PRC partnering has also increased year on year since 2012 (when the STIM-EU bonus was established), reaching 35% of all REC participations by 2017 (the highest rate achieved across the FP7/H2020 period). This suggests a positive direction of travel in relation to the STIM-EU objective of increasing institute-company partnerships in proposals (both in absolute and relative terms).

The figure also shows (orange) that the average number of PRC organisations involved in Norwegian REC proposals is also increasing. During FP7 each multi-partner proposal with Norwegian REC involvement had 0.34 Norwegian PRC partners within the consortium on average (approximately 1 PRC for every 3 proposals). This has increased to an average of 0.43 PRC partners per proposal in H2020. Again, there has also been a year on year increase since 2012. As a result of this increasing average, the total number of Norwegian PRC participations in Norwegian REC proposals in H2020 (779) is already nearly at the level of the whole of FP7 (845).

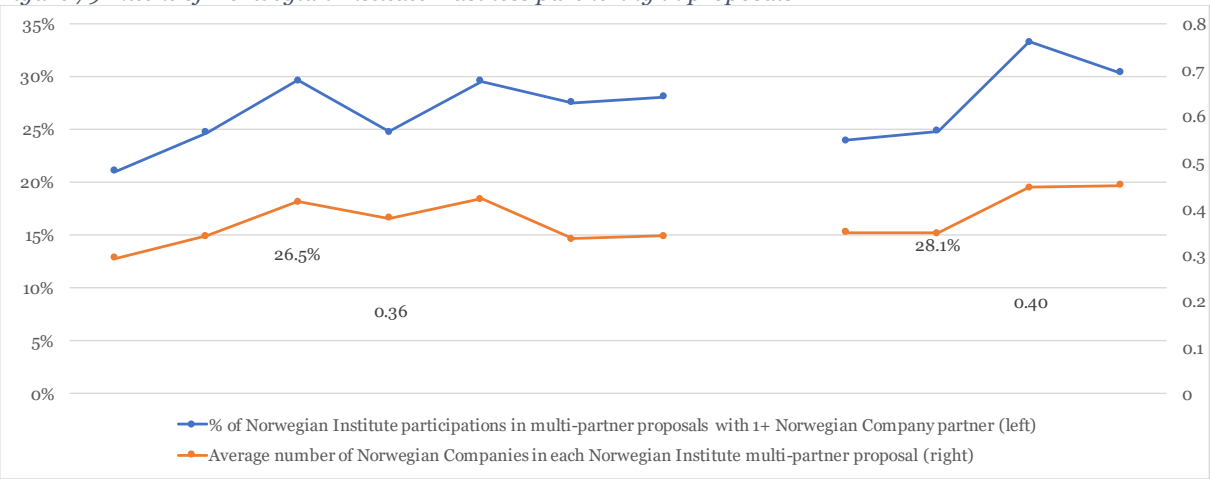
Figure 78 Extent of Norwegian REC-PRC partnering in proposals



Source: eCorda data for FP7 and H2020

The same analysis has been run using the RCN version of eCorda data instead, with the RCN classification of research institutes (instituttsektor) and businesses (næringsliv). As Figure 79 shows, the average proportion of Norwegian institute participations in multi-partner proposals each year that were partnered **with at least one Norwegian business** was 26.5% in FP7. This increased to 28.1% in H2020. The average number of Norwegian business participations in institute proposals in FP7 (0.36 per proposal) has also increased in H2020 (0.40). As a result, the total number of Norwegian Business participations in Norwegian Institute proposals in the first half of H2020 (649) is already at 71% of the level of the whole seven years of FP7 (915).

Figure 79 Extent of Norwegian Institute-Business partnering in proposals

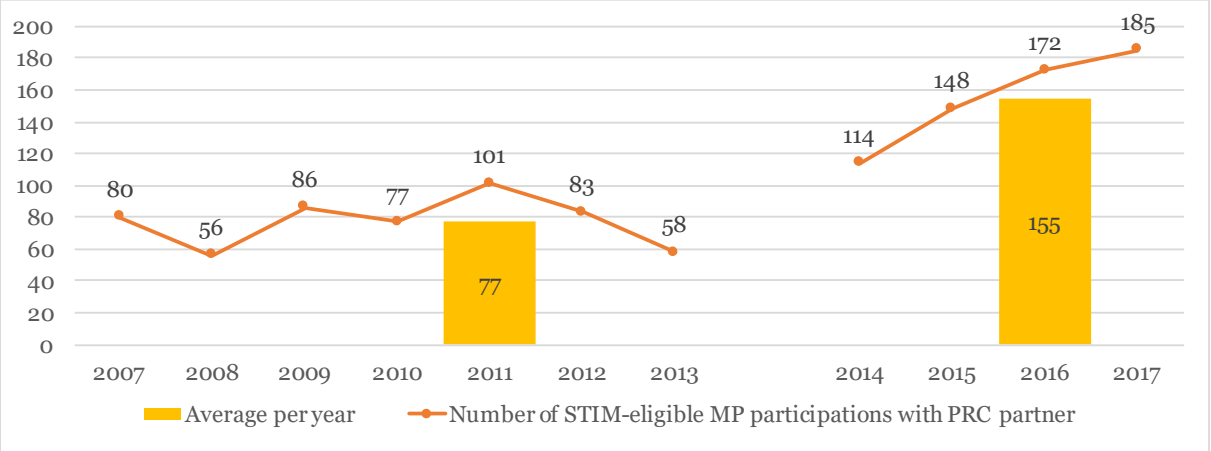


Source: eCorda data for FP7 and H2020 (RCN versions)

Is there a positive correlation between STIM-EU support and levels of partnering with companies?

The following figure charts the **number** of participations each year from STIM-eligible institutes in multi-partner proposals that also involved at least one Norwegian PRC. There is a clear difference between FP7 (where on average each year there were 77 participations by institutes in proposals with Norwegian PRC partners) and H2020 (where the average was 155). There is also a clear upward trend during the years of H2020 so far.

Figure 80 Number of times STIM-eligible institutes participate in multi-partner proposals each year, where a Norwegian PRC is a partner



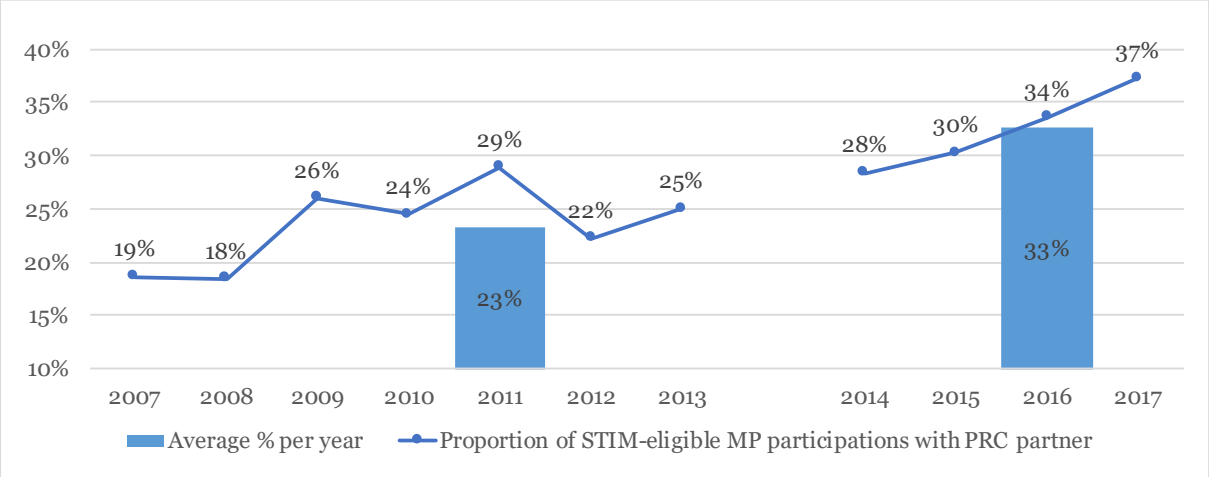
The number of participations with PRC by eligible institutes with RCN base funding has more than doubled from FP7 (62.1 per year on average) to H2020 (130.0 per year), while the number from Government funded institutions has increased by considerably more between the two programmes (from 4.9 per year on average, to 17.8; a nearly four-fold increase).

More than half of the increase in PRC partnering by eligible institutes relates to RCN-funded institutions in the technical-industrial Arena. The average number of participations with industry partners for these institutes was 52 per year during FP7, and this has risen to 96.0 per year in H2020. However, all of the other Arenas have seen a bigger relative increase in their PRC-partnering. Environmental and primary-industry institutes have more than doubled their annual rate between FP7 and H2020, while the rate for social science institutes has more than trebled (from 4.4 per year in FP7 to 14.3 per year in H2020).

Figure 81 shows the same PRC-partnering data, but **as a proportion** of all multi-partner proposal participations by these institutes (to remove the effects of changes in absolute participation levels

between years). This still shows an improvement in Institute-PRC partnering. While during FP7, just 23% of Institute multi-partner proposal participations were in proposals with a Norwegian PRC organisation, during H2020 this rate has increased to 33%. There has also been a steady rise each year between 2012 (when 22% had PRC partners) and 2017 (when 37% had PRC partners). This period aligns with the introduction of the STIM bonus for company partnering in 2012.

Figure 81 Proportion of STIM-eligible institutes participations in multi-partner proposals each year, where a Norwegian PRC is a partner



The proportion of participations with PRC partners is higher amongst institutes with RCN base funding (23% in FP7 and 33% in H2020) than amongst those with Government base funding (13% and 26% respectively). However, relatively (i.e. compared to the position in FP7) the increase between the programmes has been greater for Government institutes.

There has also been an increase in PRC-partnering rates between FP7 and H2020 for all of the Arenas. The largest increase was seen for social science institutes (who had Norwegian PRC partners in 12% of the FP7 proposal participations, but 28% in H2020, an increase of 16 percentage points). Technical-industrial and environmental institutes also saw a significant increase (+11pp each), while the rate for primary industry institutes changed little (from 22% of participations in FP7 to 29% in H2020).

The two figures above show a clear positive direction of travel in terms of increased involvement of businesses in research institute proposals in H2020. Differences between the FP7 and H2020 programmes may explain some of the change (business participation has increased significantly between the two programmes more generally), but the fact that STIM-eligible institutes have increased their PRC partnering rate (from 23% to 33%) to a greater extent than the wider group of organisations classified as REC (25% to 30%) or Research Institutes (27% to 28%), would suggest that STIM-EU funding (and / or the PRC partnering bonus specifically) has also had a role to play in the change.

B.4.4 Research institutes partnering with Norwegian public bodies

STIM-EU has more recently sought to also increase the extent to which Norwegian institutes **partner with Norwegian public bodies** in H2020 proposals, with a bonus system introduced in 2015 to encourage this. We explore below the extent of participation with public bodies and specifically amongst STIM-eligible research institutes. However, the recent introduction of the bonus means that it may be too soon to see an impact within the data currently available, or at least to have sufficient data points to see a discernible trend.

Have levels of Norwegian research institutes partnering with public bodies increased in H2020?

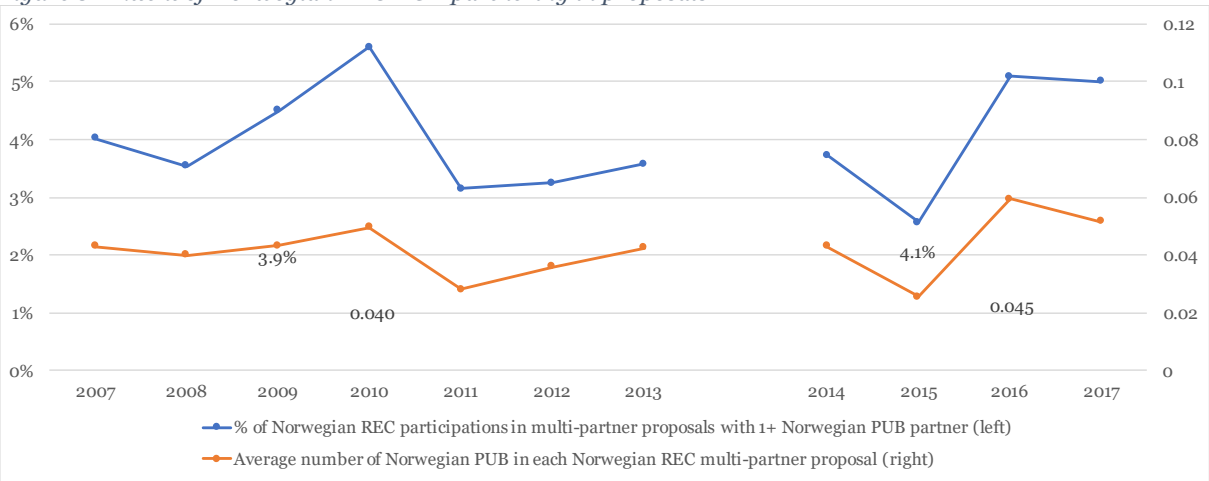
According to eCorda data, the average proportion of Norwegian REC participations in FP7 multi-partner proposals each year that were partnered **with at least one Norwegian PUB** was 3.9%. This has risen to 4.1% per year on average, for the first four years of H2020. As Figure 82 shows (blue line), the rate

of PUB partnering has also increased after 2015 (when the STIM-EU bonus was established), reaching just over 5% of REC participations in the subsequent two years of H2020.

The figure also shows (orange) that the average number of PUB organisations involved in Norwegian REC proposals is also increasing. During FP7 40 out of every 100 multi-partner proposals with Norwegian REC involvement also involved PUB partners. This has increased slightly to 45 out of every 100 in H2020.

There is therefore some suggestion of a positive improvement in relation to the STIM-EU objective of increasing institute-public body partnerships in proposals (both in absolute and relative terms). However, there are too few data points since the bonus scheme was introduced in 2015 to be sure this is a long term trend.

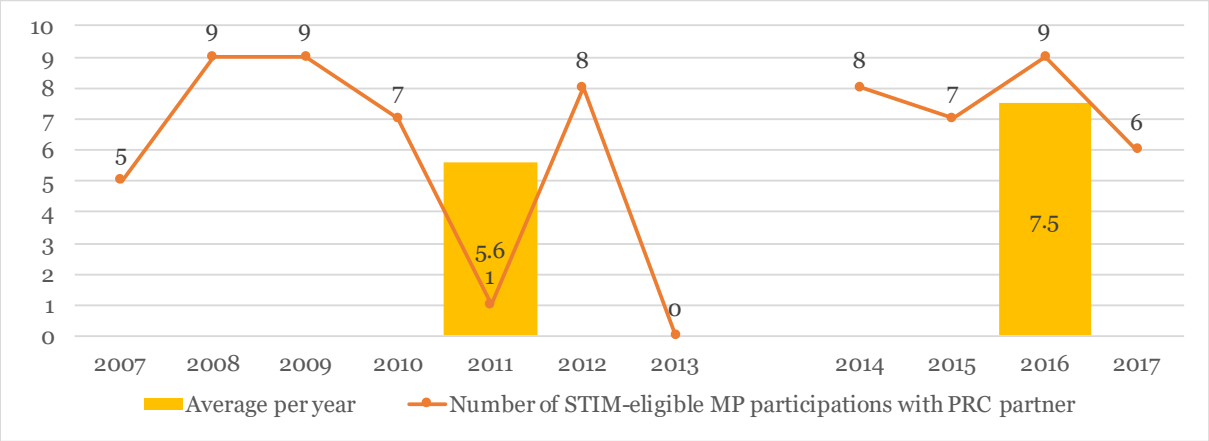
Figure 82 Extent of Norwegian REC-PUB partnering in proposals



Is there a positive correlation between STIM-EU support and levels of partnering with public bodies?

The following figure charts the **number** of participations each year from STIM-eligible institutes in multi-partner proposals that also involved at least one Norwegian PUB. The numbers involved are small and there is quite some variability between years as a result. However, during FP7 STIM-eligible institutes participated 5.6 times per year on average in proposals that also involved Norwegian PUB organisations, while for H2020 the equivalent figure is a third higher (7.5). However, although the H2020 rate is slightly higher than in FP7 (a positive trend in terms of STIM-EU objectives), there is no obvious change at the time of the introduction of the STIM bonus (2015) or shortly after this.

Figure 83 Number of times STIM-eligible institutes participate in multi-partner proposals each year, where a Norwegian PUB is a partner

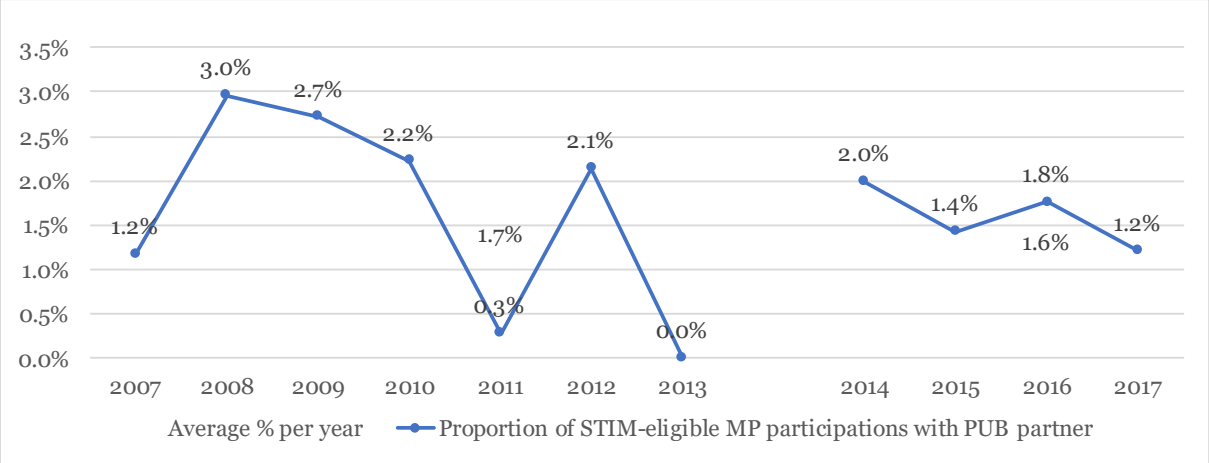


Source: eCorda FP7 and H2020

Figure 84 shows the same data, but as a **proportion** of all multi-partner proposal participations by these institutes (to remove any differences in absolute participation levels between years). This actually shows a slight decline in average Institute-PUB partnering levels between FP7 (1.7% of institute participations) and H2020 (1.6%), as well as a downward trend in the first years of H2020.

However, again, the numbers are small and there is large variability between years. Really there are too few data points yet to be sure of any long-term trend or change since the introduction of the relevant STIM-EU bonus in 2015.

Figure 84 Proportion of STIM-eligible institutes participations in multi-partner proposals each year, where a Norwegian PUB is a partner



Source: eCorda FP7 and H2020

Appendix C Web surveys

C.1 Methodological approach

C.1.1 Selection and categorisation of survey population

In April 2018, we launched six surveys. Two of the surveys were sent to individual beneficiaries of at least one PES2020 grant and two surveys were sent individuals that had not received a PES2020 grant despite being eligible for it. The fifth and sixth surveys were sent to administrators at organisations that had received PES2020 block grants and STIM-EU grants, respectively.

The following six surveys were conducted:

- Survey 1 was of individual PES2020 beneficiaries ("proposers") at organisations receiving PES2020 block grants. These proposers are all from HEIs, institutes and hospital trusts
- Survey 2 was of individual beneficiaries of PES2020 single grants (received directly from RCN). These proposers are strongly dominated by companies
- Survey 3 was of H2020 proposers that had *not* received PES2020 support despite working for organisations receiving PES2020 block grants, i.e. despite being eligible for PES2020 support. These proposers – referred to as "non-beneficiaries" – are all from HEIs, institutes and hospital trusts
- Survey 4 was of H2020 proposers that had *not* received PES2020 single grants, despite being eligible for it. These proposers – also referred to as non-beneficiaries – are strongly dominated by companies
- Survey 5 was of representatives of organisations that have received PES2020 block grants. These respondents all represent HEIs, institutes and hospital trusts
- Survey 6 was of representatives of institutes that received a STIM-EU grant at least one year in the period 2015–2017

Surveys 1 and 2 were largely the same with only small differences. Surveys 3 and 4 were shorter and functioned as controls for survey 1 and 2. Surveys 5 and 6 primarily aimed to identify impacts of PES2020 and STIM-EU at the level of the organisation.

The data to produce surveys mailing lists were provided by RCN. We excluded those who had received a related survey in 2017 that we conducted on behalf of RCN[51], which meant that we excluded more than 750 addresses to reduce the risk of "survey fatigue". In total, 3 394 individuals (less invalid e-mail addresses) that had been involved in proposals for H2020, including ERC and Eurostars, were invited to respond to one of the first four surveys, of which 1 585 (47 percent) had received at least one PES2020 grant.For surveys 5 and 6, RCN provided names and email addresses to 50 organisations that were PES2020 block grants recipients and 45 that had received a STIM-EU grant at least one year in the period 2015–2017.

Table 24 shows the population sizes and response rates for each survey, while Table 25 shows the distribution of respondents to surveys 1–4 submitting an H2020 proposal with and without a PES2020 grant, respectively.

[51] T. Åström, N. Brown, B. Mahieu, A. Håkansson, P. Varnai and E. Arnold, "Norwegian participation in Horizon 2020 in health, ICT and industry. A study on the potential for increased participation", RCN, 2017.

Table 24 Statistics of population size and response rates of the surveys.

	Population	Number of responses	Response rate
Survey 1	1120	353	32%
Survey 2	383	165	43%
Survey 3	622	105	17%
Survey 4	991	172	17%
Survey 5	50	44	88%
Survey 6	45	38	84%

Source: Web surveys.

Table 25 Respondents (survey 1-4) submitting an H2020 proposal with vs, without a PES2020 grant.

	Population	With PES2020	Without PES2020
HEIs	1203	624	580
Hospital trusts	124	43	81
Institutes	745	512	233
Companies	1092	323	769

Source: Web surveys.

C.1.2 On the respondents to surveys 1–4

In the beginning of survey 1–4 we asked three questions that gathered data for filtering purposes: whether the respondent had coordinated the most recent H2020 proposal; to which part of H2020 the most recent proposal was submitted; and when the most recent proposal was submitted.

The first question of surveys 3 and 4 was if it was correct that they the respondent had submitted an H2020 proposal without receiving a PES2020 grant. The respondents that answered "no" were re-directed to either survey 1 or 2. In total, 72 respondents jumped from surveys 3 or 4 to surveys 1 or 2.

For most of the surveys analyses, we present data for the four main Norwegian stakeholder categories: HEIs, hospital trusts, institutes and companies. Since almost all individual beneficiaries from HEIs, hospital trusts and institutes work for block grant recipients, we excluded the very few survey responses from these categories from survey 2 to achieve homogeneous groups. This means that all survey results from HEIs, hospital trusts and institutes come from individual beneficiaries at block grant recipients. For companies, all beneficiaries have received the PES2020 grant directly from RCN.

For some analyses, responses from institutes were divided into RCN's four established groups (environmental, primary industry, social science and technical-industrial institutes) and "other" institutes[52]. As Uni Research, Norut, SINTEF and IRIS belong to more than one of RCN's groups we placed all their responses in the technical-industrial institute group where most of their FP participation is.

C.2 Sample survey

This section presents the questions of survey 1, which also include most of the questions in survey 2-4.

PES2020 recipients (grant from block grant)

The Research Council of Norway (RCN) has commissioned Technopolis Group to conduct an impact evaluation of its two main support measures, Project Establishment Support (*Prosjektetableringsstøtte*, PES2020) and STIM-EU, to increase Norwegian participation in Horizon 2020 (H2020). The evaluation is to be used as a foundation for measures to support Norwegian participation during the remainder of H2020 and in the next framework programme (FP9).

You receive this survey since, according to RCN, you have received a PES2020 grant through your organisation's internal H2020 support function ("EU office", "Grants office" etc.) in connection with at

[52] Survey responses were received from IMR, FHI, FFI, MET, Simula Research Lab, Akvaplan-niva, NP, GenØK, NVE, NGU, Teknologisk, Treteknisk, RISE PFI, NORSØK, Teknova, and Simula@UiB.

least one H2020 proposal. Please note that the "internal H2020 support function" may be called something else in your organisation. By "organisation" we refer to the organisation that you currently work for (university, university college, hospital trust or research institute).

If you work for a hospital trust and received a grant from your internal H2020 support function in 2016 the grant came from RCN's HELSE-EU measure, but for the purposes of this survey we nevertheless refer to it as a PES2020 grant.

Your H2020 experiences

If you have received a PES2020 grant in connection with more than one H2020 proposal, please respond to the questions on this page based on your most recent H2020 proposal (and the corresponding PES2020 grant).

Were you the coordinator of this most recent H2020 proposal?

- Yes, I coordinated a multi-partner proposal
- Yes, but the proposal only involved my own organisation (no partners)
- No, my organisation was partner

To which section (part) of H2020 was the H2020 proposal submitted?

- Excellent Science: European Research Council (ERC), Marie Skłodowska-Curie Actions, Future and emerging technologies (FET) and European research infrastructures
- Industrial Leadership (LEIT): LEIT-ICT, LEIT-Space, LEIT-NMP, innovation in SMEs and Access to risk finance
- Societal Challenges: Health, demographic change and wellbeing; Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bioeconomy; Secure, clean and efficient energy; Smart, green and integrated transport; Climate action, environment, resource efficiency and raw materials; Inclusive, innovative and reflective societies; Secure & innovative societies
- Cross-theme; Science with and for Society; Spreading excellence and widening participation; EURATOM

When was the H2020 proposal submitted?

- 2013
- 2014
- 2015
- 2016
- 2017, January–April
- 2017, May–December (PES2020 rules were revised 1 May 2017)
- 2018

Did you receive advice or assistance from your organisation's internal H2020 support function when preparing the H2020 proposal?

- Yes
- No

Please assess the following statements on your organisation's internal H2020 support function.

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- The support function is knowledgeable
- The support function is service-minded
- The support function's information meetings/seminars and courses are useful
- The support function's assistance with preparing H2020 proposals satisfies my needs
- The support function's assistance with administration of on-going H2020 projects satisfies my needs

Voluntary comment:

Please assess the following statements on the PES2020 funding opportunity for H2020 proposal writing offered by your organisation's internal H2020 support function.

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- The PES2020 funding opportunity is well-known
- It is simple to apply for a PES2020 grant
- The grant decision is fast
- The amount of the grant is adequate
- The rules on eligible costs are adequate
- The chance of receiving a grant is adequate

Voluntary comment:

Please estimate (roughly) the total number of hours that you – including colleagues, if applicable – spent on applying for and reporting on the PES2020 grant.

Note that this question refers to the PES2020 proposal to your organisation's internal H2020 support function, not the H2020 proposal.

- Applying:
- Reporting:

Voluntary comment:

Immediate results of the PES2020 grant

If you have received a PES2020 grant in connection with more than one H2020 proposal, please respond to the questions on this page based on your most recent H2020 proposal (and the corresponding PES2020 grant).

What did you use the PES2020 grant for? Multiple answers possible.

- To pay someone to temporarily take on part of your responsibilities (universities/university colleges and hospital trusts only)
- To spend time preparing the H2020 proposal on a paid client project (institutes only)
- To travel to meet consortium partners
- To buy proposal assistance services (ghost-writing, pre-screening etc.) within the organisation
- To buy proposal assistance services (ghost-writing, pre-screening etc.) outside the organisation
- Other, please specify:

Voluntary comment

Please assess the following statements on what the PES2020 grant meant for you and your organisation. The PES2020 grant…

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- Made it easier to prioritise working on the H2020 proposal
- Made it easier to motivate within the organisation to work on the H2020 proposal
- Enabled you to spend more time preparing the H2020 proposal
- Meant that you received valuable advice from the organisation's internal H2020 support function
- Resulted in the organisation taking on larger responsibilities in the proposed H2020 project
- Resulted in the organisation getting a larger share of the proposed H2020 project budget
- Resulted in the consortium including additional Norwegian partners (in addition to your organisation)
- Resulted in a more competitive H2020 proposal with a higher chance of receiving funding

If you had <u>not</u> received a PES2020 grant, the H2020 proposal…

- Would have been submitted anyway, and it would have been equally competitive
- Would have been submitted anyway, but it would have been less competitive
- Would not have been submitted

Please elaborate on the importance of PES2020 grants (optional).

(Open question)

Lasting impacts of the PES2020 grant

If you have received several PES2020 grants from your organisation's internal H2020 support function, please assess the statements on this page based on your <u>compound</u> experiences of such grants and corresponding H2020 proposals.

The experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made you more knowledgeable in terms of…

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- What it takes to prepare a competitive H2020 proposal
- How to build a competitive H2020 consortium
- H2020 participation rules

The experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have allowed you to expand your network…

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- Of Norwegian universities and/or institutes
- Of Norwegian public-sector organisations
- Of Norwegian companies
- Of foreign universities and/or institutes
- Of foreign companies
- Of RCN officials
- Of European Commission officials

The experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made you more competent/qualified…

(Fully disagree, Disagree, Neither disagree nor agree, Agree, Fully agree, Don't know)

- To take the initiative to additional H2020 proposals
- To contribute to H2020 proposals as partner
- To coordinate single-partner H2020 proposals (e.g. ERC)
- To coordinate multi-partner H2020 proposals

Future of the PES2020 measure

Please respond to the questions on this page considering the remainder of H2020 and the upcoming FP9, collectively denoted Framework Programmes (FPs).

If the PES2020 measure is continued in the future, how could your administrative burden to apply for and report on PES2020 grants be reduced?

(Open question)

If the PES2020 grant amount to FP proposers were increased, would you be more likely…? Multiple answers possible.

- To take the initiative to FP proposals
- To contribute to FP proposals as partner
- To coordinate single-partner FP proposals (e.g. ERC)
- To coordinate multi-partner FP proposals

If PES2020 grants to FP proposers were not available, would you submit…?

- No FP proposals
- Fewer FP proposals
- Equally many FP proposals
- Don't know

If PES2020 grants to FP proposers were not available, would you submit…?

- Less competitive FP proposals
- Equally competitive FP proposals
- Don't know/Not applicable

Please elaborate on the future of the PES2020 measure (optional).

(Open question)

C.3 Survey results from surveys 1–4

This section presents a selection of results from surveys 1–4 to complement the results provided in Chapter 3.

Table 26 Distribution of respondents that were coordinators vs. partners of the most recent H2020 proposal.

	HEIs			Hospital trusts			Institutes			Companies		
	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total
Yes, I coordinated a multi-partner proposal	42%	17%	34%	27%	7%	16%	43%	10%	38%	46%	14%	32%
Yes, but the proposal only involved my own organisation	19%	19%	19%	18%	7%	12%	4%	3%	4%	30%	14%	23%
No, my organisation was partner	39%	64%	47%	55%	86%	72%	52%	87%	58%	24%	72%	46%
Number of responses	**197**	**95**	**292**	**11**	**14**	**25**	**145**	**30**	**175**	**143**	**118**	**261**

Source: Web surveys.

Table 27 Distribution of respondents on to which part of H2020 they submitted the most recent H2020 proposal.

	HEIs			Hospital trusts			Institutes			Companies		
	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total
Cross-theme	5%	4%	4%	0%	0%	0%	2%	10%	3%	1%	1%	1%
Eurostars	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31%	14%	23%
Excellent Science	57%	59%	58%	55%	36%	44%	23%	20%	22%	10%	31%	20%
Industrial Leadership (LEIT)	3%	5%	4%	0%	7%	4%	12%	17%	13%	30%	20%	26%
Societal Challenges	36%	32%	34%	45%	57%	52%	63%	53%	62%	29%	34%	31%
Number of responses	**197**	**95**	**292**	**11**	**14**	**25**	**145**	**30**	**175**	**143**	**118**	**261**

Source: Web surveys.

Table 28 Distribution of respondents on when the most recent H2020 proposal was submitted.

	HEIs			Hospital trusts			Institutes			Companies		
	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total
2013	4%	2%	3%	0%	0%	0%	2%	0%	2%	1%	2%	2%
2014	8%	9%	9%	18%	7%	12%	3%	13%	5%	3%	9%	6%
2015	16%	16%	16%	18%	14%	16%	7%	17%	9%	6%	13%	9%
2016	22%	19%	21%	18%	29%	24%	21%	33%	23%	29%	22%	26%
2017 (Jan – Apr)	22%	17%	21%	36%	29%	32%	28%	13%	26%	17%	27%	21%
2017 (May – Dec)	12%	14%	12%	9%	14%	12%	10%	10%	10%	22%	16%	19%
2018	16%	23%	18%	0%	7%	4%	28%	13%	26%	22%	11%	17%
Number of responses	**197**	**95**	**292**	**11**	**14**	**25**	**145**	**30**	**175**	**143**	**118**	**261**

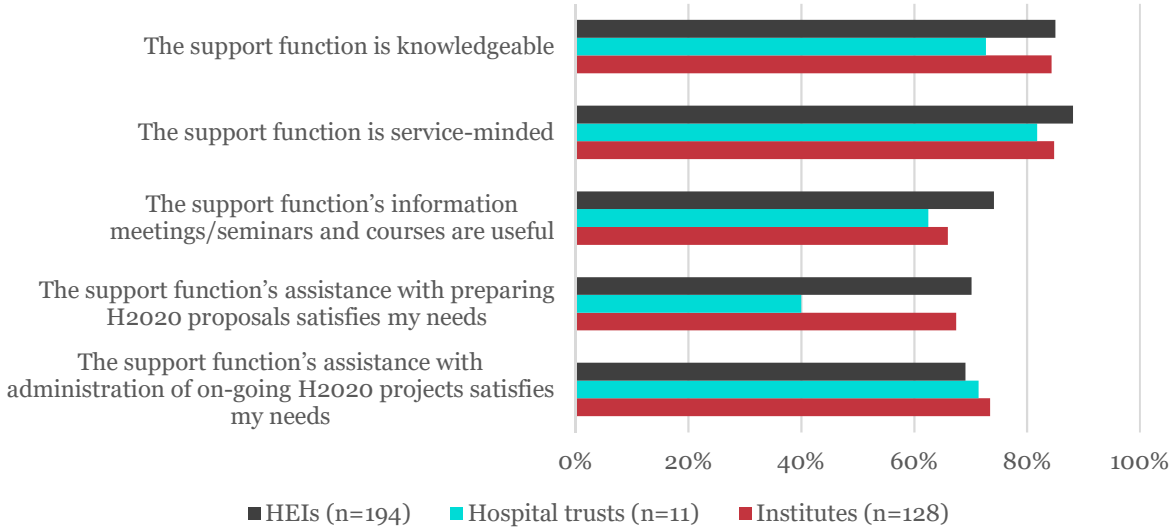
Source: Web surveys.

Table 29 Distribution of respondents receiving advice from their organisations internal H2020 support function when preparing the most recent H2020 proposal.

	HEIs			Hospital trusts			Institutes			Companies		
	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total	With PES2020	Without PES2020	Total
Yes	88%	69%	82%	73%	50%	65%	73%	29%	71%	N/A	N/A	N/A
No	12%	31%	18%	27%	50%	35%	27%	71%	29%	N/A	N/A	N/A
Number of responses	**195**	**91**	**286**	**11**	**6**	**17**	**143**	**7**	**150**	**0**	**0**	**0**

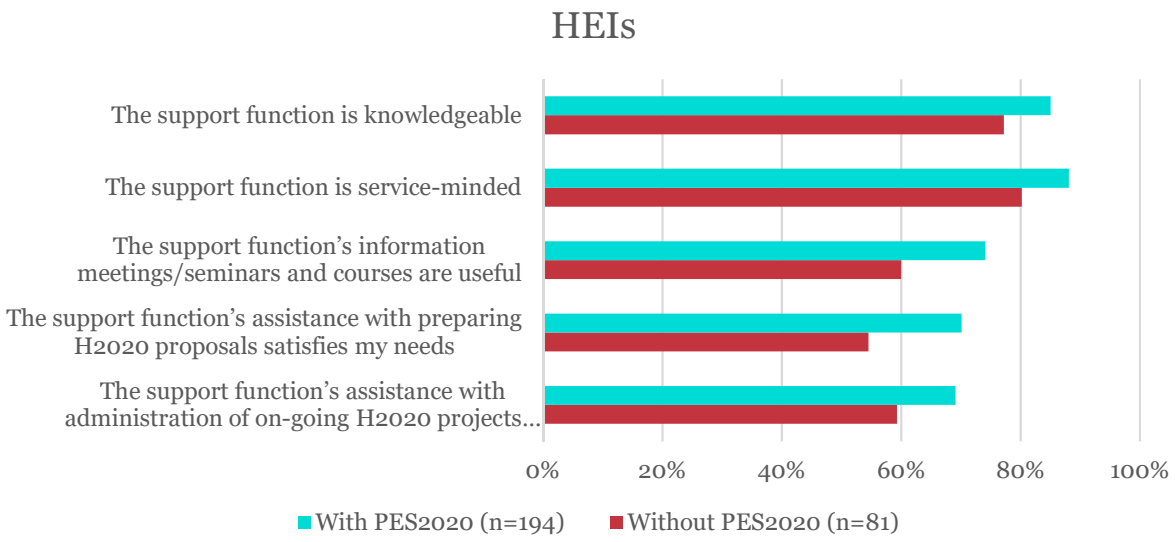
Source: Web surveys.

Figure 85 Beneficiaries' assessments on the following statements on the organisation's internal H2020 support function (share of respondents agreeing)



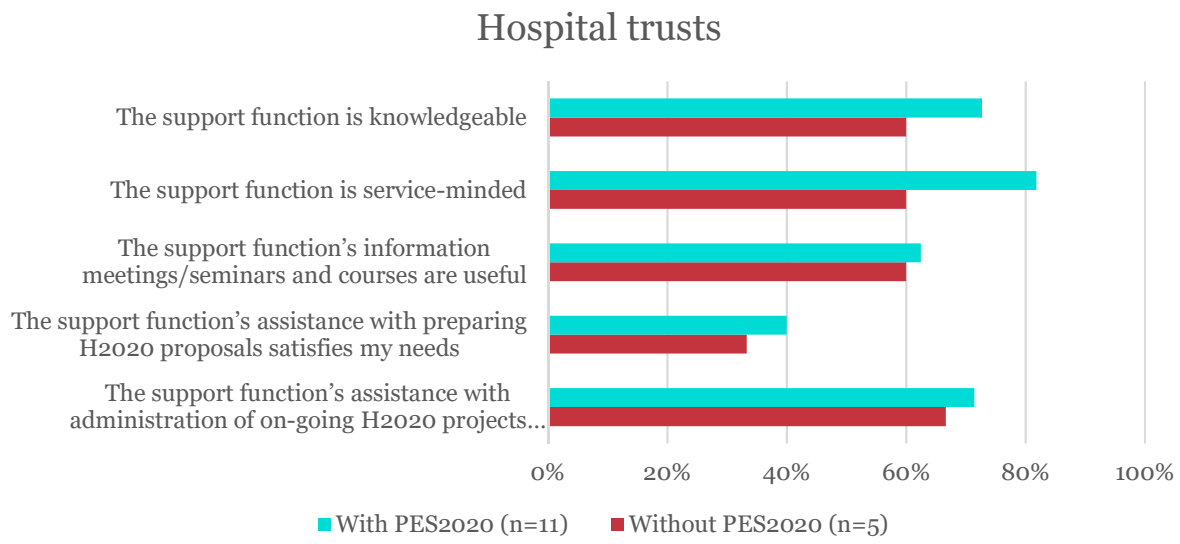
Source: Web surveys.

Figure 86 Beneficiaries' and non-beneficiaries' assessments on the following statements on the organisation's internal H2020 support function (share of respondents agreeing). HEIs only.



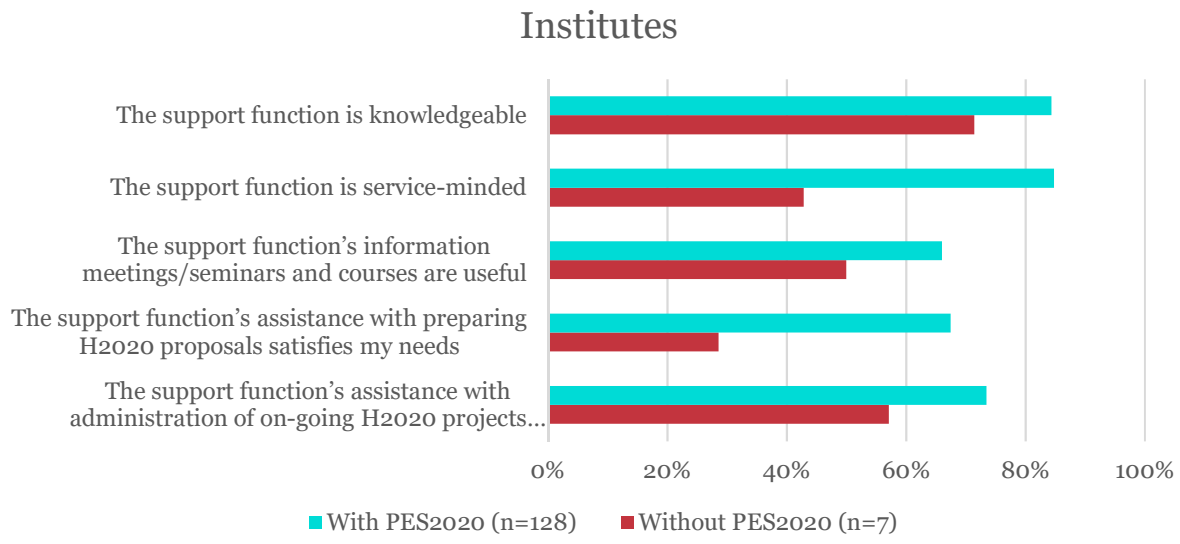
Source: Web surveys.

Figure 87 Beneficiaries' and non-beneficiaries' assessments on the following statements on the organisation's internal H2020 support function (share of respondents agreeing). Hospital trusts only.



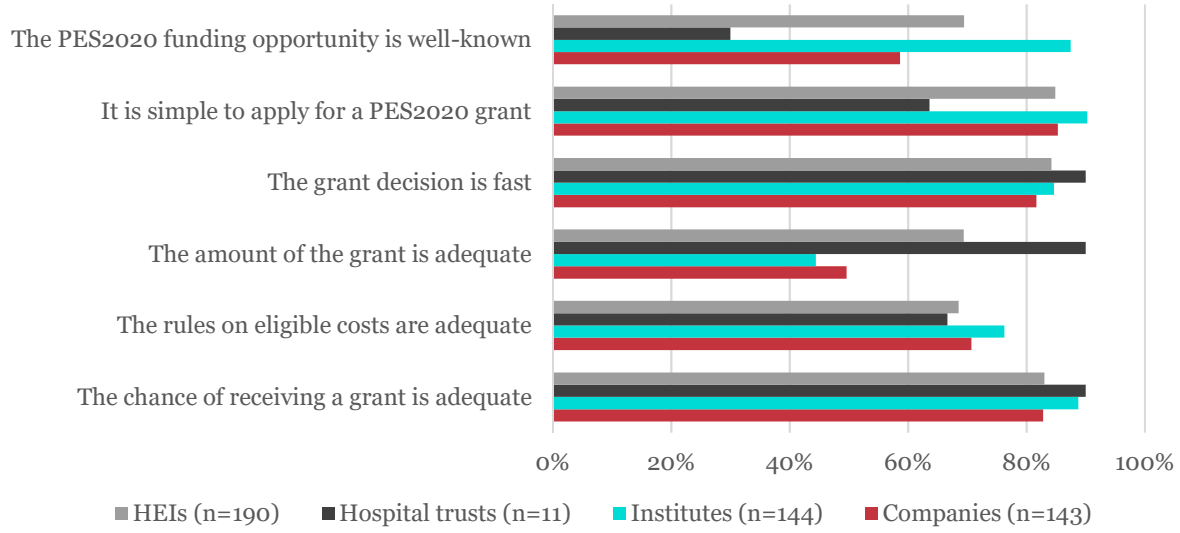
Source: Web surveys.

Figure 88 Beneficiaries' and non-beneficiaries' assessments on the following statements on the organisation's internal H2020 support function (share of respondents agreeing). Institutes only.



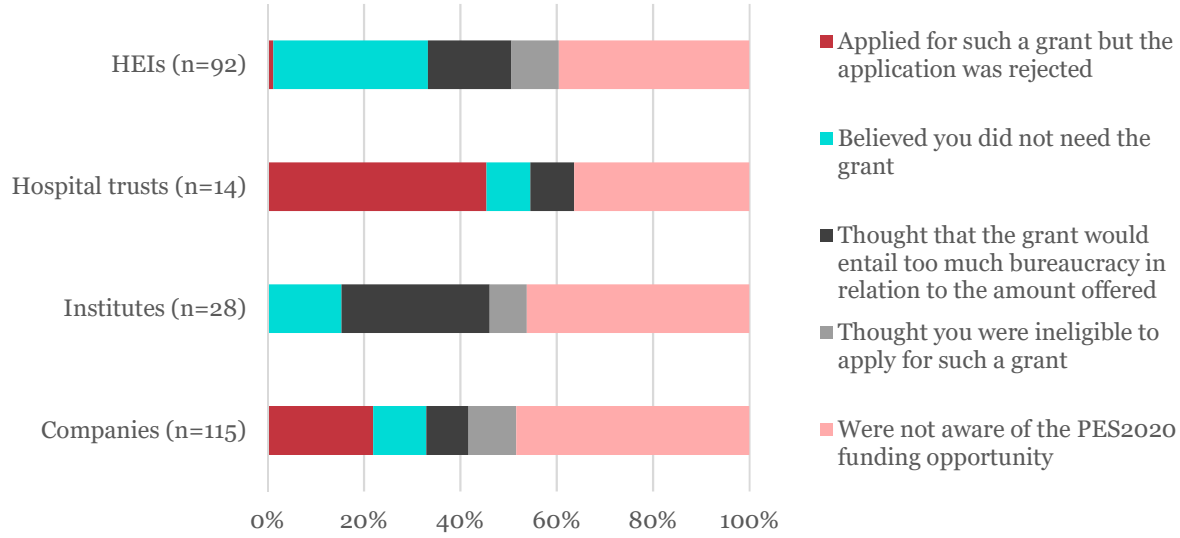
Source: Web surveys.

Figure 89 Beneficiaries' assessments on the following statements on the PES2020 funding opportunity for H2020 proposal writing offered by their organisation's internal H2020 support function/RCN (share of respondents agreeing).



Source: Web surveys.

Figure 90 Non-beneficiaries on the reason for them not receiving a PES2020 grant from their organisation's internal H2020 support function/RCN.



Source: Web surveys.

Table 30 Time (in hours) beneficiaries spent on applying for the PES2020 grant.[53]

	HEIs	Hospital trusts	Institutes	Companies
Mean	5,5	2,9	7	12,2
Median	2	3	2	8
Min.	0	0,5	0	0
Max.	50	5	50	50
N	139	7	95	103

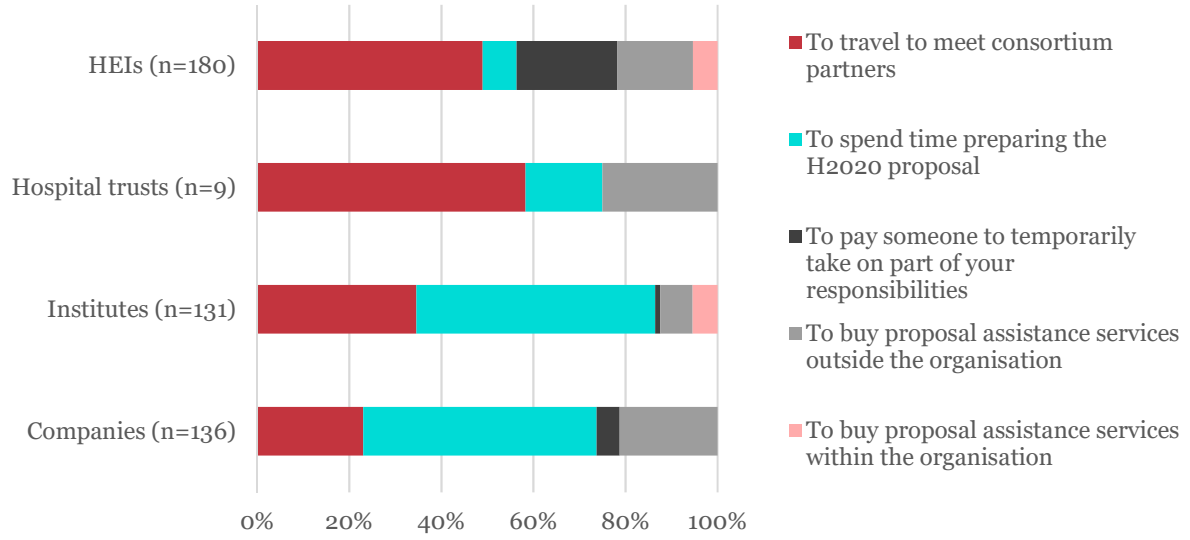
Source: Web surveys.

Table 31 Time (in hours) beneficiaries spent on reporting on the PES2020 grants.

	HEIs	Hospital trusts	Institutes	Companies
Mean	3	3	4,3	8
Median	1,5	2,5	1	5
Min.	0	2	0	0
Max.	50	5	50	50
N	137	6	89	111

Source: Web surveys.

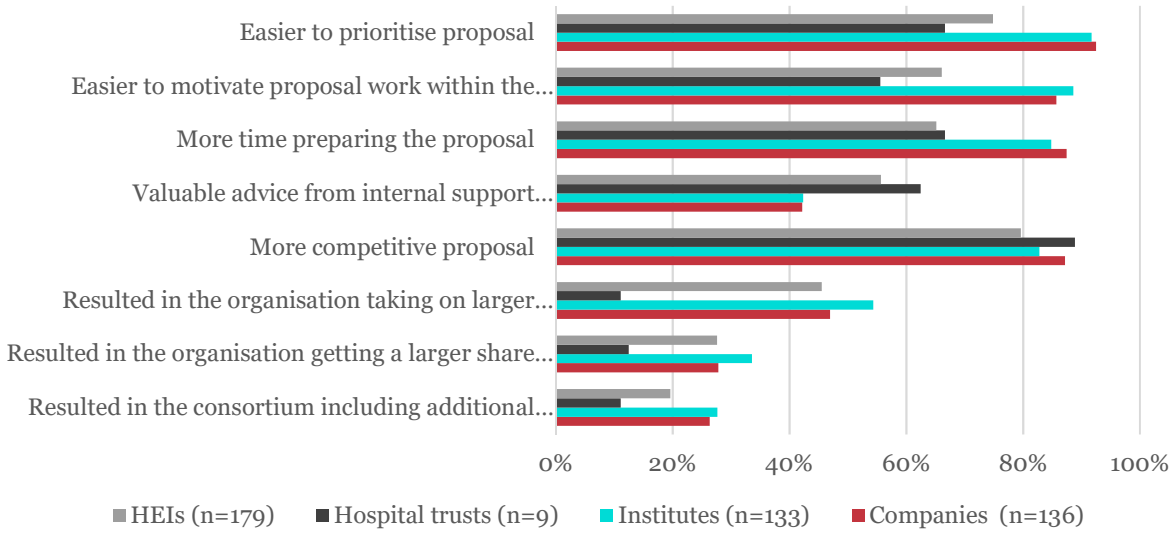
Figure 91 Beneficiaries' on what they used the PES2020 grant for (share of respondents opting for the alternative).



Source: Web surveys.

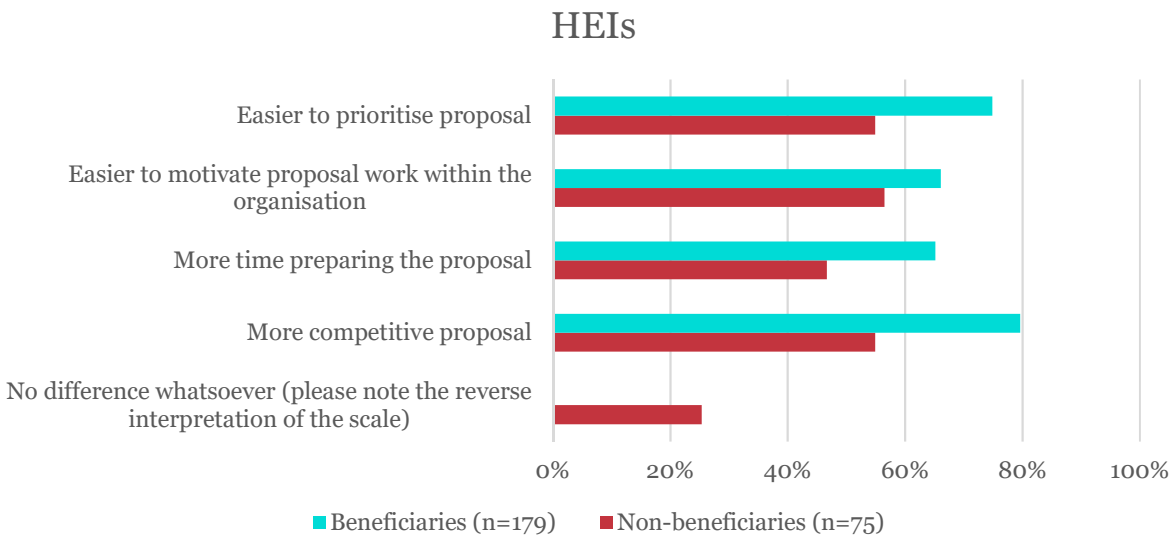
53 Despite explicit instructions, some respondents must have answered thinking about the H2020 proposal and not the PES2020 proposal given some very large numbers of hours (ranging into the thousands). We therefore have chosen to ignore the few responses exceeding 50 h for either applying or reporting.

Figure 92 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations (share of respondents agreeing).



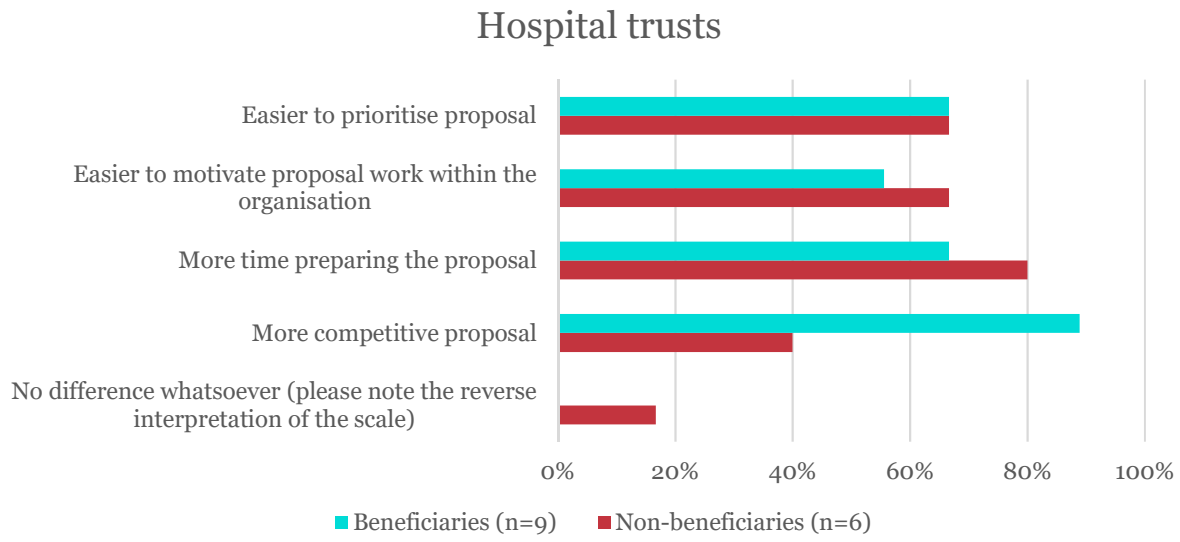
Source: Web surveys.

Figure 93 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations compared to non-beneficiaries' (HEIs) assessments on what they think a PES2020 grant would have meant for them (share of respondents agreeing). HEIs only.



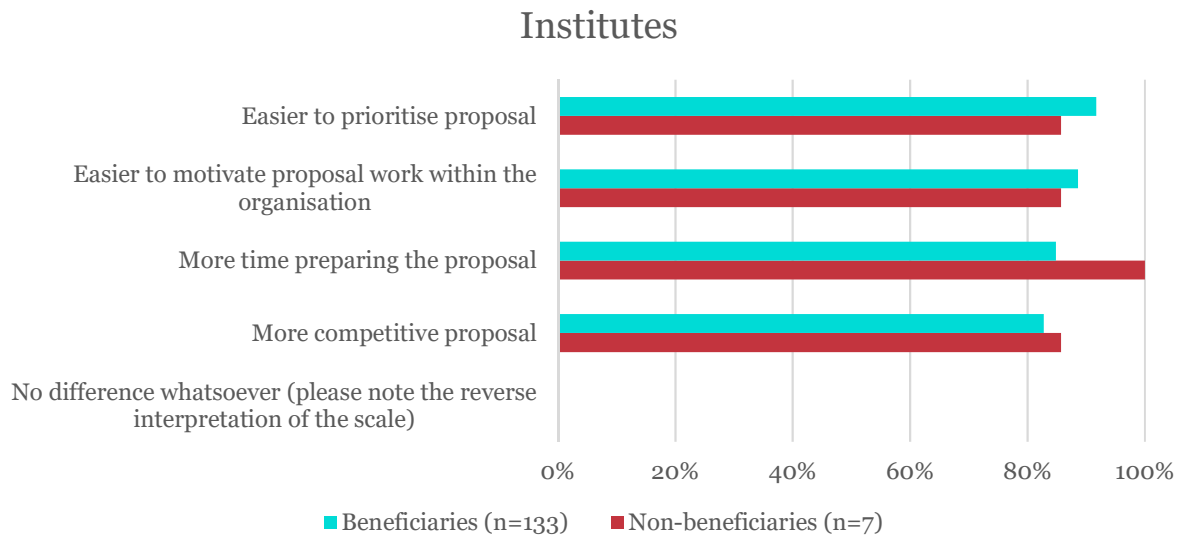
Source: Web surveys.

Figure 94 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations compared to non-beneficiaries' (hospital trusts) assessments on what they think a PES2020 grant would have meant for them (share of respondents agreeing). Hospital trusts only.



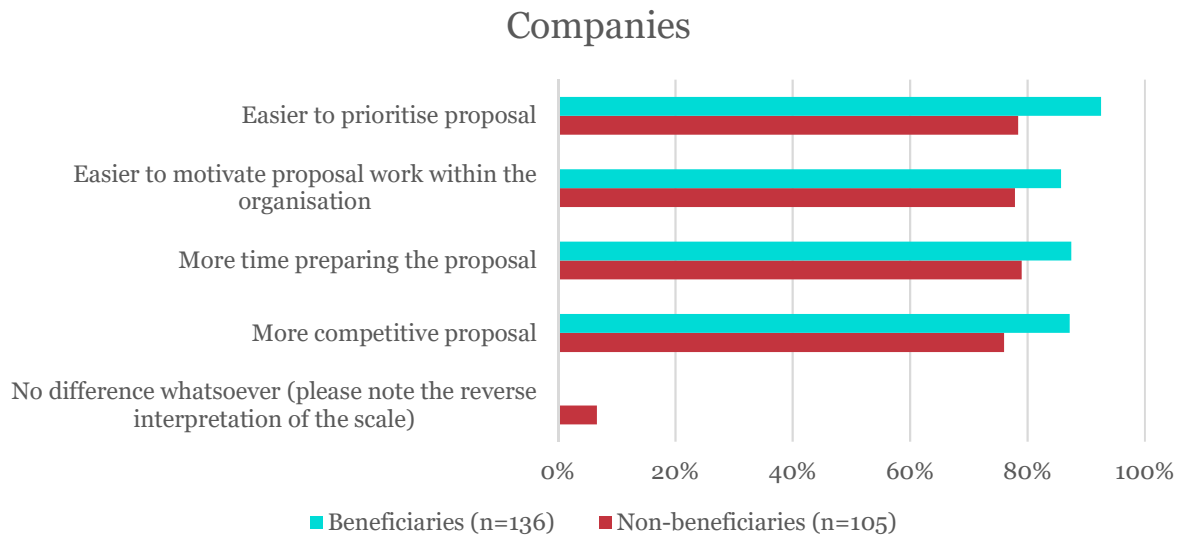
Source: Web surveys.

Figure 95 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations compared to non-beneficiaries' (institutes) assessments on what they think a PES2020 grant would have meant for them (share of respondents agreeing). Institutes only.



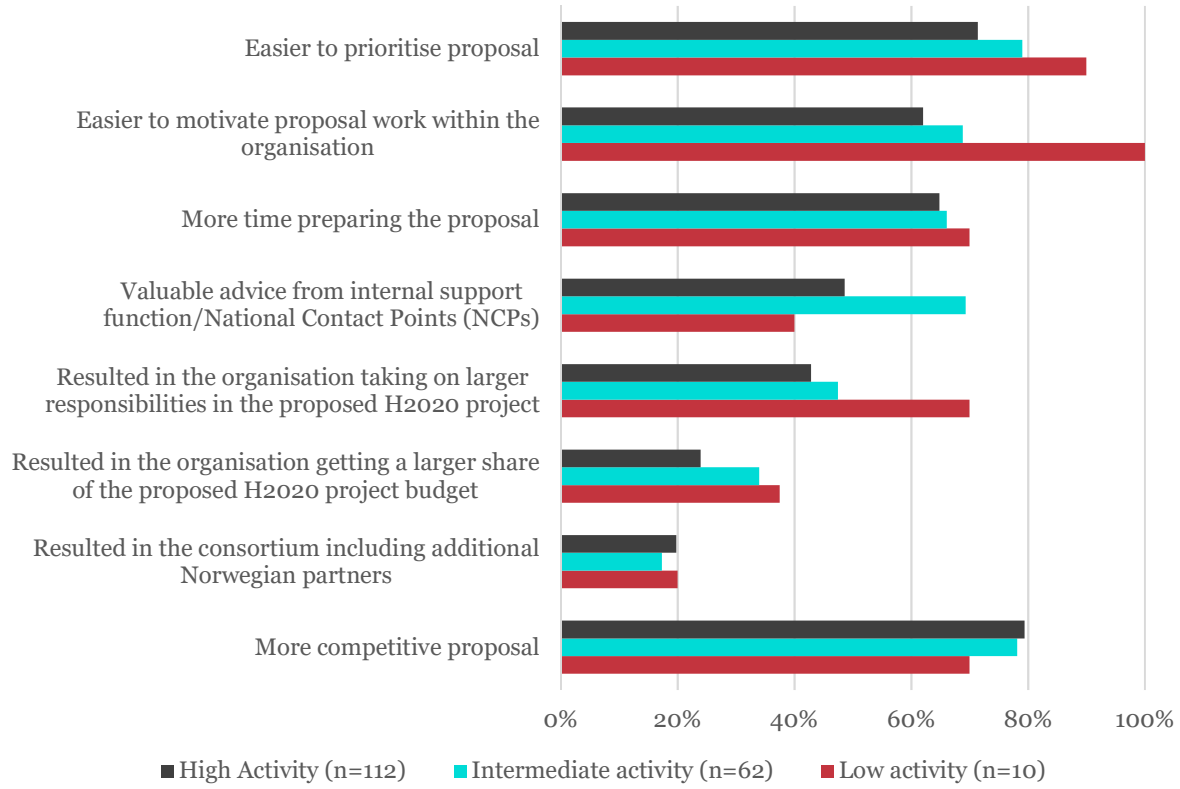
Source: Web surveys.

Figure 96 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations compared to non-beneficiaries' (companies) assessments on what they think a PES2020 grant would have meant for them (share of respondents agreeing). Companies only.



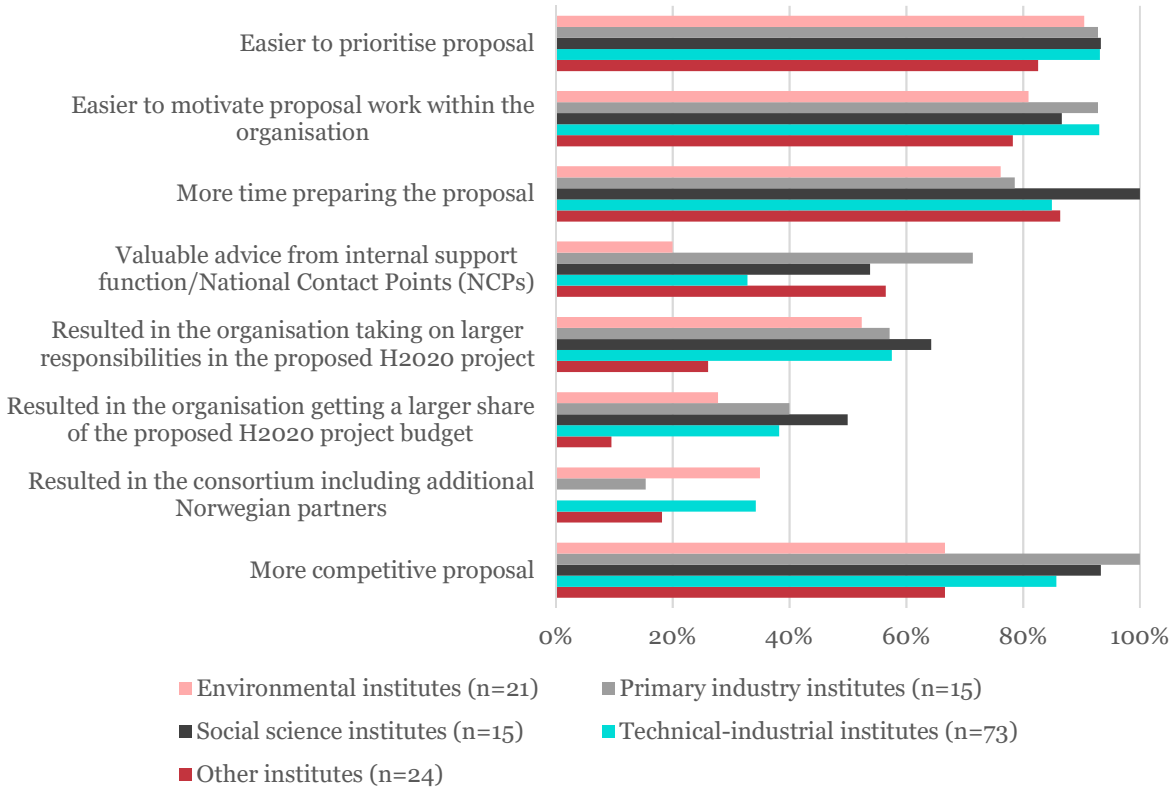
Source: Web surveys.

Figure 97 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations, distributed on H2020 proposal activities of HEIs (share of respondents agreeing).



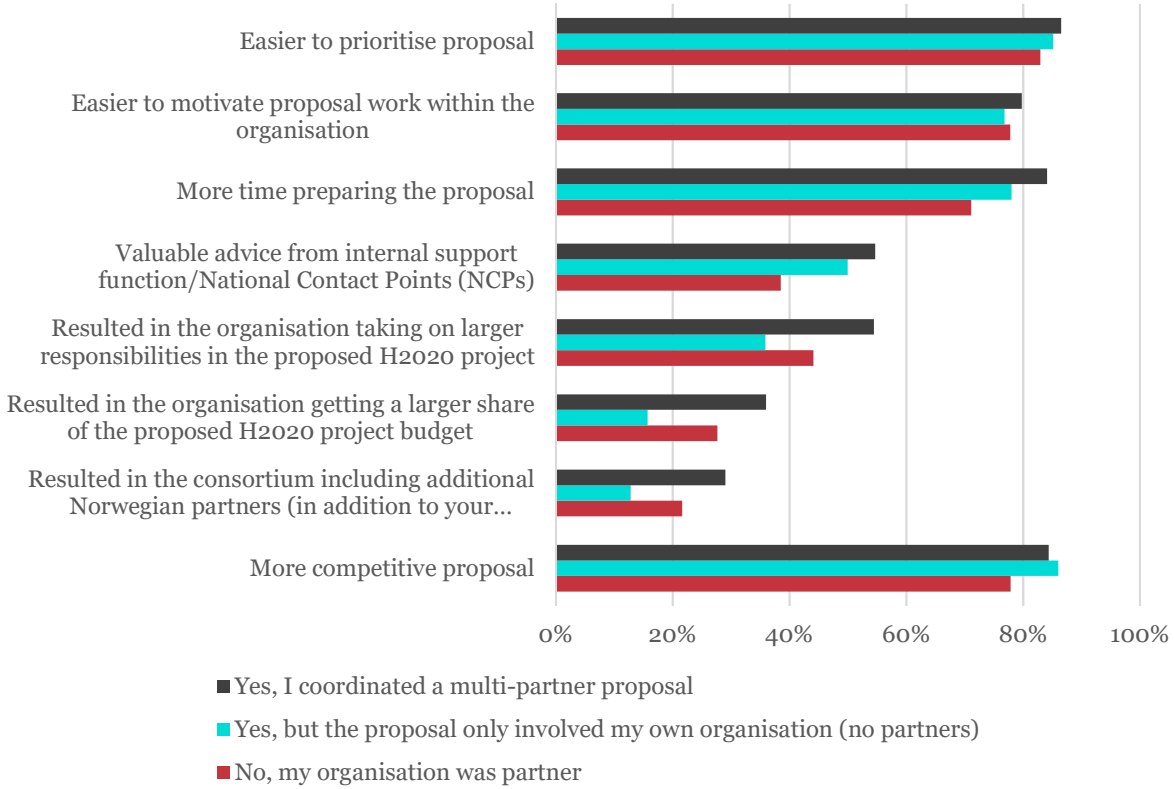
Source: Web surveys.

Figure 98 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations, distributed on institute categories (share of respondents agreeing).



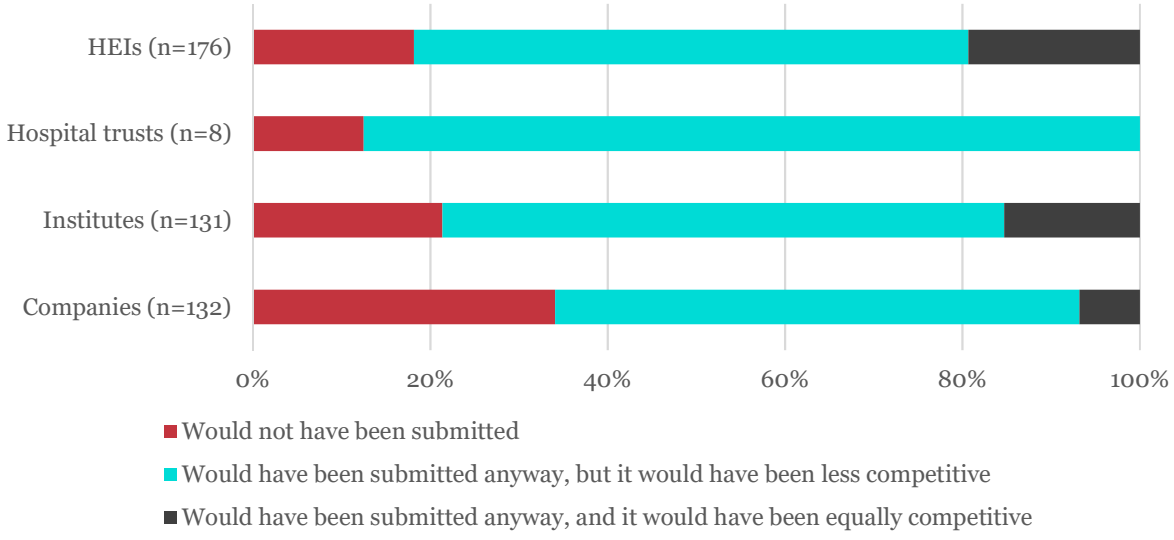
Source: Web surveys.

Figure 99 Beneficiaries' assessments on the following statements on what the PES2020 grant meant for them and their organisations, distributed on co-ordinators and partners (share of respondents agreeing).



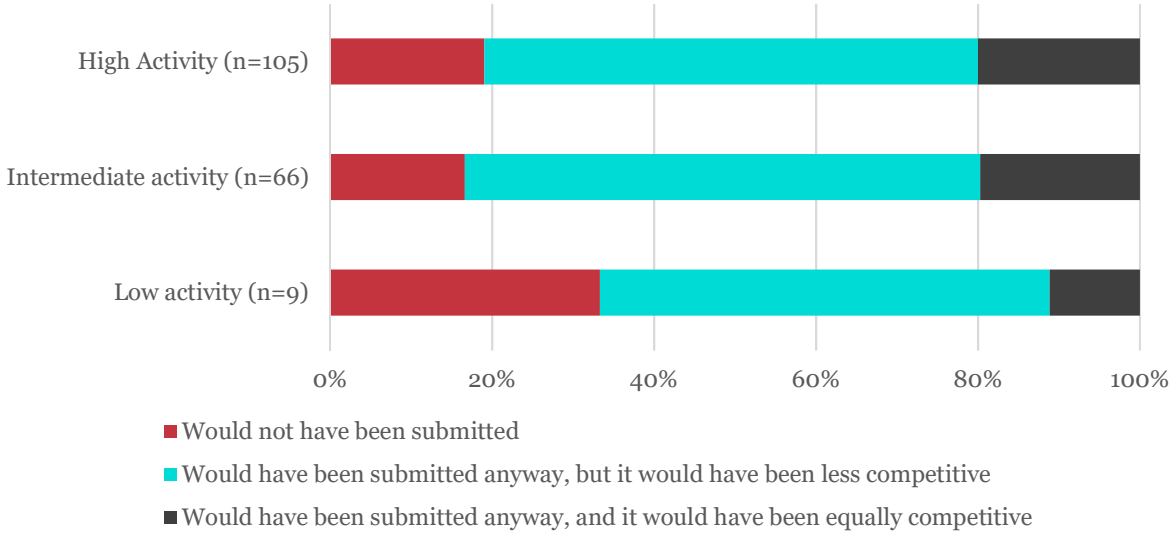
Source: Web surveys.

Figure 100 Beneficiaries' assessments on what would have happened if they had not received a PES2020 grant (share of respondents opting for the alternative).



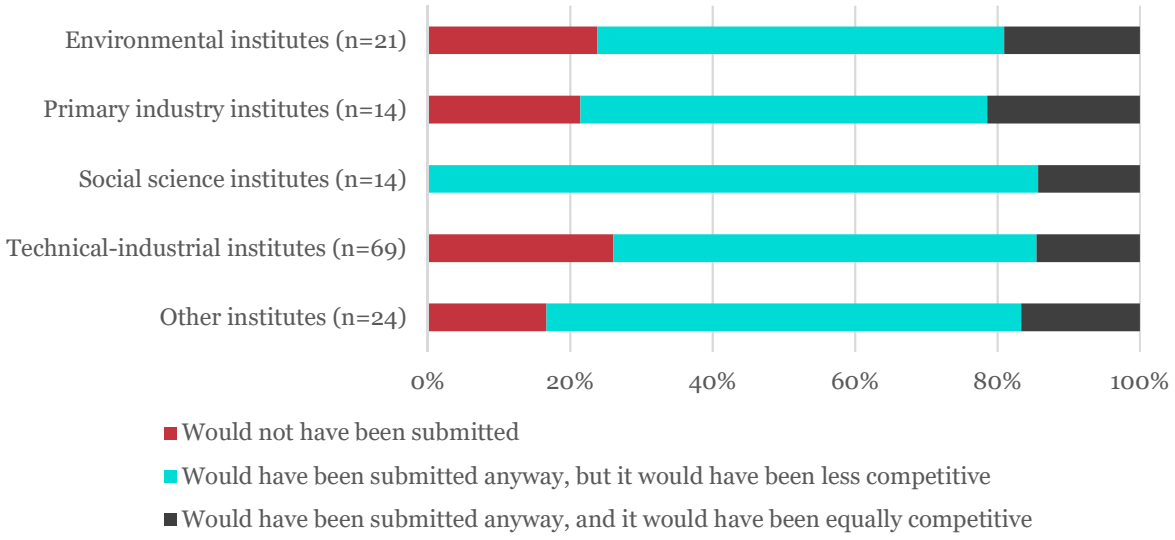
Source: Web surveys.

Figure 101 Beneficiaries' assessments on what would have happened if they had not received a PES2020 grant, distributed on HEI categories (share of respondents opting for the alternative).



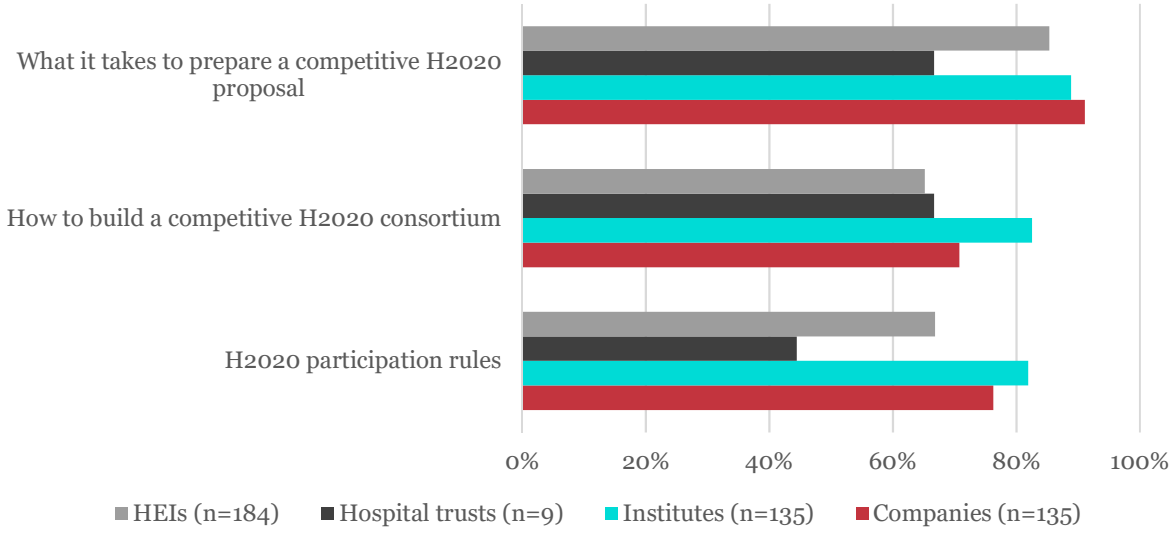
Source: Web surveys.

Figure 102 Beneficiaries' assessments on what would have happened if they had not received a PES2020 grant, distributed on institute categories (share of respondents opting for the alternative).



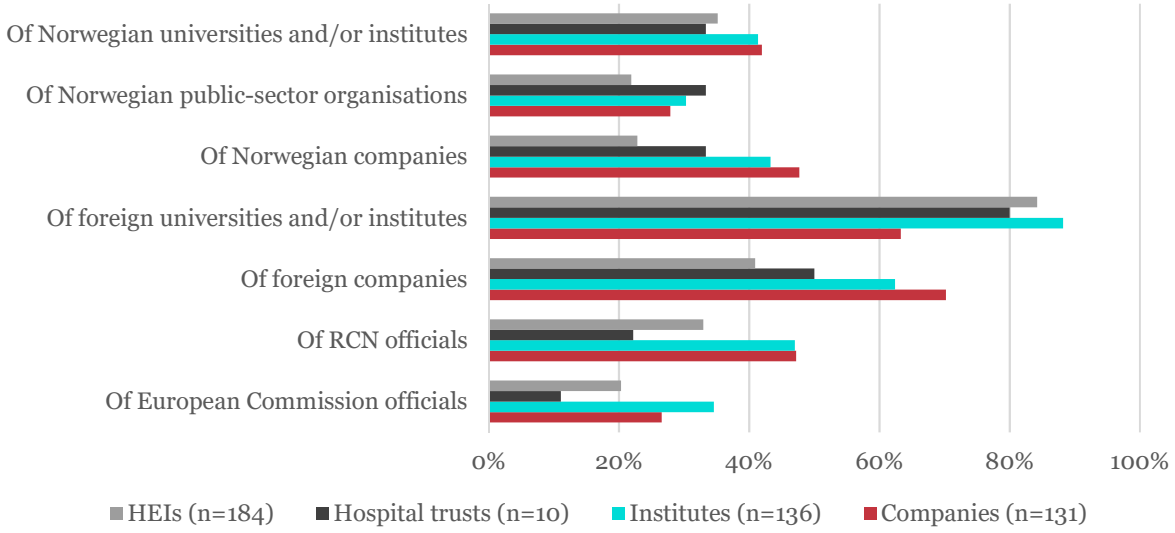
Source: Web surveys.

Figure 103 Beneficiaries' on the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made them more knowledgeable in terms of… (share of respondents agreeing).



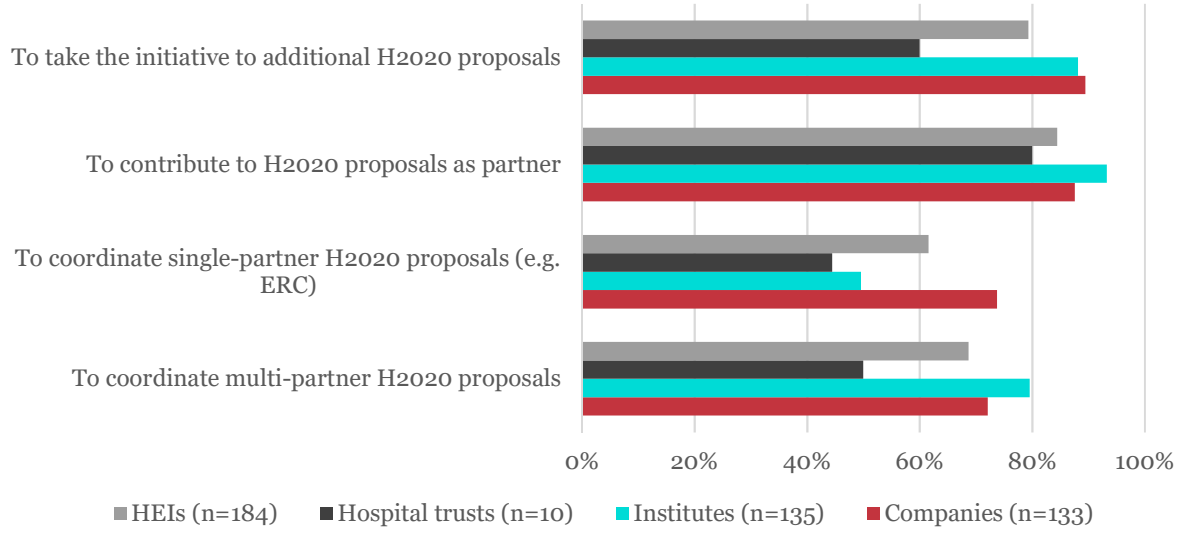
Source: Web surveys.

Figure 104 Beneficiaries' on the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have allowed them to expand their network… (share of respondents agreeing).



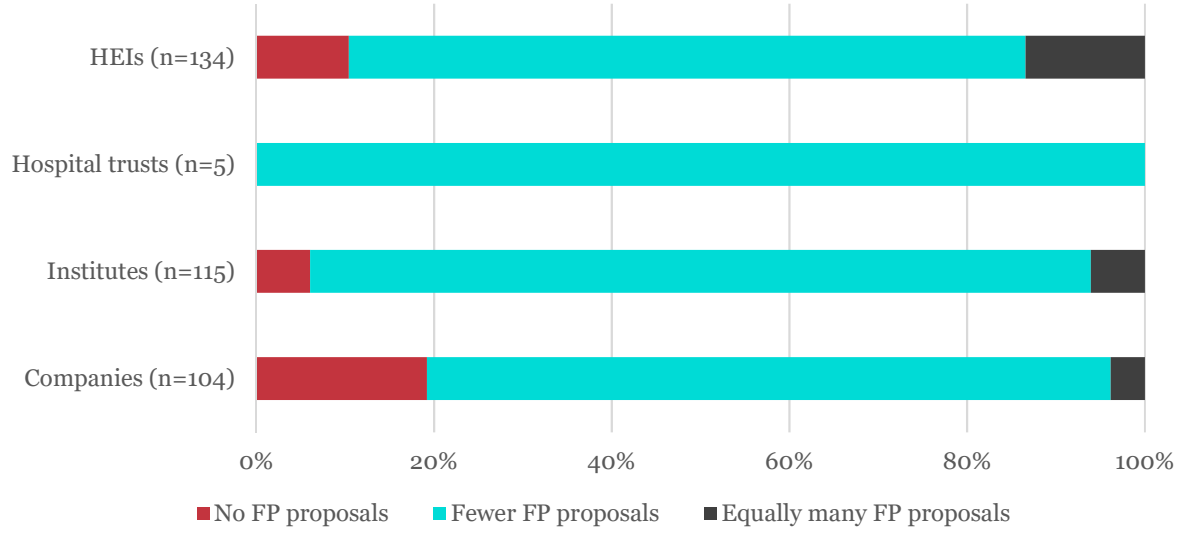
Source: Web surveys.

Figure 105 Beneficiaries' on the experiences gained in preparing H2020 proposal(s) part-funded by PES2020 grant(s) have made them more competent/qualified regarding… (share of respondents agreeing).



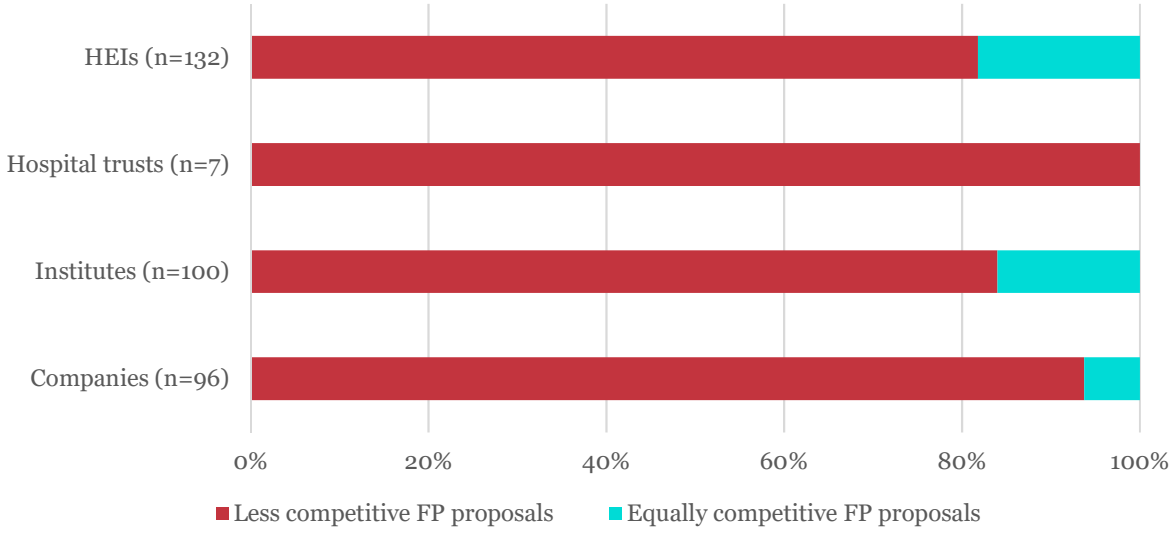
Source: Web surveys.

Figure 106 Beneficiaries' assessments on the number of proposals they would submit if PES2020 grants to FP proposers were not available (share of respondents opting for the alternative).



Source: Web surveys.

Figure 107 Beneficiaries' assessments on the competitiveness of the proposals if PES2020 grants to FP proposers were not available (share of respondents opting for the alternative).



Source: Web surveys.

Appendix D Interviewees, international reference group and Advisory Committee

D.1 Interviewees

Randi Aarekol Basmadjian	RCN
Reidar Buvik	SINTEF Group
Ricardo Colomo	HiOF
Nynke Cornelissen-Smits	Dutch Ministry of Education, Culture and Science
Thanh Van Do	Telenor
Cecilie Flyen	SINTEF Building and infrastructure
Inge Røinaas Gran	SINTEF Energi
Martha Grønning	RCN
Torunn Hancke	UiO
Tor Soyland Hansen	Elkem
Kristin Hansen	UiB
Carina Hundhammer	RCN
Katerina Kousoulaki	NOFIMA
Ernst Kristiansen	SINTEF Group
Bjørn Langerud	NIBIO
Kyrre Lekve	Simula
Anne Lycke	NORSAR
Dirk Meier	Integrated Detector Electronics
Kari Nygaard	NILU
Frode Paulsen	Veterinærinstituttet
Rupert Pichler	Austrian Federal Ministry for Transport, Innovation and Technology
Josephine Rasmussen	NIKU
Mathias Rauch	Fraunhofer-Gesellschaft
Espen Remme	OUS
Anne Risbråthe	NOFIMA
Ketil Rønning	RCN
Øyvin Sæther	NTNU
Martin Sending	OUS
Sverre Sogge	RCN
Mette Topnes	UiO

Lars Ole Valøen	Grenland Energy
Elisabeth Wiker	RCN
Anders Ødegaard	Danish Agency for Science and Higher Education, Ministry of Higher Education and Science

D.2 International reference group

Nynke Cornelissen-Smits	Dutch Ministry of Education, Culture and Science
Rupert Pichler	Austrian Federal Ministry for Transport, Innovation and Technology
Mathias Rauch	Fraunhofer-Gesellschaft
Anders Ødegaard	Danish Agency for Science and Higher Education, Ministry of Higher Education and Science

D.3 Advisory Committee

		Inception meeting 6 March 2018	Interim meeting 21 June 2018	Validation workshop 23 August 2018
Maria Erdal Askim	IN		X	
Bente Bakos	RCN		X	
Izabela Ewa Buraczewska	MER	X	X	X
Kristin Danielsen	RCN	X		X
Pål Gretland	NFD	X	X	
Kristin Hansen	UiB	X	X	X
Agnes Landstad	FFA	X	X	X
Christen Soleim	UiB	X		X
Tone Varlsot Stave	IN	X		X
Bente Bakos	*RCN*			*X*
Randi Aarekol Basmadjian	*RCN*		*X*	*X*
Marta Grønning	*RCN*	*X*	*X*	*X*
Christen Krogh	*RCN*		*X*	
Ketil Rønning	*RCN*	*X*	*X*	*X*
Sverre Sogge	*RCN*			*X*
Helen Andréasson	*Technopolis Sweden*	*X*	*X*	*X*
Erik Arnold	*Technopolis UK*		*X*	*X*
Neil Brown	*Technopolis UK*		*X*	*X*
Tomas Åström	*Technopolis Sweden*	*X*	*X*	*X*

Appendix E International outlook

E.1 Austria

E.1.1 Participation in Horizon 2020

As of March 2018, Austrian players have participated 14,275 times in 10,364 proposals to Horizon 2020, which equates to around 2.5% of all participations and 6.5% of all proposals. Per 1,000 FTE researchers, Austria has participated 204 times in 148 proposals so far. This is clearly higher than in Germany, but lower than in all comparator countries of comparable size, ie Norway, Denmark and the Netherlands.

Some 39% of all Austrian participations in proposals are accounted for by private for profit organisations (PRC), higher education organisations (HES) account for one third (34%), and research organisations (REC) account for one fifth of participations in proposals (20%). Other organisations (OTH) and Public bodies (PUB) account for less than 10% of all Austrian participations in proposals (4% and 2%) respectively. The share of Austrian PRC participation is higher than in the comparator countries but is nearly the same as the average across all countries participating in the FP. The proportion accounted for by HES is similar to that of Norway, Germany and the overall average, but below that of the Netherlands and Denmark.

By March 2018, 2,424 grants had been awarded to Austrian participants in 1,579 projects in H2020. This equates to around 2.8% of all successful participations and 8.7% of all projects selected for funding. Normalised to the number of FTE researchers, 35 grants have been awarded to Austrian participants in 23 projects per 1,000 FTE researchers. These rates equal the Norwegian figures, are similar to the results for the Netherlands and Denmark, and significantly higher than for Germany.

Some 38% of Austrian participations in projects are accounted for by PRC, 28% by HES, and 22% by REC. OTH and PUB account for 6% of successful participations. The share of Austrian participation accounted for by PRC equals the data for Germany, and both are higher than in the comparator countries and the overall average of countries. As a consequence, the proportion accounted for by HES are smaller in Austria and Germany than in the other countries and on average.

So far, 17% of Austrian participations in Horizon 2020 proposals have been successful. This is higher than the overall H2020 average and higher than in the comparator countries (although only marginally). The success rate of proposals with Austrian involvement is 15%, which equals the rate for the Netherlands and is higher than in the other comparators and the overall average (11,5%). Comparing the success rates for the different types of organisations, Austrian PUB and PRC have achieved higher success rates than in the comparator countries and the overall average. OTH and REC tended to reach (slightly) higher success rates than the average, and Austrian HES just reach the overall average.

For Austrian R&D performers it is often more promising to apply for national funding: Austria has many competitive funding programmes for R&D in place, with many different thematic and / or structural priorities, and although success rates differ, with few exceptions they range between some 20% for basic research projects at the Austrian Science Fund and up to 65% for the funding of industrial R&D projects in the Austrian Research Promotion Agency's "Basisprogramm". This might explain, why the normalised participation of Austrian researchers is smaller than in most of the comparator countries.

E.1.2 Sketch of the research system

In Austria, the biggest research performers in terms of volume are the business enterprise sector and the higher education sector. 71% of FTE researchers are employed in the business sector, and 25% in the higher education sector. The statistical definition of the business sector includes RTOs working mainly for companies, which account for 7% of FTE researchers. The public sector employed 4% of FTE researchers and the private non-profit sector only 1%.

Among the institutions receiving public institutional funding, public universities play by far the largest role: Of all public institutional research funding in 2014, nearly 80% (1,500 Mill. Euro) went to public

universities. Some 8% went to the three largest non-university research institutes together, i.e. Austrian Academy of Science, the IST Austria and the Austrian Institute of Technology AIT. A large number of other organisations receive public institutional research funding, but they share less than 12% of the total spent in 2014, i.e. they are comparatively small and public institutional research funding often contributes just small percentages of their total available budget. Private universities and private research organisations do not receive public institutional funding in Austria (by definition of private). We now have a closer look at the most important players of the Austrian institute system[54]:

Higher education institutes (HEI)

Within the higher education sector (HES) the 22 public universities (including the university hospitals) play by far the largest role as research performers, consuming 87% of the sector's total R&D budget in 2015 (all sources of funding); another 5% went to the Austrian Academy of Sciences[55] and 3.7% to the "Fachhochschulen" (Universities of Applied Sciences). The rest of the R&D expenditures within the HES was spent at private universities and other institutions. Not all of these institutions receive public institutional funding.

These are the most important players in the HEI sector.

- 22 public universities
  - 21 universities offering the full range of tertiary education. Their traditional missions are teaching and research. Together, the public universities are the backbone of post-secondary education and of basic research in Austria and also perform applied research. However, they are very different in age, size and thematic specialisation which is also reflected in the scope of their research activities and, consequently, in their H2020 participation statistics: While some public universities, especially universities with a technical or medical specialisation, are among the most active participants in H2020, this programme plays only a minor role for the six universities of the arts with their strong focus on teaching and comparably small (arts-based) research activities.
  - 1 university of further education, offering only post-graduate courses and playing only a minor role as a research performer, both nationally and internationally
- The Institute of Science and Technology Austria (IST Austria): Newly founded by law in 2006, established as a greenfield investment, it is dedicated to internationally competitive basic research and graduate education in natural and mathematical science. It has grown to become one of the most active Austrian H2020 participants and is particularly successful in the ERC

Research organisations (REC)

The group of organisations classified as REC in H2020 is very heterogeneous and it comprises a large number of very different institutions. Their tasks range from basic research to providing R&D services for industry. They play a small role as R&D performers compared to the business sector and the higher education sector.

The Austrian Academy of Science: The Academy is a learned society and the largest non-university performer of basic research in Austria, mainly in fields complementary to the public universities' activities. It operates through a network of small institutes.

Austrian Institute of Technology AIT: AIT is the largest non-university research institute in Austria performing applied research. AIT covers the spectrum from taking up emerging technologies, first proof of concepts, applied research to transferring these emerging technologies into specific applications up to demonstrators and prototyping in their fields of specialisation.

54 In this report, we follow the typology used in H2020, which differs from the institutional classification of national statistics. This does not change the big picture

55 In the national R&D statistics, the Academy of Science is allocated to the higher education sector, in Cordis it is listed as REC

Regional research centres, e. g. Joanneum Research, Upper Austrian Research, Salzburg research: relatively small research centres, funded and (co-)owned by provincial authorities, mainly performing applied research and development in various thematic fields

Sectoral research institutes (government labs, "Ressortforschung").perform R&D in support of a sectoral ministry's work e. g. in the fields of environment, agriculture, forestry, water management, education etc. Some of them also provide knowledge for the specific clientele or to the public. The latter holds e.g. for the Austrian Meteorological and Geophysical Office (ZAMG), the Austrian Institute of Economic Research (WIFO), or the Environment Agency Austria

The organizational structure and governance of these institutes differs widely: Some are independent legal entities (e. g. set up as limited companies owned by the ministries in charge) and participate in H2020 as REC, e. g. the Austrian Agency of Health and Food Safety, which is among the 10 most active Austrian REC participating in H2020. Others are subordinated agencies and thus part of their respective ministry, i. e. they are not easily identified in the data because they participate under the name of their ministry and are categorized as PUB

Competence centres: There is a substantial number of 'Centres of Excellence', 'Centres of Competence' and 'Laboratories' in Austria. They are funded through a variety of targeted competitive programmes and therefore the public funding they receive[56] through these programmes is not considered institutional funding. However, some of these centres are now already in their third funding period and they are among the most active Austrian REC participants, e. g. the Virtual Vehicle Competence Centre or the Materials Centre Leoben.

Specialised research organisations: Among the very active participants in H2020 there is also a group of (mainly small) specialised research organisations, some of which have found their specific niche in FP, sometimes in managerial or consulting roles more than as researchers, e. g. the Zentrum für soziale Innovation, Bionanonet Forschungsgesellschaft, or AEE Institut für nachhaltige Technologien

Public bodies (PUB)

The most active participants in this category of organisations are the two large funding agencies in Austria, the Austrian Research Promotion Agency and the Austrian Science Fund, followed by the ministries with the largest research budgets and other intermediaries. There are hardly any "real" research performing organisations in this category, apart from some already mentioned sectoral research institutes.

Industrial research institutes

Moreover, among the more active participants in H2020, there is a number of private research institutes and private research organisations (i. e. institutes, that do not receive public institutional funding), most notably AVL List GmbH and the Institute of Molecular Pathology, both company owned research institutes, or the members of Austrian Cooperative Research, which are relatively small centres, thematically specialised, providing R&D services for companies, measurement and testing, and contract research. They are part of the RPC sector.

E.1.3 The support schemes

In Austria, **no financial support schemes** are in place for Horizon 2020. Rather, the approach has always been to focus in advice, training and intelligence and to launch national programmes shadowing FP themes to build up national capacity in relevant areas.

However, Austria has a well-established and well equipped NCP organisation, the department of European and International Programmes at the Austrian Research Promotion Agency FFG, and a network of regional and institutional[57] service structures in order to encourage and support individual

[56] The funding periods typically last 7 or 10 years, with mid-term evaluations and stop-or-go decisions at half-term.

[57] e. g. at universities

researchers and, increasingly, institutions in their approaches to H2020 through a variety of services. The NCP is hosted by FFG's European and International Programmes (FFG-EIP) division and jointly funded by the Austrian Government and the Chamber of Commerce.

The main services offered are[58]

- Consulting: Consulting ranges from the project level to the strategic institutional level – it comprises answering individual questions regarding the fit of a project idea, proposal checks for coordinators, and strategy talks with a research organisation's management in order to support a more strategic approach to international R&D collaboration
- Training: Training courses and seminars are offered on different aspects of H2020, e. g. proposal writing, project management, work programmes, legal and financial aspects. Many of them are available also as webinars
- Partner search support in Europe, mainly through the NCP networks
- Technology Transfer through the Enterprise Europe Network
- Career support through EURAXESS
- Background information and analyses: Members of the NCP team contribute to analysing and understanding participation data, based on their knowledge of the participants in H2020, and thus aim at providing strategic intelligence also to policy making
- Newsletters

These services are offered free of charge to all types of organisations who wish to participate in H2020 or in ERA initiatives. Some of the services are designed according to the needs of specific target groups (e. g. SME, universities, etc.), especially in the way information is edited.

The provision of information is another aspect of the Austrian support system: FP participation is closely scrutinised by many national stakeholders. Austria has traditionally been particularly prolific in this area and publishes two participation overviews per year for Horizon 2020 with detailed participation analysis down to the regional level (Bundesländer) as well as specific additional reports, e. g. a report on social sciences and humanities in FPs from FP6 to Horizon 2020. All reports are published online[59]. Moreover, an interactive online-database enables users to run their own queries[60].

Unlike most other European countries, Austria currently has no RTD liaison office in Brussels. There are plans to establish such an office at the beginning of the next FP.

E.1.4 Experience with the support schemes, lessons learnt and future intentions

As already mentioned, no there is no financial support for participation in H2020 in Austria. Such instruments, ie schemes similar to PES and STIM-EU, were offered in the preceding framework programmes but they were terminated after an evaluation of the Austrian support structures for FP7, published in 2010[61]. The evaluation found that in most cases, these project related instruments produced mainly windfall gains. Some organisations, especially some universities and RTOs, reported that top-up funding for granted projects was important for them to participate in FP-funded projects (then FP7). However, these difficulties in co-funding the participation were due to underlying problems in the relationship between these organisations and their respective principals, i. e. their overall governance and financing, and these difficulties needed adequate solutions.

58 https://www.ffg.at/europa/service

59 Landing page of Austria`s EU performance monitoring: https://www.ffg.at/Monitoring; list of reports published: https://www.ffg.at/Monitoring/Archiv

60 Landing page for online queries: https://eupm.ffg.at/ui/login/

61 Arnold, Boekholt, Good, Radauer, Stroyan, Tiefenthaler, Vermeulen, "Evaluation of Austrian Support Structures for FP 7 & Eureka and Impact Analysis of EU Research Initiatives on the Austrian Research & Innovation System", 2010. Download: https://era.gv.at/object/document/557

The various elements of the Austrian support measures towards participation in FPs have repeatedly been evaluated since Austria started full participation back in FP4, and the results of these evaluations have typically been used to develop the system and the services offered from one FP to the next[62].

One of the key issues emerging from these studies has been: How to move from the traditional focus on juste retour and project level participation and support to a more strategic approach towards European and international R&D collaboration – at all levels of the research system, starting with policy makers, the administration, agencies, and R&D performers of all institutional types?

In its contract for H2020, FFG-EIP has already started implementing activities towards these objectives. One of the key instruments in this context is the so-called "ERA-Dialog", a regular meeting between experts from FFG-EIP with managers from universities and RTO in order to provide input and to support the respective institution's strategic approach to European F&D collaboration in H2020 and the ERA. This instrument and – even more – the underlying approach is well received by the institutions[63], all the more as many universities have traditionally pursued a bottom-up approach to FP participation, relying on the individual researcher's initiative, and have only started developing a strategic, institutional approach to H2020 and ERA initiatives.

An evaluation covering all elements of the national support structure for H2020 is about to be completed by June 2018. The report will not be publicly available before July 2018.

[62] See for example for the NCP system: Arnold et al (2010) quoted above; for the data monitoring system in FP7: Tiefenthaler, Good, "Zwischen-Assessment des Projekts Proviso FP7", 2012. Download: https://era.gv.at/object/document/508; for the regional contact points: Good, Radauer, "Zwischenevaluierung der vom BMWF beauftragten Regionalen Kontaktstellen (RKS)", 2013. Download: https://era.gv.at/object/document/363

[63] Confirmed in interviews with (Vice) Rectors and Senior Managers conducted during a recent study. Tiefenthaler, Hull, „Machbarkeitsstudie zur Etablierung eines o¨sterreichischen EU-Verbindungsbu¨ros im FTI-Bereich in Bru¨ssel", 2017

E.2 Germany

E.2.1 German participation in the Framework Programme

Participation in proposals

Germany has long been highly active in the European Framework Programmes, and has been among the top-performing countries over successive programming periods.

The latest data from Cordis (March 2018) show that Germany had participated 63,382 times in 36,184 proposals to Horizon 2020 (H2020). Germany accounts for almost a quarter (23%) of all proposals to H2020 and over a tenth (11%) of all participations in H2020. Normalising figures by the FTE researcher population in each country shows that Germany has participated 105 times in 60 proposals per 1,000 researchers, which is lowest among the five comparator countries (Norway, Austria, Germany, the Netherlands and Denmark).

The majority of German participations in proposals to H2020 are from Private for-profit organisations (excluding education), which account for 39%, joint highest among the comparator countries with Austria. Higher or secondary education organisations account for just over one third of German participations in proposals (34%), joint lowest of the comparator countries, again with Austria. Research organisations account for 23% of German participations in proposals. This is higher than the equivalent figure across all countries (17%) and second only to Norway (24%) among the comparator countries. second only to Norway is higher than for all countries (23% compared to 17%). Participations by organisation type are summarised in Table 32, below.

Table 32 Participations in proposals by organisation type, Germany

Type of organisation	Proportion of participations (Germany)	Proportion of participations (All countries)
HES – Higher or secondary education	34%	36%
REC – Research organisations	23%	17%
PRC – Private for profit (excl. education)	39%	40%
PUB – Public body (excl. REC/HES)	2%	3%
OTH - Others	2%	4%

Source: Cordis data (March 2018)

Participation in projects

At March 2018, a total of 10,503 grants had been awarded to German participants in 5,164 H2020 projects, equivalent to 12% of all participations and 28% of all projects. Normalised, 17 grants have been awarded to German participants in relation to nine projects per 1,000 FTE researchers. These are significantly lower than the equivalent figures across all comparator countries.

The majority of German participations in projects (38%) are accounted for by Private for-profit organisations. Under one third of German participations in projects are accounted for by Higher or secondary education organisations (29%) and Research organisations (26%) respectively. A further 3% is accounted for by Public bodies, the lowest proportion among all comparator countries. These figures are summarised in Table 33, below.

Table 33 Participations in projects by organisation type, Germany

Type of organisation	Proportion of participations (Germany)	Proportion of participations (All countries)
HES – Higher or secondary education	29%	33%
REC – Research organisations	26%	21%
PRC – Private for profit (excl. education)	38%	35%
PUB – Public body (excl. REC/HES)	3%	6%
OTH - Others	3%	6%

Source: Cordis data (March 2018)

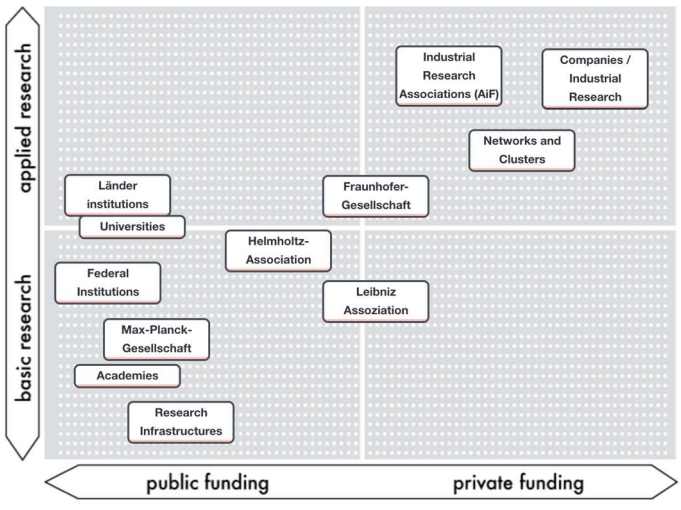
Success rates

So far, 17% of German participations in proposals have been successful. This is higher than the overall H2020 average (15%) and the rate seen in Norway and Denmark (each also 15%), and is equal to that seen in Austria and the Netherlands. The success rate of proposals with German involvement (14%) is again higher than the H2020 average (12%), but lower than all comparators except Norway, where the rate is the same. Looking across the different organisation types, German organisations have tended to achieve equal or higher success rates than the all country averages.

E.2.2 The institute system

High levels of activity and success are underpinned by a large, complex and high-quality research base: Recent Eurostat data (2014) show that Germany had over 600,000 full-time equivalent (FTE) researchers. The German research system is characterised by a large number of research organisations64 that sit across the spectrum of basic-to-applied research (see Figure 108, below). Institutions also operate at both the federal (national) and Länder (state) levels.

Figure 108 German research organisations and institutes



Source: German Federal Ministry of Education and Research (BMBF), Research in Germany

Each of these organisations plays a significant role in the national research and innovation system. The majority of publicly-funded research in Germany is conducted within both the university system and by the non-university research organisations, which are co-funded by the Federal government and the

64 Including universities, universities of applied sciences, non-university research institutes, private firms and federal as well as state (Länder) institutions

La¨nder. The four major non-university research organisations (the Fraunhofer-Gesellschaft, the Helmholtz Association, Leibniz Association and Max Planck-Gesellschaft), are regarded as a dynamic element within the German research and innovation system due to their responsiveness to changing research requirements and opportunities.[65]

Table 34 sets out the scale and focus (i.e. basic/applied research) and approximate annual budget of the main non-university research performing organisations. For the purposes of delineating those which are more active in the Framework Programmes, the table indicates the proportion of budget that is not drawn from the Federal or Länder levels, which may be other public/private sponsors or project revenue.

Table 34 Research organisations and institutes in Germany

Organisation	Scale and focus	Approx. annual budget (2017)
Fraunhofer-Gesellschaft	69 institutes and research units, 24,500 staff (9,000 scientific staff) Focus on applied research for private as well as public enterprises	€2.1 bn (67% project revenue)
Helmholtz Association	Association of 18 independent institutes, 38,000 staff (14,000 scientific staff) Focus on building and operating complex research infrastructures	€4.4 bn (32% third party)
Leibniz Association	Association of 91 independent institutes, 18,000 staff (9,500 researchers) Focus on basic and applied research	€1.8 bn (41% third party/other) *
The Max Planck Society	Maintains a total of 84 research institutes in Germany, Italy, the Netherlands, Luxembourg and the United States. 23,000 staff (14,000 researchers) Focus on basic research in the natural sciences, life sciences, humanities and social sciences	€1.8 bn (12% third party)
Federal institutions	40+ research institutes funded by the Federal Government, 18,400 staff (8,600 R&D personnel including 4,000 researchers) Focus on research questions raised by policymakers and public authorities	€2.6 bn (all federally funded) **
Länder institutions	150 Länder-funded research institutes, 6,000 staff (2,700 R&D personnel including 1,400 researchers) Focus on supporting state research activities	€0.5 bn (4% other) **

Source: German Federal Ministry of Education and Research (BMBF), Research in Germany.
* Figures from 2016 ** Figures from 2015

E.2.3 The support system for participation in FPs

The size and complexity of the German research system necessitates a comprehensive support system. Many organisations support researchers' participation in the Framework Programmes, though two major players provide the largest share of resources to potential Framework Programmes applicants, and are also highly active in supporting international research collaboration more broadly.[66] [67]

The Federal Ministry of Education and Research (BMBF) promotes education, science and research, positioning each as important contributors to Germany's prosperity. BMBF is the ministerial body responsible for the current Framework Programme, Horizon 2020 (H2020), and provides support through targeted funding programmes[68] and its EU Office (EU-Büro). The EU-Büro coordinates the German National Contact Point (NCP) network for the Framework Programme, among other services.

[65] Sofka, Shehu and Hristov, "RIO Country Report 2017: Germany", 2018

[66] Vogt, "ERAWATCH Country Reports 2013: Germany.", 2014

[67] Sofka, Shehu and Hristov, "RIO Country Report 2017: Germany", 2018

[68] See: https://www.bmbf.de/en/research-funding-1411.html

Germany's central research funding body, the Deutsche Forschungsgemeinschaft (DFG) covers all disciplines of science and the humanities. DFG receives the majority of its funds from the Federal government and the Länder, but is self-governing. The membership of DFG consists of German research universities, non-university research organisations, scientific associations and the Academies of Science and the Humanities. DFG finances the EU Cooperation Office of the Scientific Organizations (KoWi), which is described in more detail below.

Influencing Horizon 2020

We have not been able to find specific schemes to influence FP calls or Work Programmes, or for co-funding at the national level that are similar to STIM-EU.

Networking and advice

Funding for networking (i.e. for travel and accommodation to attend meetings, conferences or workshops) by German and foreign researchers and experts is integrated within proposal preparation grant schemes.

Table 35 Summary of FP networking support measures in Germany

Name of scheme	Responsible body	Support covered	Grant available (€)
Components of proposal support funding streams specifically for networking	BMBF	Support for German and foreign experts	Travel, plus: A per diem of €94 per day for German scientists and experts €104 per day or €2,300 per month for foreign scientists and experts

Source: Compiled by Technopolis.

Advisory support is based around two main aspects, the network of NCPs and KoWi, a comprehensive service platform for German research organisations. The network of NCPs comprises over 120 individuals, and is funded by the Federal Government, with the largest share coming from BMBF, though other ministries (e.g. the Ministry for Economic Affairs and Energy, BMWi) also support the system. In addition, other organisations participate in the NCP Network by hosting NCPs. This is summarised below in Table 36. An important principle of the information and advisory system for H2020 is that it aims to reach out to new players.[69]

Table 36 Organisations hosting H2020 National Contact Points in Germany

Organisation	Area of responsibility
EU Büro (DLR Project Management)	Coordination, Finance and Law, ERC (shared with KoWi), FET (shared with Jülich, VDI, NKS Production), Science with and for Society, JRC, Women in Research, Socio-economic aspects, Knowledge transfer and IPR, Coordinating national programmes in research and innovation
EU Cooperation Office of the Scientific Organizations (KoWi)	ERC (shared with DLR)
Jülich Research Centre	FET (shared with DLR, VDI, NKS Production)
VDI Technology Centre	FET (shared with DLR, Jülich, NKS Production)
NKS Production	FET (shared with DLR, Jülich, VDI)

Source: German Federal Ministry of Education and Research (BMBF)[70]

KoWi is a joint service platform for German research organisations, with offices in both Bonn and Brussels. It was co-founded in 1990 by a number of large research organisations including the Fraunhofer-Gesellschaft, the Max Planck-Gesellschaft, and the Helmholtz Association listed in Table 34

[69] BMBF, "Strategy of the Federal Government on the European Research Area (ERA)", 2014, p.8

[70] See: http://www.eubuero.de/nks-koordinierung.htm

above. Other co-founders included the Alexander von Humboldt Foundation, the Jülich Research Centre, the German Academic Exchange Service, the Stifterverband für die deutsche Wissenschaft, and the German Rectors' Conference. KoWi receives funding from the Federal Government and DFG, but is self-organised by its scientific members, emphasising the importance of strong research institutions.

KoWi offers a comprehensive service to researchers, administrators and institutions across Germany, covering all steps of scientific careers, all instruments of the Framework Programme, and all phases of any EU research project.[71] Services include i) Advice and coaching on European research funding, including positioning in H2020, ii) Information and a tailored alert service on EU R&D opportunities, and iii) Specific training, such as: "EU-Kompakt", an introduction to EU research funding, funding schemes and mechanisms, and "EU-Intensiv", in-depth training on proposal writing, project management, background information, and ERC Starting and Consolidator Grants interview training.[72]

Table 37 Summary of FP advisory support measures in Germany

Name of scheme	Responsible body	Support covered	Scheme budget (€), resourcing	Grant available (€)
NCPs	BMBF	22 functions, advice and guidance	121 NCPs	--
KoWi (EU Liaison Office)	DFG	Provides information, advice and training on the wide range of EU research funding programmes.	24 members of staff (headcount, 15 in Bonn, 9 in Brussels)	--

Source: Compiled by Technopolis

Support for H2020 proposals

The range and comprehensiveness of financial support for H2020 proposals at the Federal (national) level is not dissimilar to PES2020, though it is distributed across a number of schemes, which are thematically and strategically-focused.

BMBF oversees various programmes to promote the preparation and application of H2020 proposals. These programmes support specific activities in alignment with national strategic objectives. There are four programmes, which support collaboration with partners in EU13 Member States and third countries, as well as supporting the participation of the universities of applied science. Commercial organisations are eligible to apply for funding under two of the schemes, with SMEs specifically targeted for recruit into applying consortia under one scheme.

[71] See: http://www.kowi.de/en/kowi/about-kowi/about-kowi.aspx

[72] See: http://www.kowi.de/en/kowi/services/services.aspx

Table 38 Summary of FP proposal support measures in Germany

Name of scheme	Respons-ible body	Support covered	Grant available (€)
International Cooperation in Education and Research, Central and South Eastern Europe Region[73]	BMBF	Funding for projects to promote the preparation and submission of projects under Societal Challenges, Industrial Leadership and other areas of H2020, as well as on other research-related EU programmes The programme particularly aims to attract SMEs into consortia[74] Eligible project-related expenditure is calculated on the basis of each recipient type. Universities and research institutions eligible for up to 100% of costs, commercial entities may be funded for up to 50% of eligible costs Funding (phase one) covers the establishment or development of project consortia. Eligible costs include non-cash resources (such as expendables), workshops, and personnel costs.	€80k for 24 months
Funding for the Submission of Applications under Horizon2020 with Partners from North and South America[75]	BMBF	Funding for projects to promote the preparation and submission of projects on the thematic priorities of H2020 Universities, research and scientific institutions may be funded up to 100%, for a maximum of €60k, while commercial organisations may be funded up to 50% Funding covers exploratory and networking activities to promote the preparation and submission of projects to thematically relevant H2020 areas, including the travel and stays of German and foreign scientists and experts. The grant also funds workshops, project-related resources and equipment, and personnel costs.[76]	€60k for 12 months
Funding for universities and partners in partners from the Asia-Pacific Research Area[77]	BMBF	Funding to strengthen the strategic internationalisation of German universities and the deepening of regional cooperation through the preparation of research proposals in the H2020 Societal Challenges, as well as in the area of Excellent Science. The grant covers the travel and stays of German and foreign scientists and experts, workshops and personnel costs. Funding is for up to 100% of eligible costs, with a maximum of €150k for up to 36 months.	€150k for 36 months
Support to universities of applied science in cross-border networking and submission of proposals[78]	BMBF	The grant is to support universities of applied science to participate more intensively under Societal Challenges, Excellent Science and preparatory projects under LEIT in H2020, as well as other complementary EU programs The grant may cover travel and coordination of a project idea, preliminary work on the approach, and personnel costs. Funding may be extended to €40k in specific cases (e.g. when coordinating the planned EU application).	Up to €25k for nine months May be extended to €40k

Source: Compiled by Technopolis

E.2.4 Experience with support schemes

The German support system is considered to be effective. Though the most recent published evaluation of Framework Programme performance is the 2009 evaluation of German participation in the Sixth Framework Programme,[79] consultation suggests that support organisations and several services are evaluated on a biennial schedule for internal use.

73 This comprises: the EU Member States Bulgaria, Estonia, Greece, Croatia, Latvia, Lithuania, Poland, Romania, the Slovak Republic, Slovenia, the Czech Republic and Hungary; the official EU candidate countries Albania, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia; and, the potential candidates for EU accession to Bosnia and Herzegovina and the Republic of Kosovo

74 See: https://www.bmbf.de/foerderungen/bekanntmachung-1226.html

75 The countries comprise: Argentina, Brazil, Chile, Colombia, Mexico (and Canada and the US)

76 See: https://www.bmbf.de/files_anncmnt/FBK_H2020_Fact_Sheet_ENG_final.pdf

77 Australia, China, India, Japan, New Zealand, Singapore, South Korea. See: https://www.bmbf.de/foerderungen/bekanntmachung-1335.html

78 See: https://www.bmbf.de/foerderungen/bekanntmachung-1345.html

79 BMBF, 2009, op. cit.

Advisory support is arguably the most broadly used component of the FP participation support system. Consultation highlighted that universities and research organisations are expected to use their base funding to approach their self-defined goals, and the scale of the large research organisations such as the Fraunhofer-Gesellschaft and Helmholtz Association means that they are well-resourced with internal expertise and funding for this purpose. KoWi is particularly important. First, the services of KoWi are well-used and well-regarded by research organisations and universities (Cordis categories REC/HES). Second, the self-organising nature of KoWi means that its structures are cooperative, and that members are able to shape not only what is delivered but also what is prioritised. This was presented as key to the success of the German research system in the Framework Programmes.

The financial support schemes are often used by individual researchers or scientists to establish their research track (if at the early career stage) or otherwise to deepen and extend their networks, and are also available to commercial entities (Cordis categories: REC/HES/PRC). Anecdotally, the financial support is thought to work well for these purposes, and it was said that BMBF do not impose an overly high administrative burden on recipients for the amounts they receive. The financial support system is also targeting two types of organisations whose participation in the Framework Programmes is sought to be improved: i) the universities of applied science, which have been so far under-represented in the funding system and ii) strengthening innovation in established firms, in particular SMEs. It has been suggested that recruiting SMEs to participate in the Framework Programmes has been described as challenging, in part due to significant provision of national SME funding for research and innovation.[80]

E.2.5 Lessons learnt

The German support system is underpinned by long-term strategic goals, and is very stable. It is evident that the support organised at the national level is oriented clearly to deliver the strategic goals. Funding is available to develop internationally-collaborative proposals with partners in strategically-important international geographies, and to promote and encourage the greater participation of under-represented organisations (the universities of applied science and SMEs). While the overarching strategies that determine the support mechanisms are renewed every two years, changes often relate to what kinds of activities are to be fostered rather than the focus.[81]

The role of self-organisation by strong research organisations as members of KoWi means that not only are the support and services delivered constantly relevant and value-adding, there is also a channel for all research organisations to influence delivery and prioritisation. KoWi's presence in Brussels is important in this factor, too. This also emphasises the importance of strong research institutions taking a lead role in supporting the development of the research system.

Germany demonstrates close alignment between the national funding programmes for research and innovation and its EU support structures. This is well-demonstrated in the hosting of NCPs, for example, where support to Framework Programme applications in certain areas are delivered by relevant experts. For example, applicants under the FET programme with receive expert support from the EU-Büro of BMBF, as well as the Jülich Research Centre, the VDI Technology Centre, and NKS Produktion.

[80] Such as the 'KMU-innovativ: Priority for Cutting-Edge Research in SMEs' and the 'Central Innovation Programme SMEs (ZIM)'. More information is available at http://www.foerderinfo.bund.de/en/funding-for-smes-1786.php

[81] For example, consultation revealed that a funding scheme to support collaborative research with partners in central and southern Europe has been active since 1990

E.3 The Netherlands

E.3.1 Participation of the Netherlands in H2020

The Netherlands is a strong performer in the framework programmes. As of March 2018, it has been involved 32,252 times in 20,674 H2020 proposals, which equates to around 6% of all participations and 13% of all proposals. Per 1,000 FTE researchers, the Netherlands has participated 260 times in 167 proposals. This is the highest number of relative participations in this benchmark and the second highest number of relative proposals after Denmark.

Higher or secondary education organisations (HES) and Private for profit organisations (PRC, excluding education) make up for almost 80% of participations in proposals, to which they contribute in almost equal amounts (41% and 38% respectively). Research organisations (REC) account for 14% of proposal participations. HES participation is second highest in the benchmark, after Denmark. The proportion of participation accounted for by PRC is similar to the other benchmark countries. Per 1,000 FTE researchers, the Netherlands has the highest number of participations in proposals from HES and PRC compared to the benchmark countries.

By March 2017, 5,401 grants had been awarded to participants from the Netherlands in 3.152 H2020 projects, which equates to around 6% of all participants and 17% of all projects. Per 1,000 FTE researchers, the Netherlands has 44 participations in projects, the highest number of the benchmark countries. The number of proposals per 1,000 FTE researchers (25) is similar to Norway, Austria and Denmark.

Participation in projects is mainly accounted for by HES (38%), PRC (35%) and REC (18%). The proportion of participation accounted for by HES is higher and REC is lower than Norway, Austria and Germany. Only Denmark has a larger amount of participation from HES and a smaller amount by REC.Per 1,000 FTE researchers, the Netherlands has the highest number of participations in projects accounted for by HES (16, comparable to Denmark) and PRC (15).

By March 2018, 15.2% of proposals involving the Netherlands have been successful, which is similar to Austria and slightly higher than the other benchmark countries. The success rate of participations of the Netherlands in proposals is 16.7%, below Austria but higher than the other benchmark countries.

Participations from REC from the Netherlands have a higher success rate (23%) than in the other countries. However, success rates for participation of Public bodies (PUB) (24%) and Others (OTH) (20%) are lower than average and then other benchmark countries, except for Denmark and Norway respectively.

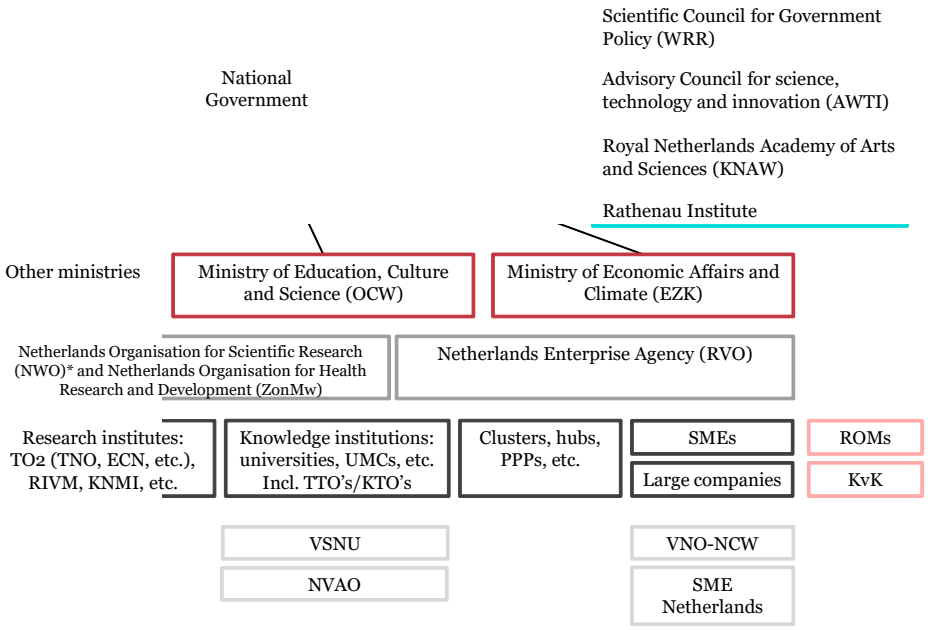
E.3.2 Research and innovation system in the Netherlands

The Dutch government supports science mainly through the Ministry of Education, Culture and Science (OCW) and the Ministry of Economic Affairs and Climate (EZK) (Figure 109). Other ministries fund policy-specific research, such as health research. The funds for research offered in competition are managed by the Netherlands Organisation for Scientific Research (NWO) and funds for innovation by the Netherlands Enterprise Agency (RVO).

NWO is divided into thematic domains (Social Sciences and Humanities; Sciences; Applied and Engineering Sciences; and Life Sciences). Furthermore, nine research institutes governed by the Netherlands Foundation of Scientific Research Institutes (NWO-I) are part of NWO as well, with a budget of around €117 million in 201682. The Netherlands Organisation for Health Research and Development (ZonMw) works closely together with NWO and manages funds from NWO and the Ministry of Health, Welfare and Sports (VWS).

82 https://www.nwo-i.nl/en/nwo-institutes-organisation/about-nwo-i/

Figure 109 Research and innovation system in the Netherlands



*includes *STW, NWO institutes (AMOLF, ARCNL, etc.)*

Source: Technopolis Group

Several advisory bodies offer advice to the government about research and innovation. The Scientific Council for Government Policy (WRR) advises on government policy relating to long-term societal issues. The Advisory Council for science, technology and innovation (AWTI) advises the government on science and innovation policy. The Royal Netherlands Academy of Arts and Sciences (KNAW) is an intermediary organisation of scientists, an advisory body on science, and an organisation with institutes that carry out research. Its fifteen research institutes employ about 1,300 staff. As part of KNAW, the Rathenau Institute monitors the science system and advises the government on managing the science system. It also performs research and organises debate relating to science, innovation and new technologies.

The Netherlands has several research institutes. The TO2 group consists of six applied research institutes, including TNO with a budget of €418 million and Wageningen Research with a budget of €314 million[83]. These institutes align their research for application in the collaborative federation of TO2. Next to these institutes, large research institutes in the Netherlands supported by the government are the Dutch National Institute for Public Health and the Environment (RIVM), which conducts research and provides advice on health and environment, and the Royal Netherlands Meteorological Institute (KNMI), the national research and information centre for meteorology, climate, air quality, and seismology.

Knowledge institutions in the Netherlands that carry out research are the Higher Education Institutes, which include fourteen universities, eight University Medical Centres (UMCs) and, performing research to a lesser extent, 41 universities of applied sciences. Through Technology Transfer Offices (TTOs) and Knowledge Transfer Offices (KTOs), universities aim to make academic knowledge available to the market and society.

Universities are members of a branch organisation, the Association of Universities in the Netherlands (VSNU). The Accreditation Organisation of the Netherlands and Flanders (NVAO) is an independent

[83] Budget in 2015. Eindrapportage Commissie Schaaf (2017) Evaluatieonderzoek organisaties voor toegepast onderzoek (TO2).

accreditation organisation which assesses the quality of higher education in the Netherlands and Flanders.

In 2016, R&D expenditures formed 2.03% of GDP[84]. The Netherlands aims to increase this to 2,5 percent in 2020. Company investment in R&D in the Netherlands (1,5 times the government investment) is below the international average (2 times the government investment). On the other hand, more than half of all R&D activities in the Netherlands take place in companies.[85] Total R&D investments were €8.131 billion, spent by almost 21,000 companies86. Almost half of all private R&D investment (€4.495 billion) is spent by large manufacturing firms (with over 250 employees). They include companies with a strong R&D orientation like Philips, ASML, Unilever, NXP, Shell, AKZO-Nobel, Gemalto, DSM and TomTom.

The Confederation of Netherlands Industry and Employers (VNO-NCW) represents the interests of Dutch companies. It represents more than 185,000 enterprises, including all larger corporations. In addition, SME Netherlands (MKB-Nederland) promotes the interests of around 50.000 entrepreneurs.

Companies are largely involved in the "Topsector" policy, which defines a set of nine sectors in which Dutch companies and research centres are of worldwide excellence. These sectors are

- Agriculture & Food
- Chemical industry
- Creative industry
- Energy
- High-tech Systems & Materials, including the cross-cutting theme ICT
- Life Sciences & Health
- Logistics
- Horticulture & starting materials
- Water

The Chamber of Commerce (Kamer van Koophandel, KvK) offers non-financial support for innovation. Five regional organisations (ROMs) aim to stimulate the regional economy and entrepreneurship by improving the economic structure and activity in regions.

In the Netherlands, several clusters exist where companies, knowledge institutes and other research organisations come together. Although the Netherlands has strong regions in terms over innovation, clusters in the Netherlands are relatively small compared to other countries.[87] The largest cluster is Brainport Eindhoven, with around 6,000 companies in 2012, mainly involved in High Tech Systems & Materials, Automotive, Design, Food and Medical Technology & Health. Other examples are the Leiden BioScience Park directed at health and drug development, Chemelot for chemistry and materials, and Knowledge Park Twente. Urban hotspots in Amsterdam, Rotterdam and Delft link companies and knowledge institutes in creative innovation.

E.3.3 Support schemes

Most support schemes in the Netherlands to increase H2020 participation are general measures that can be used by researchers and companies wanting to engage in research and innovation activities in Horizon 2020 or in other programmes. The financial measures can support FP participation but are broader than that.

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84 OECD, Main Science and Technology Indicators

85 https://www.rathenau.nl/en/science-figures/policy-and-structure/dutch-knowledge-infrastructure

86 In 2016, Statistics Netherlands, cited by https://www.rathenau.nl/en/science-figures/policy-and-structure/dutch-knowledge-infrastructure

87 AWTI (2014). Regionale hotspots: broedplaatsen voor innovatie.

Funding to influence H2020-related processes and calls for proposals

There is no funding scheme in the Netherlands to influence H2020-related processes and calls. However, two teams in the Netherlands are financed to influence H2020-processes as liaisons or intermediaries.

The Netherlands Enterprise Agency (RVO) has a specific team dedicated to enlarge and improve the Dutch participation in H2020, the so-called International Research and Innovation Cooperation team ("Team IRIS"). This team forms the National Contact Point, but receives additional funding from the government to enhance FP participation. This team has dedicated contact points for a large number of sectors (such as: ICT, Space or Nanotechnologies) as well as specific issues (such as: Access to finance, SMEs or Legal/financial aspects).

The International Research and Innovation Cooperation team also acts as an intermediary for stakeholders in the Netherlands and the stakeholders in Brussels. One part of this is informative but there is also an advocacy side for more veteran FP participants.

Another liaison initiative is Neth-ER ("Netherlands house for Education and Research"). This organisation provides information about the European policy developments in the field of research and development as well as dealing with advocacy in the European arena.

Funding to find H2020 calls and partners

The Dutch programme to promote innovation in SMEs (The Mkb-innovatiestimulering Regio en Topsectoren, MIT - more information under category 4) has a range of instruments, among which funds for network activities.[88] Only Top consortia for Knowledge and Innovation (TKIs), that have been set up for each sector within the Top sector policy, can apply for this fund.[89] Network activities can include masterclasses, workshops or conferences to promote knowledge exchange and networking. As with other instruments, this is not specifically targeted at H2020 participation, but targets networking for SMEs and knowledge institutes in general.

Amount of money distributed per year: This instrument has a budget of € 2,2 million.[90]

The administrative costs of the entire programme (including the other instruments) were € 2,4 million in 2015, which was 4,8% of the total available budget in that year (€ 50 million). The mean cost of administration of 2013-20.5 is 5,5% of the available budget. The administration is done by teams at RVO.

Funding to produce H2020 proposals:

There is no funding scheme in the Netherlands to produce H2020 proposals. Universities and research institutes in the Netherlands have internal support units or offices that support researchers in applying to the FP and other European and national research grants.

Co-funding to H2020 participants (i.e. organisations that have received H2020 funding)

There are several types of co-funding to H2020 participants. Some types are specifically aimed at H2020 participation, others are general funds to promote research and innovation.

Co-funding for Joint Technology Initiatives (JTIs) and Eurostars

Some European Joint Technology Initiatives (JTIs) and the Eurostars programmes require national co-funding. The JTIs promote public-private collaboration in research programmes.[91] Industry takes the

[88] https://www.rvo.nl/subsidies-regelingen/mkb-innovatiestimulering-regio-en-topsectoren-mit

[89] https://www.rvo.nl/subsidies-regelingen/netwerkactiviteiten-voor-mit-tki

[90] https://www.rvo.nl/subsidies-regelingen/netwerkactiviteiten-voor-mit-tki

[91] https://www.rvo.nl/subsidies-regelingen/joint-technology-initiatives

initiative for the collaboration. Co-funding is offered for the JTI Electronics Components and Systems for European Leadership (ECSEL) by the Dutch Ministry of Economic Affairs and Climate, managed by the Netherlands Enterprise Agency (RVO).

Eurostars aims to promote market-oriented technological development by research performing SMEs.92 The aim is to aid small companies to grow, by developing new technological knowledge with international partners that offer the best technological or commercial prospects.[93] The financial support of Eurostars is distributed by the national governments. The administration of both JTI and Eurostars cofunding is carried out by RVO. The Dutch ministry of Economic Affairs and Climate has an annual budget for Eurostars, which is topped up by the EU with 33%.[94] The Dutch Eurostars budget is € 18 million annually, divided between two calls.[95] The Dutch budget for the calls under JTI ECSEL (Electronics Components and Systems for European Leadership) was € 20 million in 2016.[96] The administrative costs for Eurostars in 2012 were € 260.000, which equates to 2,8% of the budget.[97] For JTIs the administrative costs in 2012 were € 156.000, which equates to 0,8% of the budget. Besides one coordinator of Eureka, ten people are (part-time) involved in the administration of the Eurostars programme. Four people are involved (part-time) in the management of three different JTIs. All of these work in the International Research and Innovation Cooperation team ("Team IRIS") at RVO.

Encouraging European Research participation (SEO-regeling)

This regulation is intended for publicly funded knowledge institutes that have acquired funds from H2020 and aims to increase the Dutch participation.[98] When a H2020 fund is secured, this fund is awarded. It provides funding of up to 9% of the acquired European funds to support knowledge institutions in coping with the co-financing required from their side.[99] The target group consists of universities, research institutions (both fundamental and applied research) and higher professional education institutions and has been set by the Ministry of Education, Culture and Science. The administration of the instrument is done by NWO.

Each year the Netherlands Enterprise Agency will first receive a list from NWO with the names of the organisations that belong to the target group of the Encouraging European Research regulation. Subsequently, NWO will receive an overview from the Netherlands Enterprise Agency of the Horizon 2020 contracts with the size of the EU funds received by the target group. Based on this list, NWO will determine the total size of the funding and the award letters will preferably be sent to the institutions within the same year. For 2017 the SEO-regeling budget is 50 million Euros (including administrative expenses). Throughout the duration of Horizon2020 it is expected to remain at a similar level each year.The scheme is administered by one person.

E.3.4 Experience with the schemes

Co-funding for Joint Technology Initiatives (JTIs) and Eurostars

Between 2008 and 2012, 134 Dutch participants of Eurostars and 230 Dutch participants of JTIs have been supported.[100] On average, 85% of participants of Eurostars are companies, of which 80% SMEs; the other 15% are knowledge institutions. In the JTIs, 54% of participants are SMEs. An evaluation in 2014 concludes that for the SMEs, the fund helps to complete R&D projects together with the most suitable international partners. Most of the applicants agreed that the funds also help to improve the

92 https://www.rvo.nl/subsidies-regelingen/eurostars

93 Tweede Kamer (2014) Kamerbrief over Eureka, JPIs en Eurostars

94 Tweede Kamer (2014) Kamerbrief over Eureka, JPIs en Eurostars

95 RVO (2016) Factsheet Eurostars-2.

96 https://www.rvo.nl/subsidies-regelingen/joint-technology-initiatives/jti-ecsel

97 Panteia (2014) Evaluatie Eurostars en Eureka 2008-2012

98 Netherlands Organisation for Scientific Research - NWO (2016) *Stimulering Europees Onderzoek*

99 https://www.nwo.nl/en/funding/our-funding-instruments/nwo/encouraging-european-research/encouraging-european-research.html

100 Panteia (2014) Evaluatie Eurostars en Eureka 2008-2012

collaboration and find more collaboration partners. RVO is satisfied with the participation in the JTI ECSEL and Eurostars, as it offers the opportunity to fund useful projects.

Outside the support schemes, the Dutch NCP system is said to be very strong. Companies that consult the NCPs tend to have a much higher success rate than whose which do not.

E.3.5 Future Intentions

RVO is actively participating in discussions at the European Commission about FP9 and the future third Eurostars programme and the successor of JTI ECSEL.

Encouraging European Research regulation (SEO-regeling) was launched in 2015 to relieve the pressure on universities to match EU funds, which they said was difficult to manage from the university budget.[101] While universities are happy with the initiative, they do argue that the fund is not enough to cover the matching needed by EU-funds.

The Association of Universities in the Netherlands (VSNU) commissioned a study by Ernst & Young which showed that the SEO-instrument only partly solves the problems. While the SEO-fund matches 9% of the EU-funds, the study showed that EU research funding demands a matching of at least 43%[102] which equates to an amount of € 149 million[103] instead of the current € 50 million. The VSNU argues that the need for matching is larger in the Netherlands than in other countries, because the amounts needed for fixed costs (such as infrastructure) is higher in Dutch knowledge institutions.

The TO2 institutes for applied research are also profiting from the SEO-instrument. An evaluation of the TO2-institutes concludes that this has helped them to partly overcome matching difficulties due to budget cuts from the government.[104] However, it covers only one third of the matching budget that is needed. The positive effect of the need for TO2-institutes to cover for the rest of the matching is that they have to make strategic judgments about what EU-funds to seek. It provides an incentive to align the applications with the institutes' own strategic choices, which, according to the evaluation committee, can be improved.

A government policy working group on research and innovation policy in 2016 investigated the possibility to double the budget of SEO to €100m annually.[105] This increase in budget would double the co-funding from 9% to 18% of the Horizon 2020 participation cost. A decision about the budget was postponed due to elections and a change of government.

An interim evaluation of the PPP premium[106] in 2016 showed that the instrument is an effective way to promote PPP research projects, primarily for knowledge institutions.[107] Even though the premium might just shift funding of contract research to funding of PPP-projects, it does affect the thematic priorities of knowledge institutes, that become more directed towards industry priorities. The premium contributes to stronger PPP-networks and extension of these networks with new SMEs or other parties. Around 60% of the budget for collaboration projects is given to projects that fall into the category of one of the EU's societal challenges. Especially for the TO2-institutes, the instrument is essential to keep applying for EU research projects and attract co-funding for these projects from companies. The premium is officially open to both public and private research parties, however, it is shown that most (95%) of this is reaching knowledge institutions.[108]

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101 Tweede Kamer (2016) Kamerbrief over matchingsverplichting onderzoekers

102 Ernst & Young (2014) Uitkomsten feitenonderzoek matchingbehoefte op (Europese) onderzoekssubsidies

103 https://www.vsnu.nl/matchingsdruk.html

104 Commissie Schaaf (2017) Evaluation study institutes for applied research (TO2)

105 Tweede Kamer (2016) Kamerbrief over matchingsverplichting onderzoekers

106 Was at the time only applicable to TKIs and was called TKI-premium

107 Dialogic (2016) Tussenevaluatie TKI-toeslagregeling

108 Ministry of Economic Affairs The Netherlands (2016) *Aanbieding rapport Tussentijdse evaluatie TKI-toeslagregeling*

The premium used to be only open for partners within Top consortia for Knowledge and Innovation (TKIs), that have been set up for each sector within the Top sector policy. To open it up for a broader range of public-private partnerships, it has been converted into the PPP premium in 2017. As the evaluation in 2016 was positive about the instrument, it will be continued.

E.4 Denmark

E.4.1 Danish participation in EU Framework Programmes

Danish participation in the EU framework programmes in dominated by the universities, which account for just under half of all Danish participations in proposals and in funded projects in Horizon 2020 so far. This is well above the EU average of about a third on both counts.

Research institutes, in contrast, account for only 8% of participations in proposals and projects, less than half of the EU average. In comparison, research institutes account for 30% of all Norwegian project participations. This partly reflects the relative size of the university and institutes sectors in Denmark (see the following section) but participation from Danish research institutes is lower in relative terms as well. Whereas Danish universities have 16 participations per 1000 FTE, research institutes have only 3 participations per 1000 FTE. By comparison, both universities and research institutes have 10 participations per 1000 FTE in Norway. The success rate of participations from research institutes in Denmark is also lower than that of their European counterparts (16% in Denmark as compared with 18% in the EU and 20% in Norway).

Table 39 Participations in Horizon 2020 projects

	Denmark			All countries		
	Project participations		Success rate	Project participations		Success rate
HES – Higher or secondary education	952	48%	14.8%	28,860	33%	13.9%
REC – Research organisations	159	8%	15.6%	18,541	21%	18.4%
PRC – Private for profit (excl. education)	619	31%	13.1%	30,601	35%	13.3%
PUB – Public body (excl. REC/HES)	155	8%	22.3%	5,192	6%	25.8%
OTH - Others	94	5%	27.0%	4,844	6%	22.8%
Total (all organisations)	1,979	100%	14.9%	580,559	100%	15.2%

Source: Technopolis, based on data from EU Cordis.

E.4.2 The Danish institute system

The bulk of publicly funded research in Denmark is carried out by the eight universities and the institute sector is much smaller than the European average. Universities are the direct recipients of some 62% of central government funding in 2017 whereas research institutes account for less than 10%.[109] Many of the most research-intensive functions (i.e. 'sector research') previously performed by separate research institutes has been taken over by the universities. As a result, the size as well as the composition of the research institute sector in Denmark is very different from other comparator countries.

We can distinguish at least two different types of research institutes in the Danish context:[110]

- A number **publicly funded research institutes**, including two remaining 'sector research institutes', with varying degrees of attachment to government ministries.[111] Among frequent participants in H2020 are Statens Serum Institute (SSI) and the National Research Centre for the Working Environment (NRCWE).

[109] Central Government appropriations for R&D in 2017 (Statistics Denmark (FOUBUD1)).

[110] The 'REC' category in EU cordis classifications also include university hospitals and various associations.

[111] For a more detailed breakdown of research performing institutions in Denmark, see Danish Ministry of Education and Research (2018), *Analyse af offentlig dansk forskningsfinansiering og forskningsaktivitet*, March 2018, Appendix 2.

- The seven '**GTS institutes'** which make up the 'Advanced Technology Group' are independent non-profit organisations which aim to support knowledge transfer to Danish businesses. In 2016, 8% of their revenue came from performance contracts with the ministry, a further 10% from competitive R&D grants including H2020, and the remaining 82% from commercial revenue (domestic and international).[112] The GTS institutes vary significantly in size and smaller institutes which are highly reliant on commercial revenue tend to participate less in H2020. DTI is by far the largest of the GTS institutes and has been awarded more than EUR 20m from H2020 so far, about a third of all funding for Danish research institutes ('REC') from the programme.[113] Given their low institutional funding and the absence of co-funding, the substantial participation of the GTS institutes in Horizon 2020 appears surprising

E.4.3 Support schemes

Danish government support for H2020 participation focusses, to a large extent, on advice and communication, close cooperation with stakeholders (especially public advisors) and offers financial support for the preparation of proposals.

Influencing Horizon 2020

The **Horizon 2020 'reference groups'** are considered an integral part of the effort to maximise Danish return from H2020. They provide an opportunity for Danish stakeholders to meet with national members of the H2020 programme committee and thereby feed into the preparation of the H2020 work programmes. Ideally, this will help ensure that H2020 calls are relevant to Danish researchers, thereby increasing the opportunities for successful grant proposals. There is no specific funding scheme related to this activity.[114]

Influencing Horizon 2020

EuroCenter within the Office for EU collaboration (EFU) at the Danish Agency for Science and Higher Education is the national contact point (NCP) for Horizon 2020 in Denmark with the task to advise Danish research and innovation actors on Horizon 2020. This is done through direct advice, information sessions and courses, networking events, analysis and publications. EFU coordinates the national advisory network **EU-Denmark support**, which gathers all public advisors on EU projects, which offer free advice on EU funding for research institutions, companies, public institutions and other organisations. The network comprises some 35 organisations based throughout the country, including regional EU Offices, regional development agencies, the Enterprise Europe Networks, universities and GTS institutes among others. EU-Denmark support was established in 2013 following the 2012 National Innovation Strategy as part of the effort to achieve the goal of DKK 1.5bn per year. However, the network has a broader focus than only Horizon 2020, as it also incorporates the programmes Erasmus, COSME, CEF, Creative Europe and Interreg. As such, the purpose of the network is to share knowledge on all the EU programmes, strengthen the competencies of the national advisors as well as strengthen cooperation between the national advisors in the network.

In 2016, the **EU-Denmark-Hjemtag** scheme allocated Denmark 1m to supplement and enhance information and advisory services provided by the EU-Denmark support network. The scheme aimed specifically at supporting engagement with applicants which had not previously participated in EU programmes. Grants of DKK 100k-150k were provided to consortia of public and private organisations with the requirement that at least two EU-Denmark support partner organisations were included.[115]

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[112] GTS association and the Danish Agency for Institutions and Educational Grants (2017), *Teknologi til danske virksomheder: Performanceregnskab for GTS-net 2017*

[113] Based on Open cordis data retrieved 1st May 2018 (version last updated by EC in mid-April).

[114] Agency for Science and Higher Education (2017), *Midtvejsrapport: Dansk Deltagelse i Horizon 2020 – status og mulige potentialer*, November 2017.

[115] https://ufm.Denmark/forskning-og-innovation/tilskud-til-forskning-og-innovation/find-danske-tilskudsprogrammer/eu-Denmark-hjemtag (accessed 10 May 2018).

Similarly, the **Horizon-2020-net** scheme, implemented in 2015, aimed to increasing awareness of H2020 funding opportunities and connecting new potential applicants with established networks. Funding was awarded to existing networks, cluster and organisations already engaging in networking activity in support of Danish participation in EU programmes. A total of Denmark 17.7m was allocated through the scheme with individual grants ranging from Denmark 500k to Denmark 1.5m. Compared to EU-Denmark-Hjemtag (see above), Horizon-2020-net aimed to support participation in larger projects and required each Horizon-2020-net project to submit at least five "substantial applications" to Horizon 2020, i.e. applications for grants in excess of EUR 1.5m. [116]

Support for H2020 proposals

EUopStart is the main programme for supporting Danish applications to Horizon 2020. Managed by the Agency for Science and Higher Education, the scheme aims to provide an incentive for companies, universities and other research-active organisations to apply for EU funding. The call for proposals enumerates the programmes covered by the scheme, including parts of each of the three main pillars of Horizon 2020, a number of partnership instruments (e.g. JPIs and JTIs) as well as Eurostars. Applicants can request funding covering up to 50% of the cost of preparing the application, with a maximum of DKK 50k for project partners and DKK 75k for project coordinators. In 2018, DKK 20.4m was allocated for "Danish participation in European and international research",[117] most of which is for the EUopStart scheme. The latest call text suggests that DKK 6m will be allocated following each of the three cut-off dates during the year.[118]

The new **'DFF Danish ERC-Programme'** was launched in 2018 by the Independent Research Fund Denmark, to support applications for Starting Grants and Consolidator Grants under the European Research Council (ERC). To be eligible, applicants must have a highly rated but unsuccessful ERC application from the last three years. The scheme provides up to DKK 35,000 per month (excl. overheads) in up to 24 months for improving and resubmitting the application. The scheme has a budget of DKK 10m in 2018, which will be allocated over three application rounds.[119]

In 2015, the **KIC-Start** scheme provided support for applications for the Knowledge and Innovation Communities (KIC) under the European Institute for Innovation and Technology (EIT). KIC-Start provided funding for universities, companies, institutes and other organisations and covered up to 75% of the costs of applying up to a maximum of DKK 2,5 per application. Eligible costs included salary, meetings and travel as well as consultancy fees. A total of DKKDKK 12.5m was made available through the scheme.[120]

Table 40 Summary - Danish schemes to support applications for EU funding

Scheme name	EU programme covered	Period	Scheme budget	Grant size
EUopStart	Horizon 2020	Since 2011	DKK 15-20m/ year	Up to DKK 50k or 75k
DFF Danish ERC Programme	ERC Starting Grants and Consolidator grants	Since 2018	DKK 10m (2018)	DKK 35k/month in up to 24 months
KIC-start	EIT KICs	2015	DKK 12,5m (2015)	Up to DKK 2.5m

Source: compiled by Technopolis

[116] https://ufm.Denmark/forskning-og-innovation/tilskud-til-forskning-og-innovation/find-danske-tilskudsprogrammer/horizon2020-net (accessed 10 May 2018)

[117] Danish Finance Act 2018, p 189.

[118] https://ufm.Denmark/forskning-og-innovation/tilskud-til-forskning-og-innovation/find-danske-tilskudsprogrammer/euopstart (accessed 10 May 2018).

[119] https://www.statens-tilskudspuljer.Denmark/uddannelses-og-forskningsministeriet/styrelsen-for-forskning-og-uddannelse/danmarks-frie-forskningsfond/18 (accessed 10 May 2018).

[120] https://ufm.Denmark/forskning-og-innovation/tilskud-til-forskning-og-innovation/find-danske-tilskudsprogrammer/kic-start (accessed 10 May 2018).

Post-award support

There is no Danish equivalent to the Norwegian STIM-EU programme. Individual institutions will provide 'post-award' advice and support on participation and coordination functions, and the NCP also provides advice and training courses, but there are no national programmes in Denmark which provide financial support to cover project costs.[121]

E.4.4 Experience with support schemes

Danish support programmes are relatively small in scale and the agency does not currently collect formal data about administrative costs and effects. FP participation is said not to be a goal in itself. Rather, support schemes are intended primarily to increase research quality and engage SMEs. The universities – especially Copenhagen – have used their institutional funding to set up strong internal support services for FP participation.

The grants are relatively small, and the agency is currently able to fund the large majority of applications to the EUopStart scheme. Consequently, the applications can be assessed administratively by agency staff – primarily to ensure that eligibility criteria are met – without the need for external expert review. This task is undertaken by agency staff members as part of their wider duties – no one is assigned to this on a full-time basis – and it is estimated that this is equivalent to approximately 1 FTE in total.

There has been no formal evaluation of the EUopStart scheme, but a survey among EUopStart grant holders from 2016 suggests that those who receive support are more likely to be awarded EU grants, but the effects of the scheme on the applicants have not been evaluated. The agency is in close, continuous dialogue with the users (companies, researchers) and feedback from this process helps the agency calibrate the scheme. Feedback suggests that the scheme has been particularly effective in increasing the number of H2020 applications from Danish SMEs. It is believed that many SMEs be been unable to apply without the advice and external consultancy services funded through the programme.[122]

Several programmes – e.g. EU-Denmark Hjemtag, Horizon 2020-net – were implemented on a one-off basis with resources made available for a single year. These were never intended to be long-running programmes. The KIC-Start scheme is the only example of a scheme that failed to live up to expectations and therefore wasn't renewed. The KIC-Start call elicited relatively few applications and the Danish participation in the EIT KICs overall is still limited.

E.4.5 Lessons learnt

The recent national research and innovation strategy (published in December 2017) reiterated the aim to take home 2.5% of the EU Framework programme funding and announced several new initiatives to enhance Danish participation:

- A new **action plan for Danish participation in EU's Framework programmes** for research and innovation, intended to help coordinate existing schemes and advisory services, and create a basis for taking "concrete decisions concerning Danish participation in accordance with national research interests and strengths".[123]
- An updated **national defence industry strategy**, which will ensure that Denmark is able to take advantage of research funding from the new European Defence Fund.[124]
- A new national **ERC-support programme** under the auspices of Independent Research Fund Denmark. This was launched in 2018 as described above.[125]

[121] Interview with national expert.

[122] Interview with national expert.

[123] Danish Government (2017),*Danmark – klar til fremtiden: Regeringens mål for dansk forskning og innovation,* Uddannelses- og Forskningsministeriet, December 2018, p. 18

[124] Ibid.

[125] Ibid, p. 13

Overall, Danish performance in H2020 is in line with the objectives and the current approach is largely viewed as appropriate. It is a multi-layered system with a division of labour with central expert advice, training and communication provided by the ministerial agency and more specific advice and support available closer to the applicants at a regional or institutional level. Nevertheless, performance is monitored on an ongoing basis and there are areas with room for improvement, e.g. the comparatively low level of participation from large Danish companies.[126]

Institutions which have taken a strategic approach to H2020 participation – especially larger universities with competent and centralised support functions – have seen an increase in participation. In this context, the structure of the Danish university sector with a small number of relatively large institutions can be seen to be conducive to high H2020 participation.[127]

E.4.6 Key sources

- DASTI (2015), *Effects of participation in EU framework programmes for research and technological development*, Ministry of Higher Education and Science.
- Agency for Science and Higher Education (2017), *Midtvejsrapport: Dansk Deltagelse i Horizon 2020 – status og mulige potentialer*, November 2017.
- Danish Government (2017), *Danmark – klar til fremtiden: Regeringens mål for dansk forskning og innovation*, Uddannelses- og Forskningsministeriet, December 2018
- Danish Ministry of Education and Research (2018), *Analyse af offentlig dansk forsknings-finansiering og forskningsaktivitet*, March 2018

[126] Interview with national expert.

[127] Ibid.

E.5 Participation in Horizon 2020 as of 31 March 2018

Table 41 Proposals by country

Proposals	Norway	Austria	Germany	Netherlands	Denmark	All countries
Number of proposals involving country	6,472	10,364	36,184	20,674	9,828	159,079
Proportion of all proposals	4%	7%	23%	13%	6%	100%
Number of proposals per 1,000 FTE researcher	161	148	60	167	168	
	1.38	1.38	1.75	1.56	1.35	
Participations in proposals	Norway	Austria	Germany	Netherlands	Denmark	All countries
Number of participations in proposals from country	8,942	14,275	63,382	32,252	13,247	580,559
Proportion of all particpations	2%	2%	11%	6%	2%	100%
Number of participations in proposals per 1,000 FTE researcher	222	204	105	260	227	
Participations in proposals, by organisation type						
Number of participations from country in proposals from ...	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES – Higher or secondary education	3,128	4,878	21,497	13,292	6,447	208,111
REC – Research organisations	2,106	2,873	14,631	4,365	1,021	100,873
PRC – Private for profit (excl. education)	3,259	5,605	24,537	12,408	4,737	230,198
PUB – Public body (excl. REC/HES)	303	328	1,158	879	694	20,138
OTH - Others	146	591	1,559	1,308	348	21,239
Proportion of country's participations in proposals from...	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES	35%	34%	34%	41%	49%	36%
REC	24%	20%	23%	14%	8%	17%
PRC	36%	39%	39%	38%	36%	40%
PUB	3%	2%	2%	3%	5%	3%
OTH	2%	4%	2%	4%	3%	4%
Number of participations in proposals per 1,000 FTE researcher, from...	Norway	Austria	Germany	Netherlands	Denmark	
HES	78	70	36	107	110	
REC	52	41	24	35	17	
PRC	81	80	41	100	81	
PUB	8	5	2	7	12	
OTH	4	8	3	11	6	

Table 42 Projects by country

Projects	Norway	Austria	Germany	Netherlands	Denmark	All countries
Number of projects involving country	924	1,579	5,164	3,152	1,442	18,247
Proportion of all projects	5%	9%	28%	17%	8%	100%
Number of proposals per 1,000 FTE researcher	23	23	9	25	25	
Participations in projects	Norway	Austria	Germany	Netherlands	Denmark	All countries
Number of participations in projects from country	1,391	2,424	10,503	5,401	1,979	88,038
Proportion of all participations	2%	3%	12%	6%	2%	100%
Number of participations in projects per 1,000 FTE researcher	35	35	17	44	34	
Participations in projects by organisation type						
Number of participations from country in projects from ...	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES	418	670	3,048	2,043	952	28,860
REC	412	532	2,748	989	159	18,541
PRC	417	933	4,041	1,891	619	30,601
PUB	116	136	314	210	155	5,192
OTH	28	153	352	268	94	4,844
Proportion of country's participations in projects from...	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES	30%	28%	29%	38%	48%	33%
REC	30%	22%	26%	18%	8%	21%
PRC	30%	38%	38%	35%	31%	35%
PUB	8%	6%	3%	4%	8%	6%
OTH	2%	6%	3%	5%	5%	6%
Number of participations in projects per 1,000 FTE researcher, from...	Norway	Austria	Germany	Netherlands	Denmark	
HES	10	10	5	16	16	
REC	10	8	5	8	3	
PRC	10	13	7	15	11	
PUB	2.9	1.9	0.5	1.7	2.7	
OTH	0.7	2.2	0.6	2.2	1.6	

Table 43 Success rates by country

Success rates	Norway	Austria	Germany	Netherlands	Denmark	All countries
of proposals involving country	14.3%	15.2%	14.3%	15.2%	14.7%	11.5%
of participations from country	15.6%	17.0%	16.6%	16.7%	14.9%	15.2%
of participations from...	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES	13%	14%	14%	15%	15%	14%
REC	20%	19%	19%	23%	16%	18%
PRC	13%	17%	16%	15%	13%	13%
PUB	38%	41%	27%	24%	22%	26%
OTH	19%	26%	23%	20%	27%	23%
Proposals/participations	Norway	Austria	Germany	Netherlands	Denmark	All countries
HES	7.5	7.3	7.1	6.5	6.8	7.2
REC	5.1	5.4	5.3	4.4	6.4	5.4
PRC	7.8	6.0	6.1	6.6	7.7	7.5
PUB	2.6	2.4	3.7	4.2	4.5	3.9
OTH	5.2	3.9	4.4	4.9	3.7	4.4
All	6.4	5.9	6.0	6.0	6.7	6.6

Appendix F Abbreviations

CICERO	CICERO Center for International Climate Research (*Cicero Senter for klimaforskning*)
CMI	Chr. Michelsen Institute (*Chr. Michelsens institutt*)
CMR	Christian Michelsen Research
CRR	Centre for Rural Research (*Ruralis Institutt for rural- og regionalforskning*)
E1	Eurostars 1
E2	Eurostars 2
EC	European Commission
EFTA	European Free Trade Association
ERA	European Research Area
ERC	European Research Council
FFA	Association of Norwegian Research Institutes (*Forskningsinstituttenes fellesarena*)
FFI	Norwegian Defence Research Establishment (*Forsvarets Forskningsinstitutt*)
FHI	Norwegian Institute of Public Health (*Folhelseinstituttet*)
FNI	Fridtjof Nansen Institute (*Fridtjof Nansens Institutt*)
FP	Framework Programme
FP6	Sixth Framework Programme
FP7	Seventh Framework Programme
FRISCH	Ragnar Frisch Centre for Economic Research (*Frischsenteret for samfunnsøkonomisk forskning*)
GDP	Gross domestic product
GenØK	Centre for Biosafety (*Senter for biosikkerhet*)
GUF	Public general university funds
H2020	Horizon 2020 (Eighth Framework Programme)
HE	Higher education
HEI	Higher education institution
HES	Higher or Secondary Education Organisation
HIHM	Inland Norway University of Applied Sciences (*Høgskolen i Innlandet*)
HiMolde	Molde University College – Specialized University in Logistics (*Høgskolen i Molde - Vitenskapelig høgskole i logistikk*)
HiOF	Østfold University College (*Høgskolen i Østfold*)
HiVolda	Volda University College (*Høgskolen i Volda*)
HSN	University College of Southeast Norway (*Høgskolen i Sørøst-Norge*)

HVL	Western Norway University of Applied Sciences (*Høgskulen på Vestlandet*)
IFE	Institute for Energy Technology (*Institutt for energiteknikk*)
IMR	Institute of Marine Research (*Havforskningsinstituttet*)
IN	Innovation Norway (*Innovasjon Norge*)
IRIS	International Research Institute of Stavanger
ISF	Institute for Social Research (Institutt for samfunnsforskning)
MER	Ministry of Education and Research (*Kunnskapsdepartementet*, KD)
MET	Norwegian Meteorological Institute (*Meteorologisk institutt*)
MSCA	Marie Skłodowska-Curie action
NCP	National Contact Point
NERSC	Nansen Environmental and Remote Sensing Center (*Nansen Senter for miljø og fjernmåling*)
NFD	Ministry of Trade, Industry and Fisheries (*Nærings- og fiskeridepartementet*)
NGI	Norwegian Geotechnical Institute (*Norges Geotekniske Institutt*)
NGU	Geological Survey of Norway (*Norges Geologiske Undersøkelse*)
NHH	Norwegian School of Economics and Business Administration (*Norges Handelshøyskole*)
NIBIO	Norwegian Institute of Bioeconomy Research (Norsk institutt for bioøkonomi)
NIFU	Nordic Institute for Studies in Innovation, Research and Education (*Nordisk institutt for studier av innovasjon, forskning og utdanning*)
NIKU	Norwegian Institute for Cultural Heritage Research (*Norsk institutt for kulturminneforskning*)
NILU	Norwegian Institute for Air Research (*Norsk institutt for luftforskning*)
NINA	Norwegian Institute for Nature Research (*Norsk institutt for naturforskning*)
NIVA	Norwegian Institute for Water Research (*Norsk institutt for vannforskning*)
NMBU	Norwegian University of Life Sciences (*Norges miljø- og biovitenskapelige universitet*)
NOFIMA	Norwegian Institute of Food, Fisheries and Aquaculture Research (*Matforskningsinstituttet*)
NORD	Nord University (*Nord universitet*)
NORSAR	*Forskningsinstitutt for seismologi og anvendt geofysikk*
NORSØK	*Norsk senter for økologisk landbruk*
NORUT	Norut Northern Research Institute
NP	Norwegian Polar Institute (*Norsk Polarinstitutt*)
NR	Norwegian Computing Center (*Norsk Regnesentral*)
NTNU	Norwegian University of Science and Technology (*Norges teknisk-naturvitenskapelige universitet*)

NUPI	Norwegian Institute of International Affairs (*Norsk utenrikspolitisk institutt*)
NVE	Norwegian Water Resources and Energy Directorate (*Norges vassdrags- og energidirektorat*)
OsloMet	OsloMet – Oslo Metropolitan University (*OsloMet – storbyuniversitetet*)
OUS	*Oslo universitetssykehus*
PES	Project Establishment Support (*Prosjektetableringsstøtte*)
PRC	Private for Profit Organisation (excluding education)
PRIO	Peace Research Institute Oslo (*Institutt for fredsforskning*)
PUB	Public Body (excluding research and education)
RBO	*Resultatbasert omfordeling*
RCN	Research Council of Norway (*Norges forskningsråd*)
REC	Research Organisation
SME	Small and medium-sized enterprise
SMEI	SME Instrument
SNF	*Samfunns- og næringslivsforskning*
Teknologisk	*Kiwa teknologisk institutt*
Treteknisk	Norwegian Institute of Wood Technology (*Norsk treteknisk institutt*)
TØI	Institute of Transport Economics (*Transportøkonomisk institutt*)
UiA	University of Agder (*Universitetet i Agder*)
UiB	University of Bergen (*Universitetet i Bergen*)
UiO	University of Oslo (*Universitetet i Oslo*)
UiS	University of Stavanger (*Universitetet i Stavanger*)
UiT	University of Tromsø The Arctic University of Norway (*Universitetet i Tromsø Norges arktiske universitet*)
USN	University of Southeastern Norway (Universitetet i *Sørøst-Norge*)

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