NIFU

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Policy Brief

R&D within thematic areas 2019

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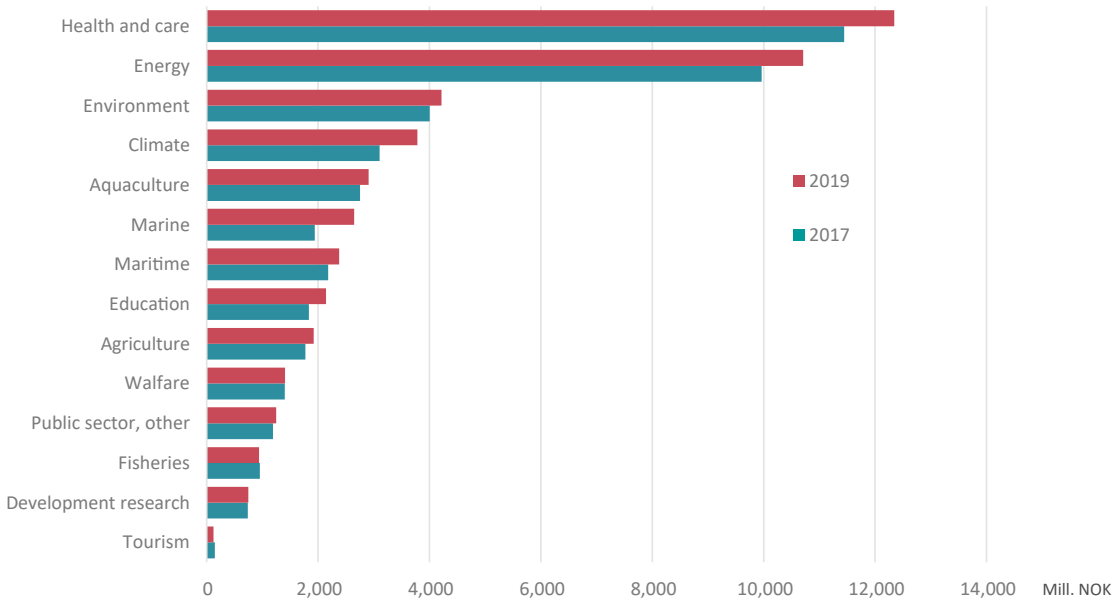
Results from the R&D survey 2019 show that health and care was the largest thematic area with more than NOK 12 billion in current expenditure on R&D, followed by energy with almost NOK 11 billion. Among the technology areas, ICT dominated with an R&D effort of more than NOK 22 billion in 2019.

Health and care is the largest thematic R&D area

In total, current expenditure on research and experimental development (R&D) in Norway amounted to NOK 74.4 billion in 2019 (including enterprises with five or more employees). This equals a growth in current prices of NOK 6.8 billion, or 11 per cent from 2017. The distribution within different thematic areas are shown in Figure 1. Three thematic areas had a stronger growth from 2017 to 2019 than the growth in total current expenditure on R&D: marine, climate and education.

Figure 1 Current expenditure on R&D within thematic areas.* 2017 and 2019. Current prices.



*Thematic areas are defined to avoid overlap, but to varying degrees there may still be some overlap.
Enterprises with five or more employees. For the industrial sector, questions about welfare, tourism, education, development research or public sector, other are not included.
Source: R&D statistics, Statistics Norway and NIFU

For seven thematic areas, there was almost zero growth or real decline in current expenditure for R&D from 2017 to 2019: tourism, fisheries, welfare, development research, public sector, other, environment and aquaculture. The largest R&D effort was reported under the thematic area health and care with more than NOK 12 billion. The higher education sector accounted for most of the activity within this thematic area (59 per cent), which in addition to medical faculties includes all R&D activity at university hospitals. Within the second largest thematic area, energy, the industrial sector accounted for 67 per cent of the R&D expenditure. Also within the institute sector, health and care (2.2 billion) and energy (2 billion) were the two largest thematic areas.

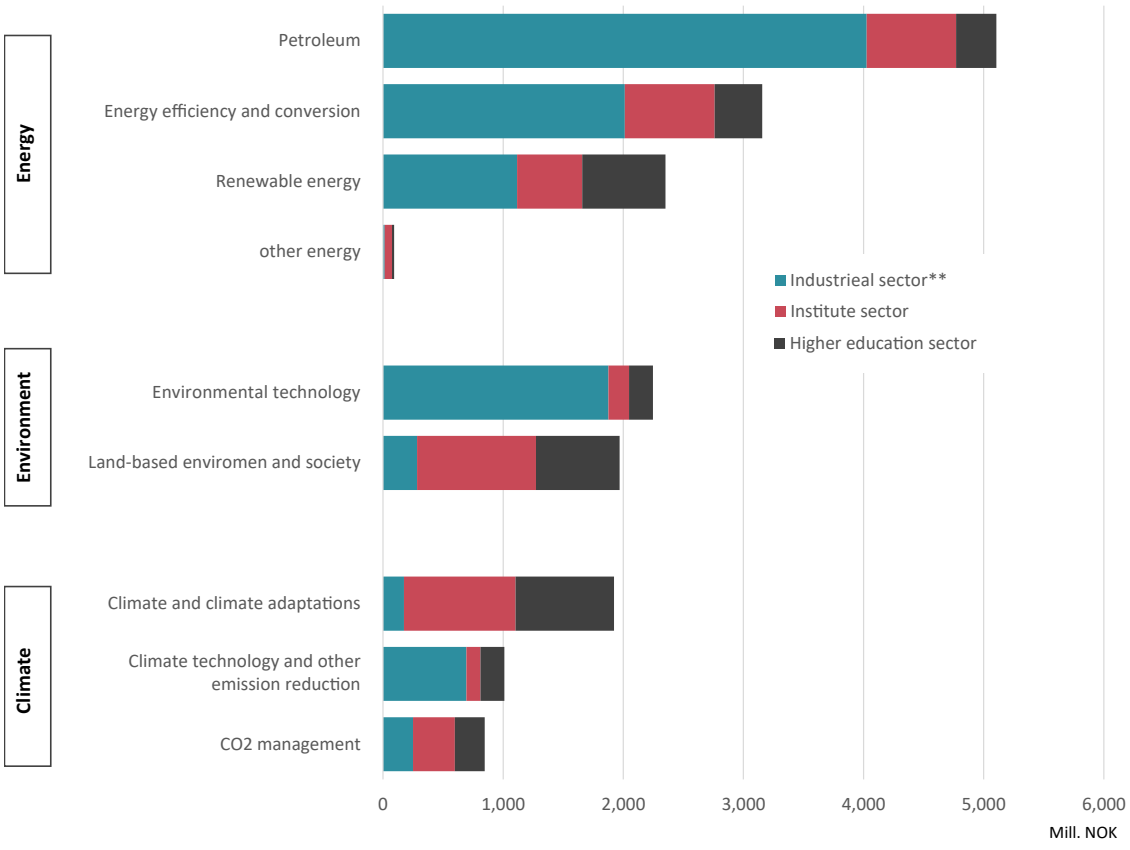
More than NOK five billion in R&D on petroleum

The thematic areas energy, environment and climate accounted for 14, 6 and 5 per cent of total current expenditure on R&D in 2019, respectively. The thematic areas are divided into sub-areas. The largest sub-area under energy is petroleum, with current expenditure on R&D of NOK 5.1 billion in 2019, see Figure 2. In current prices, there has been a decrease in the R&D activity within petroleum from NOK 5.2 billion in 2017. In 2015, the R&D expenditure within petroleum were NOK 5.7 billion. In comparison, the R&D activity within the sub-area energy efficiency and renewable energy increased from NOK 4.5 billion to 5.5 billion (22 per cent) from 2017 to 2019. The research communities also reported a strong growth in R&D activity within climate. The industrial sector contributes the most to the growth in R&D activity within energy, environment, and climate from 2017 to 2019, followed by the institute sector. There has been a decline in the higher education sector's R&D activity within these thematic areas in the same period.

The fist survey of ICT in 2019

The R&D statistics also map the four technology areas in Figure 3. ICT was by far the largest technology area

Figure 2 Current expenditure on R&D within energy, environment, and climate* by sector. 2019.



* The thematic areas (energy, environment and climate) may overlap, while the sub-areas must add up to 100 per cent.
**Enterprises with five or more employees.
Source: R&D statistics, Statistics Norway and NIFU

with over NOK 22 billion in current expenditure on R&D in 2019. The industrial sector accounts for most of the R&D activity within this area, more than NOK 19 billion. For the first time, ICT was further mapped through an additional survey to the 2019 survey. Nearly half of the R&D activity within ICT is related to the research area software, user interfaces and services, followed by electronics, hardware, smart components, and communication technology (14 per cent) and digital transformation/digitization (12 per cent).

From 2017 to 2019, the highest percentage growth was within new materials (18 per cent), followed by ICT (16 per cent). There was little growth in nanotechnology (4 per cent) and biotechnology (1 per cent), which gives a real decline within these two areas.

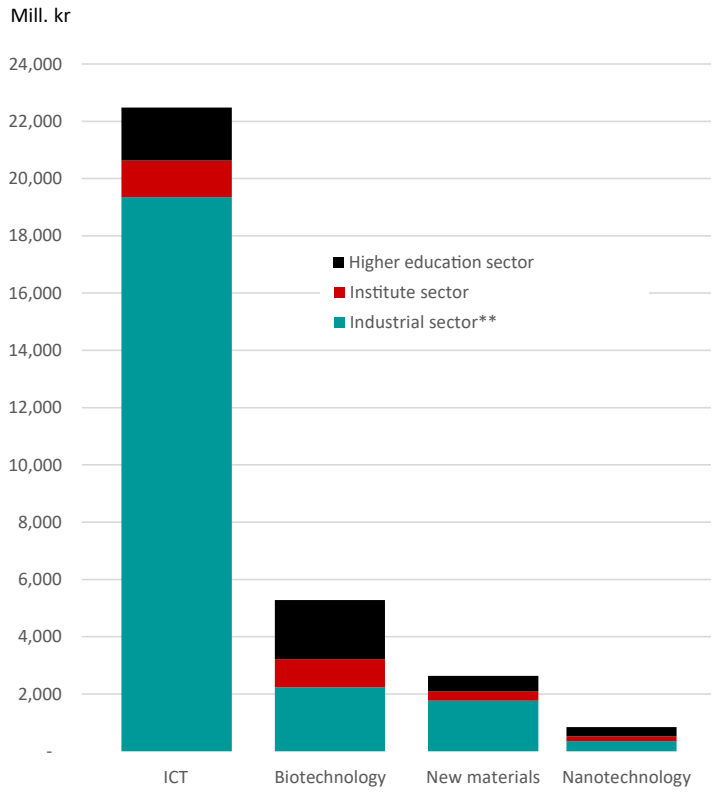
More details about the thematic orientation of Norway's research efforts

For many years, the Norwegian authorities have made priorities regarding which research areas to focus on. With the Governments Long-term plan for research and higher education, there was a need for systematic statistics to follow developments. In collaboration with the Research Council of Norway, definition and guidance were revised prior to the 2017 survey. This means that for some areas it is only to a certain degree possible to see the development over time.[1]

Research environments in the higher education sector and the institute sector which in the main survey for 2019 reported R&D within 12 selected thematic and technological areas (energy, environment, climate, marine, maritime, fisheries, aquaculture, agriculture, welfare, education, ICT and biotechnology), received an additional form with follow-up questions about the relevant areas. The questions covered sub-areas, funding and R&D staff. For the industrial sector, separate questionnaires are not sent out, but the ordinary questionnaire is extended to include a more detailed division of the selected thematic areas.

More detailed descriptions of the findings in the 2019 survey will be presented in Indikatorrapporten 2021 (Science & Technology Indicators for Norway 2021) and in a separate NIFU report in 2021. We will include the industrial sector's questions about rese-

Figure 3 Current expenditure on R&D within technology areas. 2019.*



* Technology areas should not overlap.
**For the industrial sector, only enterprises with five or more employees are included.
Source: R&D statistics, Statistics Norway and NIFU

Norwegian R&D performing sectors
In Norway, national R&D statistics is categorised according to three sectors:

The industrial sector:
Companies and enterprises aimed at commercial production of goods and services for sale at an economically significant price.

The institute sector:
Non-profit research institutes mainly serving industry (the business enterprise sector in the OECD classification); research institutes and other R&D-performing institutes (other than higher education) mainly controlled by and funded by the government (government sector in the OECD classification; and health trusts not conducting higher education and PNP hospitals.

The higher education sector:
Units providing higher education; universities, specialised university institutions, state university colleges and university hospitals.

arch areas for enterprises down to a minimum of five employees, sub-areas, financing, personnel data and time series where possible.

Preliminary R&D statistics for 2020 will be published October 22, 2021. You will find the reports, definitions and questionnaires from the thematic surveys in the higher education and the institute sector at www.nifu.no.

Notes

1. The newsletter includes both areas that have been mapped in the higher education sector and the institute sector through special questionnaires, as well as the other thematic areas and technology areas (healthcare, public sector in general, development research, tourism, new materials and now note technology).

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About
Each year, the total resources spent on research and experimental development (R&D) in Norway is mapped. In the higher education sector, the main survey is every two years (odd years). In agreement with the Research Council of Norway, NIFU has the statistical responsibility for the higher education and institute sectors, while Statistics Norway is responsible for the industrial sector. NIFU compiles the data for the total R&D statistics for Norway. The statistics are compiled on the basis of the OECD guidelines in the Frascati manual and are included in the OECD and Eurostat databases for Science & Technology.

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NIFU

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Nordic Institute for Studies in Innovation, Research and Education

NIFU is an independent social science research institute, organized as a non-profit foundation. The institute aims to be a leading European research organization for studies of innovation, research and education at all levels. NIFU collect, analyze and disseminate national statistics and indicators for R&D and innovation, and are active participants in statistical cooperation at European and international levels.

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