



NORWEGIAN MINISTRY
OF EDUCATION AND RESEARCH

Strategy

Strategy for research and innovation cooperation with the EU

Horizon 2020 and ERA

1. Foreword

1 January 2014 marked the kick-off of Horizon 2020, the world's largest research and innovation programme. Since the EEA Agreement entered into force in 1994, Norway has participated in the framework programmes on research and innovation as an associated country. Following the decision of the EEA Committee on 16 May 2014, Norway will continue to do so under Horizon 2020.

Participation in the framework programmes and in the European Research Area is a core element in Norwegian research policy.

This strategy, originally published in Norwegian on 5 June 2014, establishes the Government's goals and ambitions for Norway's participation in Horizon 2020 and the European Research Area (ERA). In their forewords to the Norwegian version, Prime Minister Erna Solberg and Minister of Education and Research, Torbjørn Røe Isaksen, encourage Norwegian researchers to make maximum use of Horizon 2020 for cooperation with international colleagues. Moreover, the strategy presents measures that are necessary for achieving these goals and ambitions.

2. Introduction

The EU is investing heavily in research and innovation. Efforts to better integrate research and innovation cooperation in Europe through the European Research Area (ERA) are being stepped up, and on 1 January 2014 the world's largest integrated research and innovation programme, Horizon 2020, was initiated. EUR 77 billion has been allocated for cooperation under Horizon 2020, which will contribute to sustainable economic growth and European competitiveness, to develop world-leading research and innovation and to deal with the major challenges facing society. Norway is an active participant in ERA and participates as an associated member in Horizon 2020. The European commitment to research and innovation involves opportunities within a wide range of topics and activities for Norwegian research institutions, companies and public sector bodies.

Currently, Norwegian researchers do not sufficiently utilise opportunities in the European research and innovation cooperation. Universities and university colleges, research institutes, health trusts and the private sector all have significant potential for greater participation and increased benefits from participation.¹ Participation in the EU cooperation can serve various purposes: build scientific quality, strengthen innovation and competitiveness within both the European and the global market and develop solutions to societal needs such as good health and social welfare services and sustainable energy. Participation gives us the opportunity to share the costs of expensive research infrastructure and provides increased access to such. Development of researcher networks and greater career opportunities for individual researchers are also important. Actors who participate are also more visible and attractive as partners both in Europe and internationally.

Developments in the European research and innovation cooperation are rapidly unfolding, and it is important that Norwegian researchers, companies and Norway as a society do not miss out on the opportunities inherent in the cooperation. The Government has therefore drawn up an overall strategy that determines the level of ambition for Norwegian participation in ERA and Horizon 2020 and describes measures to achieve Norway's ambitions. This strategy comprises both collaboration to achieve ERA objectives that include the free movement of researchers, gender equality, joint programmes and European research infrastructures, and programme collaboration through Horizon 2020. The strategy is aimed at authorities, funding agencies, research-performing institutions and companies and the public sector as a user of results and participant in the collaboration. Every second year the Government will assess whether there is a need to revise the strategy.



¹ See also the sub-project reports that underlie this strategy (only in Norwegian) at www.government.no.

3. Status of Norwegian participation

*The Research Barometer 2013*² presented a detailed review of Norwegian participation in the Seventh Framework Programme (FP7). Results from the most recent calls have not changed the main picture that was presented there. Adjusted for the size of the national research system, Norwegian researchers have an equal or higher rate of participation compared to researchers in the other Nordic countries. However, growth in EU support is lower than for the other countries. There are considerable differences between the themes in FP7. While researchers in Norway had strong participation in the themes concerning the environment and climate, energy, security, food, space and social sciences and in the dedicated theme for small and medium-sized enterprises (SMEs), they participated to a lesser degree in the large health and ICT themes, in the European Research Council and within researcher mobility. The Norwegian participation in the EU's Competitiveness and Innovation Framework Programme (CIP) has had positive outcomes, but business participation has been lower than in the other Nordic countries. Norway has made little use of the capital instruments in the EU programmes.

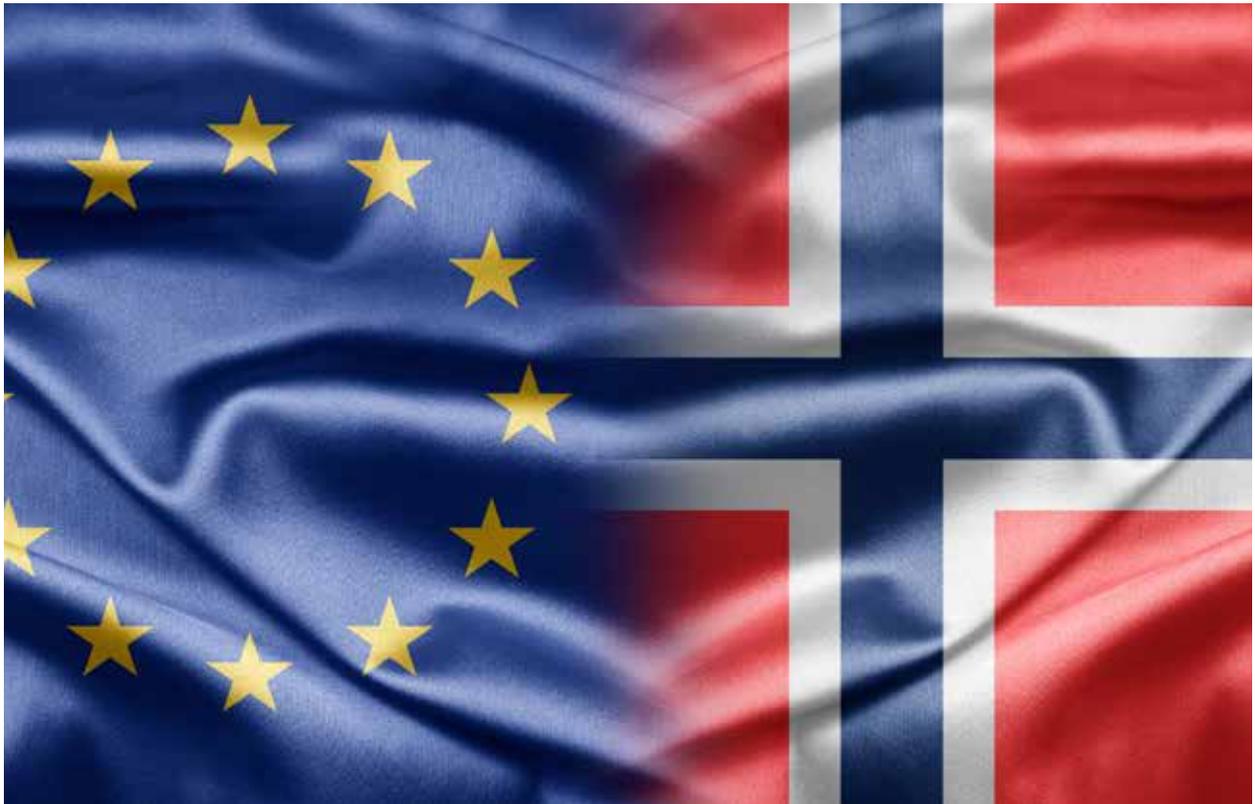
As a basis for the strategy, four sector-specific sub-projects mapped the existing knowledge base for the efforts and results of the higher education sector, the health trusts, the institute sector and industry in FP7. All four sectors have actively participated in various aspects of FP7, but there is potential for increased participation from all sectors.

Overall, the institute sector was the most active, with 35 per cent of the participation in FP7. The institutes were particularly active in activities that fall under the "societal challenges" and "industrial leadership" priorities in Horizon 2020. However, a high percentage of the activities involved a single research institute, SINTEF. More research institutes should be able to increase their involvement. The higher education sector accounted for 29 per cent of the participation in FP7, of which the three major universities, the University of Oslo, Norwegian University of Science and Technology (NTNU) and the University of Bergen, accounted for most of this activity. This is a lower rate of participation than universities in Sweden, Denmark and Finland. Efforts by both the major universities and other Norwegian universities should therefore be significantly increased.

The participation of the health trusts constituted a small percentage. There is close collaboration between the university hospitals and the universities, and many researchers have dual positions. Most EU projects have been registered at universities. In addition, clinical research has not been a high priority in previous framework programmes. The health trusts were most active within the health programme, where they had a fairly low level of participation but a high success rate, which would indicate that they might also be able to intensify their efforts. The funding system for research in the health trusts has supported international research cooperation, but so far has not had special incentives to participate in EU research. This was changed in 2014 so that the higher education sector and health trusts receive the same financial disbursement in the funding system. Industry accounted for about 24 per cent of participation in FP7, and three-quarters of these were small and medium-sized enterprises. Large firms participated less in FP7 than in previous framework programmes. Companies in the large cities were the most active, while in many counties few or no companies participated. The role of industry in European research and innovation is emphasised to a greater extent in Horizon 2020 than previously. Greater participation by the private sector can be realised by mobilising more and new businesses, particularly large businesses, and through increased utilisation of the capital instruments in Horizon 2020.

² The Ministry of Education and Research: *Research Barometer 2013*, pp. 73–95.

Norwegian municipalities and county authorities participated little in FP7. A total of 17 municipalities participated in various projects during the programme period, and the applications of three county authorities were granted, with one county authority serving as project coordinator. The potential for increased participation from both the municipal sector and the public sector at large is believed to be significant because Horizon 2020 is more relevant to the public sector than FP7 was.



4. Ambitions for the cooperation

The Government has four main objectives for Norway's participation in Horizon 2020 and ERA:

- 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.

Strong Norwegian participation in Horizon 2020 is a prerequisite for achieving these goals. The proportion of competitive funds that go to Norwegian actors, the share of the EU contribution, is a good indicator of the volume of the Norwegian participation. It can be measured per theme, per research-performing sector and if necessary per institution, and it is simple to monitor. One objection may be that economic factors are not the main motive for Norway's participation in Horizon 2020, but the indicator is also correlated with other indicators measuring non-economic aspects of the Norwegian participation. The share of the EU contribution can also be used as an indicator of the competitiveness of the Norwegian research system.

The Norwegian share of the EU contribution in FP7 is currently 1.67 per cent. This is low compared with the potential of the Norwegian research communities and in relation to the Norwegian contribution. Several leading Norwegian research communities have urged the Government to establish ambitious quantitative targets for Norway's participation.

The Government's ambition is that two per cent of the competitive funds in Horizon 2020 shall go to Norwegian actors. The ambition will require more than a 60 per cent increase in the participation level compared with FP7. The Government believes that an EU contribution share of two per cent is ambitious, but that it is possible through broad and specific mobilisation of actors and close cooperation between the authorities, funding agencies and research-performing sectors.

The Government will work towards the objectives of the Norwegian participation in ERA and Horizon 2020 through measures that stimulate participation and contribute to better utilisation of project results. The Government's instrument for achieving the objectives is primarily the Research Council of Norway (RCN), but also Innovation Norway will be involved in relevant areas. The Government expects universities, university colleges, research institutes and health trusts to develop their own goals, strategies and action plans to help achieve the national objectives. It is these actors, together with the private sector, who actually determine whether we achieve our goal.

5. Priority areas

The Government will pay special attention to selected priority areas that will help us to achieve the objectives of our cooperation with the EU on research and innovation. Long-term advocacy work and consistency between national and European efforts must be combined with targeted measures to encourage increased participation. While the Government and funding agencies shall facilitate increased participation and better utilisation of project results, the efforts of research and innovation actors are crucial if we are to achieve our cooperation goals.

5.1. Strengthened coordination between national, European and global efforts

Norway supports ERA's vision of Europe as a single research area, where researchers, knowledge and technology move freely across borders. Strengthened cooperation between the countries and better coordination of research and innovation efforts in Europe will leverage resources better. ERA cooperation has so far been voluntary. Norway will continue to work to achieve ERA cooperation goals through voluntary cooperation.

There is a high degree of consistency between the priorities of ERA and Horizon 2020 and Norwegian research. There are some important exceptions, where areas of great importance to Norway are poorly covered by EU activities. One example of this is petroleum research. There are also some significant differences in industrial structure that make it difficult to achieve high participation. For example, the three largest export industries in Norway (oil and gas, suppliers to the oil and gas industries, and fisheries) are not represented in the thematic objectives of Horizon 2020. However, these industries can take advantage of calls within cross-cutting technology areas, joint technology initiatives and open calls.

Since the European cooperation is increasing in scope and importance, it is natural to see national initiatives and priorities in research and innovation in the context of European developments, and ERA and Horizon 2020 as an integral part of the overall Norwegian research and innovation effort. It will affect both the design of national research and innovation policy and funding of Norwegian research and innovation activities in coming years.

Horizon 2020 plays an important role in the implementation of EU policy in areas such as energy, climate change and health. In the EU, the design of Horizon 2020 was the result of closer collaboration between the Directorate-General for Research and Innovation and other directorates-general. In this way, Horizon 2020 can help achieve objectives within various policy and areas. Norway also works closely with the EU in many of the policy areas where Horizon 2020 is to be a vehicle in achieving key goals. It is important to ensure good national coordination in such policy areas, and also with relevant research activities in Horizon 2020.

5.1.1. Comprehensive policy and administration

The sector principle for research ensures that national and European priorities and national and European efforts are viewed in connection with each other. This means that ministries are to consider and fund Norwegian participation in European activities and partnerships and follow up the parts of Horizon 2020 that fall under their areas of responsibility. Activities and areas that fall under the responsibility of several ministries are to be followed up jointly.

It is important to prevent the sector principle from leading to fragmentation and failure to follow up transverse issues. The Ministry of Education and Research therefore has a special responsibility to ensure a comprehensive approach to Norway's participation in the European research and innovation cooperation. This means that the Ministry of Education and Research will coordinate Norway's participation in the framework programme, coordinate Norwegian positions in Horizon 2020 and ERA committees and follow up overall and cross-cutting issues. The Ministry of Trade, Industry and Fisheries has a particular responsibility for monitoring overall and transversal issues that affect innovation. The EEA Special Committee for Research, the joint meetings for Norwegian delegates and the national contact points (NCPs) in the RCN shall be actively used to coordinate Norwegian positions in overall and cross-cutting issues. The Government will continue its efforts to create more comprehensive management of ERA activities Norway participates in, with the aim of preventing different practices in different parts of the administration from creating unnecessary administrative burdens.

Measures:

- The Ministry of Education and Research is in charge of efforts to develop a common model for the ministries' management and funding of Joint Programming Initiatives (JPIs).
- In collaboration with the Ministry of Education and Research, the Ministry of Trade, Industry and Fisheries will consider the need for more comprehensive management of Norway's participation in other partnerships based on Articles 185 and 187 of the Treaty on the Functioning of the European Union, and in the European innovation partnerships.

5.1.2. Coordination of instruments

The authorities have a special responsibility for ensuring that national research programmes and initiatives address the knowledge needs of our society and business community that are not covered by ERA and Horizon 2020. At the same time, relevant national programmes and initiatives must be designed to constitute a whole together with the European activities. This means that they have a mobilising and qualifying effect on participation in Horizon 2020 and that they support the overall objectives for participation.

Firstly, this means that national research programmes and research funding are to help ensure that Norwegian researchers and research communities become attractive and internationally competitive partners. Accumulation of national expertise may also be necessary to ensure that we are able to utilise the results of, and the knowledge gained from, research and innovation activities in the EU.

Second, the authorities and funding agencies must continuously assess interaction and division of work with European activities in initiatives and plans for how to spend national funds. The RCN shall continuously evaluate whether joint calls or activities with European partners can provide better utilisation of resources with a view to achieving the overall objectives of our research policy and to create more interesting opportunities for Norwegian researchers. The RCN must therefore be granted increased powers to use funds from national programmes for international activities and calls. Such authorisation is granted by the funding ministry.

Horizon 2020 and ERA must also be viewed in conjunction with Norway's other international research collaboration and funding. Given that Horizon 2020 allows researchers from all countries to participate in all activities, and ERA activities increasingly facilitate collaboration with actors outside Europe, institutions and companies must use the European arena to develop strategic alliances with partners from third countries. In particular, the RCN is to pave the way for using Horizon 2020 and ERA to further develop bilateral cooperation with the eight non-EU/EEA countries that Norway prioritises at the national level.³

The EEA funds are Norway's contribution to reducing social and economic disparities in Europe. Of these funds, significant amounts go to research and innovation projects in six countries.⁴ The funds permit Norwegian actors to establish contacts with research communities in recipient countries, which can then be used strategically when putting together consortia in applications to Horizon 2020 and to exercise influence over future European research and innovation policy.

Measures:

- The ministries and the RCN shall develop national initiatives and programmes within their respective areas of responsibility in terms of the division of work and interaction with European activities and with the aim of making Norwegian research communities better equipped to participate in the European cooperation.
- National instruments in the RCN shall be designed to have a mobilising and qualifying effect on participation in Horizon 2020.
- The RCN must always weigh joint calls or activities with European partners against national activities.
- Actors with particular potential to participate in Horizon 2020 shall be identified in the RCN's programmes and initiatives.
- The RCN will be granted greater authority to use national research funding for pan-European activities and common European initiatives vis-à-vis priority partner countries outside the EU/EEA.
- The Ministry of Foreign Affairs, Ministry of Education and Research and the RCN shall ensure that EEA funds for research are used to support and qualify for cooperation within Horizon 2020 and ERA.

5.2. Better interaction between sectors

The target groups for the individual activities under Horizon 2020 and ERA are more complex than previously. This partly reflects the fact that the new framework programme also includes innovation, that objectives and calls are based on challenges rather than subjects or technologies, and that interdisciplinary and demand-driven research is emphasised more strongly than before. Support is also increasing for the development and implementation of public-public and public-private partnerships and the European Institute of Innovation and Technology (EIT).

³ The priority partner countries are the United States, Canada, Brazil, Japan, India, China, South Africa and Russia.

⁴ The countries covered are Poland, Hungary, Estonia, Latvia, Romania and the Czech Republic.



The EIT promotes interaction between research, higher education and innovation in key fields. Norwegian institutions have so far been unsuccessful in calls for proposals to be a Knowledge and Innovation Community. Collaboration across and mobility between the research-performing sectors, including the public sector, are more important than previously, both in terms of having applications accepted and to benefit from the results of research and innovation projects. Intersectoral cooperation must be strengthened nationally, but to succeed in Horizon 2020, it is particularly important to develop intersectoral collaboration with research communities in other countries.

The institute sector currently acts as an impetus to increase participation from the private and public sectors in the European cooperation. The ongoing tripartite collaboration between the Norwegian Association of Higher Education Institutions (UHR), the Association of Norwegian Research Institutes (FFA) and the RCN is an arena for strengthening interaction between the institute sector and the higher education sector.

Existing networks and initiatives involving collaboration and meeting places across sectors and actors, such as research centres and industrial clusters, can, to a greater extent than today, emphasise the EU cooperation and be utilised to promote cross-sectoral cooperation within Horizon 2020 and ERA. For example, such networks can help develop project ideas and link up actors from different sectors.

Funding agencies must facilitate increased collaboration across the research-performing sectors. There are several instruments that support cross-sectoral collaboration, such as clusters and research centres. The STIM-EU scheme is designed to motivate the institutes to include Norwegian industry in Horizon 2020 projects. Another important measure is meeting places for actors from

different sectors. The RCN will, where appropriate in cooperation with Innovation Norway, continue to develop and design dedicated arenas where Norwegian companies and research institutions can meet to discuss common EU initiatives aimed at increased cross-sectoral participation.

Measures:

- The Government expects all research-performing sectors to work to increase cooperation with national and European partners across sectors and to increase mobility between sectors.
- The Government expects existing and new networks such as clusters and centres to help connect R&D actors and users in order to increase participation in EU cooperation.
- The RCN and Innovation Norway shall design meeting places for companies and research institutions.



5.3. Support and mobilisation efforts to ensure good participation in and utilisation of Horizon 2020 and ERA activities

To achieve the Government's ambitions for participation in Horizon 2020 and ERA, Norwegian participation must increase significantly compared with FP7. If Norway is to succeed in the competition for European funds, we must continue to invest in institutions that are already active, while mobilising research communities that only participate to a small extent today, but that have the potential to increase their participation. Both the authorities and the undertakings themselves have a responsibility to provide guidance and mobilisation measures.

5.3.1. The actors' responsibility

Institutions and companies have a responsibility to facilitate both strategic and practical participation. Good and motivating leadership at all levels is a prerequisite for mobilising the participation of research communities. The Government expects the higher education sector, research institutes and health trusts to incorporate participation in Horizon 2020 and ERA into their strategies and plans, and utilise the EU cooperation to further develop their research profile. Higher education institutions should also try to view participation in Horizon 2020 and ERA in connection with the utilisation of the Erasmus+ education programme. The Government furthermore expects institutions to implement measures locally that contribute to increased participation in Horizon 2020 and ERA.

The trade unions and employer organisations have strongly advocated Norwegian participation in Horizon 2020. The Government therefore urges the parties to work diligently to mobilise Norwegian companies and the public sector to participate in Horizon 2020 and ERA, and the Government expects the parties to provide constructive input to the further development of the Government's policy.

Measures:

- Universities, university colleges, research institutes and health trusts shall formulate goals, strategies and measures for their EU cooperation.
- The ministries will follow up the state-owned institutions' strategies for, and results of, the EU cooperation.
- Criteria for assessing the higher education sector's efforts in ERA, Horizon 2020 and Erasmus+ will be defined in conjunction with the Ministry of Education and Research's revision of the goal structure for the sector.
- The Government encourages the trade unions and employer organisations to supplement the funding agencies' guidance and mobilisation work.
- The tripartite collaboration on Horizon 2020 between employer organisations, trade unions and relevant ministries must be better utilised if the business community, municipal, county authority and state sectors are to become more actively involved as users in the projects.

5.3.2. Support system

The experience from previous framework programmes shows that a good support system is needed to stimulate Norwegian participation. Rules for participating in Horizon 2020 have been simplified compared with FP7, which may encourage more parties to join. As a result of the tremendous growth in the use of resources with Horizon 2020 and greater activity across the sectors, the need for guidance and mobilisation work will increase. There is therefore a need to professionalise support services. Both institutions and funding agencies play important roles in providing guidance and in mobilisation efforts.

A number of institutions have already built up their own support system that guides and assists potential applicants. The Government expects the larger institutions to further develop their support system in line with development trends in the European cooperation. Institutions that participate to a lesser degree or that have overlapping interests, should consider coordinating support services. The RCN shall contribute to this.

Mutual exchange of experience among research administrators can contribute to greater participation in the EU cooperation. The Norwegian Network for Administration and Research Management, NARMA, which was established by the Norwegian Association of Higher Education Institutions in 2013, focuses particularly on collaboration for better administrative support for Horizon 2020. NARMA is a learning arena across large and small higher education institutions as well as the RCN, and it also welcomes participation by the institute sector and health trusts.

Among the funding agencies, the RCN has the main responsibility for support and mobilisation efforts. This involves information work, guidance and contributions to the development of alliances between different research actors, as well as management of financial incentive schemes. The national contact points, the NCPs, play a key role in this work. The Norwegian NCPs are connected



with programmes both in the EU and Norway, which enables them to see national and European priorities and instruments in context. The European Commission was previously able to undertake an initial quality assurance of EU applications. This task has now been assigned to the NCPs. This, together with the increased scope and significance of the cooperation, will put greater pressure on the NCPs' resources. NCPs will face greater challenges in finding a good balance between quality assurance of individual applications and other guidance and mobilisation tasks. They will therefore have to allocate resources to where they provide the greatest mobilisation effect. NCPs must also, to a greater extent than previously, utilise guidance and mobilisation expertise available at institutions with good experience from the EU cooperation, and more formalised cooperation with NARMA should be considered. The Government wishes to bolster the NCP apparatus.

Increased focus on innovation, support for close-to-market activities, facilitating increased participation by SMEs and the integration of capital instruments are new aspects in Horizon 2020, which will probably make it more attractive for the private sector to participate than it was in FP7. This must also be reflected in the advisory services provided by Innovation Norway and the RCN. Innovation Norway will primarily focus its work with Horizon 2020 on SMEs and financial institutions. The RCN's work shall be directed at SMEs and large companies with research potential. It is important to identify promising Norwegian business participants early enough in the call processes, while efforts aimed at the private sector must be targeted and more cross-sectoral.

The regional representatives of the RCN and Innovation Norway are close to businesses, institutions and public actors such as municipalities and county authorities throughout the country. The regional offices can therefore disseminate information about the opportunities in Horizon 2020 and ERA, mobilise and guide different research communities, and help the various actors in the regions to join forces in applying for EU support.

The regional authority level can also contribute to increased participation in the EU cooperation. In addition to local knowledge of the business and R&D communities, Norwegian regions have local representatives in Brussels who can provide valuable information for regional operators. Furthermore, the county administrations have experience with preparing research strategies and research management linked to regional instruments, regional research funds, funding of and mobilisation for innovation-oriented research and experience from other international programme cooperation. Gender equality and inclusion of the gender perspective in research is one of ERA's goals. Meanwhile, the EU emphasises that increased participation by women in Horizon 2020 compared with previous framework programmes can help strengthen both the quality of research and Europe's competitiveness. Norway has been a driving force in promoting gender equality and gender balance in European research. Nevertheless, the percentage of women among Norwegian participants in European research cooperation has been low, also relative to other countries. The skewed gender balance in Norway's participation is an indication that we do not utilise our human resources well enough. There is a need to strengthen mobilisation efforts aimed at women in order to increase the percentage of Norwegian women in activities under Horizon 2020 and ERA.

Measures:

- The Government expects universities and university colleges to play a central guidance and mobilisation role in their regions, in cooperation with the NCPs, and regional funding agencies.
- The Government expects research-performing institutions to consider cross-sectoral cooperation regarding the establishment of local or regional support services at the institutional level.
- The support and guidance system shall be further developed and better coordinated as follows:
 - ♦ The Government shall strengthen the NCP scheme.
 - ♦ The NCP system shall emphasise measures that provide the greatest possible mobilisation effect and increasingly adopt guidance and mobilisation skills in the support functions of experienced institutions.
 - ♦ Innovation Norway and the RCN shall work closely together on counselling at all levels, particularly in relation to instruments for companies and financial institutions. Innovation Norway and the RCN shall prepare a specific division of responsibilities between themselves, and clarify how counselling should be given in the future.
 - ♦ NARMA shall be strengthened as a meeting place and learning arena for a more professional research administration.
 - ♦ To increase the participation of the public sector, ministries shall inform subordinate bodies about the opportunities to participate in the cooperation under Horizon 2020 and ERA.
- The RCN and other actors dealing with mobilisation shall place special emphasis on recruiting women to mobilisation events and holding application and project development courses specifically geared towards women.
- All incentive systems to promote participation in the EU cooperation shall be designed to promote gender balance.
- The Committee for Gender Balance in Research shall help strengthen the percentage of women in Norway's participation in Horizon 2020 and ERA activities.

5.3.3. Financial framework conditions and incentive schemes

Simplification of participation rules can make it easier and more attractive to participate in Horizon 2020. However, satisfactory financial framework conditions are a prerequisite for applying for EU projects. A new funding model with fixed rates for reimbursement of costs has been introduced in Horizon 2020. All companies will have equal financial terms with the new model. This will provide large enterprises with better support terms than under FP7, while SMEs will receive somewhat better support terms.

The fixed rates for reimbursement of indirect costs have different effects for actors with different degrees of basic funding and running operating expenses. For many Norwegian actors, the funding model in Horizon 2020 may provide poorer financial participation conditions than FP7, which may make participation in the EU cooperation more financially challenging. In addition, there are rules that set certain limitations for additional financing from external actors in individual projects. This can be particularly challenging for the institute sector in Norway. The STIM-EU scheme may be used to remedy this.

For the higher education sector and health trusts, the new funding model does not seem to provide very different support conditions compared with FP7.

In the higher education sector, performance-based redistribution of the basic appropriation has been used to stimulate EU participation. The allocation is made from a given pot, which is redistributed each year based on research funding received from the EU two years earlier. This means that the disbursement for each institution will depend on the institution's results compared with those of the other institutions. This makes the scheme unpredictable for the institutions, and means that higher overall participation by institutions results in a lower disbursement per euro received from the EU.

Several economic incentive schemes that encourage participation in Horizon 2020 and ERA exist today. The schemes provide support to applicants, support for preparation and advocacy and support to compensate for inadequate funding of EU projects. The schemes were recently evaluated. Based among other things on the findings of the evaluation, the Government will assess the need for changes in the economic incentive schemes.

Measures:

- The Government will consider changes in the economic incentive schemes that encourage participation in the EU cooperation, including better incentive schemes with proven effects and schemes that redress difficult participation terms.
- The Ministry of Education and Research has appointed an expert group to review the model for funding universities and university colleges, and submit proposals on how this can be improved. The group's mandate contains a guideline that the Government wants a strong incentive to compete for research funding in European arenas.
- The Government will further examine how basic appropriations and other regular funding streams affect the institutions' interest in applying for European funding.

5.4. Career and recruitment

Career opportunities, mobility and equality are important conditions for increasing research quality and succeeding in the EU cooperation. Higher education institutions have a special responsibility to think long term and enable students and young researchers to acquire necessary skills. It is particularly important that young researchers are given an opportunity to build their careers and become qualified at an early stage to compete for EU funds. Independence, international experience and knowledge of how to build and maintain international networks are needed. Young researchers must also be trained in international research management, to enable more to take responsibility for their institution's participation in EU projects. Erasmus+, the EU programme for education, training, youth and sport, is an important instrument for mobility and international experience when would-be researchers are still students. Mobility and career measures in Horizon 2020 must be used to facilitate an international career as a researcher.

Institutions must also attempt to attract expertise from the outside. Expertise in and experience from international research and innovation cooperation should be used as a criterion when hiring researchers. Experience can also be exchanged across institutions in other ways, such as adjunct professorships.

Norway is participating in the effort to further develop Europe as one research area through the ERA cooperation, with the aim of achieving an open labour market for researchers and gender equality in research. Systematic work at the institutions is necessary for achieving these objectives, but will also contribute to good participation in Horizon 2020.

Measures:

- The Norwegian Centre for International Cooperation in Education (SIU) shall, in cooperation with the institutions, encourage future researchers to gain international experience while enrolled in higher education, including through active use of Erasmus+.
- The RCN shall encourage international experience early in a research career.
- The Government expects institutions to strengthen work on their own career and mobility policy to attract, develop and retain the best researchers.
- The Government expects umbrella organisations such as the Norwegian Association of Higher Education Institutions (UHR) and the Association of Norwegian Research Institutes (FFA) to facilitate meeting places for exchanging experience.
- The Government expects the higher education sector, institutes and health trusts to consider how they can contribute towards efforts to achieve ERA objectives concerning the free movement of researchers and gender equality, and to use the new opportunities to strengthen the institutions' participation in Horizon 2020.



5.5. Advocacy and positioning work

If we are to succeed in significantly increasing participation, the Norwegian research communities must see that the EU's research and innovation agenda and the individual calls are professionally relevant and give them added value. It means that the authorities must, in particular, work strategically to promote areas and activities where collaboration and funding at the European level provide other opportunities and added value compared with national activities. There may, for example, be societal challenges one country cannot solve alone, and instruments or facilities that individual countries are unable to offer, such as research infrastructure that is costly to build and operate, and which can be better utilised if researchers from more countries have access to facilities and data.

5.5.1. Presence in Brussels

A number of actors in Norway are already working to influence the EU's research and innovation policy: politicians, ministries, funding agencies, institutions and companies. In addition, there are a number of key actors in Brussels, such as the counsellor for research at the EU delegation, other special envoys, the RCN's Brussels office and business actors and organisations based in Brussels. The Ministry of Education and Research has a special responsibility to ensure coordination between the Norwegian actors, and to help develop clear Norwegian positions.

Networks such as JPIs, the European innovation platforms, the European technology platforms and European umbrella organisations for different types of research actors increasingly seem to influence the design of the European research and innovation policy and work programmes, calls and other activities. The ministries, funding agencies and research participants must therefore exploit such networks. Likewise, we should work strategically to ally ourselves with like-minded countries in matters that are important to us.

Measures:

- The Government will strengthen cooperation between Norwegian actors in Brussels.
- The Government expects the research institutions and companies to use their networks and European umbrella organisations to promote their interests.
- Within the national programmes, funds shall be allocated to participation and positioning to ensure that Norwegian interests and priorities are addressed in the strategic work in their fields.

5.5.2. Impact on EU proposals and decision process

When initiatives are at the proposals stage, Norwegian authorities and actors can influence the European Commission in line with other actors. We must take advantage of this opportunity, both by actively providing input and through participation in various committees and forums in the EU system. Although the Directorate-General for Research and Innovation is responsible for coordinating both research and innovation policy in the EU, we must work actively with more directorates-general and policy makers in the early stages because research and innovation policy is increasingly linked to other policy areas. Early advocacy requires working actively on both information gathering and developing Norwegian positions in cooperation between the authorities, funding agencies and research actors.

Close follow-up in the decision phase in the EU is also important. We must exploit the arenas we have for political advocacy and work with the EU presidency country, like-minded countries, the European Parliament and the European Commission. Experience shows that we can be listened to and gain support for Norwegian viewpoints if we contribute concrete and relevant input.

Measures:

- In 2016, the Ministry of Education and Research shall prepare a plan for advocacy work for the framework programme that comes after Horizon 2020, based in part on the experiences with the advocacy processes for Horizon 2020.
- The Government will actively use arenas for political influence on key initiatives in the EU.

5.5.3. Influence through delegates and experts

Triennial strategic programmes and biennial work programmes will concretise the implementation of Horizon 2020 and form the basis for calls. If the calls are to be interesting to Norwegian research communities, it is important that we influence the design of programmes and calls, both through input to the European Commission in the formative stage and through active participation in the programme committees in Horizon 2020. The delegates from the specialist ministry and the experts, who in most cases come from the RCN, have, in cooperation with the NCPs, a special responsibility



to influence work programmes and calls in line with Norwegian interests and needs. To help make Horizon 2020 more relevant to Norwegian researchers and companies, the delegates and experts shall seek advice and input from both the research-performing sectors and relevant programme committees in the RCN. National reference groups will be a suitable way to obtain such advice and input. These groups will also help to disseminate information and coordinate Norwegian actors towards strategic processes and calls for proposals. Participants from the research-performing sectors should not only participate by virtue of their expertise, but also as representatives of their organisations, to help ensure that participation can also achieve a strategic and mobilising effect for a broader research community.

Horizon 2020 shall contribute to the fulfilment of ERA goals. This will require better coordination between participation in programme committees of Horizon 2020 and the ERA groups. Involving the various actors requires reference groups for Norwegian participation in JPIs and other ERA activities. It shall be considered whether there is a need for separate groups or whether they can be merged with the reference groups for adjacent fields and activities.

Measures:

- The ministries and the RCN have a special responsibility for advocacy work within specific fields through their participation in the programme committees and associated working groups.
- Reference groups or equivalent shall be established for Horizon 2020 and the JPIs. The research-performing sectors and public sector shall be represented in the relevant reference groups. The reference groups have responsibility for technical input and information dissemination.

5.5.4. National experts

The secondment of national experts to Horizon 2020 provides the experts themselves and the Norwegian public administration with a network of contacts and knowledge of how the EU system works, in addition to the national expert providing the EU system with relevant knowledge of Norwegian conditions. There are currently few national experts linked to Horizon 2020.

Measures:

- The Government will continue to work to bring in national experts in areas that are strategically important to Norway.

5.6. Knowledge transfer and dissemination of knowledge

Knowledge from EU projects is also relevant for research and innovation actors who have not participated in the projects themselves and as a basis for policy development, market exploitation and commercialisation and further development of the public sector. It is imperative to utilise the knowledge from EU projects in a systematic manner. Norwegian participants in EU projects shall be involved in national activities such as seminars and projects that contribute to spreading knowledge and insights from the EU cooperation.

Measures:

- National RCN programmes shall help to spread knowledge and technology from EU projects to other R&D actors and users.
- In collaboration with the RCN, the Ministry of Trade, Industry and Fisheries is considering how the synergy between Norway's participation in the EUREKA research network⁵ and Horizon 2020 can be strengthened.

5.7. Further development of the strategic basis for cooperation with the EU on research and innovation

Monitoring, analysis and evaluation of Norwegian participation form an important basis for follow-up, learning and improvement during the development of ERA and in Horizon 2020.

Monitoring of the Norwegian participation in ERA and Horizon 2020 is necessary to achieve the ambitions for the cooperation and to assess the need for changes in measures and stimulation instruments. *The Research Barometer 2013* analysed various indicators of Norwegian participation in FP7, which will form the basis for monitoring work related to Horizon 2020. Available data from the European Commission shall also be monitored and analysed. It is difficult to measure the effects of the Norwegian participation. The Government will, however, look more closely at how the effects of Norwegian participation can be measured with a view to assessing whether the objectives of improved quality, value creation and sustainable development are achieved.

Evaluations of Norwegian participation form an important basis for developing future follow-up and support and mobilisation work. Norwegian participation in both FP7 and Horizon 2020 will therefore be evaluated. The Government will also closely follow the EU's own evaluations of its research and innovation activities.

⁵ EUREKA is a European network that will help coordinate national funding of innovation with the aim of strengthening European competitiveness.

Measures:

- The Government shall monitor the Norwegian participation in Horizon 2020 with a view to achieving the objectives of the cooperation.
- The RCN shall, in collaboration with the Ministry of Education and Research and other ministries concerned, examine how the effects of Norwegian participation in Horizon 2020 and ERA can be measured.
- Norwegian participation in FP7 shall be evaluated.
- A mid-term evaluation of Norwegian participation in Horizon 2020 shall be conducted by the end of 2017.
- In collaboration with other ministries, funding agencies and actors, the Ministry of Education and Research shall biennially assess whether this strategy shall be revised and whether action plans shall be prepared.

Appendix

The European Research Area (ERA)

ERA is a vision of Europe as one contiguous research area, where researchers, knowledge and technology move freely between countries. ERA also entails increased coordination so that the European countries see their own research policy more in connection with both the other countries and with the EU's common research policy, not least with a view to joining forces to solve common challenges. In sum, this will de facto mean a "fifth freedom" for Europe.

ERA has been on the EU's research policy agenda since 2000, and its development has been sought through both the 6th and the 7th Framework Programme and increasingly outside the framework programme. In 2012, the ERA cooperation was specified in the following objectives:

- More effective national research systems
- Optimal transnational cooperation and competition
- An open labour market for researchers
- Gender equality and gender mainstreaming in research
- Optimal circulation and transfer of scientific knowledge

On this basis, work is taking place on the development of ERA in several areas: joint European research infrastructures, JPIs that address major societal challenges, knowledge transfer between industry and academia, mobility and personnel policy for researchers as well as international research collaboration.

Norway is participating in the development of all ten JPIs. Cooperation within the JPIs can take various forms such as joint priorities, division of work and joint calls. The first pan-European infrastructures for research are now being established, also in Norway. Norway participates in 23 of a total of 48 initiatives. Norway also participates actively in ERA efforts for strengthened knowledge transfer, increased researcher mobility and better research careers.

Completion of ERA is a key measure of the EU's overall growth and innovation strategies, Europe 2020 and the Innovation Union, and a key concern also for Horizon 2020. Partnerships based on the implementation of treaty articles 185 and 187 in Horizon 2020 are a contribution to the realisation of ERA.

The creation of ERA was established by treaty in the Lisbon Treaty. The EU is therefore committed to realising ERA. Currently, this happens through voluntary national reforms. A key discussion in the EU is whether the ERA cooperation should be ordained by law. While the Lisbon Treaty permits the use of regulations to develop ERA, this option has so far been used to a very limited degree.

Horisont 2020

Horizon 2020 is the EU's framework programme for research and innovation for the period 2014-2020. The programme replaces the EU's 7th Framework Programme for Research, Technological Development and Demonstration Activities, and will also include the innovation-oriented measures in the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT). The programme shall support both the EU's growth strategy *Europe 2020*, including the flagship *Innovation Union*, and development of ERA. The aim is to contribute to jobs and economic growth, to enable us to handle societal challenges and a stronger position for Europe in research, innovation and technology.

With a budget of EUR 77 billion, Horizon 2020 is the world's largest research and innovation programme. The contribution from Norway and other associated countries is added to the EU budget for the programme. The Norwegian contribution will probably be slightly over EUR 2 billion. The budget is divided between three main priorities, also called pillars:

1. Excellent Science, including the European Research Council (ERC), mobility activities, future technologies and research infrastructure.
2. Industrial Leadership, including Key Enabling Technologies such as ICT, nano-, bio-, and space technology, funding schemes for risk capital and innovation in small and medium-sized enterprises.
3. Societal Challenges, with the following sub-programmes:
 - a. Health, Demographic Change and Wellbeing
 - b. Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy
 - c. Secure, Clean and Efficient Energy
 - d. Smart, Green and Integrated Transport
 - e. Climate Action, Environment, Resource Efficiency and Raw Materials
 - f. Europe in a changing world – Inclusive, innovative and reflective societies
 - g. Secure societies – Protecting freedom and security of Europe and its citizens

Horizon 2020 differs from previous framework programmes as follows:

- Research and innovation will be brought together in a single framework programme which includes instruments that exclusively emphasise scientific quality, highly close-to-market instruments and instruments that combine research and innovation (“from idea to application and market”).
- Support for outstanding research will grow sharply. The initiative will lay the foundation for tomorrow's technologies, jobs and social welfare. It is particularly the focus on thematically open, basic research under the auspices of the European Research Council that will be strengthened.
- The programme is far more “challenge-based” than FP7. The calls shall be based on Europe's societal challenges, such as those related to health and sustainable energy. The programme emphasises the importance of research and innovation to deal with major societal challenges. The calls for proposals invite the actors to propose, to a greater extent, solutions based on challenges. Interdisciplinary work is emphasised in projects.

- Horizon 2020 places considerably more emphasis on innovation, both through support for various types of innovation and close-to-market activities, and through the innovation dimension permeating calls across the programme.
- Participation by/benefit for business and industry are given greater weight than before. Several steps will promote greater SME participation, and various instruments underpin SME research and innovation activities. The European Commission has an overriding objective that 20 per cent of the budget for the two pillars concerning societal challenges and industrial leadership shall go to SMEs. This will be accomplished both by involving SMEs as partners in project consortia and through a new dedicated SME instrument. The cooperation programme for R&D-performing SMEs, Eurostars 2, complements these activities.
- New instruments shall ensure access to risk capital and increased commercialisation and innovation. Capital instruments shall be market-based and channelled through financial intermediaries such as banks or funds.
- New measures on the demand side shall stimulate research and innovation, including providing better public procurement.
- Support for the development and implementation of public-public and public-private partnerships will be strengthened. The partnerships are rooted in Articles 185 and 187 of the Treaty on the Functioning of the European Union, and are often referred to as Article 185 and 187 initiatives. 10 partnerships have been launched so far. EUR 8 billion has been set aside for them in the Horizon 2020 budget. In addition, the partnerships shall be funded by the participating countries and participating businesses. The EU requires participation pledges and that national resources be made available for the implementation of some of the initiatives.
- The programme is open to participants worldwide. Cooperation with institutions and companies outside Europe will take on greater importance.
- Simplification has been accorded considerable importance. A number of measures will contribute to simpler regulations for participation, including joint participation rules for funding research and innovation throughout Horizon 2020, fixed rates for reimbursement of costs, simpler control and audit procedures and reduced turnaround times for applications.