

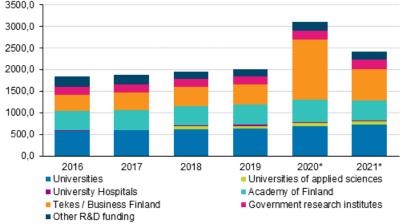
Government R&D funding in the state budget in 2021

R&D funding decreases in the 2021 budget compared to the exceptional year

According to Statistics Finland, appropriations for research and development in the government budget decrease by EUR 681.7 million from the exceptionally high level of the year before. In the state budget 2021, the total appropriations for research and development activities amount to EUR 2,416.8 million. The share of public research funding in gross domestic product is estimated to be 0.99 per cent.



Figure 1. Government R&D funding by organisation in 2016 to 2021



*data may become revised based on supplementary budgets. Prior to 2018, universities of applied sciences are in the category Other R&D funding

The largest organisations that received government R&D funding in the budget for 2021 are Business Finland and universities. In the 2021 budget, Business Finland's R&D funding is EUR 740.4 million, including EUR 200 million in outlays from disruption funding carried over from the previous year. In 2021, universities' research appropriations amount to EUR 724.0 million and increase by around EUR 34 million from the 2020 budget as the research share of universities rises. The R&D appropriations of the Academy of Finland, in turn, decrease by around EUR 76 million from 2020, as the research appropriations amount to EUR 449.0 million in the 2021 budget. The R&D funding of central government research institutes and university central hospitals remain in the budget for 2021 on level with the previous year.

Among administrative sectors, research and development activities are financed most in the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment. The major provider of funding is the Ministry of Education and Culture, whose R&D funding in the budget for 2021 is EUR 1,298.9 million. The decrease from the appropriations in the budget one year before is around EUR 39 million. The R&D funding of the Ministry of Economic Affairs and Employment falls in the budget for 2021 by nearly EUR 640 million due to the decrease in research and development funding of Business Finland.

Table 1. Government budget allocations for R&D (GBARD) in 2021

	R&D funding € million	Share of R&D funding, %	Change from 2020, € million
R&D funding total	2 416,8	100,0	-681,7
Main administrative sector			
Ministry of Education and Culture	1 298,9	53,7	-38,9
Ministry of Employment and the Economy	876,3	36,3	-637,7
Ministry of Agriculture and Forestry	69,5	2,9	11,1
Ministry of Social Affairs and Health	67,8	2,8	-15,8
Funding organisations			
Universities	724,0	30,0	33,6
Universities of applied sciences	80,7	3,3	7,8
Business Finland	740,4	30,6	-647,1
Academy of Finland	449,0	18,6	-75,8
Government research institutes	211,3	8,7	1,0
Other R&D funding	190,3	7,9	-1,2
University hospitals	21,0	0,9	0,0

Contents

R&D funding falls in the budget for 2021	4
R&D funding by administrative sector	4
2. R&D funding by organisation.	4
3. R&D funding by socioeconomic objective	5
4. Funding of international R&D	5
5. Budget funding and external financing of central government research institutes	6
Tables	
Table 2. Central government R&D funding and its share in government expenditure in 2020 and 2021	4
Appendix tables	
Appendix table 1. Development of central government's total expenditure and funding of R&D activities in 20 2021	
Appendix table 2. Central government R&D funding and total expenditure by administrative sector in 2020 ar 2021	
Appendix table 3. Central government R&D funding by administrative sector in 2020 and 2021	9
Appendix table 4. Government research institutes' budget-funded R&D activities in 2020 and 2021	10
Appendix table 5. Government research institutes' budget-funded R&D activities and total R&D funding in 202	21.10
Appendix table 6. Central government R&D funding by administrative sector in 2015 to 2021	11
Appendix table 7. Central government R&D funding by organisation in 2015 to 2021	11
Appendix table 8. Central government R&D funding by socioeconomic objective in 2015 to 2021	12
Figures	
Figure 2. R&D funding of Business Finland/Tekes in 2014 to 2021 in the state budget	5

R&D funding falls in the budget for 2021

In the state budget for 2021, the total appropriations for research and development activities amount to EUR 2,416.8 million. The appropriations decrease by EUR 681.7 million from the previous year, which translates to a 22.0 per cent fall. The proportion of funds allocated to R&D activities of overall government spending exclusive of debt servicing is 3.8 per cent. The GDP share of public R&D funding is an estimated 1,99 per cent in 2021.

Table 2. Central government R&D funding and its share in government expenditure in 2020 and 2021

	2020 Milj. €	2021 Milj. €	Change 2020–2021 Milj. €	Change 2020–2021 . %
Total R&D funding	3 098,5	2 416,8	-681,7	-22,0
Total government expenditure	68 750,0	64 197,0	-4 553,0	-6,6
Government expenditure excluding debt servicing	67 838,3	63 432,0	-4 406,3	-6,5
R&D funding share of government expenditure excluding debt servicing	4,6	3,8		

1. R&D funding by administrative sector

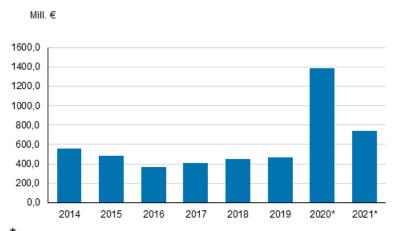
Research and development activities are clearly financed most in the Ministry of Education and Culture, whose R&D funding in the budget for 2021 amounted to EUR 1,298.9 million. The research funding of the Ministry of Education and Culture corresponds to over one-half of the entire government R&D funding. The R&D appropriations of the administrative sector of the Ministry of Education and Culture decrease by EUR 38.9 million compared with the budget one year before. The R&D funding of the Ministry of Economic Affairs and Employment also falls, by EUR 637.7 million, as the R&D funding of Business Finland decreases from the high level in 2020. The R&D funding of the administrative sector of the Ministry of Economic Affairs and Employment corresponds to around 36 per cent of government R&D funding. The other administrative sectors account for a smaller share of central government R&D funding. Among other administrative sectors, R&D funding of the Ministry of Social Affairs and Health decreases by EUR 15.8 million in the budget for 2021 and that of the Ministry of Agriculture and Forestry grows by EUR 11.1 million.

The ministries that hand out most R&D funding, the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment, are also the most R&D intensive ministries. Around 19 per cent of the Ministry of Education and Culture's expenditure and about 23 per cent of the Ministry of Economic Affairs and Employment's expenditure are directed at research and development activities. The Ministry of Finance and the Ministry of the Interior have the lowest R&D intensities.

2. R&D funding by organisation

The appropriations allocated to Business Finland's R&D activities grew strongly in 2020 as a result of the pandemic caused by COVID-19. In total, the R&D appropriations of Business Finland in the state budget amounted to EUR 1,387.5 million in 2020, of which around EUR 740 million were paid out as subsidies and loans with disruptive circumstances status. In addition, not all outlays intended for disruption funding were translated into payments in 2020. In 2021, Business Finland's R&D funding is estimated to be EUR 740.4 million, which includes EUR 200 million of outlays due to the disruptive circumstances carried forward to 2021.

Figure 2. R&D funding of Business Finland/Tekes in 2014 to 2021 in the state budget



^{*}data may become revised based on supplementary budgets

The R&D funding of universities grows in the budget for 2021 by EUR 33.6 million to EUR 724.0 million. The estimate of universities' research and development funding for the current year is affected by the increased share of realised research expenditure in universities' basic funding used in the calculations. The R&D funding of universities of applied sciences is EUR 80.7 million in the 2021 budget, which is around EUR eight million more than in last year's budget. In the state budget for 2021, the R&D funding of the Academy of Finland amounts to EUR 449.0 million in total. The decrease in research funding of the Academy of Finland is EUR 75.8 million compared to 2020. EUR 21 million is directed at university level health research in university hospitals, which is on level with the previous budget. From 2020 onwards, part of the previous research funding of university hospitals is allocated to social work research, which is distributed on behalf of the Ministry of Social Affairs and Health to various actors. The R&D funding of central government research institutes and other government R&D funding remain in the budget for 2021 on level with the budget one year ago.

Among the organisations, universities and Business Finland have the largest shares of central government R&D funding. The share of R&D funding of both organisations of the entire government R&D funding is around 30 per cent. The Academy of Finland's share is around 19 per cent. Central government research institutes receive a share of around nine per cent of the funding and the share of other funding is about eight per cent of the entire government R&D funding. The EUR 80.7 million R&D funding of universities of applied sciences corresponds to good three per cent of government R&D funding. One per cent of government R&D funding is directed to university hospitals.

3. R&D funding by socioeconomic objective

According to socioeconomic objective, most of government R&D funding is directed to universities' research and development activities. In the budget for 2021, the next biggest objective category is industrial production and tsocioeconomic objective echnology, which includes research on industrial production and production methods, as well as technology development. The majority of the objective category is funding for Business Finland. The funding of general advancement of science decreases by around EUR 70 million, mainly due to a decrease in the Academy of Finland's research appropriations. Investments in environmental protection research have increased in recent years and R&D funding allocated to environmental protection also increases by around EUR 14 million in the 2021 budget. In the 2021 budget, more R&D funding than in the year before is also allocated to research related to energy production (incl. different energy forms), storage, transmission, distribution and rationalisation of energy use.

4. Funding of international R&D

State budget R&D funding directed at international research organisations or international R&D programmes increases by almost EUR nine million to EUR 96.2 million. Most increases are seen in funding for

Europe-wide R&D programmes between countries that are arranged, for example, within the framework of Horizon Europe 2020. In the budget for 2021, a total of EUR 68.3 million is allocated to Europe-wide R&D programmes between countries, which is EUR 18.7 million more than in the budget for the previous year. European international research organisations, such as CERN, the European Organization for Nuclear Research, receive EUR 19.9 million in research funding from the government budget in 2021. Around EUR 3.7 million are directed at bilateral or multilateral R&D programmes between the governments of EU countries. The remaining EUR 4.4 million are directed at other international players for projects that have no ERA (European Research Area) dimension.

5. Budget funding and external financing of central government research institutes

Budget funded R&D activities of central government research institutes

The total amount of R&D funding for central government research institutes²⁾ from their administrative sectors' budgets for 2021 is EUR 211.3 million. Central government research institutes' budget funding remains on level with the previous year, increasing by around EUR one million. Budget funding for VTT, the Technical Research Centre of Finland, grows by EUR 4.9 million to EUR 95.9 million. The funding for the Technical Research Centre of Finland is influenced by the acquisition of a quantum computer, the construction of which started during 2020. The costs to central government of acquiring Finland's first quantum computer amount to EUR 20.7 million in total, which is divided over several years. Among other research institutes, budget funding for the Natural Resources Institute Finland grows by EUR 2.9 million to EUR 54.5 million.

Total research funding and EU funding of research institutes

In addition to budget appropriations, the R&D activities of research institutes are financed by external funding consisting of income from charged services, EU funding and funding from elsewhere than the institute's own budget classes. External funding mainly comes on a competitive basis from several sources and from both domestic public and private sectors and international sources.

Total R&D funding for research institutes (budget funding and external funding) is EUR 479.1 million in 2021. External funding for research institutes decreases by EUR 2.2 million from the previous year and amounts to EUR 267.8 million in total in 2021. The share of external funding of research institutes' total funding is around 56 per cent. VTT, the Technical Research Centre of Finland, has the highest external funding of the research institutes, and in 2021 it amounts to EUR 147.4 million in total, which is around EUR 16 million less than one year earlier. The drop is due to a decrease in charged services. Research institutes estimate that they will receive EUR 63.2 million from the EU, which is EUR 0.8 million less than in 2020.

Appendix tables

Appendix table 1. Development of central government's total expenditure and funding of R&D activities in 2015 to 2021

Year ¹⁾	Central government expenditure (EUR milion)	Central government expenditure excluding debt servicing (EUR million)	R&D funding (EUR million)	Share of R&D funding in central government expenditure, %3)	Central government expenditure, change from previous year %	Central government expenditure excluding debt, change from previous year %	R&D funding, change from previous year %
2015	53,700	52,170	2,002	3.8	-1.0	-0.7	0.0
2016	54,419	52,898	1,836	3.5	1.3	1.4	-8.3
2017	55,042	53,711	1,886	3.5	1.1	1.5	2.7
2018	55,242	54,092	1,951	3.6	0.4	0.7	3.5
2019	55,306	54,113	2,009	3.7	0.1	0.0	3.0
2020 ²⁾	68,750	67,838	3,099	4.6	24.3	25.4	54.2
2021 ²⁾	64,197	63,432	2,417	3.8	-6.6	-6.5	-22.0

^{1) 2015-2020:} State budget + supplementary budgets, 2021: State budget.

Appendix table 2. Central government R&D funding and total expenditure by administrative sector in 2020 and 2021

Administrative	R&D funding / Central government expenditure (EUR million)										
sector	R&D fun	iding. EU	R Million	Administrat	tive sector's	expenditure	R&D funding, share of administrative sector's expenditures				
	2020	2021	change, mill.€	2020	2021	change, mill.€	2020	2021	change, percentage points		
Prime Minister's Office	10.9	10.6	-0.3	923.1	221.7	-701.3	1.2	4.8	3.6		
the Parliament of Finland	3.8	3.9	0.1	127.1	128.6	1.4	3.0	3.0	0.1		
Ministry for Foreign Affairs	5.5	4.2	-1.3	1,364.3	1,288.1	-76.2	0.4	0.3	-0.1		
Ministry of Justice	1.1	1.1	0.0	984.4	1,005.2	20.8	0.1	0.1	0.0		
Ministry of the Interior	0.5	0.5	0.0	1,708.8	1,567.8	-141.0	0.0	0.0	0.0		
Ministry of Defence	44.3	45.9	1.6	3,213.9	4,873.3	1,659.3	1.4	0.9	-0.4		
Ministry of Finance	5.2	5.1	-0.2	20,721.1	19,467.9	-1,253.2	0.0	0.0	0.0		
Ministry of Education and Culture	1,337.8	1,298.9	-38.9	7,474.9	7,012.1	-462.9	17.9	18.5	0.6		
Ministry of Agriculture and Forestry	58.4	69.5	11.1	2,875.2	2,628.3	-246.9	2.0	2.6	0.6		
Ministry of Transport and Communications	15.1	14.5	-0.7	3,900.6	3,485.6	-415.0	0.4	0.4	0.0		
Ministry of Economic Affairs and Employment	1,514.0	876.3	-637.7	6,305.4	3,828.9	-2,476.5	24.0	22.9	-1.1		
Ministry of Social Affairs and Health	83.6	67.8	-15.8	17,815.5	17,603.1	-212.3	0.5	0.4	-0.1		
Ministry of the Environment	18.3	18.6	0.3	407.9	302.9	-105.1	4.5	6.1	1.7		
TOTAL ¹⁾	3,098.5	2,416.8	-681.7	67,822.1	63,413.4	-4,408.8	4.6	3.8	-0.8		

²⁾ Data may become revised based on supplementary budgets.

³⁾ Share of funding in Central government expenditure (excluding debt servicing).

1)	Total expenditure appendix 1).	e of administrative se	ector, excl. debt se	ervicing and main c	ategory President o	f the Republic (unlik	e in table 2 and

Appendix table 3. Central government R&D funding by administrative sector in 2020 and 2021

Administrative sector / Organisation	R&D funding								
	EUR million /2020	EUR million /2021	Change 2020-2021/EUR million	Change 2020-2021 . %					
Ministry of Education and Culture	1,337.8	1,298.9	-38.9	-2.9					
Universities	690.4	724.0	33.6	4.9					
Universities of applied sciences	72.9	80.7	7.8	10.6					
Academy of Finland	524.8	449.0	-75.8	-14.4					
Other	49.7	45.2	-4.5	-9.0					
Ministry of Economic Affairs and Employment	1,514.0	876.3	-637.7	-42.1					
Business Finland	1,387.5	740.4	-647.1	-46.6					
Government research institutions	98.7	99.2	0.6	0.6					
Other	27.8	36.7	8.9	31.9					
Ministry of Social Affairs and Health	83.6	67.8	-15.8	-18.9					
Government research institutions	28.1	23.4	-4.6	-16.5					
University Hospitals	21.0	21.0	0.0	0.0					
Other	34.5	23.4	-11.2	-32.4					
Ministry of Agriculture and Forestry	58.4	69.5	11.1	19.0					
Government research institutions	56.9	59.3	2.4	4.2					
Other	1.4	10.1	8.7	609.1					
Ministry of Defence	44.3	45.9	1.6	3.6					
Ministry of Transport and Communications	15.1	14.5	-0.7	-4.4					
Government research institutions	9.5	9.2	-0.3	-3.4					
Other	5.6	5.3	-0.4	-6.3					
Ministry of the Environment	18.3	18.6	0.3	1.5					
Government research institutions	10.0	13.0	3.0	29.4					
Other	8.3	5.6	-2.7	-32.2					
Ministry for Foreign Affairs	5.5	4.2	-1.3	-22.9					
Ministry of Finance	5.2	5.1	-0.2	-3.3					
Government research institutions	3.5	3.5	0.0	-0.6					
Other	1.8	1.6	-0.2	-8.6					
the Parliament of Finland	3.8	3.9	0.1	2.9					
Ministry of Justice	1.1	1.1	0.0	0.0					
Ministry of the Interior	0.5	0.5	0.0	3.9					
Prime Minister's Office	10.9	10.6	-0.3	-3.0					
TOTAL	3,098.5	2,416.8	-681.7	-22.0					

Appendix table 4. Government research institutes' budget-funded R&D activities in 2020 and 2021

Government research institution	EUR Million /2020	EUR Million /2021	Change 2020-2021 /EUR Million	Change 2020-2021 . %
Finnish Institute of International Affairs	3.6	3.7	0.1	3.1
VATT Institute for Economic Research	3.5	3.5	0.0	-0.6
Natural Resources Institute Finland	51.6	54.5	2.9	5.5
Finnish Food Authority	0.5	0.4	-0.1	-10.2
National Land Survey of Finland	4.8	4.4	-0.4	-8.5
Finnish Meteorological Institute	9.5	9.2	-0.3	-3.4
Geological Survey of Finland	7.7	3.3	-4.4	-57.0
VTT Technical Research Centre of Finland Ltd	91.0	95.9	4.9	5.4
STUK - Radiation and Nuclear Safety Authority	1.3	0.9	-0.4	-31.6
Finnish Institute for Health and Welfare	16.6	14.5	-2.1	-12.4
Finnish Institute of Occupational Health	10.2	8.0	-2.2	-21.3
Finnish Environment Institute	10.0	13.0	3.0	29.4
TOTAL	210.3	211.3	1.0	0.5

Appendix table 5. Government research institutes' budget-funded R&D activities and total R&D funding in 2021

Government research institution	Budgetary funding (EUR Million)	External funding, total (EUR Million)	External funding, share %	EU-funding (EUR Million)	R&D funding, total (EUR Million)
Finnish Institute of International Affairs	3.7	0.7	15.9	0.1	4.4
VATT Institute for Economic Research	3.5	1.4	29.4	0.0	4.9
Natural Resources Institute Finland	54.5	38.5	41.4	6.0	93.0
Finnish Food Authority	0.4	1.8	80.1	0.4	2.2
National Land Survey of Finland	4.4	4.8	52.4	0.5	9.2
Finnish Meteorological Institute	9.2	16.9	64.7	6.0	26.1
Geological Survey of Finland	3.3	7.4	69.1	2.2	10.6
VTT Technical Research Centre of Finland Ltd	95.9	147.4	60.6	36.5	243.3
STUK - Radiation and Nuclear Safety Authority	0.9	0.2	14.2	0.1	1.1
National Institute for Health and Welfare	14.5	17.5	54.6	3.9	32.0
Finnish Institute of Occupational Health	8.0	8.0	50.0	3.5	16.0
Finnish Environment Institute	13.0	23.3	64.2	4.1	36.2
TOTAL	211.3	267.8	55.9	63.2	479.1

Appendix table 6. Central government R&D funding by administrative sector in 2015 to 2021

Administrative sector	2015	2016	2017	2018	2019	2020 ¹⁾	2021 ¹⁾
the Parliament of Finland	3.6	3.6	3.6	3.6	3.6	3.8	3.9
Prime Minister's Office	6.1	10.7	10.7	10.7	10.7	10.9	10.6
Ministry for Foreign Affairs	15.2	9.9	7.4	7.9	6.1	5.5	4.2
Ministry of Justice	2.0	1.4	1.2	1.0	0.8	1.1	1.1
Ministry of the Interior	0.2	0.2	0.3	0.5	0.5	0.5	0.5
Ministry of Defence	36.4	34.7	40.9	46.8	48.9	44.3	45.9
Ministry of Finance	6.9	5.6	5.1	5.4	5.1	5.2	5.1
Ministry of Education and Culture	1,089.9	1,112.3	1,123.3	1,163.0	1,205.9	1,337.8	1,298.9
Ministry of Agriculture and Forestry	94.9	72.1	71.3	54.8	55.8	58.4	69.5
Ministry of Transport and Communications	34.8	24.4	19.5	18.7	14.1	15.1	14.5
Ministry of Economic Affairs and Employment	615.0	477.2	516.2	552.0	577.7	1,514.0	876.3
Ministry of Social Affairs and Health	82.4	73.0	75.5	76.2	71.2	83.6	67.8
Ministry of the Environment	14.3	11.5	11.1	10.7	8.4	18.3	18.6
TOTAL	2,001.6	1,836.4	1,885.9	1,951.0	2,008.9	3,098.5	2,416.8

¹⁾ Data may become revised based on supplementary budgets.

Appendix table 7. Central government R&D funding by organisation in 2015 to 2021

Organisation	2015	2015	2017	2018	2019	2020 ¹⁾	2021 ¹⁾
Universities	578.0	585.5	587.1	615.6	630.5	690.4	724.0
Universities of applied sciences ²⁾				66.4	67.6	72.9	80.7
University Hospitals	21.7	18.0	15.0	21.0	23.8	21.0	21.0
Academy of Finland	415.5	439.0	449.5	442.7	469.8	524.8	449.0
Tekes / Business Finland	485.7	369.6	409.5	452.3	464.0	1,387.5	740.4
Government research institutes	257.9	196.6	196.5	190.6	184.7	210.3	211.3
Other R&D funding	242.8	227.7	228.3	162.4	168.5	191.6	190.3
TOTAL	2,001.6	1,836.4	1,885.9	1,951.0	2,008.9	3,098.5	2,416.8

¹⁾ Data may become revised based on supplementary budgets.

²⁾ Prior to 2018, universities of applied sciences are in the category Other R funding.

Appendix table 8. Central government R&D funding by socioeconomic objective in 2015 to 2021

Socioeconomic objective (NABS 2007)	2015	2016	2017	2018	2019	2020 ¹⁾	2021 ¹⁾
Agriculture	96.7	76.3	72.8	56.8	57.1	60.2	69.9
Industrial production and technology	332.4	295.2	330.1	383.0	381.6	1,136.8	655.7
Energy	177.5	69.7	55.7	48.8	65.7	59.5	76.5
Transport, telecommunication and other infrastructures	33.0	28.4	36.8	29.1	37.4	36.6	34.7
Defence	37.3	35.5	41.7	47.5	49.7	45.2	47.7
Exploration and exploitation of the earth	24.6	21.4	22.7	22.8	18.8	15.3	14.9
Environment	22.1	43.3	47.9	49.9	46.5	61.7	75.5
Health	71.5	54.7	59.6	56.9	62.2	63.2	50.5
Education	6.7	3.1	3.1	1.6	1.8	6.2	6.8
Culture, recreation, religion and mass media	29.1	16.4	10.3	10.2	9.6	9.2	10.2
Political and social systems, structures and processes	86.9	67.8	72.7	73.4	61.2	258.2	54.4
General advancement of knowledge: R&D financed from other sources than GUF	480.0	516.3	522.1	528.4	563.5	630.3	560.5
General advancement of knowledge: R&D financed from General University Funds (GUF)	578.0	586.8	588.8	619.8	630.5	690.4	724.0
Exploration and exploitation of space	25.8	21.5	21.7	22.7	23.2	25.8	35.5
TOTAL	2,001.6	1,836.4	1,885.9	1,951.0	2,008.9	3,098.5	2,416.8

¹⁾ Data may become revised based on supplementary budgets.



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Source: Government R&D funding in the state budget, Statistics Finland