

UTM CAREER CENTRE

INDUSTRY PROFILE:

INFORMATION & COMMUNICATION TECHNOLOGY



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What Do ICT Professionals Do?

If you love technology, love to learn and relish a challenge, you may find a career in the dynamic ICT field fulfilling and lucrative.

Overview - What do ICT professionals do?

Although there is no universal definition, simply put, ICT is the infrastructure and components that enable modern computing. The term is generally accepted to mean all devices, networking components, applications and systems that combined, allow people and organizations to interact in the digital world.

While the ICT sector refers to businesses that fall under certain digital-based industries, such as computer software and hardware, telecommunications companies and Internet service providers, the digital economy includes ICT workers across all industry sectors and non-ICT workers employed in technology companies.

Whether or not companies consider technology to be their main business, most organizations today increasingly rely on advanced digital and physical technologies to run their day-to-day operations.

Software Developer

Software Developers build applications and programs, then test and maintain those developed products. They provide detailed instructions and guidelines for the programmers who write the code. Occasionally, developers will code themselves. They have knowledge of a variety of programming languages such as Java, JavaScript, C++, C#, Python and SQL. Software developers should understand machine learning principles and practices, and increasingly, must be proficient with building and using application program interface (API) tools.

Programmer

While software developers design applications, Programmers write the code needed for programs to function. Programmers also test software and update existing software. Necessary soft skills include problem solving, reading comprehension, active listening, attention to detail, and critical thinking. You might consider entering this field if you enjoy working with code for extended periods and testing the power of programming languages. As experience is an important asset, it's helpful to do an internship or gain other hands-on experience while completing your formal education.

Multimedia Developer

Multimedia Developers are skilled in computer programming and visual artistry. They design software and create multimedia applications by generating and manipulating animations, graphic images, text, sound, and video. Some examples of applications include multimedia presentations, educational and entertainment products, and computer-based interactive training. You might consider this career if you're an IT-graduate strong in visual arts.



What Do ICT Professionals Do? (cont.)

Database Administrator

Database Administrators (DBA) are responsible for the integrity, security, usability and performance of a database. They plan and develop the database, troubleshoot issues, and ensure that data is clearly tagged. They create permission guidelines and ensure that access permissions are appropriately assigned. Database administrators must work to minimize downtime of the database and require familiarity with cloud database platforms like AWS, Azure or Google Cloud.

Digital Marketer

Digital Marketers plan and manage marketing activities and campaigns to promote a business' products or services. They create marketing campaigns and monitor user metrics to refine their strategies. Digital marketers are in charge of not only attracting users to a business or product, but actively managing “conversions” – that is turning visitors of a website into paying customers. Digital marketers should be proficient with social media, as well as analytics tools like Google Analytics or Hootsuite.

Cybersecurity Specialist

Cybersecurity Specialists design, test, and implement security systems and protocols to protect an organization's computer systems and networks from attack. Analysts must have knowledge of relevant cybersecurity standards and be able to recommend preventive measures to improve an organization's security. They conduct vulnerability or penetration testing, risk analysis, perform security audits, and analyze security breaches to identify the cause of attacks. Demand is high for these professionals and certifications such as Certified Information Security Professional (CISSP) and Certified Information Security Manager (CISM) are an advantage.

Network Administrator

The Network Administrator is responsible for managing and maintaining computer systems. He or she is often at the highest level of an organization's technical staff. To become a network administrator, you'll need a degree in an IT-related field. Employers also look for network-specific experience. Specialised certification in network administration might also be required. Most professionals in this area complete high-level training in specific hardware or software used in the network.

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What Do ICT Professionals Do? (cont.)

Machine Learning Engineer

Machine Learning Engineers create machine learning models and systems, with the ultimate goal of developing and maintaining efficient self-learning applications and products. They perform data science tasks including collecting, cleaning, and labeling data to prepare it for analysis and create and test models, training and retraining the systems and models to meet objectives. Machine learning engineers are often proficient with a number of programming languages like Python, C/C++, SQL and Java, use open-source libraries like TensorFlow, and have experience with natural language processing and Internet of Things (IoT) applications.

IT Support Specialists

IT Support Specialists (aka help-desk technicians), give technical support and troubleshooting services to computer users, either in-house or remotely. They are often tasked with installing, configuring or updating software and providing user support on software or hardware issues. This includes running diagnostic testing on malfunctioning software or hardware. The job requires a strong understanding of software and computer hardware, and excellent communication skills. The role is generally considered entry-level where you provide customer service directly (and doesn't necessarily require an IT degree). More senior positions are responsible for organizing and managing support teams or systems.

Ontario's GTA colleges -- Centennial, George Brown, Humber, Sheridan and Seneca, offer numerous diploma and post-graduate programs in ICT-related fields, such as Computer Systems Technician, Mobile Solutions Development, Database Application Developer and Information Security Management. For more information, visit the Ontario Colleges web site.



Fast Facts

Canada's digital Economy

earned \$193 billion in revenue and contributed \$86.6 billion in GDP in 2018. (StatsCan)

Canada's ICT sector

consists mainly of small companies with the majority employing fewer than 10 people, mostly in the software and computer services industry. (StatsCan)

Some 41,5000 ICT companies

in Canada employed more than 652,450 workers in 2018, growing by 4.6%, more than three times that in the overall economy. (StatsCan)

By 2023 Ontarios demand for ICT

professionals will total nearly 135,000 (almost 45% of total digital economy demand). The total digital economy employment in Ontario will reach nearly 938,000 by 2023. (ICTC)

200,000 technology workers

The Toronto-Waterloo Innovation Corridor employs more than 200,000 technology workers, second only to California's Silicon Valley within North America. (TechToronto)

ICT average salary \$77,800

ICT professionals' average salary in 2018 was \$77,800, almost 50% higher than the Canadian average. (StatsCan)

On average only 8%

of directors on boards of Canadian tech companies are women; 73% of boards have no women at all. (#movethedial)

Approximately 108,350 people

work as Information Systems Analysts and consultants in Ontario.

About 76,100 people

work as Programmers and Interactive Media Developers in Ontario.

Around 45,500 people

work as User Support Technicians in Ontario.

An estimated 21,150 people

work as Database Analysts and Data Administrators in Ontario.

Some 19,400 people

work as Computer Network Technicians in Ontario.

About 12,900 people

work as Web Designers and Developers in Ontario and more than a quarter are self-employed



Industry Trends

Technology is transforming all aspects of our lives and work, creating huge demand for skilled ICT talent.

Klaus Schwab, founder of the World Economic Forum, coined the term “the Fourth Industrial Revolution”, in his 2016 book of the same title, stating that technological advances are “blurring the lines between the physical, digital and biological spheres.” Examples are voice-activated assistants, autonomous vehicles and digital health-care.

As a CNBC article explains, “Schwab argued these technological changes are drastically altering how individuals, companies and governments operate, ultimately leading to a societal transformation similar to previous industrial revolutions.”

This revolution is affecting all disciplines, industries, and economies and creating massive change at an unprecedented speed.

Experts say these technological advances have the potential to improve the quality of life for the world’s population, raising income levels and enabling an ever-more-connected and collaborative world.

Following are some of the most important information and communications technology trends that will affect businesses and the world in the next five to 10 years, according to Gartner, a leading business research organization.

Hyperautomation

Automation uses technology to automate tasks once performed by humans. Hyperautomation deals with the application of advanced technologies, including artificial intelligence (AI) and machine learning (ML), to increasingly automate processes and augment humans, rather than replacing them. Businesses will be increasingly using these tools to enhance the efficiency of their operations.

Multiexperience

Multiexperience replaces technology-literate people with people-literate technology. In this trend, the traditional idea of a computer evolves from a single point of interaction to include multisensory interfaces like wearables and advanced computer sensors. These immersive experiences use augmented reality (AR), virtual (VR), mixed reality, multichannel human-machine interfaces and sensing technologies.

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Industry Trends (cont.)

Human augmentation

Human augmentation is the use of technology to enhance a person's cognitive and physical experiences. For example, the automotive or mining industries use wearable technology to improve worker safety. Cognitive augmentation enhances a human's ability to think and make better decisions, for example, applications to enhance learning or new experiences.

Autonomous things

Autonomous things, which include drones, robots, ships and appliances, use artificial intelligence to perform tasks usually done by humans. Currently, autonomous things mainly exist in controlled environments, like in a mine or warehouse, but will eventually evolve to include open public spaces.

Tesla CEO, Elon Musk announced his company would create an autonomous vehicle by 2020 and Google sister company, Waymo, piloted "robotaxis" in California. While many regulatory and safety issues surround this technology, it is likely that driverless vehicles will become a reality in the not-too-distant future.

5G mobile data networks

While so-called high-speed, 5G mobile data networks came onstream in 2019, since 2020 they have become more affordable and more widely available. According to industry expert, Bernard Marr, "the greatly increased speeds mean that mobile networks will become more usable than the wired networks running into our homes and businesses. The increased bandwidth will enable machines, robots, and autonomous vehicles to collect and transfer more data than ever, leading to advances in the area of the Internet of Things (IoT) and smart machinery."

Computer vision

Computer vision involves systems that can identify items, places, objects or people from visual images collected by a camera or sensor. It allows autonomous vehicles to navigate around obstacles and security cameras to alert us. According to Marr, production lines will use computer vision cameras to watch for defective products or equipment failures. It is also enabling face recognition. For example, Clearview AI, is an app that police forces are beginning to use to identify potential suspects, a use that has been criticized for the potential to "erode privacy and enable 'Big-Brother'-like state control."

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Industry Trends (cont.)

Technology is allowing the healthcare system to provide more personalized and predictive medicine. For example, personal data captured on wearable devices such as smartwatches will enable doctors to better predict and treat health issues in their patients. Breakthroughs in genomics and AI are enabling doctors to understand how different people are susceptible to specific diseases and how they are likely to react to various medication or treatments.

Another example is a new system that combines AI with human knowledge to provide faster and more accurate cancer diagnosis. Developed by a team led by researchers at University of Waterloo Engineering, the innovation uses digital images of tissue samples to match new cases of suspected cancer with previously-diagnosed cases in a database. In tests using the largest publicly-available archive in the world -- of about 30,000 digitized slides from almost 11,000 patients – the technology achieved up to 100 per cent accuracy for 32 forms of cancer in 25 organs and body parts.

To better understand the benefits and challenges that AI, biotechnology, and other technological advances present for our economy, our society and our day-to-day lives, the University of Toronto established the Schwartz Reisman Innovation Centre and the Schwartz Reisman Institute for Technology and Society. As reported in a March 2019 news release, the \$100-million investment from Mr. Schwartz and Ms. Reisman is the largest donation in U of T's history and the largest gift ever to the Canadian innovation sector.

“The Schwartz Reisman Institute will facilitate cross-disciplinary research and collaboration and will draw on U of T's strengths in the sciences, humanities and social sciences to address areas such as fairness and inclusivity, security and privacy, and values and ethics.

Questions the Institute might explore include: How do we design technologies that take into account personal, work, social, and cultural aspects of humanity? How do humans, through interactions with technology, mold their daily life and shape the technology? How are people interacting with each other as a result of technology?”

According to the release, “the 750,000-square-foot complex will anchor U of T's unique cluster of world-leading artificial intelligence scientists and biomedical experts, its world-class entrepreneurship network and the country's largest concentration of student- and faculty-led start-ups.”

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Industry Trends (cont.)

Although new technologies promise to improve people's health and standard of living, they also come with new security threats by criminals looking to exploit individuals and organizations. The Information Technology Association of Canada (ITAC) reports that the financial impact of cyber crime on Canadian companies was an average of US\$9.25 million in 2018 alone.

In May 2019, ITAC partnered with Employment and Social Development Canada to launch the Cybersecurity Talent Alliance (CTA) to address the cybersecurity skills gap in Canada. This network will provide an ecosystem for cybersecurity education, training and workforce development.

Organizations like TechToronto and #movethedial, are helping to support the growth and development of the Canadian technology community, particularly entrepreneurs and start-ups. The focus of #movethedial is to advance the participation and leadership of women in technology. Women comprise 13 per cent of the average tech company's executive team, while 53 per cent of tech companies have no female executives at all.

TechToronto states that "the Internet, mobile technologies, wearables, big data and machine learning have created thousands of new companies and jobs in Toronto. While traditional industries that have powered our economy have shrunk, technology has grown."

Supporting these companies are a number of business incubators and accelerators including: Brightspark Venture, Driven Accelerator Group, Highline, INcubes, Kinetic Café, MaRS, Multiplicity, OneEleven, University of Toronto's Creative Lab Destruction, Ryerson DMZ, Next Canada and Mississauga's Regional Innovation Centre (RIC).

A report by the World Economic Forum indicates that by 2022, the job skills most required by employers will include not only proficiency with new technologies, but also creativity, emotional intelligence and critical thinking skills. The report also found that over half of all existing workers will require significant re-skilling and upskilling to meet the demands of the changing labour market.

In the words of Klaus Schwab, "the Fourth Industrial Revolution is not a prediction of the future but a call to action. It is a vision for developing, diffusing, and governing technologies in ways that foster a more empowering, collaborative, and sustainable foundation for social and economic development, built around shared values of the common good, human dignity, and intergenerational stewardship. Realizing this vision will be the core challenge and great responsibility of the next 50 years."



Employment Outlook for ICT Professionals

Canada's demand for digitally-skilled talent is expected to reach 305,000 by 2023, for total employment of over 2 million in the digital economy, according to a report released October 30, 2019 by the Information and Communications Technology Council (ICTC).

ICTC says that employment in Canada's digital economy has grown almost twice as fast as the overall economy in the last decade. The industry council predicts that the demand for skilled talent will increase across all sectors as technology continues to permeate a variety of industries.

Database Analysts and Data Administrators

The employment outlook will be good for Database Analysts and Data Administrators (NOC 2172) in Ontario up to 2021 according to the Ontario government's most recent labour market report.

Employment in this occupation has seen significant growth over the last decade. Innovative technologies to store, organize and analyze data in secure databases has contributed to this increase. Some of the province's technology companies continue to expand and deliver new software and database solutions to the marketplace. Additionally, the use of 'Big Data' across multiple industries, especially in areas such as finance, e-commerce retail, and telecommunications, is expected to support employment in this occupation.

Further, these professionals will experience a fair level of demand as the autonomous vehicle industry grows. Already, automotive manufacturers and software producers have been investing in large projects in relation to new features in connected cars, and for self-driving vehicles.

Other dominant technological trends related to artificial intelligence, blockchain, and virtual and augmented reality, will boost employment growth for these analysts and administrators.

Among the new entrants to this occupation are graduates of mathematics, engineering, business and commerce, and computer science bachelor degree programs from universities in Ontario. In some instances, graduates of college degree and other programs also add to the labour supply.

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Employment Outlook for ICT Professionals (cont.)

Digital Marketing

The employment outlook will be good for professional occupations in Digital Marketing (NOC 1123) in Ontario up to 2021.

Companies are becoming increasingly dependent on effective marketing strategies to remain viable due to changing consumer needs in a more globalized and competitive business environment.

The use of social media and web platforms for commercial purposes has increased, boosting demand for these professionals in public relations and communications. Businesses and governments are increasingly using webpages, social media posts, blogs and quick update forums as a means of communication with the public, creating demand for workers skilled in the use of social-networking tools. The use of 'influencers' as a marketing strategy to promote brands or products is increasing in popularity, providing more avenues for targeted advertisements.

Among the new entrants to this occupation are graduates of Ontario universities' business and commerce bachelor's degree programs. The growing number of graduates from related bachelor's degree, certificate or diploma courses in communications, marketing, advertising and public relations from Ontario colleges also add to the labour supply.

Computer Programmers

The employment outlook will be good for Computer Programmers and Interactive Media Developers (NOC 2174) in Ontario up to 2021.

Computer programmers and interactive media developers have the second largest workforce size among the five professional occupational groups in computer and information systems.

The fast pace at which new computer applications are being used by most businesses and consumers will continue to support employment growth for these professionals. For example, some of them should be needed to provide programming platforms to support greater precision in agriculture, develop robots for use in industrial settings, create e-learning tools in schools and workplaces, and add features in new mobile devices.

One of the key drivers of employment will be the technologies being introduced in the automotive industry. Large automotive manufacturers and software producers have been investing in projects to develop new features in connected cars and to advance self-driving car projects.

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Employment Outlook for ICT Professionals (cont.)

Further, as finance and insurance services continue to transform their processing features, several opportunities are expected for programmers and software developers in these organizations, in digital laboratories, and among the growing number of financial technology (FinTech) start-up companies.

Within this occupational group, cloud developers should see a fair amount of openings due to the rising use of this infrastructure by businesses.

In Ontario, video gaming is a vital part of the interactive media industry, and the province accounts for the second largest share of video game companies in Canada. Based on the most recent industry statistics, Ontario experienced significant growth in the number of companies, and a 52 per cent increase in the number of full-time employees generally in the cluster. This trend, along with the availability of provincial tax credits, should bode well for job openings for these individuals. Industry reports mention that programming will be one of the top skills needed in the video game industry.

The rise of artificial intelligence, blockchain infrastructure, 3D printing, and virtual and augmented reality will boost employment growth in this occupational group. While employment growth is expected to be favourable over the next few years, the off-shoring of lower-value programming work, and the availability of pre-packaged software solutions may mitigate some of the potential opportunities for some of these professionals.

Computer programmers and interactive media developers are the top occupations found by graduates (32%) of computer science bachelor degree programs from universities in Ontario. Graduates of college programs also add to the supply of new entrants.

Computer programmers and interactive media developers with experience and up-to-date skills in programming languages such as C++, SQL, Java and Visual Basic, and operating systems UNIX or Linux will have more favourable employment prospects. Some positions will also seek individuals with skills developing cloud technologies. In addition to sound technical knowledge, professionals with strong communication and soft skills may fare better in the labour market. Individuals who are willing to accept temporary or contract-based assignments may also have greater employment opportunities.

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Employment Outlook for ICT Professionals (cont.)

Computer Network Technicians

The employment outlook will be good for Computer Network Technicians (NOC 2281) in Ontario up to 2021.

The widespread use among businesses of more complex and constantly-evolving computer technology has been a key factor driving demand for this occupation. Significant expansions are planned and underway in many companies, including technology firms, while other large financial commitments have been announced to build digital industries in the province.

Further, employment in the ICT sector has been increasing nationally, and is strongly influenced by the growth in its largest segment, software and computer services. A significant part of this change is due to businesses' greater use of cloud-based infrastructure. Online services such as applications, processing capability and data storage are often outside of an employer's work site. This is expected to moderate the potential level of work opportunities for these professionals, including system administrators to maintain the computer infrastructure in-house.

New entrants into the computer network technicians occupation includes an increasing number of graduates from college computer systems technology and technician programs, computer networking and technical support programs, and other related college courses.

Employers tend to recruit computer network technicians, who, in addition to having related formal education, also have at least three years' experience working with operating systems such as Linux/Unix or Windows. Some positions also require individuals with knowledge of Virtual Local Area Networks (VLANs), and migrating work to a cloud-based environment. Additional certifications are available for this profession such as A+, Microsoft Certified Solutions Associate (MCSA), or Cisco Certified Network Associate (CCNA).

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Employment Outlook for ICT Professionals (cont.)

Information Systems Analysts and Consultants

The employment outlook will be good for Information Systems Analysts and Consultants (NOC 2171) in Ontario up to 2021.

Information systems analysts and consultants are employed by all sectors of the economy, but mainly by computer systems design firms. Financial institutions and various levels of government are also key employers.

Among the five professional occupations in computer and information systems, information systems analysts and consultants has the largest workforce size. This occupational group experienced significant growth over the last decade and job opportunities should remain favourable as companies pursue new ways to boost and protect their revenue bases.

In the increasingly knowledge-based economy, many firms are taking advantage of advanced information technology to expand the types of products and services offered, by providing better processing platforms and access speeds. For example, the financial services sector is undergoing a major digital change and offering more of its services online or through mobile applications. Automotive manufacturers and software producers have been investing in large projects in relation to new features in connected cars, and for self-driving vehicles.

Alongside the popularity of the Internet of Things (IoT) and more company processes being digitized, is the growing prevalence of cybersecurity breaches. This also strongly influence work opportunities for these professionals, particularly for systems security analysts to set up IT structures to reduce the risks and costs of security breaches. Based on the Canadian Survey of Cyber Security and Cybercrime (2017), more than half of the total spent by companies to prevent, detect and recover from cybersecurity breaches, was on salaries for employees, consultants and contractors who worked on these projects.

Within this occupation, artificial intelligence (AI) analysts specifically may also see more job openings due to the growing interest in applying these techniques to various types of business activities.

The most recent data shows that graduates entering this occupation are from various university degree programs in Ontario, including computer science, engineering, business and commerce, and mathematics. A few graduates of college programs also add to the supply of new entrants.

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Employment Outlook for ICT Professionals (cont.)

Web Designers and Developers

The employment outlook will be fair for Web designers and Developers (NOC 2175) in Ontario up to 2021.

The growth in recent years of the e-commerce retail sector, e-learning options, social media platforms, and the prevalence of multi-device compatible websites, are some of the areas which are expected to support job prospects for these professionals. In addition, the finance and insurance services sector is continuing to digitize more of its services, generating opportunities for web development.

During the forecast period, web designers and developers with updated skills should also see a fair amount of employment opportunities in the interdisciplinary field of full-stack web development. This growing area requires expertise in both front-end web development, such as for the layout of websites, and back-end web, which includes maintaining the server/setup that controls the website.

However, the availability of pre-designed templates and do-it-yourself website development tools, along with the trend in which some larger firms outsource web-related work to lower-cost providers, could moderate some of the local demand for web designers and developers.

Among the new entrants to this occupation are graduates of related Ontario college certificate and diploma programs. Graduates of university degree programs in computer science and engineering also add to the labour supply, as well as individuals completing short-term intensive training programs through technology centres, and educational institutions.

Web designers and developers typically require education or training at the bachelor's degree level or above. Job prospects will be more favourable for web designers and developers who have knowledge of computer languages such as Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript. In addition to web development, several employers are seeking candidates with user experience (UX), and user interface (UI) multi-disciplinary design skills. Extensive knowledge of WordPress technologies, and software such as the Adobe suite with a particular focus on InDesign, Illustrator and Photoshop, are also common requirements. An understanding of relational database management systems is also often needed.

A significant number of these workers are self-employed with potential opportunities for undertaking freelance work.

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Employment Outlook for ICT Professionals (cont.)

User Support Technicians

The employment outlook will be fair for User Support Technicians (NOC 2282) in Ontario up to 2021.

User support technicians are employed by all major sectors of the economy, but the leading share are in computer systems design and related services. Other key employers include the financial services, wired telecommunications carriers, business support services including call centres, public administration especially the federal government, and computer and communications equipment manufacturers and wholesalers.

Job opportunities for user support technicians are strongly influenced by investments in computer hardware, applications, and communications software, as they provide first-line technical support to users who are experiencing difficulties with these systems. Many companies are moving more processes online, applying new computer technology to improve their services, and products generally have a more digital component, which all bode well for demand for these technicians.

Other dominant technological trends will also boost job prospects for these workers, including 5G mobile, blockchain infrastructure and virtual and augmented reality.

Employers tend to recruit individuals who, in addition to having related education, also have solid knowledge working with the latest computer operating system, for example in a Windows environment. Industry certifications such as A+, Cisco Certified Network Analyst (CCNA), or Microsoft Certified Professional (MCP), may be needed for technicians providing the higher levels of support. Technicians may be required to work on call, or various shifts including weekends, and several of the opportunities will be for contract positions.

What You Need To Succeed

ICT professionals must love technology and have deep technical skills in their area of expertise and beyond. They should have a good understanding of data, with strong analytical abilities. Employers also look for soft skills such as exceptional critical thinking and problem-solving skills, ability to work in teams and other collaborative environments, strong task and time management skills, business acumen and client relationship management, and strong communication and interpersonal skills.



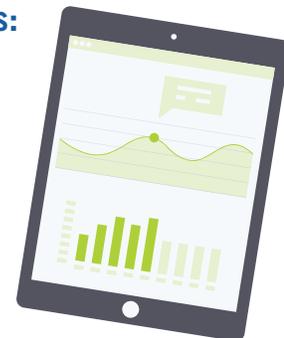
In-Demand Jobs and Salary Ranges

Job Title	Salary Range
Data Analyst	\$ 30,426 – \$ 107,963
Database Administrator	\$ 52,743 – \$ 128,926
Cybersecurity Specialist	\$ 61,323 – \$ 133,875
Digital Marketer	\$ 36,000 – \$ 99,450
IT Support Specialist	\$ 35,100 – \$ 92,919
Machine Learning Engineer	\$ 50,000 – \$ 220,000
Multimedia Developer	\$ 31,200 – \$ 79,795
Network Administrator	\$ 41,873 – \$ 126,750
Programmer	\$ 33,150 – \$ 98,069
Software Developer	\$ 50,000 – \$ 161,500

Where the Jobs Are

These industries show the strongest demand of ICT professionals:

- Computer, software, telecommunication companies
- Consulting firms
- Engineering firms
- Financial services, insurance, banks
- Government
- Graphic design companies
- Hospitals and health centres
- Manufacturing industries
- Pharmaceutical and medical device companies
- Software and hardware manufacturers
- Transportation and logistics companies
- Universities, colleges and school boards





Industry Associations

Industry Associations	Website Link
Canada's Association of Information Technology Professionals	http://www.cips.ca/
CS Can/Info Can	https://cscan-infocan.ca/
Information and Communications Technology Industry Council	https://www.ictc-ctic.ca/
#movethedial	https://movethedial.com/
Technation.ca (formerly Information Technology Association of Canada)	https://itac.ca/
TechToronto	https://www.techtoronto.org/



Where to Find More Information

Sources:

- [Canadian ICT Sector Profile 2018](#)
- [Information and Communications Technology Industry Council](#)
- [Technation.ca \(formerly Information Technology Association of Canada\)](#)
- [Canada's Growth Currency: Digital Talent Outlook 2023](#)

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