

Study: The value of data in Canada: Experimental estimates

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As data and information take on a far more prominent role in Canada and, indeed, all over the world, data, databases and data science have become a staple of modern life. When the electricity goes out, Canadians are as much in search of their data feed as they are for food and heat. Consumers are using more and more data that is embodied in the products they buy, whether those products are music, reading material, cars and other appliances, or a wide range of other goods and services. Manufacturers, merchants and other businesses depend increasingly on the collection, processing and analysis of data to make their production processes more efficient and to drive their marketing strategies.

The increasing use of, and investment in, all things data is driving economic growth, changing the employment landscape and reshaping how and from where we buy and sell goods. Yet the rapid rise in the use and importance of data is not well measured in the existing statistical system. Given the 'lack of data on data', Statistics Canada has initiated new research to produce a first set of estimates of the value of data, databases and data science. The development of these estimates benefited from collaboration with the Bureau of Economic Analysis in the United States and the Organisation for Economic Co-operation and Development.

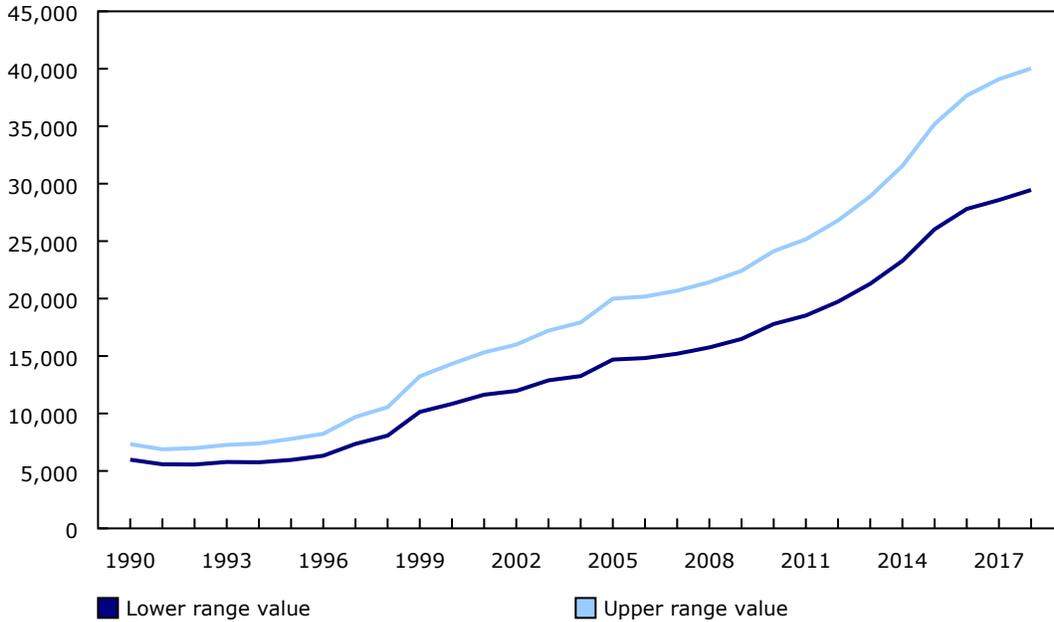
In 2018, Canadian investment in data, databases and data science was estimated to be as high as \$40 billion. This was greater than the annual investment in industrial machinery, transportation equipment, and research and development and represented approximately 12% of total non-residential investment in 2018.

Investment in data has been increasing rapidly in recent years. Average annual growth in data investment from 2015 to 2018 was 6.2%, much higher than the average annual growth in machinery and equipment (+2.2%), non-residential buildings (+2.0%), engineering structures (-4.7%) and research and development (+0.5%).



Chart 1
Range of investment in data products, 1990 to 2018

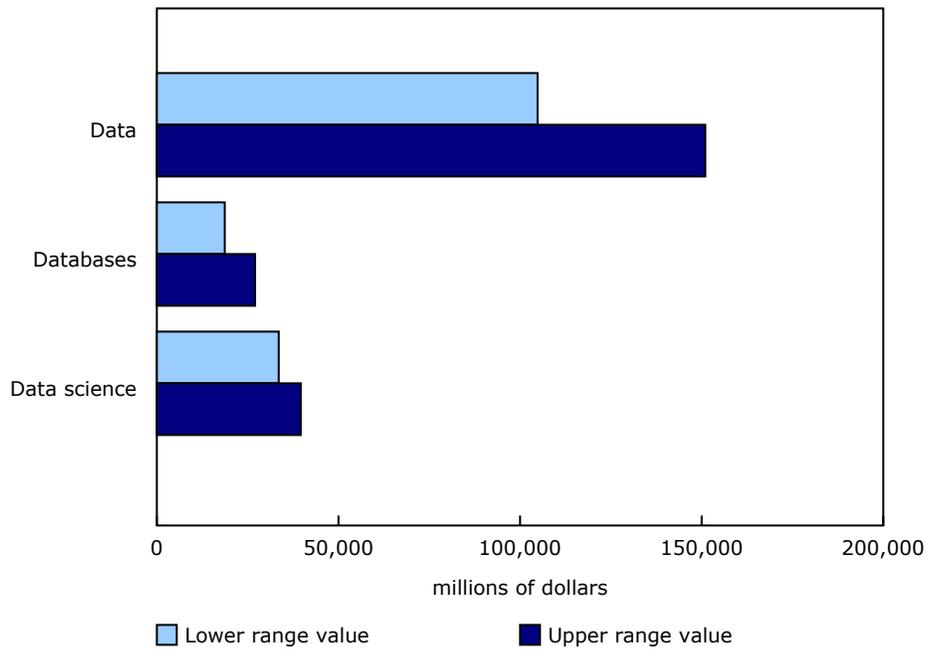
millions of dollars



Source(s): "The value of data in Canada: Experimental estimates," *Latest Developments in the Canadian Economic Accounts (13-605-X)*, 2018.

At an upper limit, the value of the stock of data, databases and data science in Canada was \$217 billion in 2018, roughly equivalent to the stock of all other intellectual property products (software, research and development, mineral exploration). To put the growing importance of data in perspective, in 2017 the stock of established crude bitumen reserves was just over \$300 billion. The same year, at an upper limit, the value of the stock of data, databases and data science was just over \$200 billion.

Chart 2
Range of net capital stock in data products, 2018



Source(s): "The value of data in Canada: Experimental estimates," *Latest Developments in the Canadian Economic Accounts (13-605-X)*, 2018.

Note to readers

Statistics Canada recently released a conceptual framework outlining how one might measure the economic value of data, databases and data science. Thanks to this new framework, the growing role of data in Canada can be measured through time. This framework is described in a paper that was released in *The Daily* on June 24, 2019 entitled "Measuring investments in data, databases and data science: Conceptual framework." That paper describes the concept of an 'information chain' in which data are derived from everyday observations, databases are constructed from data, and data science creates new knowledge by analyzing the contents of databases.

The conceptual framework described in the first paper and the experimental estimates of the value of investment in data, databases and data science in Canada, together with associated net capital stock estimates, presented here are both experimental in nature. They will not be incorporated in Statistics Canada's official national accounts until they have been further refined and validated. They are an important first step toward measuring the growing importance of data in Canada.

The statistical estimates of investment and capital stock are subject to considerable variability and are presented as ranges, with lower and upper values, rather than as point estimates.

The document "[The value of data in Canada: Experimental estimates](#)," which is part of *Latest Developments in the Canadian Economic Accounts* ([13-605-X](#)), is now available.

The companion paper "[Measuring investment in data, databases and data science: Conceptual framework](#)," is also available in *Latest Developments in the Canadian Economic Accounts* ([13-605-X](#)).

The *Methodological Guide: Canadian System of Macroeconomic Accounts* ([13-607-X](#)) is also available.

The *User Guide: Canadian System of Macroeconomic Accounts* ([13-606-G](#)) is also available.

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).