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Research and development (R&D) in business enterprises, 2023

N.B.! This form shows the questions in the survey.

Layout and design differ somewhat from the electronic form in the web-portal Altinn.

Log on to https://www.altinn.no/ to answer the survey.

If you need help completing the form, please contact by:

- **e-mail: datafangst@ssb.no**
- **telephone: 62 88 51 90**

Open on weekdays between 09–15.

For more information on the survey, see the guidelines at the end of this document

Only report for the listed enterprise. If the enterprise belongs to a conglomerate (enterprise group), do not report for other enterprises within the enterprise group/conglomerate.

What shall be considered as research and development (R&D)?
Both research and development (R&D) are creative work undertaken on a systematic basis to increase the stock of knowledge, and to devise new applications of available knowledge. For an activity to be considered R&D, it must satisfy five core criteria. The activity must have an appreciable element of novelty, it must be creative, there must be some uncertainty about the outcome, it must be systematic and lead to results that could possibly be reproduced.

- Research is systematic work in order to increase the stock of knowledge.
- Development is systematic or experimentally work drawing on existing knowledge to develop new or improved products or processes.

For more information, we refer to the guidelines given on the last page.

1. Did your enterprise engage in intramural research and development (R&D) in Norway during 2023?

R&D activity can be performed by own personnel or contracted personnel.
R&D activity can be performed by a R&D department/-center or by other departments in the enterprise.
Also include R&D performed on behalf of others and R&D that is a part of deliveries to customers. (?)

☐ Yes

☐ No → Go to question 13

(?) The following activities shall not be defined as R&F (except when they are an integral part of an R&D project):

- Routine testing and quality control.
- Technical service, problem solving in production and engineering projects using existing technology.
- Pre-planning and other routine work at the start of production.
- Adoption of known, established technology in business.
- Ordinary upgrade or use of software and system software in a new area of use or for a new purpose.

The next questions are about persons employed in the enterprise that took part in the enterprises' own R&D activity in 2023.

Include:
- both full time and part time employees.
- employees in a R&D department/-center; in case your company has such a department/center.
- employees that worked with R&D in other departments.
- employees in administration, and persons in supporting functions that have been involved in R&D.

Do not include contracted personnel.

2. How many persons employed in your enterprise where involved in intramural R&D activities in 2023?

If the number of persons that worked with R&D varied much over the year, please give an average. (?)

(?) R&D-persons should spend at least 0,1 man-years (i.e. 10 % of their work time) on R&D activities.

	Number of R&D persons	Of which women
With PhD……		
With higher degree education (Master's degree or similar)……		
With lower degree or no education (?)……..		
Number of employed R&D persons in total……		

(?) By lower degree or no higher education is meant an intermediate subject, bachelor's degree or vocational school or lower.

2.1 How many R&D man-years were performed in 2023?

A full-time employee working 50 % on R&D has performed 0,5 R&D man-years (full-time equivalent).

	R&D man-years
[X] With PhD……..	,
[X] with higher degree education (Master's degree or similar)…	,
[X] with lower degree or no education. …….....	,
R&D man-years performed in total ……	,

(X: specified in question 2)

2.2 Were any of the [X] R&D persons with PhD or higher degree education foreign nationals?

☐ Yes

☐ No → Go to question 2.3.

How many were foreign nationals?

☐ R&D persons

2.3 What type of tasks did the R&D persons employed in the enterprise perform in 2023?

	Number of R&D persons	Of which women
Product- or process developers, researchers and project managers…… Have developed new knowledge, products, processes, methods or systems, and/or planned and managed R&D projects		
Other R&D personnel (including technicians)…….. Support personnel for R&D, including technicians that execute R&D tasks defined by researchers/developers. For example, machinists, laboratory personnel, administration directly engaged in an R&D project.		
Not distributed ……...		
In total (collected from question 2)……..		

2.4 How many R&D man-years were performed in these tasks?

	R&D man-years performed
[X] product- or process developers, researchers and project managers…… Have developed new knowledge, products, processes, methods or systems, and/or planned and managed R&D projects.	,
[X] other R&D personnel (including technicians) ….. Support personnel for R&D, including technicians that execute R&D tasks defined by researchers/developers. For example, machinists, laboratory personnel, administration directly engaged in an R&D project.	,
Not distributed……..……	,
In total (collected from question 2.1)……..	,

(X: specified in question 2.3)

3. Were contracted persons (beyond own employees) involved in the enterprise's R&D activity in 2023?

Contracted R&D persons are external personnel that have to be integrated in the enterprises' intramural R&D activity. This means that they have worked together with the enterprises' own R&D personnel and have been subject to the enterprises' direct management. It could for example be consultants.

Acquired/purchased R&D-services should not be listed here, but under question 13. (?)

(?) Acquired R&D services is when others perform R&D on behalf of the enterprise without being integrated into the enterprises' own R&D activity. External persons performing such R&D should therefore not be counted as contracted R&D personnel. R&D services acquired from others could for example be outsourced.

☐ Yes

☐ No → Go to question 4

How many were contracted?

Contracted R&D persons

How many R&D man-years did the contracted persons perform?

, R&D man-years

A question regarding 2024:

4. How many employed persons and man-yeardo you estimate that the enterprise will use for intramural R&D activity in 2024?
Include only own employees, do not include contracted personnel.

R&D-persons

, R&D man-years

5. Specify the expenditures for R&D performed within the enterprise in 2023.
All costs shall be specified without VAT. Example: NOK 1.2 million must be entered as 1200.
For more information, we refer to the guidelines given on the last page.

Intramural current costs for R&D

Compensation of the [X] R&D man-years(x: specified in question 2.1)……..	000 NOK
Cost of the [X] R&D man-years performed by contracted personnel (x: specified in question 3)……..	000 NOK
Other current costs to R&D (without depreciation). ……..	000 NOK

- Acquisition of R&D services shall not be specified here, but in question 13

Investment costs for R&D (purchase value), without depreciation

Buildings, property, etc. for R&D……	000 NOK
Machinery, equipment, instruments, etc. for R&D……...	000 NOK
Total intramural R&D expenditure …….	000 NOK

A question regarding 2024.

6. How much do you estimate that the enterprise will use for intramural R&D in 2024?

000 NOK

7. How was the R&D expenditure in 2023 distributed on product-/process related R&D?

For more information, we refer to the guidelines given on the last page.

Product related R&D

Development of new products and services …….....		%
Improving existing products and services……. .....……		%

Process related R&D

Developing new processes for production.....……		%
Improving existing processes for production…….....		%
Not distributed ……..…….……..	**100**	%

8. How was the 2023 R&D expenditure distributed on basic research, applied research and experimental development?

Basic research……		%
Applied research……..….....		%
Experimental development……..……...…..…		%
Not distributed……..…….....	**100**	%

(?) Basic research: Experimental or theoretical work undertaken primarily to acquire new knowledge without any particular application or use in view.

(?) Applied research: Original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective.

(?) Experimental development: Systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to create new or improved:

- materials, products or devices
- processes, systems or services

9. How was the R&D expenditure distributed on the following technological fields?

- **Biotechnology:** Use of natural sciences and technology on living organisms and parts, as well as products and models of these, so that living- and non-living material is altered to achieve knowledge, products and services. The definition of biotechnology does not include separate subjects, including ethical, juridical and societal aspects.
- **Nanotechnology:** New techniques developed for synthesis and processing for the design of functional and structural materials, components and systems, where dimensions and tolerance in the spectrum 0,1 to 100 nanometers is of crucial importance. Ethical, juridical, societal or health/environment/safety aspects with nanotechnology.
- **New materials, except nanotechnology:** Functional materials (materials with certain chemical, physical or biological traits). Materials where the traits purposefully change when using nanotechnology should be listed under nanotechnology.
- **Information- and communication (ICT):** ICT-technology such as artificial intelligence, robotics and automation, smart components, hardware, communication technology, the internet of things, software and user interface. Digital security, such as e.g. encryption, biometry and privacy. Digital transformation/implementation of ICT in the transfer between technology and humans, organizations and/or society; use of digital processes to simplify, streamline and optimize business models, organizations, products, services and processes.

Biotechnology …….……..…….		%
Nanotechnology .....…….		%
New materials, except nanotechnology….. …….		%
Information- and communication technology (ICT) ……..….		%
Other fields of technology..……..….		%
Please specify other fields of technology ……..….		
Not distributed……..	**100**	%

9.1 How was the R&D expenditure that falls within the field of biotechnology distributed on the following fields? Please specify as a percentage.

Marine biotechnology (?)……		%
Agricultural biotechnology (?)…….…...		%
Industrial biotechnology (?)……..…..….		%
Medical biotechnology (?)……		%
Generic development in methods (?)……..……..…...		%
Other R&D within biology…….……..…..….		%
Not distributed ……..…….....	**100**	%

(?) Marin biotechnology: Technology and use in the area of seafood and new food products based on ocean resources, fish health and -welfare. Use of new knowledge from genomes to current farmed species and parasites. Growth and use of marine biomass and left-over raw material for different uses. Marine bioprospecting, genetic resources and infrastructure to marine research.

(?) Agricultural biotechnology: Breeding and development of species, including biobanks, bioprospecting, diagnostics and treatment of animal- and plant illnesses. Biodiversity, genetics resources and environmental onshore biotechnology. Innovation in production of food, feedstuff and fertilizers. Use of biomass, such as wood, fiber and butchered waste.

(?) Industrial biotechnology: Development of tools to be used for industrial biotechnology, such as enzymes, microorganisms, microbial systems, system- and synthetic biology. Use of biomass through integrated biorefineries, as well as biological cleansing. Development of biotechnological process technology, such as biocatalysis, fermentation and cleansing, as well as infrastructure for demonstration and upscaling of biotechnological processes.

(?) Medical biotechnology: Development of diagnostics and different types of treatment for humans. Use against translation research, clinic research, prevention and innovation in the health sector. Infrastructure for health data and biobanks to support biotechnological research and development.

(?) Genetic development in methods: Development of the biotechnological tool box with a potential use within all the areas. This category should only be used when it is impossible to link biotechnological R&D to any of the fields above.

9.2 How was the R&D expenditure that falls within the field of ICT-technology distributed on the following fields? Please specify as a percentage.

Artificial intelligence, machine learning and machine reasoning(?)		%
Robotics and automation (?)……..…...		%
Digital security (?)……...…...….		%
Electronics, hardware, smart components and communications technology (?)…….		%
Software, user interface and services (?)……..…...		%
Digital transformation/Digitalization (?……....		%
Other……...		%
Not distributed …….....	**100**	%

(?) Artificial intelligence: Different approaches and techniques such as machine learning (e.g. deep learning and reinforcement learning) and machine reasoning (including planning, search and optimization).
(?) Robotics and automation: E.g. linked to industrial robots, autonomous vehicles such as drones, driverless cars, and vessels.
(?) Digital security: Technologies and knowledge to reduce digital vulnerabilities. E.g. encryption, biometry, privacy and security.
(?) Electronics, hardware, smart components and communication technology: The Internet of Things, including the hardware/process technology of the future, e.g. "Embedded Systems", photonics, lab-on-chip technologies, networks of sensors and communication infrastructure/network.
(?) Software, user interface and services: New methods of development, new programming languages, visualization, understanding user interface, usability, new models for delivery, ecosystems and business models.
(?) Digital transformations/Digitalization: ICT on the crossroads between technology and humans, organizations and/or society. Juridical, ethical and organizational challenges pertaining to ICT.

10. Did the enterprise have any R&D activity in some of the following thematic fields in 2023?
Please mark all the relevant fields. If your R&D activity overlaps between fields, mark all of these.

A. Energy

☐ *Renewable energy:* Water, wind, bio energy, sun, geothermic, waves, etc.

☐ *Energy efficiency and change:* Energy saving in general, such as within construction, manufacturing, transport, petroleum production, power production and energy supply, as well as within the energy system. Includes also energy carriers such as battery and hydrogen.

☐ *Petroleum:* Offshore exploration and extraction of petroleum resources, field development, production and transportation, as well as HMS in the oil- and gas industry. Maritime operations linked to petroleum should be reported under Maritime. Energy efficiency improvement/Environment is to be reported under, in turn, Energy efficiency improvement- and restructuring and Environment.

☐ *Other energy*: Nuclear power and energy production from coal.

B. Climate

☐ *CO_2 handling*: Catching, transport and storing of CO_2.

☐ *Climate technology and other emission restrictions:* Technology for reduction of climate gas emissions and other climate drivers. Social framework conditions and instruments for emission reductions.

☐ *Climate and climate change adaption:* The climate system, climate changes and consequences of, and adaption, of these (do not include climate technology/emission reductions).

C. Environment

☐ *Environmental technology*: Technologies that directly and indirectly improve the environment, except fields mentioned above. Includes technologies for minimizing pollution with help from cleansing, more environmental friendly products and production processes, more efficient resource management, noise reduction and technological systems for reducing environmental impact.

☐ *Onshore environment and society:* Biological diversity, ecosystems and ecosystem services, pollution (except climate related), waste and recycling economy, onshore use, cultural monuments and – environments.

D. Other fields

☐ *Agriculture:* Production, processing and market for agricultural products (agriculture, including livestock farming and forestry).

☐ *Fishery:* Fishing and harvest, processing and market for marine organisms. (Research on management shall be reported under Marine.

☐ *Aquaculture:* Production, processing and market for aquaculture products.

☐ *Marine:* Marine ecosystems. Surveillance management and influence on the sea and coastal area resources and environment. Includes possibilities for new bioresources.

☐ *Maritime:* Design, construction and operation of ships for sea transport and all types of maritime operations, as well as services related to this.

☐ *Health and care:* Health and health promotion conditions, prevention, causal mechanism of diseases, reduction and treatment of diseases and functional reductions. Organizing and efficiency improvement of services in the health and care sector. Clinical and pharmaceutical R&D.

☐ **The enterprise did not have any R&D on any of the fields above.** → Go to question 11

10.1 Please specify the percentage share of intramural R&D expenditure in 2023 that falls into the fields you marked above.

The main areas (energy, climate, environment etc.) can overlap. The under areas within each main area should not overlap.

A. Renewable energy ……..……		%
A. Energy efficiency and change ……..……		%
A, Petroleum……		%
A. Other energy……..……		%
B. CO2-handling……		%
B. Climate technology and other emission restrictions		%
B. Climate and climate change adaption ……..		%
C. Environmental technology ……..		%
C. Onshore environment and society.....		%
D. Agriculture……..……...		%
E. Fishery ……..……		%
F. Aquaculture ……..……		%
G. Marine……..……..		%
H. Maritime…….……..		%
I. Health and care ……..		%

Additional distribution by more detailed fields.

Fill in for the fields you marked above.

A. How was the R&D expenditure that falls within the field of <u>renewable energy</u> distributed on the following fields? Please specify as a percentage.

Water power (?)……		%
Wind power (?)……		%
Bioenergy (?)……		%
Solar energy (?)……		%
Other renewable energy (?)……		%
Not distributed…….....	**100**	%

(?) Water power: Water power – production, maintenance, environmental consequences, operation.
(?) Wind power: Wind power – production, maintenance, environmental consequences, operation.
(?) Bioenergy: Bioenergy – production, maintenance, environmental consequences, operation.
(?) Solar energy: Solar energy (PV and solar capturers), materials for solar cells, (production, maintenance and operation).
(?) Other renewable energy: E.g. geothermal, waves, and more.

A. How was the R&D expenditure that falls within the field of <u>energy efficiency and change</u> distributed on the following fields? Please specify as a percentage.

Manufacturing and construction (?)……		%
Transport (land/maritime) (?)……		%
Petroleum (?)……		%
Other industries (?)……		%
Energi systems (?)……		%
Economy, marked, society (?)……		%
Not distributed…….....	**100**	%

(?) Manufacturing and construction: Energy efficiency- and restructuring within manufacturing and construction.
(?) Transport (land/maritime): Energy efficiency- and restructuring within transportation (energy carriers such as battery, hydrogen, biofuel, charging and transportation systems).
(?) Petroleum: Energy efficiency- and restructuring within the petroleum sector.
(?) Other industries: Energy efficiency- and restructuring to low emission technology within other industries.
(?) Energy systems: Energy systems (grid, cables, transfers, net systems and digitalization etc.)
(?) Economy, marked, society: Conditions and energy politics. Marked and consumer. Innovation processes and development within the industries.

A. How was the R&D expenditure that falls within the field of petroleum distributed on the following fields? Please specify as a percentage.

Search and increased extraction (?)……		%
Drilling, completion and intervention (?)…….…...		%
Production, processing and transportation (?).……		%
Big accidents and work environment(?).……		%
Other petroleum relevant R&D ….……..…..……		%
Not distributed…….....	100	%

(?) Search and increased extraction: Technology, geological models and knowledge about extraction of petroleum resources on the Norwegian continental shelf. Development and operations of the reservoir to attain higher level of usage.
(?) Drilling, completion and intervention: Offshore drilling, completion and well intervention for extraction of petroleum resources.
(?) Production, processing and transportation: Transport of well streams from the well head to a platform, construction on land or underwater construction, including process technology, marine operations and platform technology.
(?) Big accidents and work environment: Preventing big accidents or improving the work environment in the petroleum industry on the Norwegian continental shelf, or on land constructions in Norway.

B. How was the R&D expenditure that falls within the field of CO_2-handling distributed on the following fields? Please specify as a percentage.

Catch of CO2……		%
Transportation of CO2…….…….…...		%
Storage of CO2……..……		%
Use of CO2……..…...		%
Not distributed… …….....	100	%

C. How was the R&D expenditure that falls within the field of onshore environment and society distributed on the following fields? Please specify as a percentage.

Pollution and environmental toxins(?)……		%
Circular economy (?)…….…….…...		
Not distributed …….....	100	%

(?) Pollution and environmental toxins: Pollution of air, earth and fresh water, coastal area and biological systems, including sources, dispersion, effects, measures and instruments to reduce pollution and environmental damage to the environment and society. Noise and radioactive toxins are also included.
(?) Circular economy: R&D that contributes to effective use of resources, products and waste, ensuring that it remains in the economy in several stages to reduce damage to the environment and contribute to sustainability.

D. How was the R&D expenditure that falls within the field of agriculture distributed on the following fields? Please specify as a percentage.

Primary production of food (?)……		%
Food product industry (?)…….…….…...		%
Economy, marked, society (?)……		%
Forest production and use of wood (?)…….…...		%
Other agricultural related R&D……..…..….		%
Not distrubuted …….....	100	%

(?) Primary production of food: Earth, plants and livestock. Plant health and animal health, as well as animal welfare.
(?) Food product industry: Processing, packing, logistics and storage.
(?) Economy, marked, society: Broad conditions and industry- and trade politics. Marked and consumer.
(?) Forest production and use of wood: Forest production (processing of wood plants, illnesses and pests, wood management, resource registration, felling and driving of timber). Use of wood (traits, logistics, processing, building with wood and markets).

D. How was the R&D expenditure that falls within the field of <u>fishery</u> distributed on the following fields? Please specify as a percentage.

Technology and equipment (?)……		%
Food production industry (?)…….…...		%
Economy, marked, society (?)……		%
Other fisheryrelated R&D…….…...		%
Not distributed …….....	**100**	%

(?) Technology and equipment: Technology and knowledge pertaining to catching/harvesting.
(?) Food production industry: Technology and knowledge from harvesting to product.
(?) Economy, marked, society: Profitability, marked and embedding in society.

D. How was the R&D expenditure that falls within the field of <u>aquaculture</u> distributed on the following fields? Please specify as a percentage.

Production biology (?)……..… ……		%
Feeding stuff, nutrition (?)…… ……..…...		%
Health, diseases (?)……..…… ……		%
Breeding, genetics (?)……..…...		%
Technology and equipment (?)…… ……...…...…		%
Slaughtering, quality, refinement (?).....		%
Economy, marked, society (?)……		%
Other aquarelated R&D…….…….…..….....		%
Not distributed …….....	**100**	%

(?) Production biology: The biology of an organism at all stages of life.
(?) Feeding stuff, nutrition: Nutritional requirements, feeding stuff and resources.
(?) Health, diseases: Prevent diseases, fish welfare and development of vaccines.
(?) Breeding, genetics: Explotation and development of the organisms' genetic potential.
(?) Technology and equipment: Sustainable and efficient production technology.
(?) Slaughtering, quality, refinement: Technology and knowledge from slaughtering to product.
(?) Economy, marked, society: Profitability, marked, management and embedding in society.

D. How was the R&D expenditure that falls within the field of <u>marine R&D</u> distributed on the following fields? Please specify as a percentage.

Marine biotechnology/bioprospecting (?)……		%
Other marine R&D…….……..…...		%
Not distributed …….....	**100**	%

(?) Marine biotechnology/bioprospecting: Development and exploitation of "new" biological resources.

D. How was the R&D expenditure that falls within the field of <u>maritime R&D</u> distributed on the following fields? Please specify as a percentage.

Seatransport (?)……		%
Maritime operations within petroleum (?)……..…...		%
Other maritime operations (?).……		%
Not distributed …….....	**100**	%

(?) Seatransport: Design, construction and management of vehicles for sea transport.
(?) Maritime operations within petroleum: Design, construction and management of vehicles for offshore operations within petroleum.
(?) Other maritime operations: Design, construction and management of vehicles for offshore operations within fishery, aquaculture, renewable energy, etc.

In question 5 you reported that the enterprise had intramural expenditures to R&D in 2023 amounting to NOK [X] 000.

11. How were the intramural R&D expenditures funded?

Own funding:

Own sources (sales, new equity)……..		000 NOK
If any of this was venture capital, please specify amount…….....		000 NOK
Loan from financial institutions (also Innovation Norway)		000 NOK

External private funding:

Norwegian enterprises in your enterprise group……...		000 NOK
Foreign enterprises in your enterprise group……..		000 NOK
Other Norwegian enterprises/ institutions……		000 NOK
Other foreign enterprises/ institutions……..		000 NOK

Public funding:

The Norwegian Research Council…….		000 NOK
SkatteFUNN (tax reduction of intramural R&D, including disbursement) ……		000 NOK
Support from Innovation Norway.....		
Ministries, directorates, counties, municipalities or others.		000 NOK
Please specify:……		

Other funding (from abroad):

Funding from EU institutions (not national authorities)		000 NOK
Other foreign funding……		000 NOK
Not distributed……		000 NOK
Expenditures in total (collected from question 5)……		000 NOK

12. Did your enterprise sell or deliver R&D services to others in 2023?

- ☐ Yes, to enterprises within your enterprise group
- ☐ Yes, to other enterprises, institutes, public authorities, etc. (contracts/commercial sale)
- ☐ No

12.1 What was the value of R&D services delivered to enterprises within your enterprise group?

Units in Norway		000 NOK
Units abroad		000 NOK

12.2 What was the value of R&D services delivered to other enterprises, institutes, public authorities, or others?

Units in Norway		000 NOK
Units abroad		000 NOK

13. Did your enterprise acquire R&D services from others during 2023?

Acquired R&D is performed by others on behalf of the enterprise. It could be parts of an R&D project, or an entire R&D project.

- Include R&D services acquired from external actors, also R&D acquired from enterprises within the enterprise group.
- Do not include contracted personnel integrated in the enterprises' own R&D activity. (This is to be reported in question 3 and 5).

☐ Yes
☐ No → Go to question 14

(?) Acquired or purchased R&D includes R&D performed by other entities, for example:

- Other companies, both within or and outside their own group.
- Research institutes.
- Universities and colleges.

Also include support for R&D performed by others, even if the company itself does not directly benefit from it.

13.1 What was the value of the acquired R&D services from others in 2023?

Specify all costs without VAT. Example: NOK 1.2 million must be entered as 1200.
Do not include the expenditures for contracted personnel or intramural R&D costs specified in question 5.

Norwegian enterprises in your enterprise group……..		000 NOK
Foreign enterprises in your enterprise group……..		000 NOK
Other Norwegian enterprises……		000 NOK
Other foreign enterprises…..…….		000 NOK
Research institutes and universities in Norway……		000 NOK
Research institutes and universities abroad……..……..		000 NOK
Professional institutes etc. (e.g. contingents, fees, licenses, grants, etc.)…..		000 NOK
Total extramural R&D expenditures ……..……..		000 NOK

14. Did your enterprise have any active co-operation arrangements on R&D activities with other enterprises or institutions during 2023?

Co-operation means active participation in joint R&D with other organizations, both other enterprises or non-commercial institutions. It does not necessarily imply that both partners derive immediate commercial benefit from the venture. Pure contracting out of work, where there is no active collaboration, is not regarded as co-operation.

☐ Yes
☐ No ⟶ Go to question 15

14.1 What types of co-ordination partners did your enterprise engage in R&D collaboration with?

☐ Other enterprises in your enterprise group
☐ Suppliers of equipment, materials, components or software
☐ Clients/customers
☐ Competitors
☐ Consultants
☐ Commercial laboratories/R&D enterprises
☐ Universities or other higher education institutions
☐ Government or private non-profit research institutes

14.2 Where were these co-ordination partners located?

	Locally/ regionally in Norway	In the rest of Norway	In the Nordic countries	Other Europe[1]	In US	In China/ India	In other countries
Other enterprises in your enterprise group.	☐	☐	☐	☐	☐	☐	☐
Suppliers of equipment, materials, components or software	☐	☐	☐	☐	☐	☐	☐
Clients/customers	☐	☐	☐	☐	☐	☐	☐
Competitors	☐	☐	☐	☐	☐	☐	☐
Consultants	☐	☐	☐	☐	☐	☐	☐
Commercial laboratories/R&D enterprises	☐	☐	☐	☐	☐	☐	☐
Universities or other higher education institutions	☐	☐	☐	☐	☐	☐	☐
Government or private non-profit research institutes	☐	☐	☐	☐	☐	☐	☐

[1]EU-/EFTA- /candidate countrie and United Kingdom. Includes following countries: Albania, Austria, Belgium, Bosnia Hercegovina, Bulgaria, Czech Republic, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Croatia, Cyprus, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Montenegro, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Tyrkey, United Kingdom.

14.3 Please estimate the share of the enterprise's expenditures for intramural R&D that is performed in co-operation projects?

☐ **%**

In question 2 you reported that [X] employees participated in the enterprises' intramural R&D activity, and in question 5 you reported that the total costs to intramural R&D were NOK [X] 000.

15. Please specify the sums for each of the enterprises' establishments (types of activity) (?)

(?) An enterprise can have several establishments (types of activity), and these could be registered as their own activities. An establishment is a part of the enterprise that is locally bounded and that mainly works on activities within a certain industry group.

Organisation number	Name/Department	Number of R&D persons	Intramural R&D expenditures	
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
				000 NOK
Other establishments……				000 NOK

If the enterprise has establishments not present in the list above, please specify organisation number or address and name of the establishment. The answer will show up in the comments section in the survey.

Not distributed……..			000 NOK
In total (collected from question 2 and 5)……..			000 NOK

If you have any comments to the information you have given, you can write them here:

The information below is the information SSB has about your enterprise's contact person.

If the information is incorrect or insufficient, please update in the relevant fields below:

Name	
Phone	
E-mail	

Guidelines

This is an abridged version of the Norwegian guidelines that can be found on the reporting page https://www.ssb.no/innrapportering/forskning-og-utvikling

What do we mean by research and development (R&D)?

R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge or to devise new applications of available knowledge.

Research is systematic work aimed at collecting new knowledge. **Development** is systematic or experimental work that uses existing knowledge to develop new or improved materials, products or processes. R&D does not need to be located in specific R&D departments, it could also be organized in a different manner, or be a part of the enterprise's other activities.

It can be difficult to distinguish R&D activity from more ordinary activities. In order for an activity to be defined as an R&D activity, it must fulfil five basic criteria:

1. **Novelty:** The objective of R&D activity is to obtain new knowledge or find new applications of knowledge in the enterprise's industry.
2. **Uncertainty:** The solution, use of resources and results of the R&D activity are not obvious in advance, even for a person with basic knowledge in the field
3. **Creative:** The R&D activities use or develop original ideas, hypotheses, and concepts.
4. **Systematic:** R&D activity is planned and budgeted, often organized as a project, but can also be targeted activity carried out by a person or a group.
5. **Transmissibility/reproducibility:** R&D activity should increase the knowledge base in its field, and therefore it should potentially be able to be transferrable and reproducible by others.

What is R&D activity?

"R&D activity" is the sum of actions that an R&D actor deliberately performs to generate new knowledge or new products/processes. The R&D concept encompasses three types of activities:

- **Basic research is** experimental or theoretical activity that is primarily carried out to obtain new knowledge without a view to special application or use.
- **Applied research** is also activity of an original nature that is carried out to obtain new knowledge. Applied research is primarily aimed at specific practical goals or applications.
- **Experimental development work is** a systematic or experimental activity that uses available knowledge from research or practical experience, and which is aimed at:
    - manufacturing new or improved materials, products or devices.
    - developing new or improved processes, systems or services.

In most cases, R&D activities can be grouped into "R&D projects". Each R&D project consists of different R&D activities that are organized and managed for a specific purpose and have their own objectives and performance expectations associated with them. It can also be targeted activity carried out by a person or a group.

The R&D activities may be:

- **product-oriented,** i.e., to develop new or improved goods and services with regard to quality and mode of use (not cosmetic changes or product differentiation).
- **process-oriented,** i.e., creating new or improved production techniques in the form of improved inputs (materials, equipment, energy and labour) and systems for managing production and administrative routines.

R&D integrated in development work for others

R&D can be carried out for the enterprise's own use, or it can be included as an integral part of a development contract for customers. In such projects, there is often a need for new knowledge and new solutions, and technological development and problem solving often require R&D. Although it may be difficult to demarcate the R&D part of this type of contract, you must also report such R&D work.

How to distinguish R&D activity from other activities?

Examples of non-R&D activities:

- Normal construction and planning work.
- Adoption of known, established technology in business.
- Ordinary upgrading (e.g., of equipment, materials).
- Ordinary upgrade or use of software and system software in a new area of use or for a new purpose.
- Routine testing and quality control.
- Technical service, problem solving in production and engineering projects using existing technology.
- Pre-planning and other routine work at the start of production.
- After Sales Service and Troubleshooting/Error Correction.
- Courses and competence enhancement outside R&D projects.

Border cases between R&D activity and other activities:

- Construction of prototypes and test facilities, industrial design, equipment installation and full-scale test production with subsequent development is counted as R&D. If testing is complete, the first units in a test production are not considered R&D.
- When software and system software are part of an R&D project, they are classified as R&D. The same applies to software and system hardware research and development. It is not classified as R&D if it is an ordinary upgrade or custom of software and system hardware in new use or for new purpose.
- Industrial design is considered R&D if the design is necessary to run the R&D project.
- Industrial technology and equipment installation associated with the development of new products and new processes is counted as R&D. If it is part of the ordinary production process, it is not considered R&D.
- Sample production is R&D if the production involves full-scale testing with additional design and technology development. All other related activities are not considered R&D.
- Patent and licensing work is not considered R&D, unless this work is directly linked to R&D. Do not include administrative and legal work in connection with patents or licenses.
- Data collection is not to be regarded as R&D, except when it is an integral part of an R&D project.

What do we mean by costs for intramural and purchased R&D?

- **Intramural R&D:** R&D activities performed by own or contracted personnel. Include the R&D activity regardless of if the work is performed in their own R&D department or not. Do not include work carried out in your own R&D department that is not of an R&D nature. Include R&D that is performed on assignment for others, or as part of a delivery to customers.
    - *Compensation of employees* includes earned salary, employer's National Insurance contributions and other benefits. Do not use approved hourly rates in the SkatteFUNN scheme. Compensation of employees shall correspond to the man-years of the R&D personnel.
    - *Costs of contracted personnel* includes costs for persons directly engaged in the enterprise's R&D project(s) but who are not employed by the enterprise. Purchase of R&D, which is exclusively performed by others, must be reported under purchased R&D services.
    - *Other operating expenses* includes direct costs to materials, equipment, travel, meetings, and course costs for own R&D personnel. Also includes share of shared rent, light, fuel and office services. Do not include depreciation.
    - *Investments* are acquisitions minus annual sales of fixed assets (excluding depreciation) utilized in R&D activities, both capitalized and directly expensed. Tangible assets are plants, buildings, transport equipment, machinery, inventory, instruments, and equipment with a useful life of more than one year. Also includes proportionate share of tangible property, plant, and equipment. Do not include depreciation.

Purchased R&D services: Purchased R&D services are when others perform R&D on behalf of the enterprise without being integrated into the enterprise's own R&D activity. External persons performing such R&D shall therefore *not* are considered contracted persons. Purchased R&D can, for example, be outsourced. Include support for R&D performed by others, even if the enterprise itself does not benefit directly from it. Do not include deductible VAT.