

Spending on research and development, 2018 intentions

Released at 8:30 a.m. Eastern time in *The Daily*, Wednesday, December 12, 2018

Canada's gross domestic expenditure on research and development (GERD) is expected to edge up 1.3% from the 2017 preliminary estimate to \$34.5 billion in 2018. The anticipated increase is attributable to higher research and development (R&D) spending intentions of business enterprises and the higher education sector.

GERD is a compilation of all R&D spending by the R&D performing sectors within a country. There are six GERD performing sectors in Canada: business enterprise, private non-profit, higher education, federal government, provincial government and provincial research organizations. GERD funding data are obtained from the sources of R&D funding declared by the performing sectors with the addition of foreign sources.

The business enterprise and higher education sectors combined are expected to perform the vast majority of total R&D in 2018

The R&D expenditures of business enterprises are expected to rise 1.9% from 2017 to \$17.9 billion in 2018, while the higher education sector is projected to reach \$14.1 billion.

The business enterprise and higher education sectors have been the two largest performers of R&D in Canada since 1975, when they represented two-thirds of GERD. Their combined share progressively increased over time to 88% in 2000 and 93% in 2015, where it currently stands as the highest combined share of R&D performed in Canada. Prior to 1975, the federal government played a larger role with its share of R&D expenditures around 30%.

In addition to the shifting shares of these two sectors to total GERD over time, the distribution among the business and higher education sectors has also changed. Although the business enterprise sector has consistently been the largest R&D performer of the two, its portion of GERD has been trending down. Business contribution to GERD was 60% in 2000, but is anticipated to fall to 52% in 2018. Meanwhile, the higher education sector has been increasing its share of R&D spending, which is projected to reach 41% of total spending in 2018, compared with 28% at the start of the millennium.

Federal government departments and agencies are anticipated to spend \$2.0 billion on in-house R&D in 2018, or about 6% of total R&D spending. This R&D spending is expected to decline almost 1% from 2017. The remaining performing sectors—provincial government, provincial research organizations and the private non-profit sector—are expected to perform 1.3% of GERD collectively, spending \$448 million.

All sectors are expected to increase their R&D funding in 2018

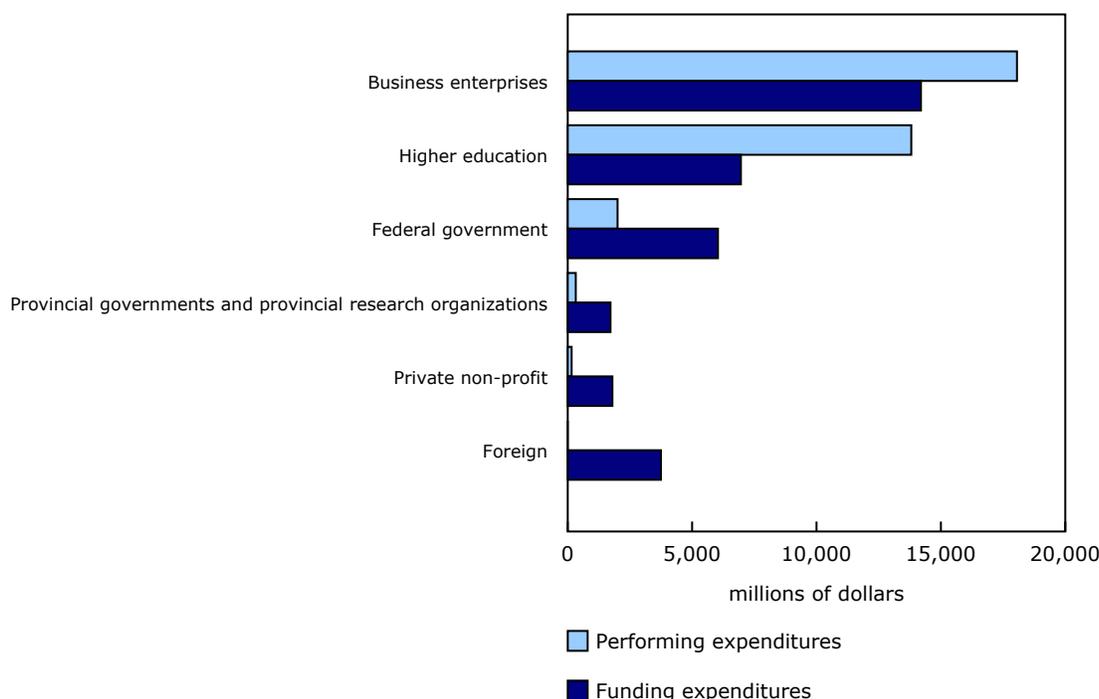
Business enterprise sector funding is expected to increase 2.0% in 2018, whereas the other major sectors are anticipated to come in at levels around 1% higher than 2017 preliminary estimates. Business sector funding will rise to \$14.2 billion, or 41% of total R&D funding, if intentions are realized.

The higher education sector is anticipated to contribute 20% of total R&D funding (\$7.0 billion). The federal government is anticipated to contribute 18% (\$6.0 billion), while funding from foreign sources is expected at 11% (\$3.7 billion). The private non-profit and provincial government sectors are expected to each supply 5% of total R&D funding, at \$3.5 billion combined.

In 2018, 92% of R&D funding from business enterprises is expected to be used by Canadian businesses, while all higher education sector funding is destined for its own sector. Although one-third of federal funding is anticipated for in-house R&D, over half (54%) is expected to fund the higher education sector.



Chart 1
Performing and funding expenditures on research and development, by sector, 2018 intentions



Source(s): Table: 27-10-0273-01 (formerly CANSIM 358-0001).

R&D spending expected to increase for the two core scientific disciplines

R&D spending is also categorized by type of science performed—natural sciences and engineering, and social sciences, humanities and the arts. The majority of R&D activity continues to occur in the natural sciences and engineering. Natural sciences and engineering R&D is expected to rise 1.4% to \$30.8 billion, accounting for almost 90% of GERD. Meanwhile, R&D in the social sciences, humanities and the arts is anticipated to increase by less than 1% to \$3.6 billion.

Since the inclusion of the social sciences in R&D data in 1985, the higher education sector has dedicated the most funding and performing expenditure to this science type. In 2018, the higher education sector is anticipated to fund 62% (\$2.2 billion) and perform 92% (\$3.3 billion) of all R&D in the social sciences, humanities and the arts.

R&D spending up in 2016 due to increases in Ontario and British Columbia

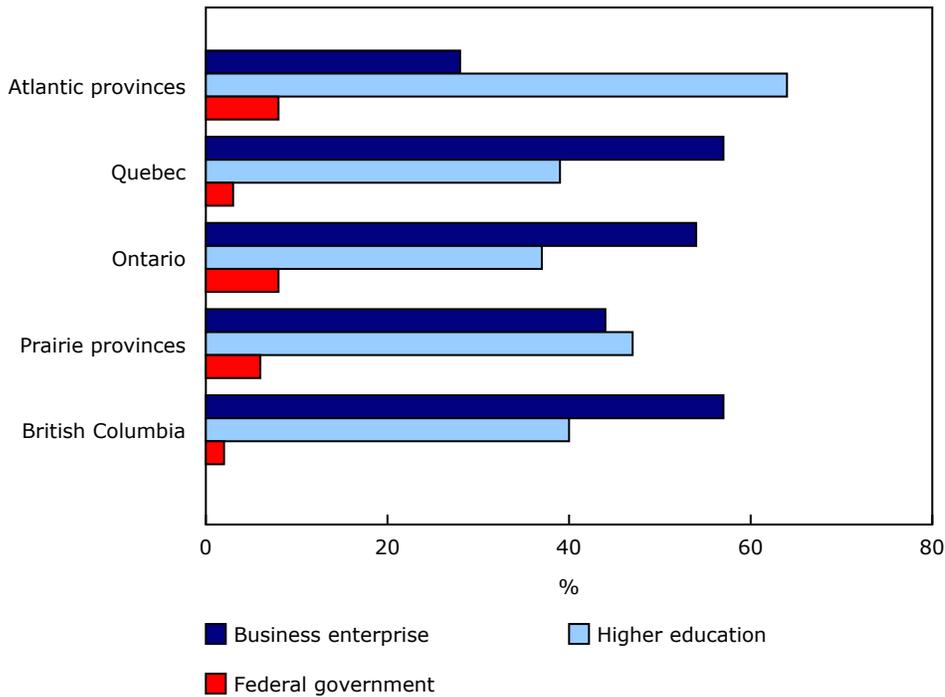
Total R&D spending rose 1.9% in 2016 to \$34.4 billion. Ontario remained the province with the most R&D spending at \$15.3 billion, followed by Quebec (\$8.8 billion). British Columbia surpassed Alberta as the third-largest R&D spending province with expenditures at \$4.0 billion.

R&D spending rose 12.8% in British Columbia, making it the second largest contributor to the increase in total GERD after Ontario, which had a 3.8% increase. R&D expenditure in Quebec was unchanged from 2015. Over half of R&D spending was performed by business enterprises in each of these three provinces, while spending in the higher education sector accounted for around 40%.

Spending on R&D in the Atlantic provinces rose 2.3% to \$1.4 billion in 2016. The higher education sector represented 64% of all research conducted in this region, spending \$901 million, followed by business enterprises at 28% (\$390 million).

R&D spending in the Prairie provinces fell 7.7% to \$4.7 billion, dragged down by Alberta, which accounted for 67% of total spending in the region. The higher education sector (\$2.2 billion) and business enterprises (\$2.1 billion) represented over 90% of R&D spending in the Prairies.

Chart 2
Share of total gross domestic expenditure on research and development spending for select performing sectors, by province and region, 2016



Source(s): Table: [27-10-0273-01](#) (formerly CANSIM 358-0001).

Sustainable Development Goals

On January 1, 2016, the world officially began implementation of the [2030 Agenda for Sustainable Development](#)— the United Nations' transformative plan of action that addresses urgent global challenges over the next 15 years. The plan is based on 17 specific sustainable development goals.

Gross Domestic Expenditure on Research and Development (GERD) is an example of how Statistics Canada supports the reporting on the Global Goals for Sustainable Development. This release will be used in helping to measure the following goal:



Note to readers

This release presents actual gross domestic expenditures on research and development (GERD) for 2016 and preliminary data for 2017 and 2018 at the national level. Provincial level data are only available for 2016.

Data for GERD are available in current and constant dollars for both performing and funding sectors by science type, province, territory and region in table 27100273. Current dollars are used in this article's analysis.

There are six GERD performing sectors in Canada: business enterprise, private non-profit, higher education, federal government, provincial government and provincial research organizations. The funding sectors are the same as the performing sectors, but also include the foreign sector.

GERD data presented in this release are performance based and correspond to the sum of intramural research and development (R&D) expenditures reported by performing sectors. Funding sector data are derived from the source of funds indicated by the performing sectors. As a result, GERD funding sector values will not equal funding data collected and released by individual sectors.

Provincial and territorial expenditures are assigned to the province or territory in which the performing organization is located. Provincial and territorial funding sector expenditures represent R&D funding distributed in a province or territory. The funds do not necessarily originate from within the province.

The business enterprise data source for the gross domestic expenditure on research and development program has been redesigned, including concepts and methodology starting in 2014. Users should therefore exercise caution when comparing data with historical datasets. To learn more about these survey changes, consult the [Research and Development in Canadian Industry](#) page on our website.

Revised time-use coefficients have been applied to the agency's higher education R&D model, starting with the 2012 reference year. Data from previous years for the higher education sector are not comparable. GERD data prior to 2012 should be used with caution.

Data for the provincial government performing sector are currently modelled and based on results from the 2011 Provincial Scientific Activities Survey. However, this release includes 2015 data on R&D activities performed by the provincial government of Quebec, as the province conducted its own survey and provided the information to Statistics Canada. Provincial research organization data are collected through a Statistics Canada survey.

Available tables: table [27-10-0273-01](#).

Definitions, data sources and methods: survey number [5198](#).

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).