



2018 Canadian ICT Sector Profile

Automotive, Transportation and Digital Technologies Branch

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2018 ICT Sector Snapshot

Canada's ICT sector posted strong growth in 2018, and outperformed the overall Canadian economy in output, employment and innovation growth

Size

	2018 Growth	Share of Economy
 \$193B in Revenue	+3.9%	N/A
 \$86.6B in GDP	+3.7%	4.5%
 \$11.3B in Good Exports	+1.3%	1.9%
 \$10.6B in Services Exports (2017)	N/A	15.3%

41,500 Companies

Innovation

 \$6.2B in Business R&D spending	+2.2%	34.5%
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55% of workers have a University Degree

Workforce

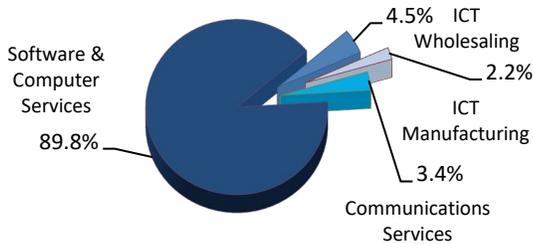
 652,450 Workers	+4.6%	3.5%
 \$77,794 in Annual Average Salary	+0.3%	N/A

Average Salary 49.4% higher than Canadian Average

Industry Structure

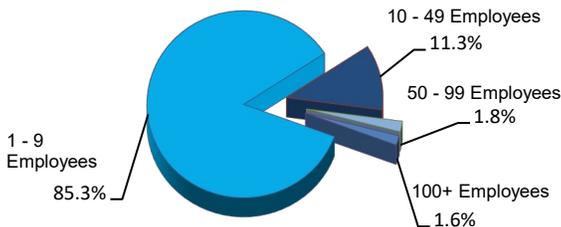
There are over 41,500 companies in the Canadian Information and Communications Technologies (ICT) sector. The large majority (over 37,000) fall within the software and computer services industries.

Figure 1: Companies by ICT sub-sector, 2018



The ICT sector consists mainly of small companies, with approximately 35,500 of them employing fewer than 10 people. The number of large companies employing over 500 individuals accounts for approximately 102 firms, including subsidiaries of foreign multinational corporations.

Figure 2: Companies by employee size for total ICT Sector, 2018



Manufacturing stands out as the sub-sector with larger companies. In 2018, 15.6% of ICT manufacturing companies had more than 50 employees, while across the whole ICT sector this share was only 3.5%.

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

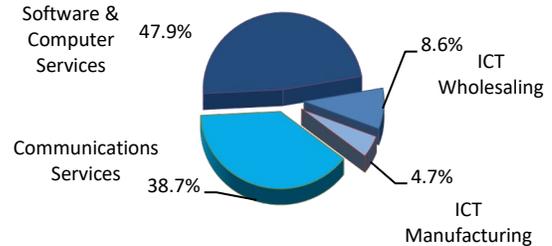
Communications services

- 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 2018, the sector's GDP was \$86.6 billion (in 2012 constant dollars), and accounted for 4.5% of national GDP.

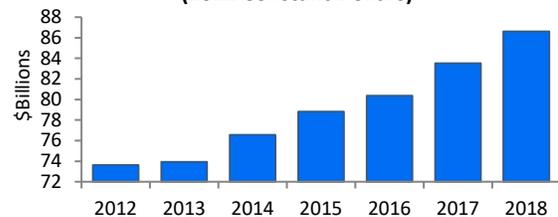
Figure 3: GDP by ICT sub-sector, 2018 (Total: \$86.6 Billion)



Strong growth continued in 2018 as the sector grew by 3.7%, outpacing the Canadian economy growth of 2.3% by over a percentage point. All ICT sub-sectors experienced positive growth in 2018. The software and computer services and ICT wholesaling sub-sectors posted the strongest growth, up 7.7% and 11.4% respectively. Meanwhile, the ICT manufacturing industries expanded by 5.3% 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 2.7%, compared to 2.2% for the overall economy. However, annual growth by ICT sub-sector varies widely with the software and computer services industries (+5.8%) posting the fastest annual growth during the period while the ICT manufacturing industries experienced an average decline of 1.0%.

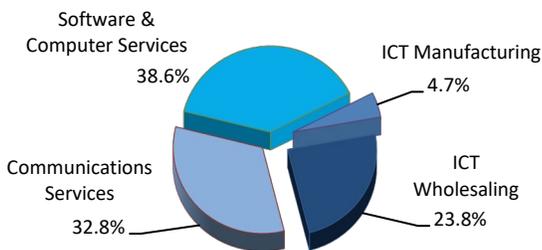
Figure 4: ICT sector GDP, 2012-2018 (2012 Constant Dollars)



Revenues

Revenues in the ICT sector reached \$193 billion in 2018, up 3.8% from the previous year. Almost all ICT sub-sectors posted positive growth in 2018, the software and computer services sub-sector led this growth with a jump in revenues of 5.9%. ICT manufacturing industries revenues were up 4.7% while ICT wholesaling (+1.4%) and communications services (+2.9%) sub-sectors experienced slower growth.

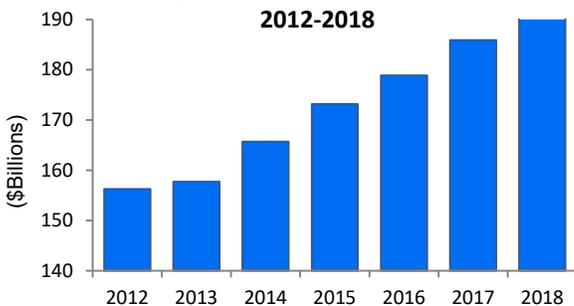
Figure 5: Revenues by ICT sub-sector, 2018 (Total: \$193 Billion)



From 2012 to 2018, ICT sector revenues grew from \$156 billion to \$193 billion, a 23.4% increase. During this period, the ICT manufacturing industries declined by 6.4%. 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 46.1%, 17.4%, and 12.2% 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, 2012-2018



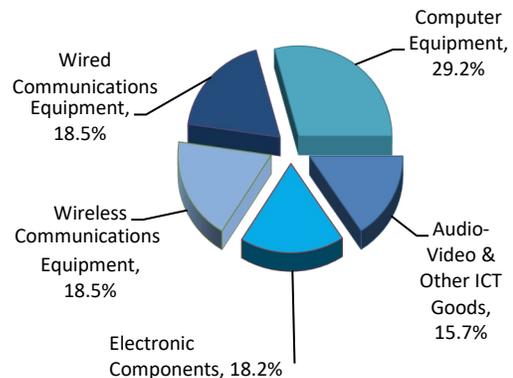
Exports

The Canadian ICT manufacturing sub-sector relies heavily on the export market. About 78% of ICT products manufactured in Canada were exported in 2018.

Canadian exports of ICT goods increased by 1.3% in 2018 to \$11.3 billion. Exports of communications and electronic components equipment increased the most (+\$136 million and +\$116 million, respectively), while audio and video equipment had the steepest decline (-\$232 million).

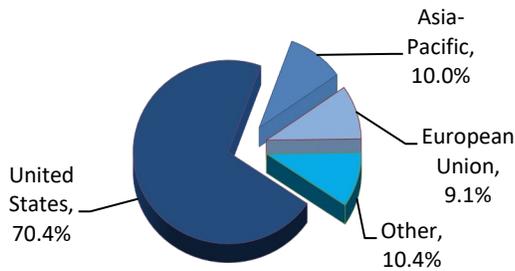
Between 2012 and 2018, exports of ICT goods increased by 6.6% total. Since 2012, exports of wired communications equipment (-1.5%) fell the most while exports of computer equipment (+25.9%) increased the most.

Figure 7: Exports of ICT goods by product group, 2018 (Total: \$11.3 Billion)



Exports of ICT goods to the United States slightly increased (+0.4%) to about \$8 billion in 2018 accounting for 70% of all ICT goods exported from Canada. In 2018, exports to the Asia-Pacific region increased by 4.3%, while they fell to the European Union, down 3.4%. The Asia-Pacific region accounted for 10% of all Canadian exports of ICT goods, while the European Union accounted for a little less (9%). Exports to all other countries also increased in 2018 (+10.4%).

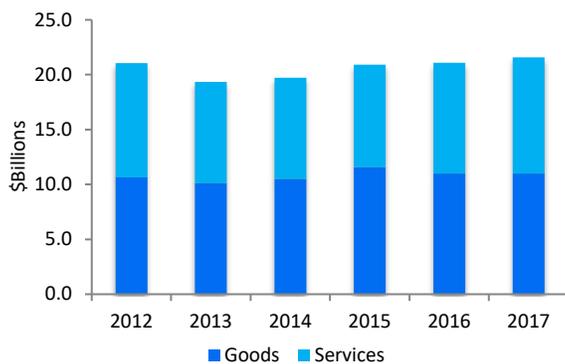
Figure 8: Exports of ICT goods by region, 2018 (Share of Total)



The ICT services industries are highly domestically oriented. In 2017, exports of communications services grew by 1.8%, totaling \$2.5 billion, while software and computer services grew by 6.1% to \$8 billion. Exports accounted for 11% of software and computer services revenues, and 4% of communications services revenues. Overall exports of ICT services totaled \$10.6 billion, up 5.0% from 2016.

Overall Canadian exports of ICT goods and services grew by 0.7% annually from 2012 to 2017 to reach \$22 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 2018, the sector held a 34.5% share of all private sector R&D expenditures in Canada. ICT sector R&D expenditures totaled \$6.2 billion in 2018, up 2.2% from the previous year. The largest decline occurred in the ICT manufacturing sub-sector (-3.1%) while the largest increase was in software and computer services (+6.3%).

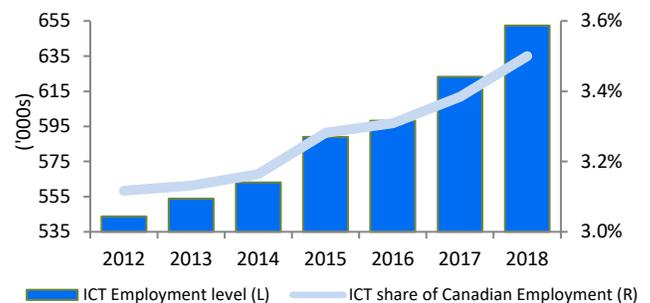
Figure 10: Percentage of ICT R&D Spending by Sub-sector, 2018 (Total: \$6.2 Billion)



Employment

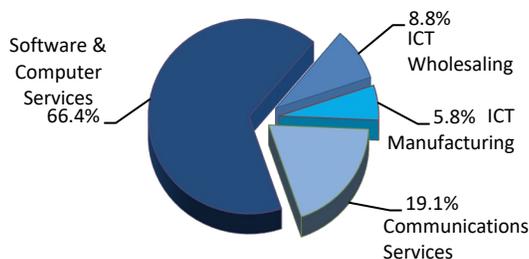
Since 2012, employment growth in the ICT sector has been outpacing the overall economy and it was particularly the case in 2018 when the growth in the ICT sector (+4.6%) was more than three times that of the overall economy (+1.3%). In 2018, more than 652,000 were working in the ICT sector, accounting for 3.5% of the Canada's total employment.

Figure 11: ICT sector employment, 2012-2018



The sector's strong performance in 2018 was led by an 8.0% jump in the software and computer services sub-sector's workforce. Employment levels in ICT manufacturing and communications services sub-sectors both decreased by 2.7% and 3.9% respectively while employment in ICT wholesaling grew by 4.6%.

**Figure 12: Employment by ICT sub-sector, 2018
(Total: 652,446 Workers)**

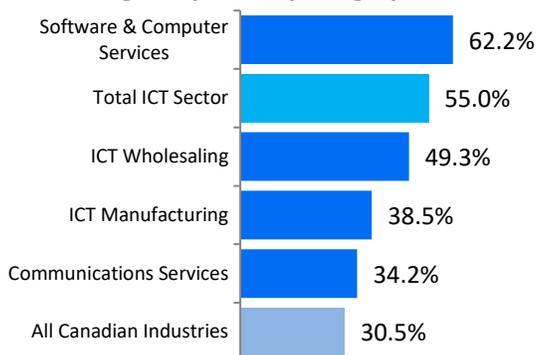


Since 2012, employment growth in software and computer services has outpaced the overall growth in the ICT sector. Software and computer services' share of employment has increased from 57.9% to 66.4% over the time period.

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.

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



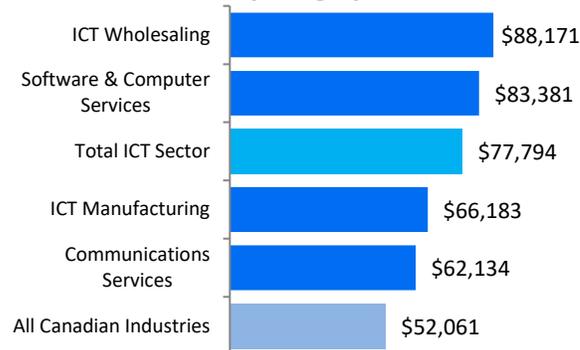
The software and computer services sub-sector employs the largest proportion of university educated workers within the ICT sector (62.2%).

Employee Earnings

Employees in the ICT sector earn on average over \$77,800 per year. In 2018, these workers earned 49.4% 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 27% more than the national average in 2018.

Figure 14: Average annual earnings by industry category, 2018



From 2012 to 2018, the average salary in the ICT sector grew more quickly than salaries in the overall economy, up 17.6% compared to 11.8%.

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 2018, this sub-sector posted strong growth in terms of GDP (+7.7%), revenues (+5.9%), and employment (+8.0%).

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.

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 \$2.3 billion in 2018, up 9.2% from 2017. The big data and analytics market is also growing, up 6.9% year over year, to reach \$1.9

billion in 2018.

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.

Innovation and Business Strategy

Statistics Canada's Survey of Innovation and Business Strategy (SIBS) looked at Innovation and operational methods—as critical factors in business competitiveness. The survey targeted enterprises across the economy that employed 20+ workers and had revenues of \$250,000+.

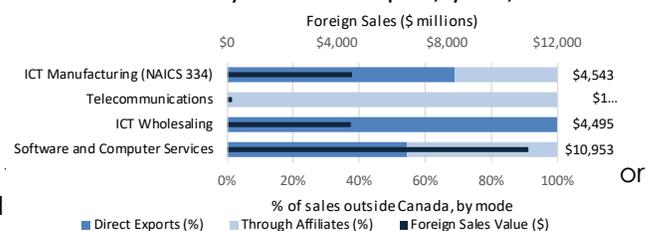
The ICT sector as defined by SIBS included about 1/10th of approximately 1/2 of all sector employment and 85% of all I

ICT as a sector was more innovative than the whole economy, with 74% of firms innovating vs. 17% in the whole economy. However, ICT firms did face obstacles to innovation, the biggest being risk and uncertainty, followed by lack of skills, and internal financing. Intellectual property rights and government competition laws were the least cited obstacles by ICT firms.

The ICT sector focuses less on the local market when compared to the whole economy, with certain industries much more internationally focused than others. While only 25% of firms in the whole economy export, 95% of ICT manufacturers, 78% of software publishers and 65% of computer services firms exported their products. Just fewer than 20% of ICT firms were affiliates with a foreign parent compared to 8.7% of firms in the whole economy. The ICT industry that had the most parent affiliates abroad was software publishing (24.4%).

In 2017, Canadian businesses across the whole economy were more likely to sell goods or services internationally through their foreign affiliates (~3/4 by value) than through direct exports. However, within the ICT sector international sales were more evenly divided, with sales through foreign affiliates (\$10.9 billion) only slightly more valuable than direct exports (\$9.2 billion). Foreign affiliates were less important for ICT goods manufacturers with direct exports of \$3.1 billion compared to \$1.2 billion in international sales through affiliates. Sales to the United States of ICT goods were made mostly through exports (\$1.7 billion), rather than through foreign affiliated businesses (\$1.2 billion). Canadian ICT manufacturing businesses made significantly more sales to China through direct exports (\$190 million) than through foreign affiliates (\$26 million).

International Sales by Canadian ICT enterprises, by mode, 2017



DATA SOURCES

- i. **Companies:**
 - o ISED calculations using data from Statistics Canada's Business Registry.
- ii. **Revenues:**
 - o Manufacturing: Statistics Canada, Table 16-10-0117-01;
 - o Software and Computer Services: Statistics Canada, Table 22-10-0087-01 and custom tabulations;
 - o Communications Services: Statistics Canada, Table 22-10-0003-01;
 - o Wholesale: Statistics Canada Table, 20-10-0077-01; and
 - o ISED estimates for the most recent year presented (for all ICT industries).
- iii. **GDP:**
 - o Statistics Canada custom tables.
- iv. **Employment:**
 - o 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:**
 - o Statistics Canada, Table 27-10-0333-01.
- vi. **Education:**
 - o Statistics Canada, Labour Force Survey custom tables.
- vii. **Employee Earnings:**
 - o ISED calculations using Statistics Canada, Tables 14-10-0202-01 and 14-10-0204-01.
- viii. **Exports:**
 - o Goods: ISED calculations using Trade Data Online data;
 - o Services: Statistics Canada, Table 36-10-0006-01.
- ix. **Drivers of Growth**
 - o Canadian IT Security Hardware, Software, Services, and Cloud Forecast, 2018-2022, IDC, 2018.
 - o Canadian Public IT Cloud Services Forecast, 2017-2021, IDC, 2017.
 - o Canadian Infrastructure Outsourcing Services Forecast, 2018-2022, IDC, 2018.
 - o Worldwide Black Book 3rd Platform Edition, 2017–2022, IDC, 2018.
- x. **Innovation and Business Strategy**
 - o ISED calculations using Statistics Canada, Strategic Innovation Business Survey 2015-2017, 2019.