Innovation, Science and Economic Development Canada
Innovation, Sciences et Développement économique Canada

2017 Canadian ICT Sector Profile

Automotive, Transportation and Digital Technologies Branch

Canada

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2017 ICT Sector Snapshot

Canada's ICT sector posted strong growth in 2017, and outperformed the overall Canadian economy in output, employment and innovation growth

Size

	2017 Growth	Share of Economy
$184B in Revenue	+3.2%	N/A
$83.5B in GDP	+3.9%	↑
$24B in Exports	+2.1%	↓

40,000 Companies

Innovation

	2017 Growth	Share of Economy
$6.1B in R&D spending	-0.7%	↑

34.4% of all Canada's business R&D spending

Workforce

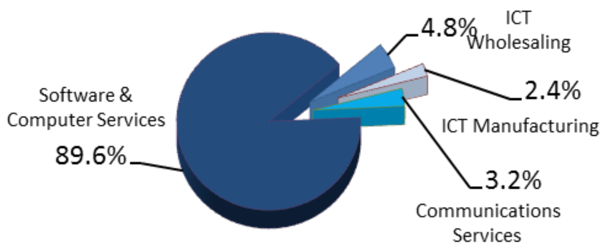
	2017 Growth	Share of Economy
623,000 Workers	+4.2%	↑
$77,600 in Annual Average Salary	+2.1%	N/A

55% of workers have a University Degree

Industry Structure

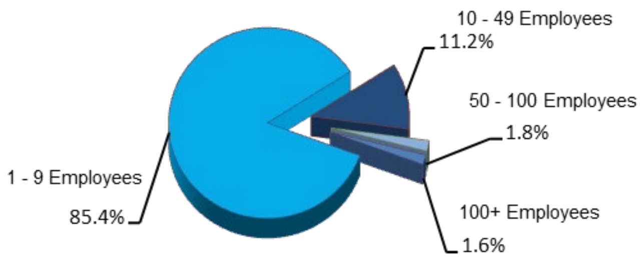
There are just under 40,000 companies in the Canadian Information and Communications Technologies (ICT) sector. The large majority (over 35,000) fall within the software and computer services industries.

Figure 1: Companies by ICT sub-sector, 2017



The ICT sector consists mainly of small companies, with approximately 34,000 of them employing fewer than 10 people. The number of large companies employing over 500 individuals accounts for approximately 115 firms, including subsidiaries of foreign multinational corporations.

Figure 2: Companies by employee size for total ICT Sector, 2017



Manufacturing stands out as the sub-sector with larger companies. In 2017, 16.6% of ICT manufacturing companies had more than 50 employees, while across the whole ICT sector this share was only 3.4%.

ICT Sector Industries

ICT manufacturing
- Computer and peripheral equipment
- Communications equipment
- electronic components
- Audio and video equipment
- Magnetic and optical media

ICT wholesaling

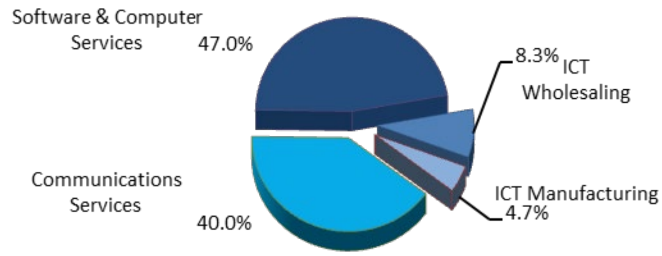
Software and computer services
- Software publishers
- Computer systems design
- Data processing
- Electronic and precision equipment repair and maintenance

Communications services
- Wireless telecommunications carriers
- Wired telecommunications carriers
- Cable and other program distribution

GDP Contribution

The ICT sector makes a substantial contribution to Canada's GDP. In 2017, the sector's GDP was $83.5 billion (in 2012 constant dollars), and accounted for 4.4% of national GDP.

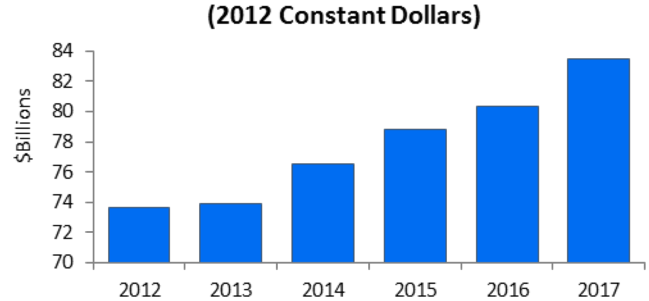
Figure 3: GDP by ICT sub-sector, 2017 (Total: $83.5 Billion)



The ICT sector growth accelerated in 2017, as the sector grew by 3.9%, outpacing the total Canadian economy (+3.4%) by half a percentage point. All ICT sub-sectors experienced positive growth in 2017. The ICT wholesaling and the software and computer services sub-sectors posted the strongest growth, up 10.0% and 6.1% respectively. Meanwhile, the ICT manufacturing industries expanded by 3.8% and the communications services sub-sector by 0.4%.

Since 2012, the ICT sector has posted a stronger annual growth than the total economy. On average, annual growth in this sector has been 2.6%, compared to 2.2% for the overall economy. However, annual growth by ICT sub-sector varies widely with the software and computer services industries (+5.4%) posting the fastest annual growth during the period while the ICT manufacturing industries experienced an average decline of 2.2%.

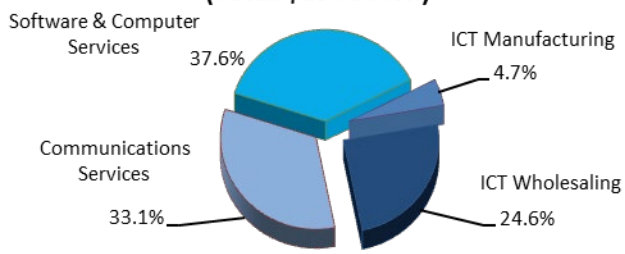
Figure 4: ICT sector GDP, 2012-2017 (2012 Constant Dollars)



Revenues

Revenues in the ICT sector reached $184.3 billion in 2017, up 3.2% from the previous year. Almost all ICT sub-sectors posted positive growth in 2017, the software and computer services sub-sector led this growth with a jump in revenues of 6.8%. ICT wholesaling industries revenues were up 2.9% while ICT manufacturing (-0.5%) and communications services (+0.2%) sub-sectors experienced slower growth.

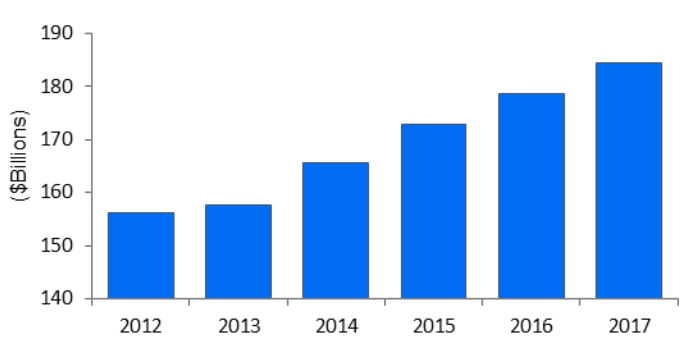
Figure 5: Revenues by ICT sub-sector, 2017 (Total: $184 Billion)



From 2012 to 2017, ICT sector revenues grew from $156 billion to $184 billion, an 18.0% increase. During this period, the ICT manufacturing industries declined by 10.6%. On the other hand, all of the services sub-sectors posted gains: the software and computer services, wholesaling, and the communications services sub-sectors increased by 35.8%, 15.8%, and 8.2% respectively.

Over the same period, manufacturing industries' revenues dropped from 6.2% to 4.7% of total ICT sector revenues.

Figure 6: ICT sector revenues, 2012-2017



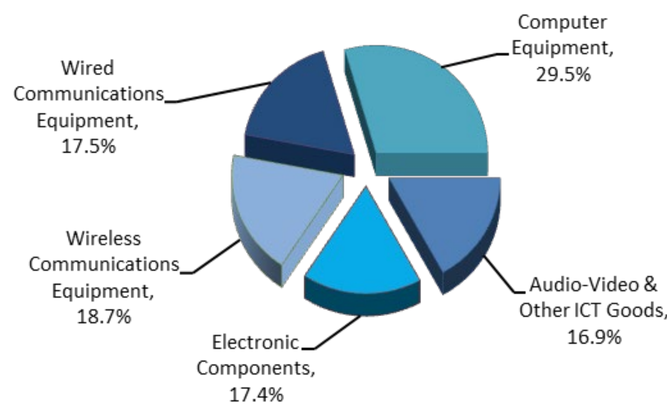
Exports

The Canadian ICT manufacturing sub-sector relies heavily on the export market. About 77% of ICT products manufactured in Canada were exported in 2017.

Canadian exports of ICT goods declined by 1% in 2017 to $11.2 billion. Exports of audio and video equipment increased the most (+$115 million), while electronic components had the steepest decline (-$262 million).

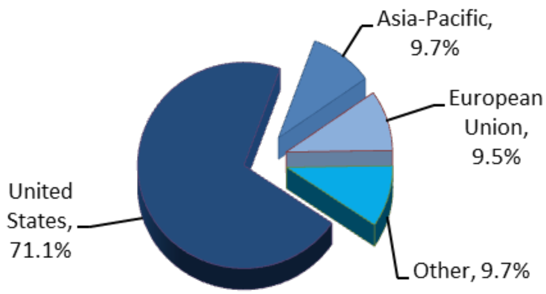
Between 2012 and 2017, exports of ICT goods increased by 5.4% total. Since 2012, exports of wired communications equipment (-7.9%) fell the most while exports of computer equipment (+25.9%) increased the most.

Figure 7: Exports of ICT goods by product group, 2017 (Total: $11.2 Billion)



Exports of ICT goods to the United States slightly increased (0.5%) to $8 billion in 2017 accounting for 71% of all ICT goods exported from Canada. In 2017, exports to the Asia-Pacific region and to the European Union decreased by 8.1% and 3.4% respectively. Both the Asia-Pacific region and the European Union accounted for a little less than 10% of all Canadian exports of ICT goods. Exports to all other countries also decreased (-0.9%).

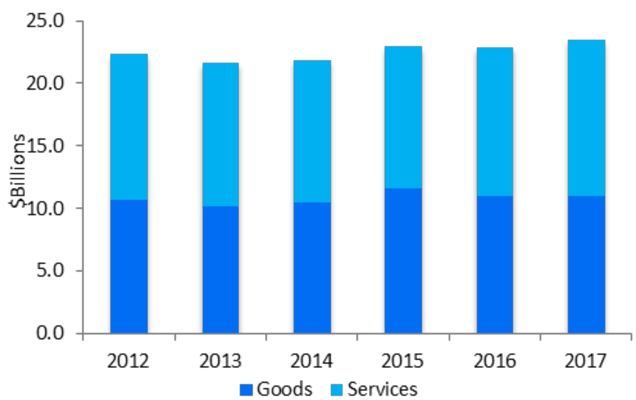
Figure 8: Exports of ICT goods by region, 2017 (Share of Total)



The ICT services industries are highly domestically oriented. In 2017, exports of communications services grew by 1.7%, totaling $2.5 billion, while software and computer services grew by 5.8% to $10 billion. Exports accounted for 14% of software and computer services revenues, and less than 4% of communications services revenues. Overall exports of ICT services totaled $12.5 billion, up 5.0% from 2016.

Overall Canadian exports of ICT goods and services grew by 1.2% annually from 2012 to 2017 to reach $23.7 billion.

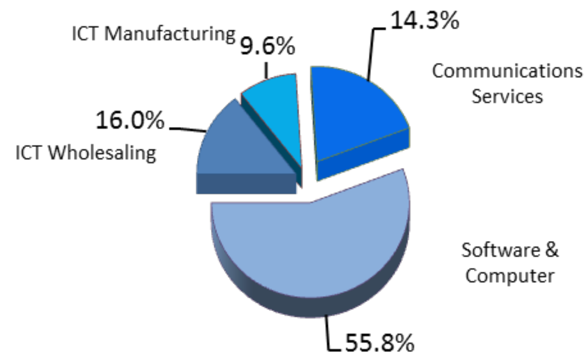
Figure 9: Exports of ICT goods and services, 2012-2017



Research & Development

ICT industries are the largest performers of R&D in the Canadian private sector. In 2017, the sector held a 34% share of all private sector R&D expenditures in Canada. ICT sector R&D expenditures totaled $6.1 billion in 2017, falling 0.7% from the previous year. The largest decline occurred in the ICT manufacturing sub-sector (-4.1%).

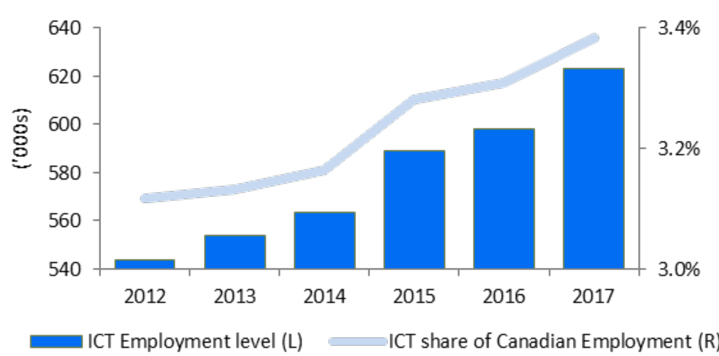
Figure 10: R&D expenditures by ICT sub-sector, 2017 (Total: $6.1 Billion)



Employment

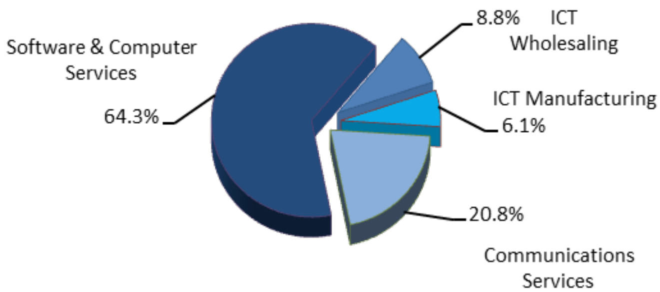
Since 2012, employment growth in the ICT sector has been outpacing the overall economy and it was particularly the case in 2017 when the growth in the ICT sector (+4.2%) was more than double that of the overall economy (+1.9%). In 2017, more than 623,000 were working in the ICT sector, accounting for 3.4% of the Canada's total employment.

Figure 11: ICT sector employment, 2012-2017



The sector's strong performance in 2017 was led by a 5.5% jump in the software and computer services sub-sector's workforce. Employment levels in ICT manufacturing and ICT wholesaling sub-sectors both increased by 3.7% while employment in the communications services industries slightly grew by 0.4%.

Figure 12: Employment by ICT sub-sector, 2017 (Total: 623,165 Workers)



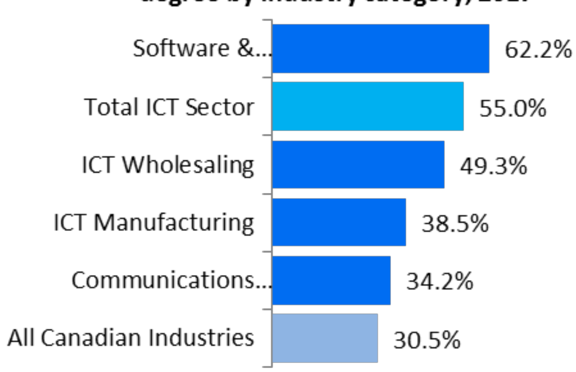
Since 2012, employment growth in software and computer services has outpaced the overall growth in the ICT sector. Software and computer services' share of employment has increased from 57.9% to 64.3% over the time period.

Education

The ICT sector is characterized by a knowledge-intensive workforce, with over half of its workers holding a university degree, compared to 30.5% within all Canadian industries.

The software and computer services sub-sector employs the largest proportion of university educated workers within the ICT sector (62.2%).

Figure 13: Percentage of workers with a university degree by industry category, 2017



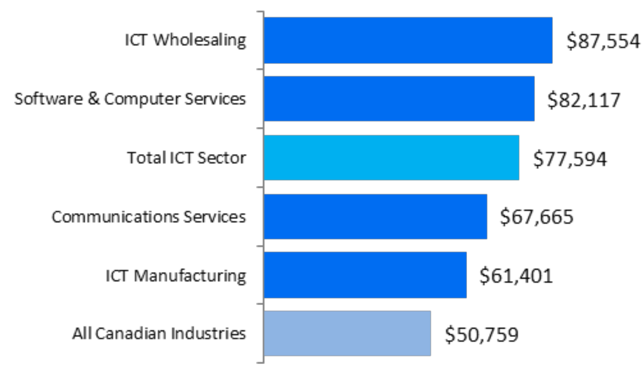
Employee Earnings

Employees in the ICT sector earn on average over $77,000 per year. In 2017, these workers earned 52.9% more than the economy-wide average, with the highest earners coming from the wholesaling and software and computer services sub-sectors.

Despite being the lowest paid workers in the ICT sector, employees in the ICT manufacturing sub-sectors still earned 21% more than the national average in 2017.

From 2012 to 2017, the average salary in the ICT sector grew more quickly than salaries in the overall economy, up 17.3% compared to 9%.

Figure 14: Average annual earnings by industry category, 2017



Drivers of Growth

In recent years, the strong economic performance of the Canadian ICT sector has been driven by the software and computer services sub-sector. In 2017, this sub-sector posted strong growth in terms of GDP (+5.4%), revenues (+6.8%), and employment (+5.5%).

This growth originates mainly from sales in the domestic market, which accounted for more than 85% of the Canadian software and computer services sub-sector revenues in 2017.

Cyber security and data analytics are some of the technologies driving growth in the software and computer services sub-sector. The Canadian cyber security software and services market was estimated at almost $2 billion in 2017, up 8.2% from 2016. While smaller, the data analytic market is also growing at more than 8% annually, and reached $700 million in 2017.

The sub-sector is also benefiting from significant investments in artificial intelligence. Over the last few years, many companies announced the creation or expansion of artificial intelligence research activities in Canada, creating hundreds of high quality jobs in the software and computer services industries.

Another major driver of the growth in the software and computer services sub-sector is the shift to cloud computing delivery models. These models have led to declines in the prices of several IT services, resulting in stronger demand for these services. Consequently, many Canadian firms are shifting to cloud services, which means that their internal IT functions are transferred to third-party IT services companies. For example, IDC reports that the datacentre space operated by Canadian organizations with more than 1,000 employees is shrinking as these organizations are turning to third-party IT service providers for the storage and management of their data. This outsourcing shift is creating strong growth in the software and computer services sub-sector. According to IDC, the public cloud application software market is growing at an annual rate of 14.4%, while the hosting infrastructure services market is growing at an annual rate of 16%, reaching more than $2 billion in value.

DATA SOURCES

i. **Companies:**
   - ISED calculations using data from Statistics Canada's Business Registry.

ii. **Revenues:**
   - Manufacturing: Statistics Canada CANSIM table 301-0008;
   - Software and Computer Services: Statistics Canada CANSIM table 354-0009 and custom tabulations;
   - Communications Services: Statistics Canada CANSIM table 356-0004;
   - Wholesale: Statistics Canada CANSIM table 081-0017; and
   - ISED estimates for the most recent year presented (for all ICT industries).

iii. **GDP:**
   - Statistics Canada custom tables.

iv. **Employment:**
   - Statistics Canada, Survey of Employment, Payroll, and Hours (SEPH) for the number of employees and Labour Force Survey (LFS) for the number of self-employed (custom tables).

v. **Research & Development:**
   - Statistics Canada CANSIM table 358-0510.

vi. **Education:**
   - Statistics Canada, Labour Force Survey custom tables.

vii. **Employee Earnings:**
   - ISED calculations using Statistics Canada CANSIM tables 281-0024 and 281-0027.

viii. **Exports:**
   - Goods: ISED calculations using Trade Data Online data;
   - Services: Statistics Canada, CANSIM table 376-0033.

ix. **Drivers of Growth**
   - Canadian IT Security Hardware, Software, Services, and Cloud Forecast, 2017-2021, IDC, 2017.
   - Canadian Public IT Cloud Services Forecast, 2017-2021, IDC,

2017.

- Canadian Infrastructure Outsourcing Services Forecast, 2018-2022, IDC, 2018.
- Canadian Data Access, Analysis, and Delivery Software Forecast, 2017–2021, IDC, 2017.