

Federal government spending on science and technology, 2016/2017 (intentions)

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Total expenditures by the federal government on science and technology are expected to increase 1.0% from 2015/2016 to \$10.7 billion in 2016/2017. The gain is largely attributable to an anticipated rise in spending in the social sciences and humanities, as expenditures in natural sciences and engineering are expected to decline.

The federal government expects to spend \$2.7 billion in 2016/2017 on scientific and technological activities in the social sciences and humanities, up 8.0% from \$2.5 billion in 2015/2016. Spending in natural sciences and engineering is expected to decrease 1.1% to \$8.0 billion in 2016/2017. Overall, natural sciences and engineering should account for about three-quarters of total spending on science and technology.

Intramural expenditures have steadily increased since 2012/2013 and will represent 52.2% of total expenditures on science and technology in 2016/2017. They are expected to rise 4.1% from the previous year to \$5.6 billion in 2016/2017, mainly on the strength of an 18.1% gain in spending in the social sciences and humanities.

Extramural payments, which comprise grants and contributions, fellowships and contracts to other performing sectors, are anticipated to fall 2.2% to \$5.1 billion in 2016/2017. This drop is largely attributable to an expected decline in funding to the business enterprise sector.

In 2016/2017, research and development activities are expected to decrease 1.1% to \$6.8 billion, as a result of lower spending in the business enterprise sector (-9.8%). Overall, research and development activities are anticipated to account for 63.5% of total science and technology expenditures.

The federal government anticipates spending \$3.9 billion on related scientific activities in 2016/2017, up 5.0% from the previous year. Overall, more than three-quarters (\$3.0 billion) of these expenditures will be on in-house scientific activities, largely data collection and information services.

Increase in federal personnel engaged in scientific and technology activities

Federal departments and agencies reported expecting 36,153 full-time equivalent employees to be engaged in scientific and technological activities in 2016/2017. More than half (56.2%) of these positions are expected to be in the scientific and professional category. Over two-thirds of total scientific and technology positions (70.7%) will be in the natural sciences and engineering field.

Snapshot of 2014/2015

The Federal Science Expenditures and Personnel, Activities in the Social Sciences and Natural Sciences survey also collects information on science and technology spending by socioeconomic objective and by region. This allows departments and agencies to classify their science and technology resource allocations according to the intended purpose of expenditures.

The federal government invested \$10.3 billion in science and technology in 2014/2015, with research and development representing two-thirds of this investment. More than two-thirds of science and technology expenditures were concentrated in Ontario and Quebec (including the National Capital Region).

Five socioeconomic objectives accounted for two-thirds of total science and technology expenditures: protection and improvement of human health (\$2.2 billion), social structures and relationships (\$1.3 billion), industrial production and technology (\$1.2 billion), agricultural production and technology (\$1.1 billion) and non-oriented research (\$1.0 billion). Over two-thirds (\$4.6 billion) of spending for these five socioeconomic objectives went to research and development.



Note to readers

The *Federal Science Expenditures and Personnel, Activities in the Social Sciences and Natural Sciences* is an annual survey of all federal government departments and agencies that perform or fund science and technology activities. Actual data for 2014/2015, preliminary data for 2015/2016 and intentions for 2016/2017 were collected from September 15, 2015 to January 15, 2016.

Conceptual changes were implemented for the 2016/2017 survey cycle to account for non-program costs (indirect costs). The value of services provided without charge to the responding department by other federal government departments will not be added. Revisions were applied to data on intramural expenditures and related activities back to 2010/2011. These revisions affect expenditure totals by type of science, science and technology, research and development, and related scientific activity. As a result, data for 2010/2011 onward are not comparable with data for previous years.

Natural sciences and engineering consist of all disciplines concerned with understanding, exploring, developing or using the natural world. These disciplines include engineering, mathematical, life and physical sciences.

The **social sciences and humanities** comprise all disciplines involving the study of human actions and conditions and the social, economic and institutional mechanisms that affect humans.

Research and development is defined as creative work with an appreciable element of novelty and uncertainty undertaken in a systematic manner to increase the stock of scientific and technical knowledge.

Related scientific activities are focused on the generation, dissemination and application of scientific and technical knowledge.

More information on the concepts and definitions of the survey (4212) is available from this release's Related information tab.

Table 1
Federal government spending on science and technology, by type of science

	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2015/2016 to 2016/2017
	millions of dollars							%
Total, science and technology	11,598	10,993	10,754	10,670	10,265	10,544	10,651	1.0
Research and development	7,601	6,901	6,911	6,978	6,758	6,841	6,764	-1.1
Related scientific activities	3,997	4,091	3,843	3,692	3,506	3,702	3,886	5.0
Natural sciences and engineering	8,895	8,187	8,196	8,213	7,855	8,061	7,969	-1.1
Research and development	6,635	5,947	5,887	5,975	5,764	5,834	5,807	-0.5
Related scientific activities	2,260	2,240	2,309	2,238	2,091	2,228	2,162	-3.0
Social sciences and humanities	2,703	2,806	2,558	2,457	2,410	2,483	2,682	8.0
Research and development	967	955	1,024	1,003	995	1,008	957	-5.1
Related scientific activities	1,736	1,851	1,534	1,454	1,415	1,475	1,725	16.9

Note(s): Conceptual changes were implemented for the 2016/2017 survey cycle to account for non-program costs (indirect costs). The value of services provided without charge to the responding department by other federal government departments will not be added. As a result, data for 2010/2011 onward are not comparable with data for previous years.

Source(s): CANSIM table [358-0143](#).

Table 2
Federal government spending on science and technology, by performing sector

	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2015/2016 to 2016/2017
	millions of dollars							% change
Total, all performing sectors	11,598	10,993	10,754	10,670	10,265	10,544	10,651	1.0
Federal government (intramural)	5,643	5,400	5,140	5,186	5,177	5,340	5,557	4.1
Business enterprise	1,201	1,090	1,032	1,224	947	1,030	949	-7.9
Higher education	3,329	3,251	3,371	3,168	3,109	3,154	3,157	0.1
Canadian non-profit institutions	473	457	484	499	483	486	475	-2.3
Provincial and municipal governments	394	167	107	114	144	122	130	6.6
Foreign performers	535	595	598	456	382	387	357	-7.8
Other Canadian performers	23	33	22	22	22	26	25	-3.8

Note(s): Conceptual changes were implemented for the 2016/2017 survey cycle to account for non-program costs (indirect costs). The value of services provided without charge to the responding department by other federal government departments will not be added. As a result, data for 2010/2011 onward are not comparable with data for previous years.

Source(s): CANSIM table [358-0143](#).

Table 3
Federal government personnel engaged in science and technology, by type of science

	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2015/2016 to 2016/2017
	full-time equivalent positions							% change
Total personnel, all sciences	38,594	39,189	36,982	35,366	35,496	36,045	36,153	0.3
Scientific and professional personnel	20,341	20,489	20,045	19,346	19,583	19,953	20,320	1.8
Technical personnel	8,255	8,055	7,776	7,503	7,796	7,798	7,587	-2.7
Other personnel	9,998	10,645	9,161	8,517	8,117	8,294	8,247	-0.6
Total personnel, natural sciences and engineering	27,073	27,163	26,851	25,688	25,774	25,890	25,568	-1.2
Scientific and professional personnel	12,888	13,167	13,229	12,852	13,067	13,253	13,137	-0.9
Technical personnel	7,404	7,163	7,113	6,765	6,953	6,923	6,802	-1.7
Other personnel	6,781	6,834	6,509	6,072	5,755	5,714	5,629	-1.5
Total personnel, social sciences and humanities	11,521	12,026	10,131	9,678	9,722	10,156	10,585	4.2
Scientific and professional personnel	7,453	7,322	6,816	6,494	6,516	6,701	7,183	7.2
Technical personnel	851	892	663	738	844	875	785	-10.3
Other personnel	3,217	3,811	2,652	2,446	2,362	2,581	2,617	1.4

Source(s): CANSIM table [358-0147](#).

Available in CANSIM: tables [358-0142 to 358-0151](#) and [358-0163 to 358-0166](#).

Definitions, data sources and methods: survey number [4212](#).

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; STATCAN.infostats-infostats.STATCAN@canada.ca) or Media Relations (613-951-4636; STATCAN.mediahotline-ligneinfomedias.STATCAN@canada.ca).