

# Transcending boundaries

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Strategy on international cooperation 2010–2020

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*At left: Roald Amundsen in his cabin onboard the Gjøa upon completion of his expedition through the Northwest Passage in 1906. Photo: Harry Randall. Photo owner: The National Library of Norway, bldsa\_NPRA3119.*

*At right: From Fridtjof Nansen's expedition to the North Pole onboard the Fram (1893-1896). Celebrating Norway's Constitution Day on 17 May. Photo: Sigurd Scott Hansen. Photo owner: The National Library of Norway, bldsa\_q3c108.*



*Renowned polar explorers Fridtjof Nansen (1861-1930) and Roald Amundsen (1872-1928), and others who have followed in their footsteps, exemplify a deep-rooted need in the Norwegian character to explore the unknown, to help to expand the global knowledge pool.*



*Member of Roald Amundsen's expedition to the South Pole (1893-1896) Oscar Wisting and his dogsled. Photo: Unknown. Photo owner: The National Library of Norway, bldsa\_NPRA0525.*

# Transcending boundaries



The international research landscape is rapidly changing. Global cooperation is needed to solve today's global challenges. While Norway continues to give priority to European cooperation as one of its main arenas for international collaboration, we are seeking to expand bilateral partnerships with strong and emerging research nations outside Europe as well.

The Research Council's strategy on international cooperation from 2010-2020 was adopted in November 2010.

The strategy describes how the Research Council plans to achieve greater internationalisation of Norwegian research. The strategy will be implemented in close collaboration with researchers, institutions, companies and the government ministries.

Oslo, May 2011



Arvid Hallén  
Director General





# Objectives and action points

Research activities are increasingly taking the form of collaborative efforts across national borders, involving both research institutions and private enterprises.

More and more, research institutions and companies are turning to the international labour market to recruit their staffs, and investment in research infrastructure and knowledge-driven companies is being channelled towards countries with dynamic research communities. Internationally-based funding and partnerships for research projects are becoming the new norm.

The internationalisation of research entails both cooperation and competition. On the one hand, countries must work together to address major social challenges; on the other, they find themselves competing with one another to attract the best researchers and secure international research investments.

Global challenges can only be resolved if countries seek the answers together. This means that we all need to find ways to better coordinate our research policies and share our funding.

## Objectives

Through participation in international research cooperation, Norway seeks to:

- help address global challenges to society.

- enhance the quality and capacity of Norwegian research.
- secure Norway access to international knowledge production.
- boost the competitiveness of Norwegian trade and industry.
- promote Norway as a leading research and innovation nation in selected research areas.

## Action points

The Research Council has defined a new set of action points for realising its international cooperation objectives:

- All of the Research Council's activities, programmes, open competitive arenas, special initiatives, institution-oriented measures and other forms of support must include clearly-defined objectives and plans for international cooperation.
- The Research Council will encourage Norwegian participation in joint programmes across national boundaries when this is crucial to addressing common challenges or strengthening Norwegian research and knowledge-based trade and industry.

- The Research Council will develop financial instruments to support the establishment of long-term cooperation between Norwegian institutions and corresponding institutions in other countries.
- The Research Council will strengthen stimulation measures to encourage Norwegian researchers, companies and research institutions to participate more actively in international collaborative and competitive arenas.
- The Research Council will focus greater attention on international cooperation and researcher mobility in its grant application review processes.

Special measures to promote international research cooperation will still be needed. But the real key to Norway's success in international research lies in the ongoing ability of the Research Council's ordinary funding instruments to sustain a sound, well-functioning research and innovation system comprised of first-class knowledge-based companies, skilled researchers and advanced infrastructure.

# Global challenges

Global challenges are being given priority on the national and international research policy agendas.



At the government level, Norway defines global challenges as those involving changes in climate, energy, the environment, marine resource and food security issues, but focuses on issues such as poverty, global health, migration, economic development, democracy-building, human rights and conflict resolution as well.

No country can deal with global challenges on its own; nations must work together if we are to succeed in finding viable solutions. Thus, research comprises an integral part of the development of a shared international platform of action.

## The Research Council will:

- contribute to international co-operation and support coordinated efforts designed to address global challenges.
- develop research cooperation with emerging economies and help to expand research capacity in developing countries by encouraging reciprocal cooperation with high-quality researchers and research groups in these countries.

# Enhanced quality and greater capacity

The Research Council is a driving force behind activities to boost the quality and increase the capacity of Norwegian research.

We are taking steps to provide sufficient backing for researchers' and institutions' efforts to increase international co-operation, to create a better foundation for such cooperation and to strengthen requirements relating to internationalisation in areas where these have been lacking.

## **Mobility, careers in research and international participation**

One of the fundamental components of international research cooperation is mobility. The Research Council is Norway's representative in European efforts to dismantle barriers to researcher mobility and expand activities relating to researcher exchange and international recruitment.

Although many Norwegian universities, university colleges and independent research institutes already collaborate extensively internationally, the number of institutions and research groups taking active part in international collaborative efforts still needs to be higher.

### The Research Council will:

- further develop its mobility schemes and promote more researcher exchange within the framework of research projects.
- work to make it easier for researchers to move between countries.
- refine and enhance Project Establishment Support grants for and positioning measures vis-à-vis the EU and in other forms of international cooperation.
- create a framework for enabling Norwegian research institutions to compete under the same conditions as other European research institutions.
- provide backing for the internationalisation efforts of Norwegian institutions as a step towards developing long-term partnerships with institutions in priority partner countries.
- work to make it easier for researchers, research institutions and trade and industry to participate in international cooperation.

## **Infrastructure**

In many areas, innovative research is contingent upon access to advanced, high-cost infrastructure. Cooperation on infrastructure allows Norwegian researchers to take part in research activity that Norway could not finance on its own. Studies have shown that Norwegian research groups who take advantage of national membership in such collaborative efforts rank high in terms of scientific merit.

Investments in scientific equipment must be targeted towards industry needs and the national priority areas. The Research Council is responsible for drawing up a national roadmap for investment in research infrastructure. This roadmap presents the national and international large-scale infrastructure projects in which the Research Council believes Norway should invest in the near future.



#### The Research Council will:

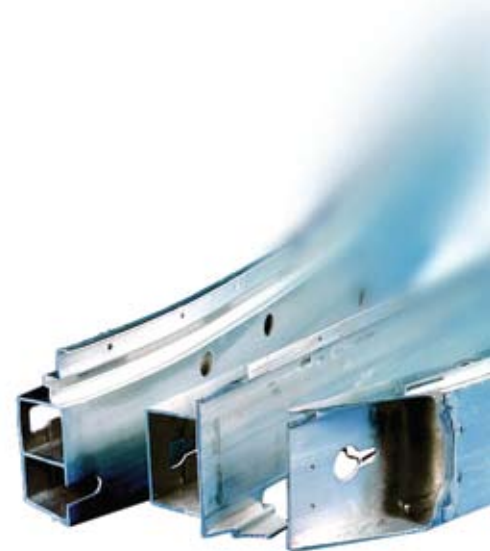
- support Norwegian participation in international research organisations with advanced research infrastructure.
- work to obtain co-financing for research facilities in Norway from stakeholders abroad.
- acquire greater insight into infrastructure both within and outside of Europe, as well as assess the need for formalised affiliations with such infrastructures.

#### Greater emphasis on internationalisation in Research Council funding instruments

All programmes and activities under the Research Council must include clearly defined objectives and plans relating to internationalisation. Within the discipline-oriented or thematic-based activities, internationalisation objectives are to be incorporated in the funding announcements. Coordinated and joint funding announcements, for example under ERA-NET activities, will be introduced on a larger scale to increase international cooperation in all the Council's activities. One means of strengthening internationalisation in the open competitive arenas

will be to provide supplementary allocations for internationalisation measures in projects that have already been selected on the basis of their scientific merit or overall calibre as innovation projects.

Ph.D. candidates with funding from the Research Council should be integrated into international collaboration, and post-doctoral candidates with funding from the Research Council should normally be given the opportunity to conduct a longer-term research stay abroad.



# Access to international knowledge production

International research cooperation provides access to global knowledge production and makes it possible to incorporate results from the international research front into activities in Norway.



## Integral part of a European Research Area

Norway has participated in the EU framework programmes for research since 1994, with excellent results. In general, Norwegian participation in the framework programmes has been dominated by a relatively small number of outstanding Norwegian institutions and companies. The Research Council believes that even more can be gained from enabling a greater number of Norwegian institutions and companies to take part in EU cooperation.

As the Eighth Framework Programme for Research gets underway, the Joint

Programming Initiatives (JPI) are emerging as a dynamic force in European research. Norway is active in many of the EU-affiliated activities and several JPIs, and was successful in achieving the launch of the Joint Programming Initiative on Healthy and Productive Seas and Oceans (JPI Oceans).

Participation in joint programmes confers ownership and expands influence, but it also means that a greater portion of the national allocations will be deployed in international competitive arenas. Norwegian participation and success in joint programmes will mean that new forms of cooperation and financial coordination in the ministries must be designed.

Norwegian research funds should be channelled to schemes for joint financing with other countries when these will generate value added for Norwegian research or industry, or will help in some way to address common challenges. There will still be areas in which it will remain in the nation's best interests to focus on national research programmes.

## The Research Council will:

- provide input to the government ministries regarding participation in joint programmes where this will generate value added for Norwegian research or industry, or help to address global or common European challenges.
- involve the research community, research institutions and companies as strategic partners in the development of Joint Programming Initiatives.
- work to achieve constructive task distribution and fruitful coordination between joint programmes and nationally funded activities.
- work to ensure that these joint programmes are effectively administered on Norway's part, with clearly-defined deliverables to society and open contacts between research and industry.





Photo: CERN

### Nordic partnerships

Special effort should be made to strengthen Nordic research collaboration in areas where such activities will address common Nordic challenges, lead to useful task distribution and shared use of costly infrastructure. Collective Nordic use of biobanks and databases is of particular relevance, for example in the fields of health and welfare. The Nordic Centres of Excellence are an important tool for creating synergies between outstanding national research groups. NordForsk plays a key role in enhancing Nordic-level research and researcher recruitment.

Working together as a region gives the Nordic countries greater weight in cooperative efforts with countries within and outside of Europe. This is important not only for promoting Nordic research but also for strengthening Nordic perspectives in European and international research collaboration. Areas in which this is especially important include marine research, research in the Arctic and northern areas, and welfare research.

### Cooperation with prominent research nations

Norway has signed bilateral research agreements with many non-European

countries, of which the following have special political importance: the USA, Canada, Japan, China, Russia, India, South Africa, Brazil, Argentina and Chile. There is great potential for expanding cooperation with these countries. Within certain disciplines and thematic areas there may be good scientific or business reasons to increase cooperation with other countries and regions. The EEA Grant funding scheme represents a new arena for establishing partnerships with new EU Member States.

International research cooperation will as a rule be integrated into the discipline-based and thematic activities of the Research Council. However, cooperation programmes targeted towards specific countries, such as China (the CHINOR programme), India (the INDNOR programme), and South Africa (the South Africa-Norway Programme for Research Cooperation) have also proven useful. Similar transitional programmes may be beneficial in relation to other countries as well.

### International organisations

The Research Council participates in a wide array of international organisations that play a vital role in shaping the global

research agenda, the development of the ERA and international trends in research and innovation.

Participation in international organisations gives Norwegian researchers and companies access to valuable networks as well as costly, advanced research infrastructure, and provides them with the chance to take part in high-quality research activities.

### The Research Council will:

- define in clear terms the scientific and thematically-oriented ambitions for strengthening cooperation with the priority partner countries.
- create a framework for researcher exchanges with priority partner countries, and support networking measures/organise workshops to promote specific cooperation.
- work together with research-funding organisations in the partner countries to issue coordinated or joint funding announcements.



# Strengthening competitiveness in industry

The Research Council encourages companies to establish relevant international networks. Participating in international consortia makes it easier for Norwegian industry to collaborate with international specialist environments, customers and suppliers.



The Research Council will facilitate increased participation in international joint programmes of relevance for trade and industry, including Joint Technology Initiatives, Eurostars and Joint Programming Initiatives. The Research Council will also establish incentives for industry to seek a role in bilateral research projects with non-European countries.



The Research Council will strengthen stimulation measures designed to reduce the risks for companies participating at the international level. Such measures may comprise better advisory and guidance services to determine which instruments will be best for Norwegian companies in need of support for participation in binding international cooperation.

## The Research Council will:

- work to enable Norwegian trade and industry to take part in international programmes targeted towards the industrial sector.
- increase awareness of the value added of international cooperation for trade and industry and map out the sector's need for international know-how and knowledge exchange.
- establish a framework that promotes foreign commissions to, and foreign investments in, Norwegian research and knowledge-based companies.
- work actively to achieve harmonisation of IPR rules and their implementation.



# Leading research and innovation nation in selected areas

In recent years, Norway has given priority to research on climate, the environment, energy, food, oceans, health and welfare as well as ICT, biotechnology, nanotechnology and new materials. These are all areas in which Norway has certain natural advantages or special expertise.



International research cooperation is an excellent means for presenting Norway as a reliable partner, for enhancing the position of Norwegian companies and for profiling Norway as a knowledge nation.

Norway needs outstanding knowledge communities that can attract highly capable researchers and gain a reputation as valued partners for Norwegian and international industry. In small countries like Norway, research groups in the same fields have to combine their skills to succeed internationally. Through

targeted funding for the Centres of Excellence (SFF), Centres for Research-based Innovation (SFI) and Centres for Environment-friendly Energy Research (FME), the Research Council has built up expert scientific groups and expanded the potential for innovation and value creation. The independent research institutes play an important role in the international cooperation activities of companies, and there is additional potential for these institutes to market their expertise to companies and government administrators in other countries as well.





#### The Research Council will:

- work to increase the ability of companies and research institutions to seek international partners.
- cooperate with the Norwegian diplomatic missions and Innovation Norway to give Norwegian research and infrastructure a higher profile abroad.
- actively use the SFF, SFI and FME centres to front Norway's position as a leading knowledge and innovation nation internationally.
- increase cooperation with research institutions and companies to generate "national teams" that take part in international activities, both within the EU and vis-à-vis priority partner countries.
- design financial instruments to support the establishment of long-term cooperation between Norwegian institutions and corresponding institutions in other countries.



# Key figures

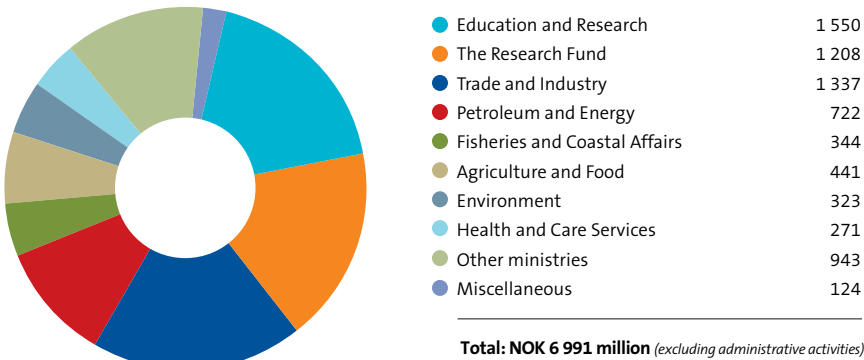
## The Research Council of Norway

The Research Council of Norway is a national strategic and funding agency for research activities and provides support for basic and innovation-oriented research within all subject fields. The Research Council plays a key role in implementing the Government's overall research policy, and provides a central meeting place for those who fund, carry out and utilise research.

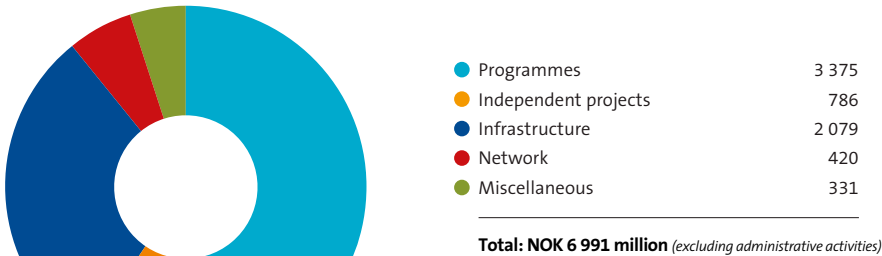
Some thirty per cent of Norway's public R&D funding is channelled through the Research Council, which has an overall budget of approximately NOK 7.25 billion in 2011. A major part of this funding comes from the Ministry of Education and Research and the Ministry of Trade and Industry, which together contribute close to half of the Research Council's budget.

The Research Council has developed a variety of funding instruments to facilitate its efforts to enhance the capacity, quality and diversity of Norwegian research. These instruments are also designed to ensure a high level of investment in research infrastructure, maintain sufficient volume in researcher training, and promote more knowledge-intensive trade and industry.

## 2011 Budget, Research Council's R&D funding (NOK million)



## 2011 Budget funding activities



The Research Council has devised a set of cohesive funding instruments targeted towards universities, university colleges, independent research institutes, trade and industry and the regional hospital trusts.

### Norwegian research

In 2009, Norway's R&D expenditures totalled NOK 41.9 billion.

- > NOK 18.2 billion (43.5 %) in the industrial sector
- > NOK 10.3 billion (24.5 %) in the independent research institute sector
- > NOK 13.4 billion (32 %) in the higher education sector

R&D operating expenditures for R&D in the higher education and institute sectors combined totalled NOK 21.83 billion.

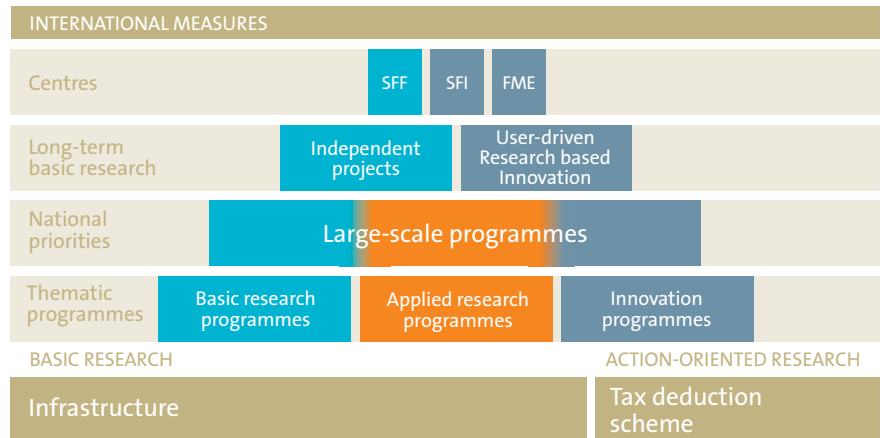
- > Basic research NOK 6.96 billion
- > Applied research NOK 11.35 billion
- > Experimental development NOK 3.54 billion

Total R&D full-time equivalents were 36 091.

- > Industrial sector 15 673 R&D FTEs
- > Independent research institute sector 8 763 R&D FTEs
- > Higher education sector 11 655 R&D FTEs

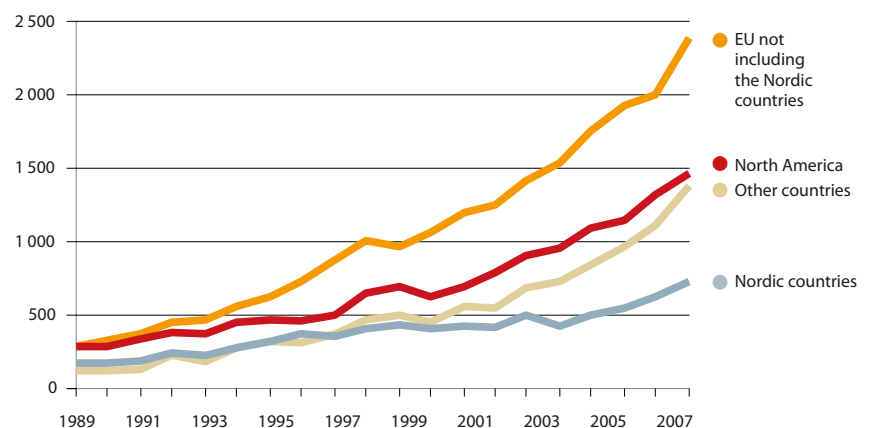
R&D activity comprised 1.76 % GDP.

- > Publicly financed R&D 0.82 %
- > R&D funded by industry 0.94 %




### International cooperation

Articles that Norwegians have co-authored with international collaborators in the period from 1989 to 2007, distributed by groups of countries with which co-publication has taken place.



## About the publication

The Research Council's strategy on international cooperation describes how the Research Council plans to achieve greater internationalisation of Norwegian research. The strategy will be implemented in close collaboration with researchers, institutions, companies and the government ministries. This document is an abridged version of the strategy. The full version may be downloaded from the Research Council's English language website: [www.rcn.no/international](http://www.rcn.no/international)



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