Research and development (R&D) survey 2019

NB! This form shows the questions in the survey.

Layout and design differ some 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.

Each enterprise in enterprise groups are separate survey units, and will therefore receive separate surveys. Only enterprises located in Norway should be included. In order to have the best comparable survey results we request all enterprises to respond to the survey, also enterprises with no R&D activity in 2019.

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

What shall be considered as research and development (R&D)?
Both research and development (R&D) are creative work undertaken on a systematic basis. The basic criterion is the presence of an appreciable element of novelty and the resolution of uncertainty.

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

1. Did your enterprise engage in intramural research and development (R&D) in Norway during 2019?

R&D activity can be performed by own personnel or contracted personnel.
R&D activity can be performed by a R&D department/-centre 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 next questions are about persons employed in the enterprise that took part in the enterprises' own R&D activity in 2019.

Include:
- both full time and part time employees.
- employees in a R&D department/-centre; in case such a department/centre.
- 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 2019?

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
Employees with PhD……		
Employees with higher degree education (Master's degree or similar)……		
Employees with lower degree or no education ……..		
In total……		

2.1 How many R&D man-years were performed in 2019?

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

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

In total…… ,

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

☐ Yes

☐ No

How many?

R&D-persons

2.3 What type of tasks did the R&D persons employed in the enterprise perform in 2019?

Product- or process development, research or project management:
Work related to increasing the stock of knowledge, or developing new products and processes. Management of R&D projects is also included in this category.

Support functions for R&D activity:
For example technicians, laboratory personnel, machine operators, financial and personnel administration.

	Number of R&D persons	Number of R&D man-years
Product-/process development, research and project management		,
Support functions for R&D activity		,
Not distributed……..		,
In total (collected from question 2 and 2.1)		,

3. Were contracted persons (beyond own employees) involved in the enterprise's R&D activity in 2019?

Contracted R&D persons 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 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

How many were contracted?

Contracted R&D persons

How many R&D man-years did they perform?

, Man-years

A question regarding 2020.

4. How many employed persons and man-years do you estimate that the enterprise will use for own R&D activity in 2020?

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 2019.
All costs shall be specified without VAT.

Intramural current costs:

Compensation of employees ……..		**000**
Costs of contracted personnel, see question 3. (Acquisition of R&D services shall be specified in question 13)…….		**000**
Other current costs (without depreciation). (Acquisition of R&D services shall be specified in question 13)…….		**000**

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

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

A question regarding 2020.

6. How much do you estimate that the enterprise will use for intramural R&D in 2020?

	000

7. How was the R&D expenditure in 2019 distributed on product-/process related R&D?

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 ……..……..	1,0,0	**%**

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

Basic research (?)……		%
Applied research (?)…….….....		%
Experimental development (?)……..……...…..…		%
Not distributed…….....	**1,0,0**	%

(?) Basic research: Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, 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 either:
- producing new products or processes.
- improving existing products or processes.

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

Biotechnology (?)…….....…….		%
Nanotechnology (?).....……		%
New materials, except nanotechnology (?)……..		%
Information- and communication technology (ICT) (?)……		%
Other fields of technology,: …….		%

Please specify other fields of technology …….		
Not distributed ……..	**1,0,0**	%

(?) 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.

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 biotechnology……..…..….		%
Not distributed …….....	**1,0,0**	%

(?) 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 …….....	**1,0,0**	%

(?) 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 secutiry: 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 intergace and services: New methods of development, new programming languages, visualization, understanding user interface, usability, new models for delivery, ecosystems and business models.

(?) Digital tranformations/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?
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.

☐ *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 minimising 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 effiency 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.**

10.1 Please specify the percentage share of intramural R&D expenditure in 2019 that falls into the fields you marked above.

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

A. Energy……	Renewable energy……..…….		%
	Energy efficiency and -change…….……		%
	Petroleum……..		%
	Other energy…….……		%
B. Climate..….	CO_2 handling ……		%
	Climate technology and other emission reductions ……..		%
	Climate and climate change adaption ……		%
C. Environment…	Environmental technology ……		%
	Onshore environment and society.....		%
D. Other fields …	Agriculture…….……...		%
	Fishery ……..……		%
	Aquaculture …….……..		%
	Marine….……		%
	Maritime……..……		%
	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 <u>petroleum</u> 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 <u>CO_2-handling</u> 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 <u>onshore environment and society</u> 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 <u>agriculture</u> 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**	%

(?) Produciton 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 effecient 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 withing fishery, aquaculture, renewable energy, etc.

In question 5 you reported that the enterprise had intramural expenditures to R&D in 2019 amounting to NOK [X] 000.

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

Own funding:

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

External private funding:

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

Public funding:

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

Other funding (from abroad):

Funding from EU institutions (not national authorities)……		000
Other foreign funding……		000
Not distributed……		000

12. Did your enterprise sell or deliver R&D services to others in 2019?

- ☐ 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
Units abroad		000

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

Units in Norway		000
Units abroad		000

13. Did your enterprise acquire R&D services from others during 2019?

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

13.1 What was the value of the acquired R&D services from others in 2019?

Specify all costs without VAT.
Do not include the expenditures for contracted personnel or intramural R&D costs specified in question 5.

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

14. Did your enterprise have any active co-operation arrangements on R&D activities with other enterprises or institutions during 2019?

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

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
				000
				000
				000
				000
				000
				000
				000
				000
				000
				000
				000
				000
				000
				000
Other establishments				000

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

Not distributed			000
In total……..			000

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:

What do we mean with 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.

Yet, it can be difficult to separate R&D from ordinary activity. **Main criteria of R&D activities are the presence of an appreciable element of novelty and uncertainty on the outcome**, i.e. when the solution to a problem is not readily apparent to someone familiar with the basic stock of knowledge for the area concerned. The result should be reproducible and/or transferable to others. Systematic means that the activity is planned.

R&D comprises:

- **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, directed primarily towards a specific practical aim or objective.
- **Experimental development:** Systematic work, drawing on existing knowledge gained from research or practical experience, which is directed to:
    - producing new or improved materials, products or devices,
    - create new or improved processes, systems and services

R&D can be

- **Product targeted:** developing new or improved goods or services with respect to quality and usage (not cosmetic changes or product diversification).
- **Process targeted:** make new or improved production-techniques with the usage of improved factor inputs (materials, equipment, energy, labour) and improved systems for controlling production and administration.

Normal construction and planning activities, that follow established routines, is not R&D. Neither is the introduction of known, established technology for the enterprise. Construction of prototypes and testing facilities, industrial design, installing equipment, and full-scale test production with subsequent development, constitutes R&D. If the testing is finished, then the first units of a test production are not defined as R&D.

Both software and hardware that is part of the R&D-project, and research and development of new software and hardware is seen as R&D. Whilst normal upgrading- or use of existing software and hardware on new areas of application, is not R&D.

R&D integrated in development work for others

R&D can be performed for own use in your enterprise, or it may be an integrated part of a development contract for customers. In such projects, it is often a need for new knowledge and new solutions, and technology development and troubleshooting often requires R&D. Although it may be difficult to define the R&D part in this kind of contract, this R&D activity shall also be reported.

Not R&D

The following activities shall not be defined as R&D (the only exception is when they are directly involved in a defined R&D-project):

- Routine checks and quality control.
- Technical service, problem solving in production and engineering projects with the use of existing technology.
- Preplanning and other routine work in conjunction with the start-up of new production.

Intramural- and acquisition costs for R&D

R&D activity shall be reported both when the R&D is performed by own personnel (intramural R&D) and when the R&D is performed by other units (extramural R&D)**.**

- **Intramural R&D:** R&D done by own personnel of the enterprise or contracted personnel. R&D-activity shall be counted irrespective of whether the work is done in the enterprise's R&D department or not. R&D performed on behalf of others, or R&D included as part of deliveries to customers, shall be included as intramural R&D. Work done by the R&D department but with no R&D character shall not be counted.
    - *Compensation of employees* includes wages, payroll tax, fees and other contributions. Do not use approved hourly rates from "SkatteFUNN". Compensation to employees shall be proportional to the R&D-personals man-years.
    - *Costs of contracted personnel* include costs to persons that are directly involved in your enterprises R&D project, but not employed in your enterprise. Acquisition of entire R&D projects exclusively done by others shall be reported as extramural R&D.
    - *Other current costs* include costs for materials, equipment, travel-, meeting- and course costs for own R&D-personal. Also the proportional use of rent-, lighting-, fuel- and administration costs. Write-offs are not to be included.
    - *Investment costs* is the acquisition, less sales last year, of durable business assets (except write-offs) that are used in the R&D-activity, both capitalized and direct costs. Durable business assets are plants, buildings, means of transport, machines, inventory, instruments and equipment with usage over one year. Also the proportional share of durable business assets for R&D. Write-offs shall not be included.

- **Acquisition for R&D-services:** Includes tasks done by other units. Research institutes are all business sector- and commission-institutes as well as all institutes in the university sector. Other enterprises consist off consulting firms and others that mainly produce gods and services for sale. Support to other enterprises, even if your enterprise does not directly benefit, is also to be included. Deductible VAT shall not be included.