

Business Enterprise Research and Development (R&D) in 2021

The inquiry on enterprises' research and development requests information on R&D expenditure and its funding, research personnel and R&D staff-years. In addition to request information from outside the enterprise's ordered research and development activities expenditure.

Enterprise information

Enterprise	
Address	
Postal Code	
Post Office	
Business-ID	
Industry	

This research concerns the Finnish activities of the enterprise mentioned above. The answers can given as an independent enterprise or a group. If you answer as a group, please indicate in the column below what enterprises are answering your response.

Responding unit:	Enterprise <input type="radio"/>	Group <input type="radio"/>
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The answer relates to the following consolidated enterprises:

Personnel 31.12.2021	
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Contact information

Contact person	
Position in the Enterprise	
E-mail	
Telephone	

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1. Research and development activities (R&D) in 2021

<p>Has your enterprise engaged in research, product and process development in 2021? <i>See definitions below.</i></p>	<p>Yes <input type="radio"/></p>	<p>No <input type="radio"/></p>
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If your answer is No, fill in paragraphs 4. and 9.

The definition of research and development

Research and development activity (R&D) is understood as systematic work undertaken to increase the stock of knowledge and use it to devise new applications. The defining criterion is that the purpose of the activity should be the presence of an appreciable element of novelty.

Research and development has the following characteristics:

New-seeking: The aim of R&D from the perspective of the enterprise is to produce industry new knowledge and new results. The mere application of existing knowledge, develop new products or processes is not R&D activities

Creative: R&D is characterized by creativity, application or development of new concepts and ideas. Routine renewal and development of products and processes are not R&D activities.

The success is uncertain: R&D activities are characterized by uncertainty about the actual results and resources.

Systematic: R&D activities are planned and its implementation will be monitored. The purpose of R&D activities have been defined and it has been allocated to the planned resources. R&D activities can be organized as a project, but it can also be a person or a group of goal-oriented activities.

The results of transferable/replicable: R&D activity generated by the data and the results are replicable and transferable.

2. Research and development activities made by own personnel, as well as time spent on research and development in 2021

2.1 R&D personnel by formal qualifications	R&D personnel 31.12.2021	of which women	R&D work years 2021 (round to 1 decimal)
Doctorate holders (PhDs)			
Licentiates (excluding Lic. Med.)			
University degree MA and Bachelor level (including Lic. Med.)			
Higher or lower vocational diploma (polytechnics, college engineers)			
Other education			
Total R&D personnel			

2.2 R&D personnel by occupation	R&D personnel 31.12.2021	of which women	R&D work years 2021 (round to 1 decimal)
R&D engineers, researchers or equivalent tasks			
Other R&D personnel			
Total R&D personnel (= paragraph 2.1)			

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3A. Intramural expenditure on research and development in the enterprise in 2021

	R&D expenditure (1 000 €)
Wages and salaries	
Materials, equipment, other operating costs	
Purchase of services related to own R&D activities (Extramural R&D is reported in the point 4)	
Machinery and equipment, buildings and other investments	
Total expenditure	

3B. Work years of external personnel involved in the enterprise's own R&D

	Work years (round to 1 decimal)
Working hours (work years) of service providers included in the service purchases of own R&D activities (3A) in 2021.	

4. Extramural expenditure on research and development in the enterprise in 2021

Extramural R&D means R&D projects or services which your enterprise has acquired and which from the point of view of the service provider are its own R&D. Extramural R&D is characterized by the fact that the developer determines the implementation of the project of content. R&D expenses that are integrated into the enterprise's own R&D activities are included in paragraph 3A. purchase of services related to own R&D activities.

Has your enterprise ordered research, product and process development in 2021?	Yes <input type="radio"/>	No <input type="radio"/>
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If yes, how much expenditure were:		R&D expenditure (1 000 €)
R&D which enterprise has ordered from Finland	Enterprises	
	Universities, polytechnics, university hospitals	
	Public research institutions, other public sector	
	Private non-profit sector	
R&D which enterprise has ordered abroad		
Total expenditure		

R&D Grants

Unrequited R&D grants, donations, membership dues research organizations, research institutes support payments that have been paid to other.	_____ €
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5. Research personnel, research years and research and development expenditure by location in 2021

Location (municipality)	R&D personnel 31.12.2021	R&D years 2021 (round to 1 dec.)	R&D expenditure (1 000 €)
Total	(= paragraph 2)	(= paragraph 2)	(= paragraph 3A)

6. Breakdown of own research and development expenditure (paragraph 3A) into different types in 2021 (estimate sufficient)

Type of R&D		(%)
	Basic research	
	Applied research	
	Experimental development	
	Total percent	100 %

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7. Research and development expenditure by sources of funding in 2021

In paragraph 3A breakdown of declared R&D expenditure 2021 by according to the source of funding.		R&D expenditure (1 000 €)
Own funding (including other domestic units in my group)		
Foreign units of my own group (e.g. funding from mother enterprise abroad)		
Loans subsidized by public sector	Business Finland (earlier Tekes) loans	
	Other (Finnvera and similar)	
Public sector grants for R&D	Business Finland (earlier Tekes) grants	
	Other public sector	
Other external R&D funding (ordered researches, R&D projects)	Government	
	Other sources of public funding (e.g. municipalities, SITRA, Finnvera)	
	Domestic funds, foundations and other non-profit organizations	
	Domestic universities	
	Domestic companies and organizations providing services to enterprises ¹⁾²⁾	
	Foreign enterprises	
	EU-funding	
	Other international organizations (e.g. CERN, ESA, OECD, UN)	
	Other foreign funding	
Total expenditure (= paragraph 3A)		

¹⁾ Excluding enterprises belonging to own group

²⁾ Including foreign-owned enterprises established in Finland

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8. Breakdown of research and development expenditure by product field (goods or services) in 2021

TOL Product groups (goods or services) are defined by final product or service

Group	TOL*	1 000 €	Group	TOL*	1 000 €
Agriculture, forestry and fishing	A		Repair and installation of machinery and equipment	33	
Mining and quarrying	B		Electricity, gas, steam, air conditioning and water supply	35-36	
Food products, beverages	10, 11		Sewerage, waste management and remediation activities	37-39	
Tobacco products	12		Construction	F	
Textiles	13		Wholesale and retail trade; trade and repair of motor vehicles	45, 46 (pl. 465), 47	
Wearing apparel	14		Wholesale of information and communication equipment	465	
Leather and related products	15		Land transport and transport via pipelines	49	
Wood and of products of wood and cork, except furniture; articles of straw and plaiting materials	16		Water transport	50	
Pulp, paper and paper products	17		Air transport	51	
Printing and service activities related to printing	181		Warehousing and support activities for transportation	52	
Reproduction of recorded media	182		Postal and courier activities	53	
Coke and refined petroleum products	19		Accommodation and food service activities	I	
Chemicals and chemical products	20		Publishing of books, periodicals and other publishing activities	581	
Basic pharmaceutical products and pharmaceutical preparations	21		Software publishing	582	
Rubber and plastic products	22		Motion picture, video and television programme production, sound recording and music publishing activities	59	
Other non-metallic mineral products: glass and glass products, porcelain, ceramic products, other mineral products (e.g. tiles, lime, plaster, concrete, cement)	23		Programming and broadcasting activities	60	
Manufacture of basic iron, steel and ferroalloys; other products of first processing of steel; casting of iron and steel	241-243, 2451-2452		Telecommunications	61	
Manufacture of basic precious and other non-ferrous metals; casting of light metals and other non-ferrous metals	244, 2453-2454		Computer programming, consultancy and related activities	62	
Fabricated metal products, except machinery and equipment	25 (pl. 254)		Data processing, hosting and related activities; web portals	631	

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Weapons and ammunition	254		Other information service activities	639	
Electronic components and boards	261		Financial and insurance activities	K	
Computers and peripheral equipment	262		Real estate activities	L	
Communication equipment	263		Architectural and engineering activities; technical testing and analysis	71	
Consumer electronics	264		Scientific research and development	72	
Instruments and appliances for measuring, testing and navigation; watches	265		Community, social and personal service activities, business services, n. e. c.	69-70, 73-75	
Irradiation, electro medical and electrotherapeutic equipment	266		Rental and leasing activities	77	
Optical instruments and photographic equipment	267		Employment activities	78	
Magnetic and optical media	268		Travel agency, tour operator and other reservation service and related activities	79	
Electrical equipment	27		Security and investigation activities	80	
Machinery and equipment n. e. c.	28		Services to buildings and landscape activities	81	
Motor vehicles, trailers and semi-trailers	29		Office administrative, office support and other business support activities	82	
Ships and boats	301		Public administration and defence; compulsory social security	O	
Railway locomotives and rolling stock	302		Education	P	
Air and spacecraft and related machinery	303		Human health activities	86	
Military fighting vehicles	304		Social work activities	87-88	
Transport equipment n. e. c.	309		Arts, entertainment and recreation	R	
Furniture	31		Other service activities	94-99 (pl. 951)	
Other manufacturing	32 (pl. 325)		Repair of computers and communication equipment	951	
Medical and dental instruments and supplies	325		Total expenditure (= paragraph 3A)		

* Standard Industrial Classification 2008, Statistics Finland, Handbooks 4
<http://tilastokeskus.fi/meta/luokitukset/toimiala/001-2008/index.html>

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9. The enterprise's research and development in 2022

Does your enterprise have research and development in 2022?	Yes <input type="radio"/>	No <input type="radio"/>
Estimated intramural R&D in 2022 (1 000 €)	_____ €	

Notes and supplements:

The data will be processed confidentially and submitted to:

By mail:

DATA RESOURCES
 Data collection services
 FI-00022 STATISTICS FINLAND

By E-mail:

tiede.teknologia@stat.fi