

A photograph of three diverse professionals in an office setting, smiling and clapping. In the foreground, a Black man with short curly hair and a goatee, wearing a blue and red plaid shirt, is smiling broadly. Behind him, a woman with long dark hair, wearing a black top, is also smiling and clapping. In the background, a man with short dark hair, wearing a white shirt and a plaid vest, is clapping. The background is a blurred office environment with large windows.

CompTIA®

Canadian Tech Industry and Workforce Trends 2021

Trends and Analysis of Canadian Provinces and Metro Areas

ABOUT COMPTIA

The Computing Technology Industry Association (CompTIA) is a leading voice and advocate for the \$5 trillion global information technology ecosystem; and the estimated 75 million industry and tech professionals who design, implement, manage, and safeguard the technology that powers the world’s economy. Through education, training, certifications, advocacy, philanthropy, and market research, CompTIA is the hub for advancing the tech industry and its workforce.

CompTIA is the world’s leading vendor-neutral IT-certifying body with more than 2.8 million certifications awarded based on the passage of rigorous, performance-based exams. CompTIA’s base of certified information technology professionals spans 232 countries worldwide.

CompTIA sets the standard for preparing entry-level candidates through expert-level professionals to succeed at all stages of their career in technology. Through CompTIA’s philanthropic arm, CompTIA develops innovative on-ramps and career pathways to expand opportunities to populations that traditionally have been underrepresented in the information technology workforce.

- CompTIA [Canadian Business Technology Community](#)
- CompTIA [Advancing Tech Talent and Diversity Community](#)
- CompTIA [Technology Career Pathway Roadmap](#)
- CompTIA [Certifications Job Match](#)
- CompTIA [Training and Learning](#)
- CompTIA [Tech Career Academy](#)
- CompTIA [IT Salary Calculator](#)
- CompTIA [Technology Interest Groups](#)

ABOUT CANADIAN TECH INDUSTRY AND WORKFORCE TRENDS

CompTIA’s *Canadian Tech Industry and Workforce Trends* provides an in-depth look at employment, economic impact, technology trends, salaries, hiring activity and more across the provinces and metropolitan areas of Canada. The report draws upon a number of data sources including EMSI, Burning Glass Technologies Labour Insights, Canadian government statistics (StatsCan), CompTIA and more.

PROVINCE COVERAGE	METRO AREA COVERAGE
Alberta	Montreal
British Columbia	Toronto
Manitoba	Calgary
New Brunswick	Edmonton
Newfoundland and Labrador	Vancouver
Nova Scotia	
Ontario	
Prince Edward Island	
Quebec	
Saskatchewan	

DEFINITION CHANGE FOR 2021

For the 2021 edition of the report, CompTIA narrowed the definition of technology slightly to better capture the core area of focus. This means the figures in this report will not be directly comparable to previous editions of the report. However, the Appendix does contain the data tables using the previous definition, so comparisons can be done that way. The report title for this edition was changed to *Canadian Tech Industry and Workforce Trends*; previously the report was called *Cyberprovinces*.



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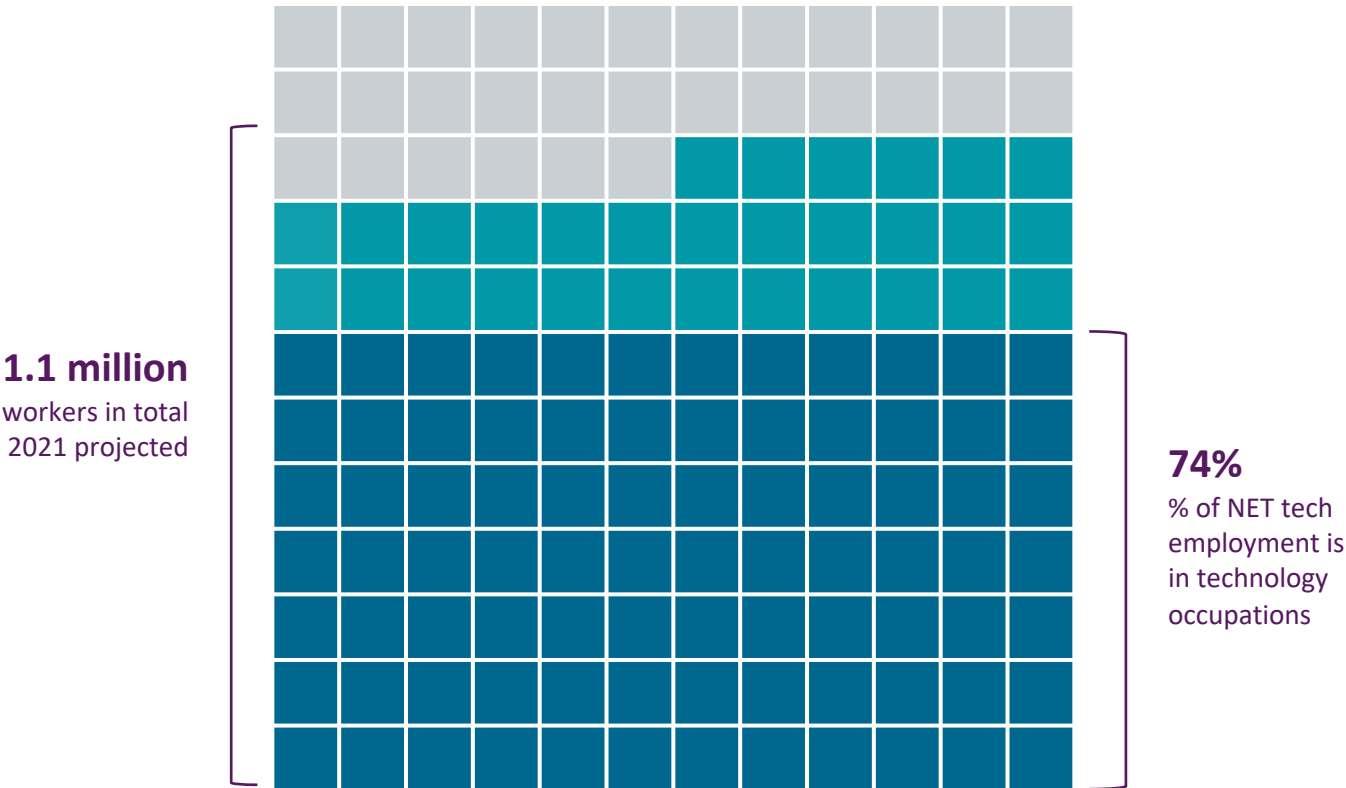
DEFINING NET TECH EMPLOYMENT

The tech workforce consists of two primary components, represented as a single figure by the ‘net tech employment’ designation. The foundation is the set of technology professionals working in technical positions, such as IT support, network engineering, software development, data scientist, and related roles. Many of these professionals work for technology companies (56%), but many others are employed by organizations across every industry sector in the Canadian economy (44%).

The second component consists of the business professionals employed by technology companies. These professionals – encompassing sales, marketing, finance, HR, operations and management, play an important role in supporting the development and delivery of the technology products and services used throughout the economy. Slightly more than 26% of the net tech-employment total consists of tech-industry business professionals.

One final segment involves workers classified as self-employed. For the purposes of this report, only dedicated, full-time self-employed technology workers are counted towards net tech employment. Workers that are characterized as “gig” workers, which may entail working on the side for supplementary income, are excluded from this analysis due to several uncertainties with the data and to minimize the possibility of double counting.

-  **N = Technology professionals employed across the economy, including in the tech sector**
(e.g. software developers, network architects, database admins, etc.)
-  **N = Tech sector employment, less technology professionals**
(e.g. sales, marketing, finance, HR, etc.)



 = 10,000 workers

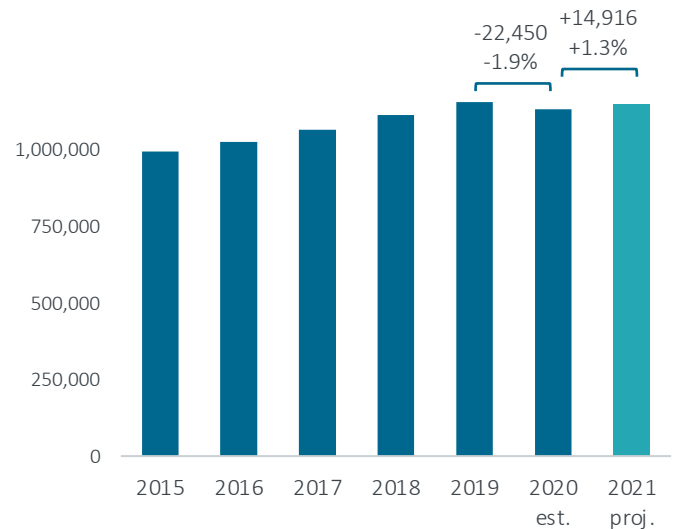
Source: EMSI | CompTIA
Some numeric changes affected by rounding

KEY FINDINGS

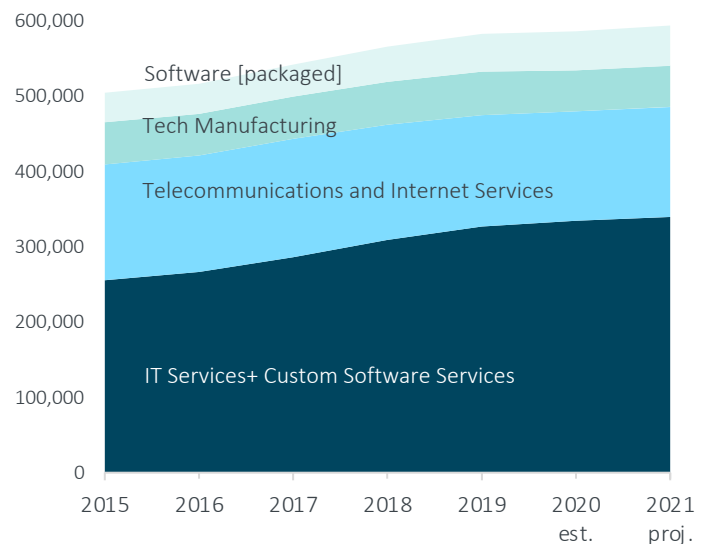
KEY POINTS

- Net tech employment in Canada – as described on the previous page, reached an estimated 1,131,350 workers in 2020, approximately a 2% decrease over the previous year. It is projected to grow by 1.3% to reach 1,146,270 workers in 2021.
- Since 2015, net tech employment increased by an estimated 138,170 net new jobs. Net tech employment growth has been steady during this span, averaging approximately 27,630 new jobs per year.
- Net tech employment accounted for approximately 6.0% of the overall Canada workforce in 2020. Because of the blurring of lines across industries, there is likely a degree of undercounting in tech sector employment as a percentage of Canada employment.
- Among the components of net tech employment, the tech sector side of the equation experienced estimated growth of +0.6% year over year, while the occupation side across all industry sectors experienced a decline of 2.7% year over year. Looking ahead, tech sector and tech occupation gains are projected to be 1.4% and 1.6% respectively.
- Sectors of the tech industry that have seen an increase in jobs since 2015 are the IT services (+78,449) and Software (+12,472) sectors. The tech manufacturing and telecommunications sectors have seen declines in employment.
- Largest tech occupation job gains (numeric), 2015-2021
 - Systems Analysts and Cybersecurity: +47.6k
 - Software and Web Developers: +31.1k
 - CIOs, IT Managers and IT Project Managers: +15.6k
 - Database, Data Analyst and Data Science: +14.5k
 - IT Support and Network Technicians: +10.6k
- Largest tech occupation job gains (% change), 2015-2021
 - Database, Data Analyst and Data Science: +53%
 - Systems Analysts and Cybersecurity: +32%
 - CIOs, IT Managers and IT Project Managers: +27%
 - Software and Web Developers: +21%
 - IT Support and Network Technicians: +8%
- Economic impact is an assessment of output – the dollar value of goods and services produced during a given year (also referred to as gross domestic product). As a percentage of the overall Canadian economy, the tech industry accounts for approximately 5.1 percent of direct economic value, which translates to \$96 billion CAD.
- In addition to the direct economic impact, there are downstream indirect benefits of the technology industry, such as the employment multiplier effect of technology ecosystems.

NET TECH EMPLOYMENT TRENDING



TECH INDUSTRY EMPLOYMENT TRENDING



ECONOMIC IMPACT OF TECH INDUSTRY



Source: EMSI | Canadian Government Statistics | Burning Glass Labour Insights | CompTIA

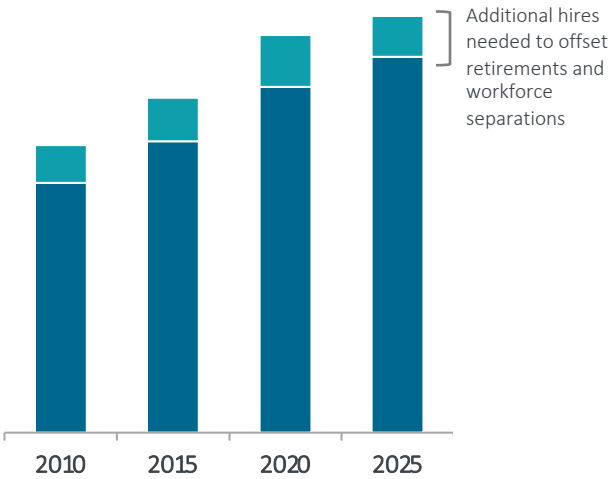
KEY FINDINGS

KEY POINTS

- By 2025, projections from EMSI put the base of tech occupation employment at nearly 910,000 (note: this covers occupations only and represents a subset of the net tech employment figure presented previously).
- Calculating future workforce needs over the next decade is a function of several variables. First, there is a growth component, which may entail organizations adding headcount due to expansion or possibly to support emerging technologies. Secondly, there is a retirement factor, with a portion of the workforce transitioning away from the workforce permanently. And lastly, there is a segment leaving the workforce for some other reason, also referred to as separations. These may stem from a career change, a return to school, family pursuits, or other. Changes to any of these variables can boost or shrink future workforce projections.
- Job posting data provides another layer of insight into the tech job market outlook. Because Canadian government labour taxonomies, referred to as National Occupation Classification (NOCs), lag the speed with which the market changes, job posting data provides a more up-to-date look at the skills and experiences employers seek.
- Mirroring the situation with economies across the globe during the height of the pandemic, quarterly tech job postings among Canadian employers fell during much of 2020. Postings then rebounded with many employers resuming hiring activity in conjunction with a recovering Canadian economy.
- During the Q1-Q3 period of 2021, employer job postings jumped 42,100 year-over-year, the equivalent of a 65% increase. For context, overall job postings across all occupation categories in the Canadian economy increased 59% during that period.
- The largest occupation category for job postings – software engineers and designers, had one of the highest growth rates for new employer job postings during the first three quarters of 2021 (71%) vs. the same period during the previous year. The next two largest contributors to job posting gains during the Q1-Q3 2021 period were the categories covering systems analysts and cybersecurity, and IT support and network technicians. Combined, these categories contributed nearly three-fourths of employer hiring activity during the period. *See methodology notes regarding the use of job posting data.*
- Slightly more than half of employer job postings for tech jobs during the Q1-Q3 period specified a required level of work experience, with the remaining 46% unspecified. Many employers continue to evaluate their recruiting practices to cast a wider net and accept more candidates for consideration, such as those with industry-recognized certification rather than traditional university degrees.

TECH OCCUPATION EMPLOYMENT OUTLOOK

Workforce need = annual replacement rate + growth rate



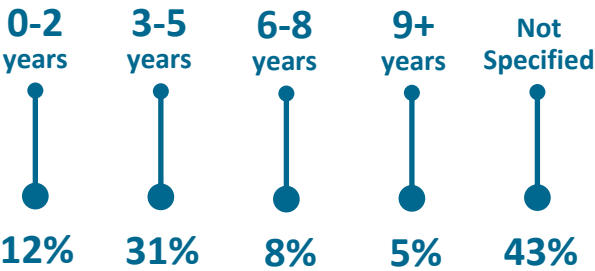
AGGREGATE QUARTERLY JOB POSTINGS FOR TECH OCCUPATIONS

Job postings by Canadian employers



TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

Job postings by Canadian employers, Q1-Q3 2021



KEY FINDINGS

PROVINCE NET TECH EMPLOYMENT

- The top provinces when it comes to projected Net Tech Employment are Ontario and Quebec. The greatest number of jobs is projected to be added in Ontario in 2021.
- When compared to the other provinces Ontario stands apart for the number of jobs in tech with 47.8 percent of Canadian projected net tech employment coming from this province. This is consistent with Ontario's population ratio (about 39 percent of the country), and economic impact (about 38 percent).
- Anchored by Canada's most populous city, Toronto, the province of Ontario also accounted for a significant portion of tech employment gains during 2021 .

PROVINCE HIRING ACTIVITY BY EMPLOYERS

- As measured by employer job posting volumes, every province across Canada increased its hiring activity for technology professionals.
- Employers based in Ontario increased hiring activity by +23,600 job postings during the Q1-Q3 2021 period, translating to a year-over-year growth rate of 73%.

PROVINCE EMPLOYMENT CONCENTRATION

- Employment concentration provides a measure of tech employment relative to employment across all the other industry sectors in a local economy. Along with economic impact as a percentage of a local economy, these metrics help to put tech into context.
- At about 7%, Ontario has the highest concentration of net tech employment as a percentage of its overall employment base. Quebec and British Columbia follow in the rankings.

PROVINCE TECH BUSINESS ESTABLISHMENTS

- A large, dynamic base of business establishments, also referred to as company locations, is another measure of a healthy tech sector. Tech business establishments tend to be concentrated in population centers and in locations that are close to the customers they serve.
 - Ontario: 26,683
 - Quebec: 10,011
 - British Columbia: 5,834
 - Alberta: 5,031
- Beyond numerical measures based on size, relative measures based on the size of the province economy reveal additional insight. Overall, an estimated 6.1 percent of Ontario's economy is attributed to the tech sector, as defined by this report. In comparison, approximately 2.1 percent of Saskatchewan's economy is attributed to the tech sector.

TOP PROVINCES BY NET TECH EMPLOYMENT

[2021 projected]

1.	Ontario	548,407
2.	Quebec	263,859
3.	British Columbia	148,151
4.	Alberta	91,518
5.	Manitoba	27,064
6.	Nova Scotia	20,702
7.	Saskatchewan	17,869
8.	New Brunswick	16,067
9.	Newfoundland & Labrador	7,871
10.	Prince Edward Island	3,175

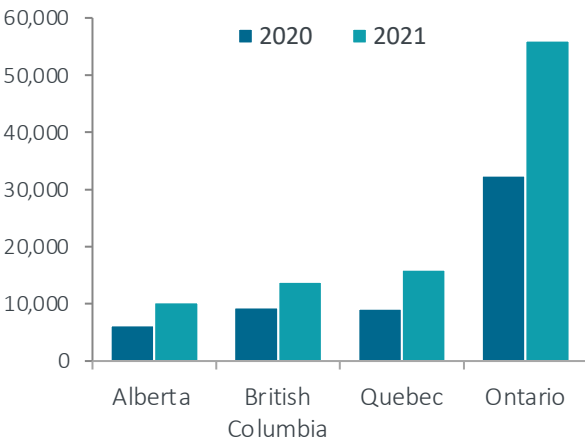
TOP PROVINCES BY NET NEW TECH EMPLOYMENT JOB GAINS

[2021 projected]

1.	Ontario	+7,545
2.	British Columbia	+3,144
3.	Quebec	+3,008
4.	Manitoba	+574
5.	New Brunswick	+182
6.	Alberta	+178
7.	Saskatchewan	+124
8.	Nova Scotia	+119
9.	Prince Edward Island	+33
10.	Newfoundland & Labrador	+8

PROVINCE EMPLOYER HIRING ACTIVITY

employer tech job postings, Q1-Q3 period YoY



Source: EMSI | Canadian Government Statistics | Burning Glass Labour Insights | CompTIA

KEY FINDINGS

METRO AREA NET TECH EMPLOYMENT

- The top three metropolitan areas are projected to employ a little more than 635,700 tech industry and tech occupation workers, or about 1 in 2 tech workers in the nation.
- Toronto is the largest metropolitan area in the country by a wide margin. It follows that it also has the largest base of tech employment.
- The Toronto metro area will also see the highest increase in net tech employment during year at a projected +5,785 new positions, an amount exceeding the combined volume of the other metro areas covered in this report.

METRO HIRING ACTIVITY BY EMPLOYERS

- As the largest employment hubs in each province, hiring activity in major metropolitan areas closely tracks with province-level data. For example, the volume of employer tech job postings in British Columbia increased 49% during the Q1-Q3 2021 period vs. a 48% increase for Vancouver.
- Employers based in Ontario increased hiring activity by +23,600 job postings during the Q1-Q3 2021 period, the largest contributor to job posting volumes among metro areas.

METRO AREA EMPLOYMENT CONCENTRATION

- Employment concentration provides a measure of tech employment relative to employment across all the other industry sectors in a local economy. Along with economic impact as a percentage of a local economy, these metrics help to put tech into context.
- At about 10%, Toronto has the highest concentration of net tech employment as a percentage of its overall employment base.
- Compared to the national tech employment concentration benchmark of 6.0%, 4 of the metro areas had a higher rate, confirming the importance of technology to a far-reaching set of cities across the country.

METRO AREA TECH BUSINESS ESTABLISHMENTS

- A large, dynamic base of business establishments, also referred to as company locations, is another measure of a healthy tech sector. Tech business establishments tend to be concentrated in population centers and in locations that are close to the customers they serve.
 - Toronto: 18,324
 - Montreal: 7,223
 - Vancouver: 4,080
 - Calgary: 2,820
 - Edmonton: 1,438

TOP METROS BY NET TECH EMPLOYMENT

[2021 projected]

1.	Toronto	345,582
2.	Montreal	180,450
3.	Vancouver	109,682
4.	Calgary	49,173
5.	Edmonton	31,432

TOP METROS BY NET TECH EMPLOYMENT JOB GAINS

[2021 projected]

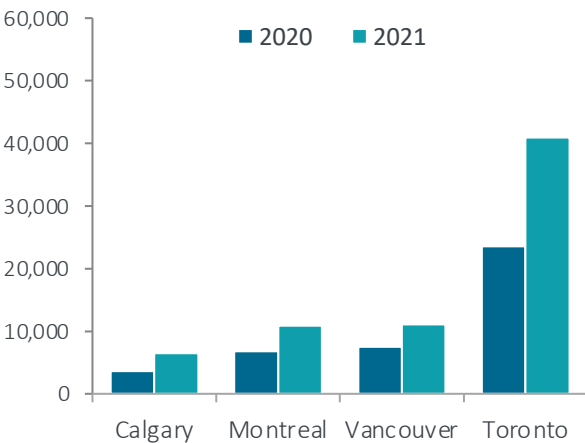
1.	Toronto	+5,785
2.	Vancouver	+2,460
3.	Montreal	+1,791
4.	Edmonton	+165
5.	Calgary	-101

TOP METROS BY NET TECH EMPLOYMENT AS A PERCENT OF LOCAL EMPLOYMENT

1.	Toronto	9.6%
2.	Montreal	8.0%
3.	Vancouver	7.1%
4.	Calgary	6.2%
5.	Edmonton	4.3%

METRO AREA EMPLOYER HIRING ACTIVITY

employer tech job postings, Q1-Q3 period YoY



Source: EMSI | Canadian Government Statistics | Burning Glass Labour Insights | CompTIA

NATIONAL SNAPSHOT

Canada

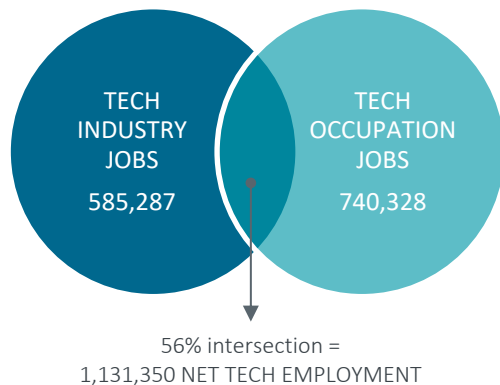


STATE OF TECHNOLOGY SUMMARY¹

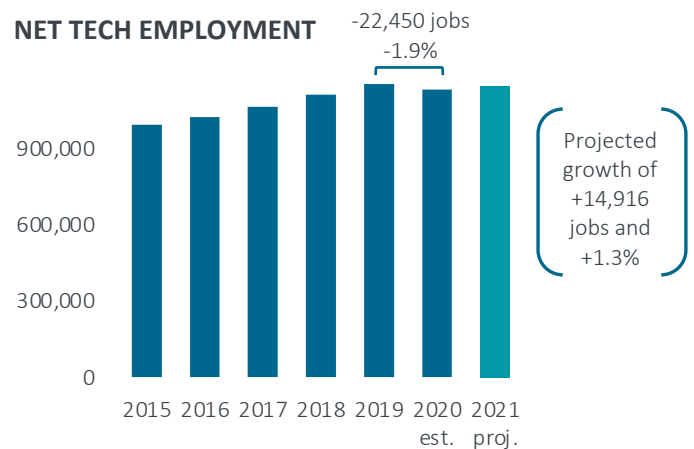
1,131,350	NET TECH EMPLOYMENT ²
6.0%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
50,401	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
92,692	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
20,533	EMERGING TECH JOB POSTINGS [job roles + skills]
22.2%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

¹DEFINITION CHANGE: this report edition focuses on core information technology | See Appendix for data comparable to previous editions

²Net of tech industry + tech occupation + self-employed | Sources: CompTIA analysis of EMSI, Burning Glass Technologies Labour Insights, Canadian Government Statistics and others | Data covers 2020 time period unless specified as 2021 | See report Methodology for details.



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

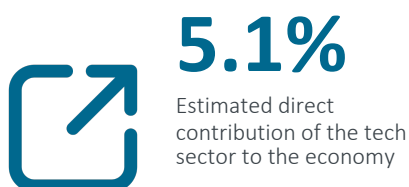
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	231,645	-1.7%	+1.5%
Systems Analysts and Cybersecurity ³	194,005	+0.9%	+2.0%
IT Support and Network Technicians	149,985	-6.7%	+1.1%
CIOs, IT Managers and IT Project Managers	71,082	-5.4%	+1.9%
Database, Data Analyst and Data Science	40,895	+4.9%	+2.1%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	333,820	+2.2%	+1.6%
Telecom and Internet Services	145,245	-1.8%	+0.4%
Tech Manufacturing	54,964	-4.5%	-0.2%
Software [packaged]	51,259	+3.2%	+3.9%

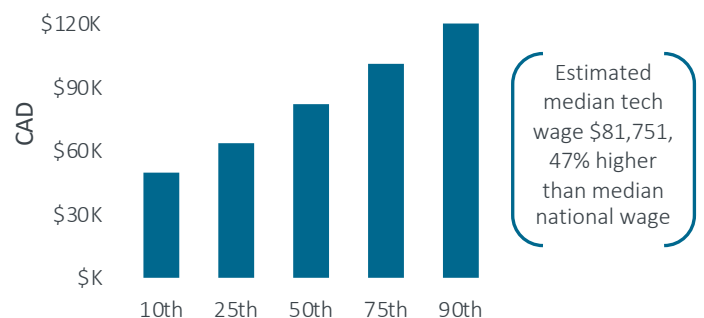
⁴Projection for 2021

ECONOMIC IMPACT



³In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped within Systems Analysts.

TECH OCCUPATION WAGES [by percentile]



PROVINCE SNAPSHOTS

Alberta

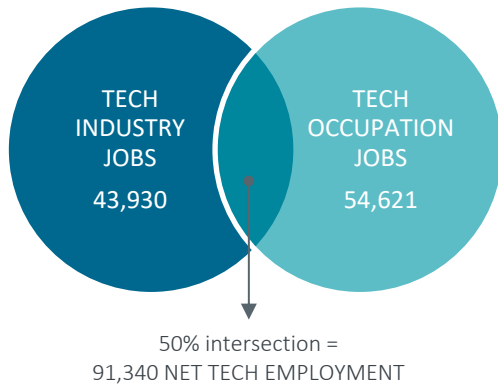
STATE OF TECHNOLOGY SUMMARY

91,340	NET TECH EMPLOYMENT ¹
4.1%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
5,031	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
9,012	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
1,642	EMERGING TECH JOB POSTINGS [job roles + skills]
18.2%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

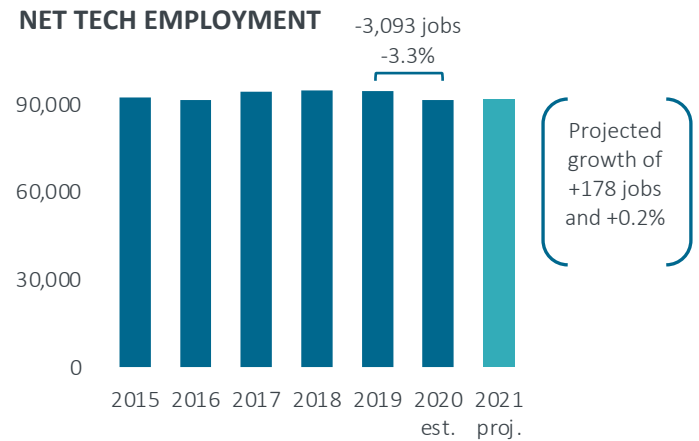


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²Net of tech industry + tech occupation + self-employed | Sources: CompTIA analysis of EMSI, Burning Glass Technologies Labour Insights, Canadian Government Statistics and others | Data covers 2020 time period unless specified as 2021 | See report Methodology for details.



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

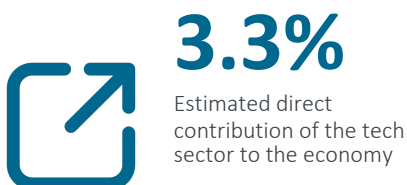
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	15,040	-6.4%	-0.8%
Systems Analysts and Cybersecurity ³	14,895	+1.2%	+0.9%
IT Support and Network Technicians	12,382	-8.1%	-0.3%
CIOs, IT Managers and IT Project Managers	4,401	-10.0%	-1.7%
Database, Data Analyst and Data Science	3,772	+9.8%	+1.5%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	25,568	-2.4%	+0.6%
Telecom and Internet Services	13,091	-5.1%	+0.2%
Tech Manufacturing	3,014	-10.3%	+0.0%
Software [packaged]	2,257	+4.2%	+1.3%

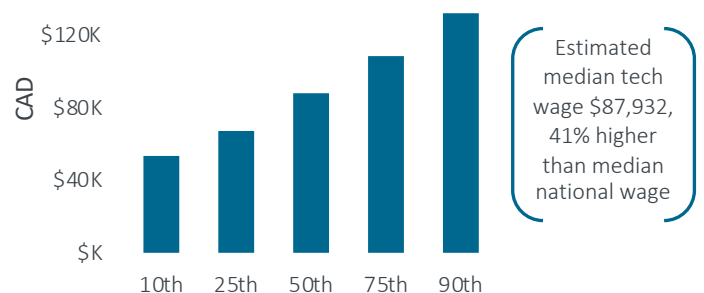
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



British Columbia

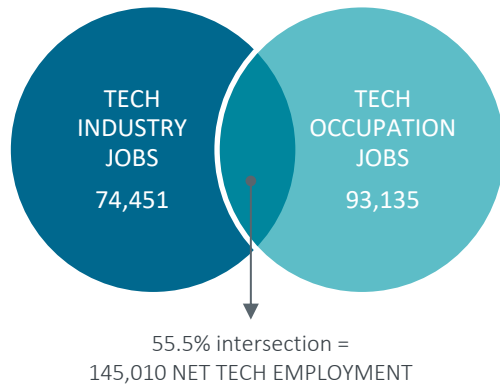
STATE OF TECHNOLOGY SUMMARY

145,007	NET TECH EMPLOYMENT ¹
5.4%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
5,834	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
13,101	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
2,670	EMERGING TECH JOB POSTINGS [job roles + skills]
20.4%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

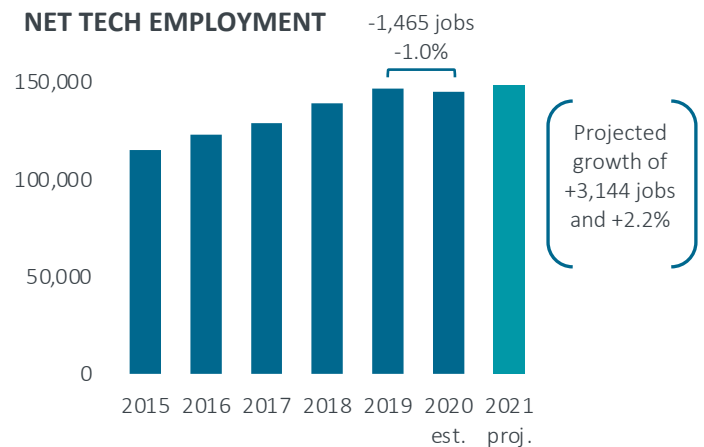


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

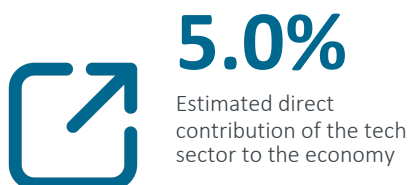
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	34,542	+1.4%	+2.3%
IT Support and Network Technicians	21,256	-3.9%	+2.8%
Systems Analysts and Cybersecurity ³	18,587	+8.9%	+4.0%
CIOs, IT Managers and IT Project Managers	7,918	-3.4%	+1.2%
Database, Data Analyst and Data Science	4,697	+6.7%	+2.8%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	36,122	+4.4%	+1.4%
Telecom and Internet Services	22,862	-2.9%	+2.9%
Software [packaged]	10,099	+7.2%	+3.4%
Tech Manufacturing	5,368	-7.2%	-0.1%

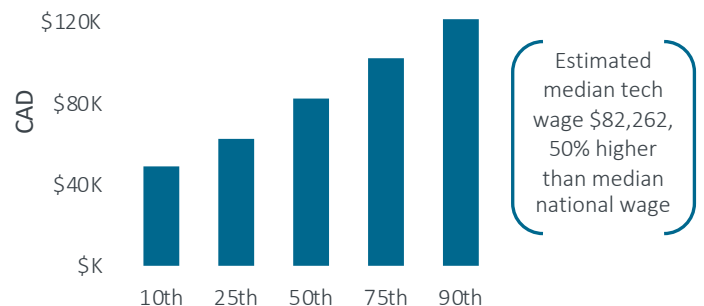
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Manitoba

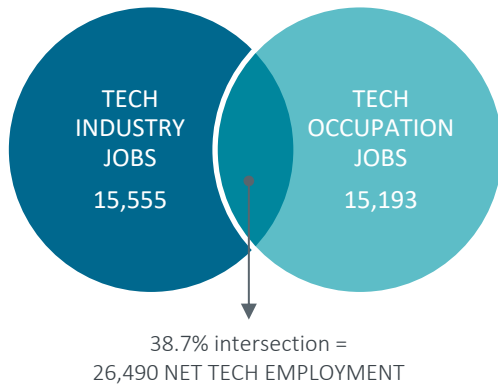
STATE OF TECHNOLOGY SUMMARY

26,490	NET TECH EMPLOYMENT ¹
3.9%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
714	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
2,569	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
275	EMERGING TECH JOB POSTINGS [job roles + skills]
10.7%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

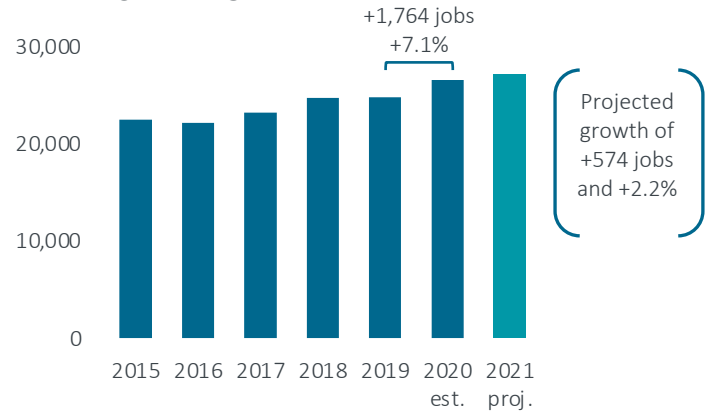


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

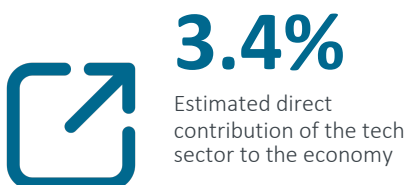
	2020	2020 % Change	2021 % Change ³
IT Support and Network Technicians	4,352	-5.7%	-0.5%
Software and Web Developers	4,113	-0.6%	-0.3%
Systems Analysts and Cybersecurity ³	3,584	-3.5%	+0.6%
CIOs, IT Managers and IT Project Managers	1,120	-5.0%	-0.3%
Database, Data Analyst and Data Science	796	-8.3%	-1.1%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
Telecom and Internet Services	10,637	+38.2%	+7.0%
IT Services + Custom Software Services	4,075	+8.3%	+1.7%
Tech Manufacturing	439	+5.3%	-1.2%
Software [packaged]	404	+5.0%	-0.3%

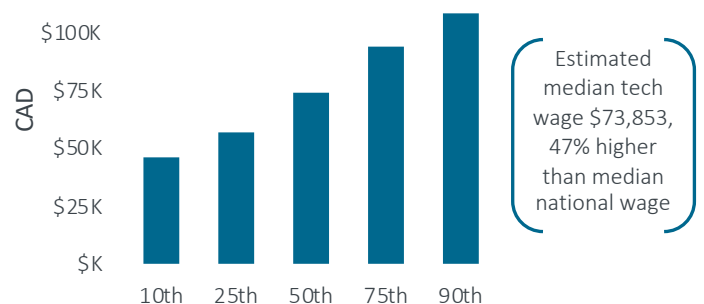
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



New Brunswick

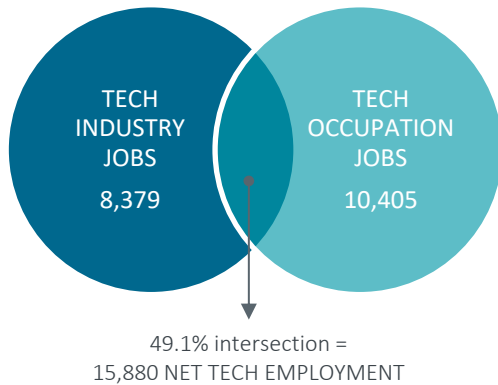


STATE OF TECHNOLOGY SUMMARY

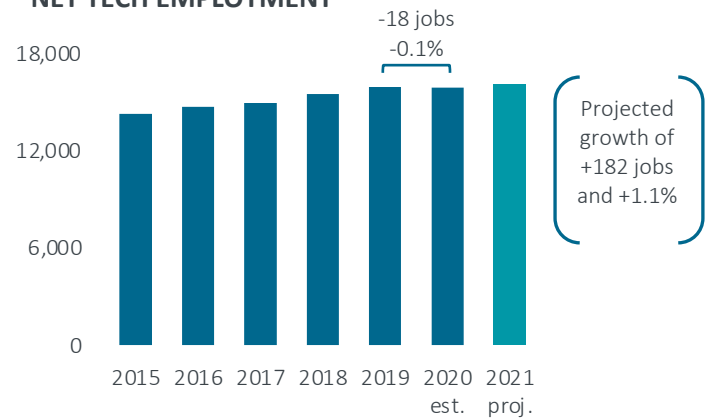
15,885	NET TECH EMPLOYMENT ¹
4.4%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
461	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
1,290	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
150	EMERGING TECH JOB POSTINGS [job roles + skills]
11.6%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

¹DEFINITION CHANGE: this report edition focuses on core information technology | See Appendix for data comparable to previous editions

²Net of tech industry + tech occupation + self-employed | Sources: CompTIA analysis of EMSI, Burning Glass Technologies Labour Insights, Canadian Government Statistics and others | Data covers 2020 time period unless specified as 2021 | See report Methodology for details.



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

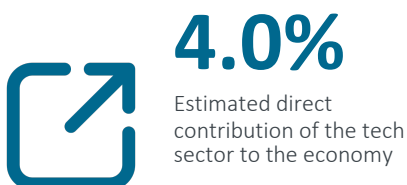
	2020	2020 % Change	2021 % Change ³
IT Support and Network Technicians	3,301	-5.1%	-0.8%
Software and Web Developers	2,668	+1.0%	+1.1%
Systems Analysts and Cybersecurity ³	2,656	+5.8%	+2.7%
CIOs, IT Managers and IT Project Managers	863	-6.9%	+0.9%
Database, Data Analyst and Data Science	288	+8.6%	-0.6%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
Telecom and Internet Services	3,762	+8.5%	+0.4%
IT Services + Custom Software Services	3,707	-0.2%	+2.9%
Tech Manufacturing	622	+15.1%	+5.1%
Software [packaged]	288	-49.8%	+1.4%

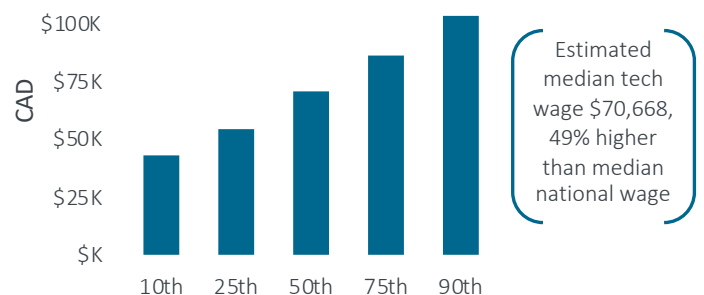
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Newfoundland & Labrador

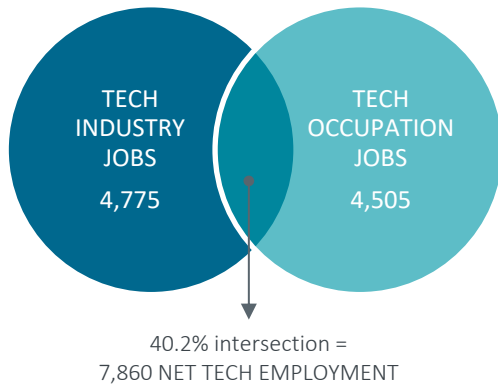


STATE OF TECHNOLOGY SUMMARY

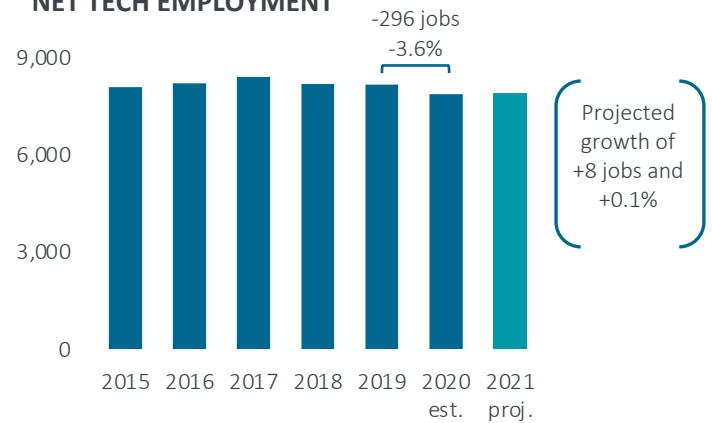
7,863	NET TECH EMPLOYMENT ¹
3.5%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
246	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
305	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
48	EMERGING TECH JOB POSTINGS [job roles + skills]
15.7%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

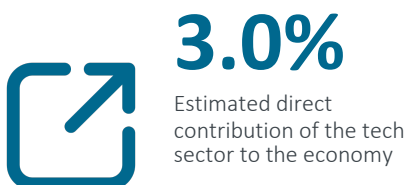
	2020	2020 % Change	2021 % Change ³
IT Support and Network Technicians	1,377	-4.4%	+0.2%
Software and Web Developers	1,075	-2.7%	+0.2%
Systems Analysts and Cybersecurity ³	1,023	-8.5%	-1.3%
CIOs, IT Managers and IT Project Managers	351	+3.7%	+3.3%
Database, Data Analyst and Data Science	186	-9.8%	-4.5%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
Telecom and Internet Services	3,042	-6.1%	+0.8%
IT Services+ Custom Software Services	1,539	+17.9%	+3.8%
Software [packaged]	128	-18.9%	+2.9%
Tech Manufacturing	67	+6.1%	+0.7%

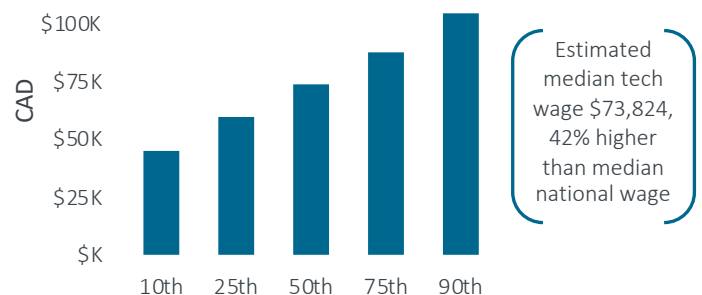
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Nova Scotia

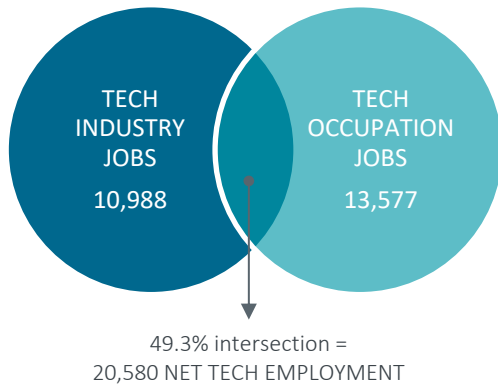


STATE OF TECHNOLOGY SUMMARY

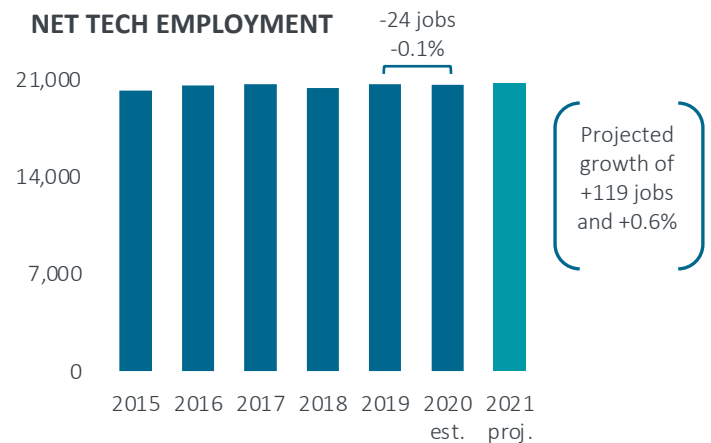
20,582	NET TECH EMPLOYMENT ¹
4.4%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
637	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
2,911	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
433	EMERGING TECH JOB POSTINGS [job roles + skills]
14.9%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

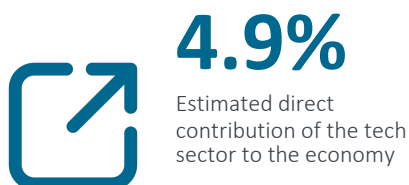
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	4,011	+5.1%	+1.7%
IT Support and Network Technicians	3,569	-9.0%	-1.1%
Systems Analysts and Cybersecurity ³	3,411	+9.4%	+2.6%
CIOs, IT Managers and IT Project Managers	984	-12.2%	-1.1%
Database, Data Analyst and Data Science	493	-2.9%	-0.9%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	5,438	+3.9%	+1.8%
Telecom and Internet Services	4,201	+1.6%	+0.5%
Tech Manufacturing	990	+14.6%	+4.8%
Software [packaged]	360	-12.0%	+2.4%

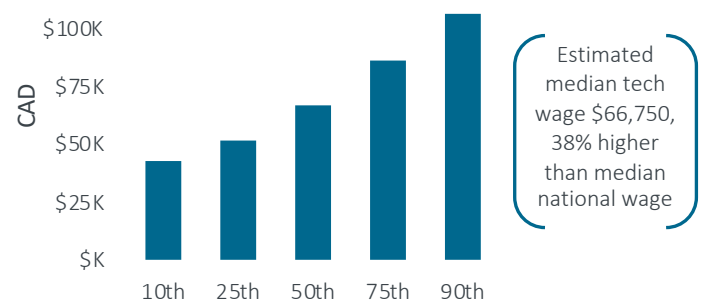
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Ontario

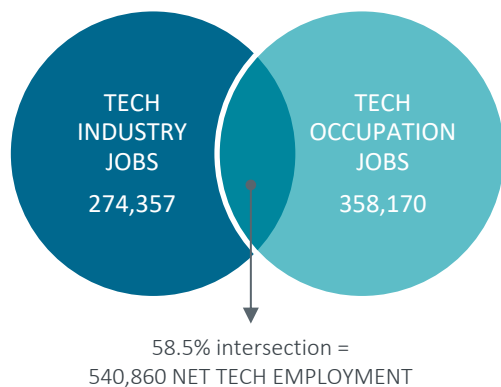
STATE OF TECHNOLOGY SUMMARY

540,862	NET TECH EMPLOYMENT ¹
7.4%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
26,683	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
46,277	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
12,406	EMERGING TECH JOB POSTINGS [job roles + skills]
26.8%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

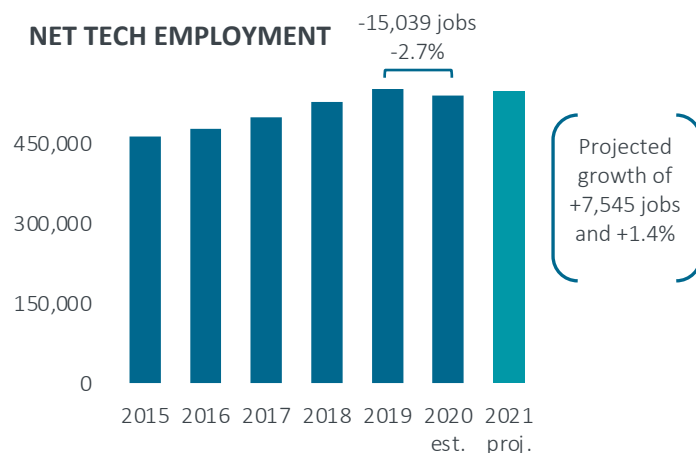


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

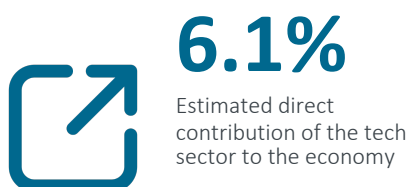
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	112,639	-3.4%	+1.5%
Systems Analysts and Cybersecurity ³	96,693	+0.5%	+2.5%
IT Support and Network Technicians	64,485	-7.1%	+0.9%
CIOs, IT Managers and IT Project Managers	40,572	-3.8%	+2.5%
Database, Data Analyst and Data Science	22,290	+2.1%	+2.7%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	166,402	+2.6%	+1.8%
Telecom and Internet Services	53,487	-6.7%	-1.1%
Tech Manufacturing	28,393	-5.5%	-1.2%
Software [packaged]	26,075	+4.0%	+4.9%

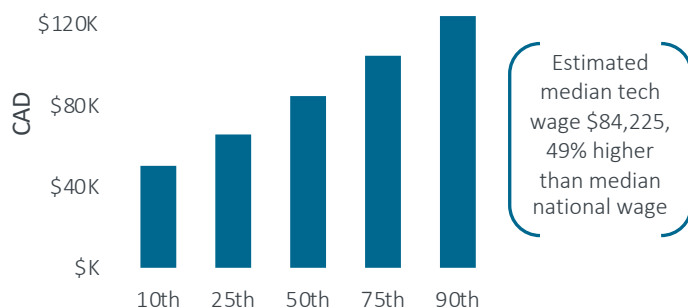
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Prince Edward Island

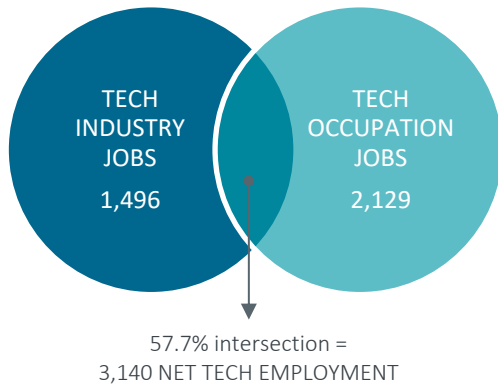


STATE OF TECHNOLOGY SUMMARY

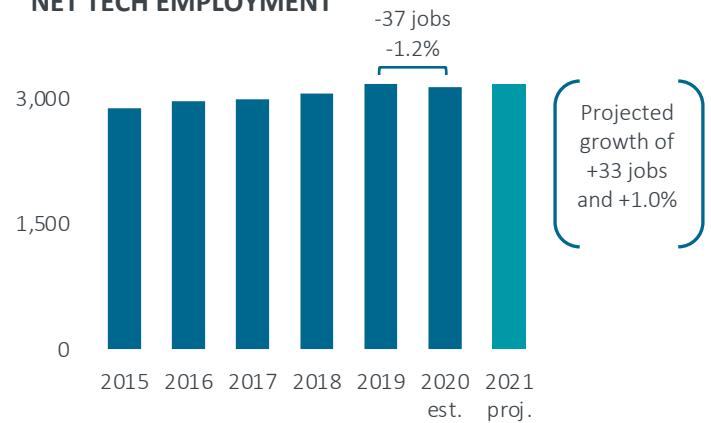
3,142	NET TECH EMPLOYMENT ¹
4.0%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
113	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
329	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
56	EMERGING TECH JOB POSTINGS [job roles + skills]
17.0%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

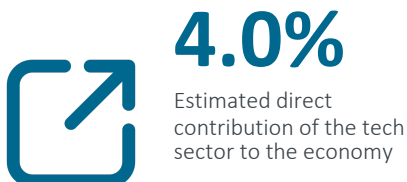
	2020	2020 % Change	2021 % Change ³
IT Support and Network Technicians	624	-7.0%	-1.5%
Software and Web Developers	607	-6.2%	+0.1%
Systems Analysts and Cybersecurity ³	532	+6.6%	+2.8%
CIOs, IT Managers and IT Project Managers	108	+2.7%	+4.2%
Database, Data Analyst and Data Science	93	-6.7%	-2.0%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	947	+16.1%	+5.2%
Telecom and Internet Services	408	-14.0%	+0.5%
Software [packaged]	101	-24.6%	-1.5%
Tech Manufacturing	41	+5.6%	-0.2%

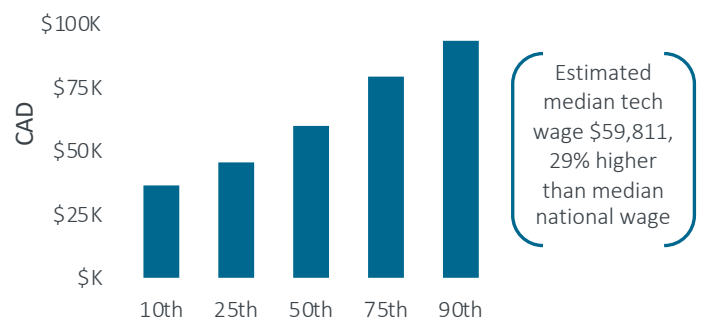
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Quebec

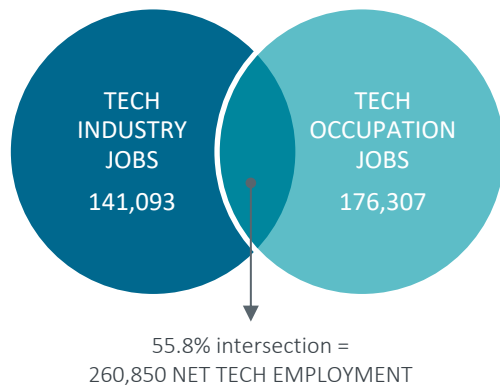


STATE OF TECHNOLOGY SUMMARY

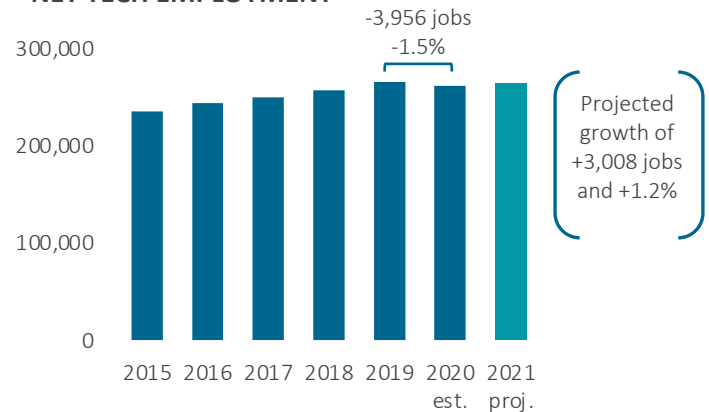
260,851	NET TECH EMPLOYMENT ¹
6.3%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
10,011	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
13,727	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
2,543	EMERGING TECH JOB POSTINGS [job roles + skills]
18.5%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

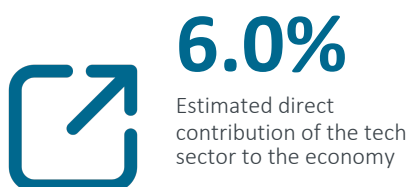
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	54,166	+0.7%	+1.9%
Systems Analysts and Cybersecurity ³	49,298	-1.3%	+0.9%
IT Support and Network Technicians	35,641	-7.3%	+1.6%
CIOs, IT Managers and IT Project Managers	13,591	-9.1%	+2.1%
Database, Data Analyst and Data Science	7,783	+13.2%	+1.4%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	86,509	+0.6%	+1.5%
Telecom and Internet Services	28,314	-0.8%	-0.6%
Tech Manufacturing	15,233	-2.7%	+1.1%
Software [packaged]	11,038	+1.3%	+2.7%

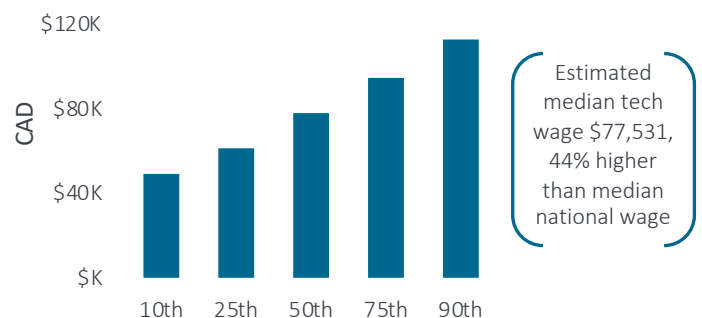
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



Saskatchewan

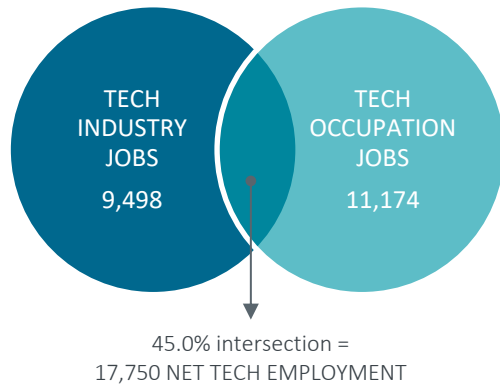
STATE OF TECHNOLOGY SUMMARY

17,745	NET TECH EMPLOYMENT ¹
3.1%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
624	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
3,055	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
307	EMERGING TECH JOB POSTINGS [job roles + skills]
10.0%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

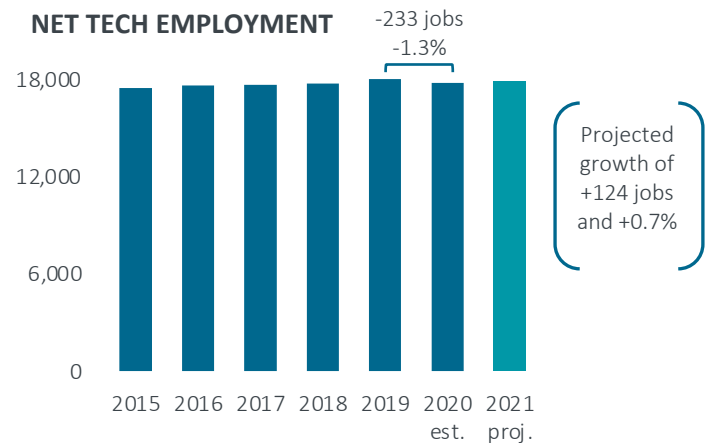


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

	2020	2020 % Change	2021 % Change ³
Systems Analysts and Cybersecurity ³	3,067	-1.5%	+1.8%
Software and Web Developers	2,669	-1.4%	+0.7%
IT Support and Network Technicians	2,655	-5.9%	0.0%
CIOs, IT Managers and IT Project Managers	1,050	-2.9%	+0.9%
Database, Data Analyst and Data Science	401	-1.0%	+0.2%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
Telecom and Internet Services	4,842	-6.3%	-1.9%
IT Services + Custom Software Services	3,421	+23.8%	+2.0%
Tech Manufacturing	740	-0.6%	+2.4%
Software [packaged]	495	+11.1%	+8.9%

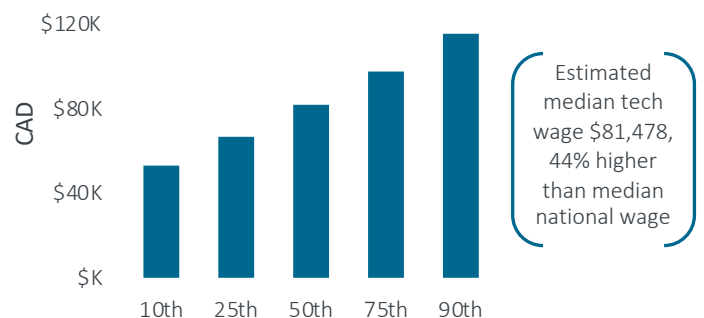
⁴Projection for 2021

ECONOMIC IMPACT



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TECH OCCUPATION WAGES [by percentile]



METRO AREA SNAPSHOTS

Toronto

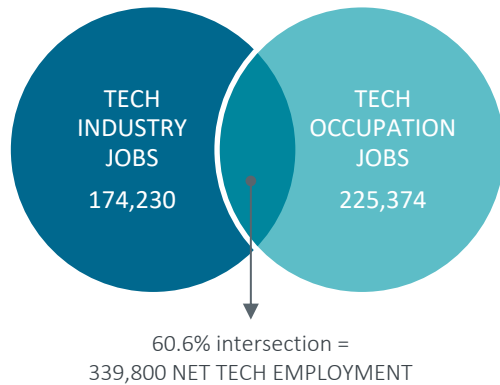
STATE OF TECHNOLOGY SUMMARY

339,796	NET TECH EMPLOYMENT ¹
9.6%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
18,324	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
33,703	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
9,101	EMERGING TECH JOB POSTINGS [job roles + skills]
27.0%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

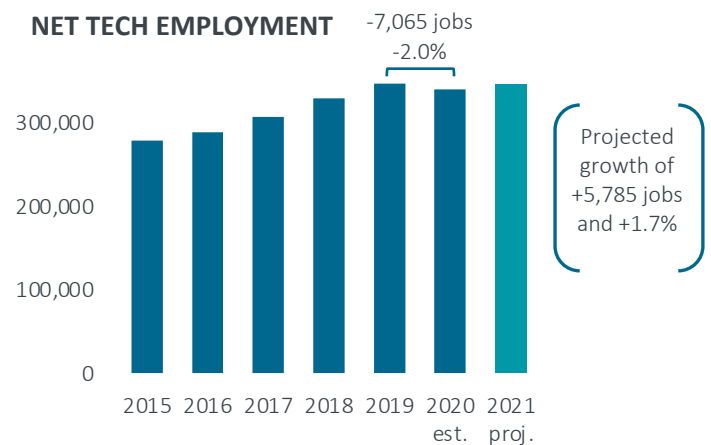


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

	2020	2020 % Change	2021 % Change ³
Software and Web Developers	70,785	-2.4%	+2.3%
Systems Analysts and Cybersecurity ³	65,619	+4.5%	+3.6%
IT Support and Network Technicians	35,783	-7.8%	+0.4%
CIOs, IT Managers and IT Project Managers	26,727	-2.7%	+2.8%
Database, Data Analyst and Data Science	14,272	-0.4%	+2.9%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	111,608	+2.7%	+1.8%
Telecom and Internet Services	35,233	-6.3%	-1.2%
Tech Manufacturing	15,506	-5.6%	-1.5%
Software [packaged]	11,884	+4.0%	+4.7%

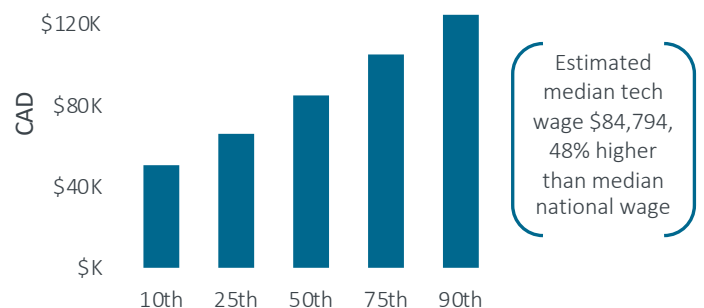
⁴Projection for 2021

TECH EMPLOYMENT CONCENTRATION



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TECH OCCUPATION WAGES [by percentile]



Montreal

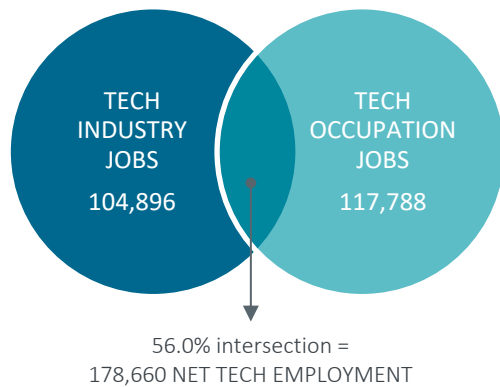
STATE OF TECHNOLOGY SUMMARY

178,659	NET TECH EMPLOYMENT ¹
8.0%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
7,223	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
9,815	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
2,279	EMERGING TECH JOB POSTINGS [job roles + skills]
23.2%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

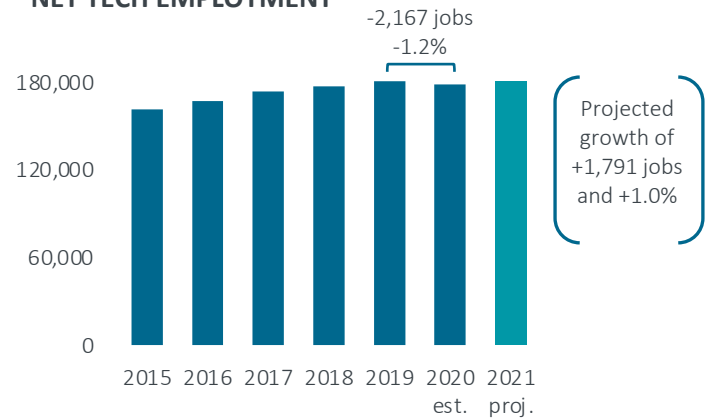


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

	2020	2020 % Change	2021 % Change ³
Software and Web Developers	39,272	+3.3%	+2.3%
Systems Analysts and Cybersecurity ³	31,516	-1.9%	+0.5%
IT Support and Network Technicians	22,260	-9.0%	+0.8%
CIOs, IT Managers and IT Project Managers	9,933	-9.8%	+2.4%
Database, Data Analyst and Data Science	5,642	+18.1%	+1.8%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	65,782	+0.6%	+1.4%
Telecom and Internet Services	20,880	-0.8%	-1.0%
Tech Manufacturing	9,410	-2.5%	+0.7%
Software [packaged]	8,819	+1.3%	+2.8%

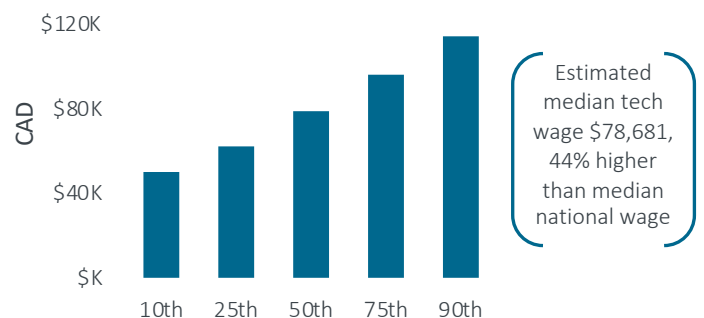
⁴Projection for 2021

TECH EMPLOYMENT CONCENTRATION



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TECH OCCUPATION WAGES [by percentile]



Vancouver

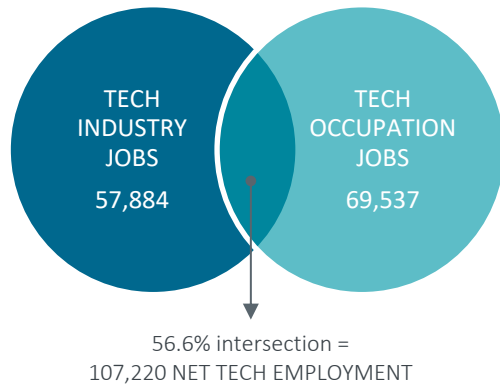
STATE OF TECHNOLOGY SUMMARY

107,221	NET TECH EMPLOYMENT ¹
7.1%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
4,080	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
10,559	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
2,351	EMERGING TECH JOB POSTINGS [job roles + skills]
22.3%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

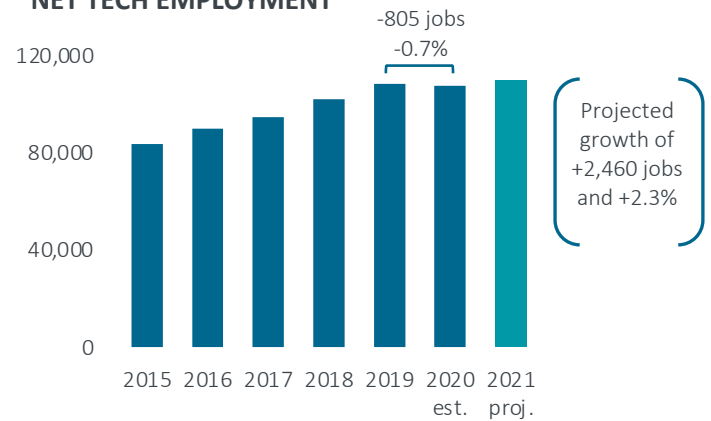


¹DEFINITION CHANGE: this report edition focuses on core information technology | See Appendix for data comparable to previous editions

²Net of tech industry + tech occupation + self-employed | Sources: CompTIA analysis of EMSI, Burning Glass Technologies Labour Insights, Canadian Government Statistics and others | Data covers 2020 time period unless specified as 2021 | See report Methodology for details.



NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

	2020	2020 % Change	2021 % Change ³
Software and Web Developers	27,648	2.5%	2.5%
IT Support and Network Technicians	14,414	-7.1%	2.4%
Systems Analysts and Cybersecurity ³	14,194	13.2%	4.8%
CIOs, IT Managers and IT Project Managers	5,621	-5.8%	0.3%
Database, Data Analyst and Data Science	3,257	11.6%	4.3%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	28,002	+4.4%	+1.4%
Telecom and Internet Services	16,834	-2.4%	+2.9%
Software [packaged]	8,577	+7.2%	+3.4%
Tech Manufacturing	4,472	-7.5%	-0.3%

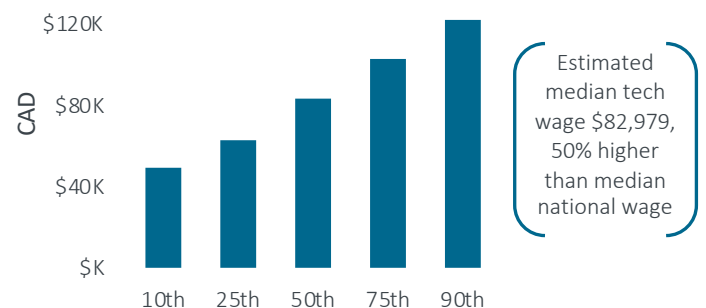
⁴Projection for 2021

TECH EMPLOYMENT CONCENTRATION



³In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped within Systems Analysts.

TECH OCCUPATION WAGES [by percentile]



Calgary

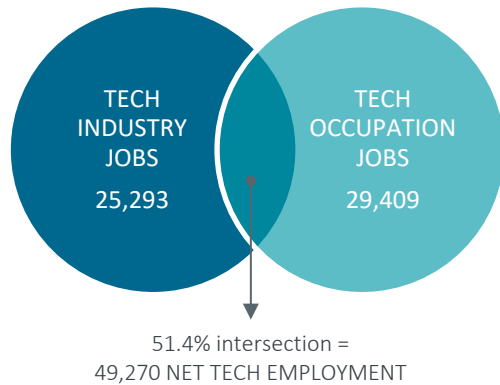


STATE OF TECHNOLOGY SUMMARY

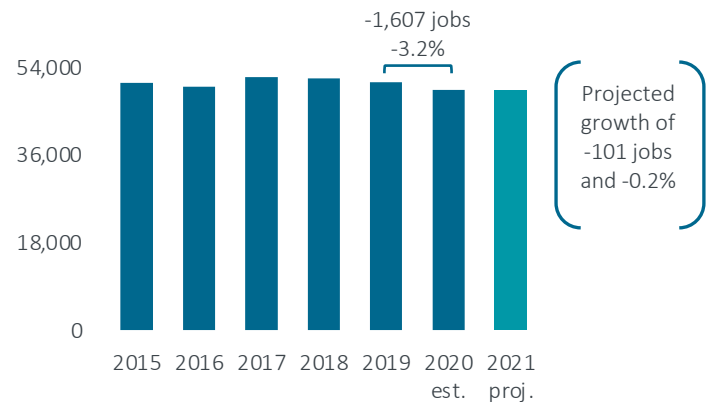
49,274	NET TECH EMPLOYMENT ¹
6.2%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
2,820	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
5,207	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
1,078	EMERGING TECH JOB POSTINGS [job roles + skills]
20.7%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

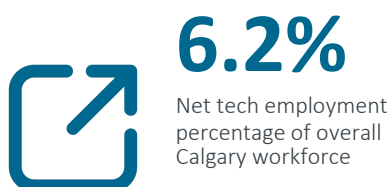
	2020	2020 % Change	2021 % Change ³
Software and Web Developers	9,034	-8.3%	-1.7%
Systems Analysts and Cybersecurity ³	8,268	+2.8%	+1.3%
IT Support and Network Technicians	5,936	-9.8%	-1.1%
CIOs, IT Managers and IT Project Managers	2,354	-10.8%	-1.4%
Database, Data Analyst and Data Science	2,114	+3.6%	-0.5%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	14,722	-2.4%	+0.7%
Telecom and Internet Services	7,590	-5.3%	-0.5%
Tech Manufacturing	1,727	-7.4%	-0.5%
Software [packaged]	1,253	+4.2%	+1.2%

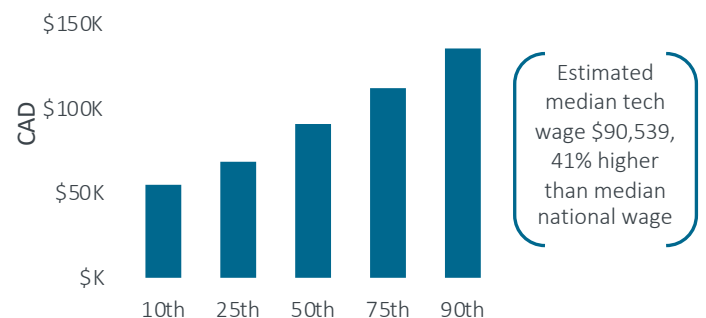
⁴Projection for 2021

TECH EMPLOYMENT CONCENTRATION



³In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped within Systems Analysts.

TECH OCCUPATION WAGES [by percentile]



Edmonton

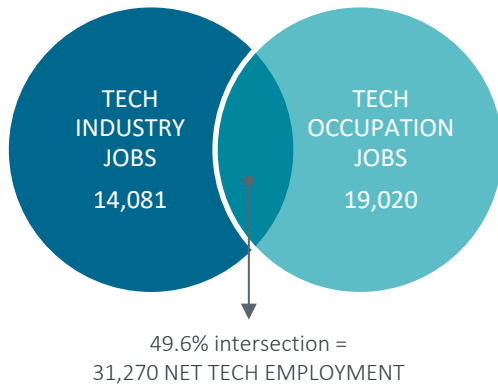
STATE OF TECHNOLOGY SUMMARY

31,267	NET TECH EMPLOYMENT ¹
4.3%	NET EMPLOYMENT AS A % OF OVERALL WORKFORCE
1,438	TECH BUSINESS ESTABLISHMENTS [firms with payroll]
3,393	EMPLOYER JOB POSTINGS [2020 total for tech occupations]
527	EMERGING TECH JOB POSTINGS [job roles + skills]
15.5%	EMERGING TECH JOB POSTINGS AS A % OF TOTAL

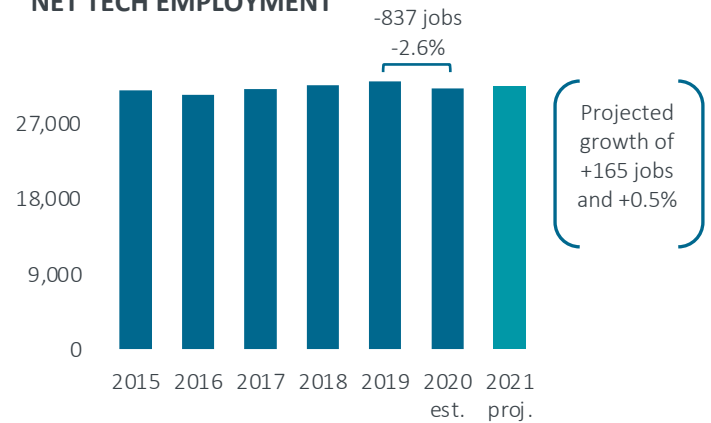


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NET TECH EMPLOYMENT



LEADING TECH OCCUPATION CATEGORIES

	2020	2020 % Change	2021 % Change ³
Systems Analysts and Cybersecurity ³	5,295	-1.0%	+0.3%
Software and Web Developers	4,866	-2.0%	+0.8%
IT Support and Network Technicians	4,650	-7.7%	+0.1%
CIOs, IT Managers and IT Project Managers	1,530	-7.5%	-2.5%
Database, Data Analyst and Data Science	1,373	+21.5%	+4.7%

LEADING TECH INDUSTRY SECTORS [by employment]

	2020	2020 % Change	2021 % Change ⁴
IT Services + Custom Software Services	8,624	-2.5%	+0.3%
Telecom and Internet Services	3,774	-5.1%	-0.1%
Tech Manufacturing	1,046	-14.6%	+0.1%
Software [packaged]	626	+4.2%	+0.8%

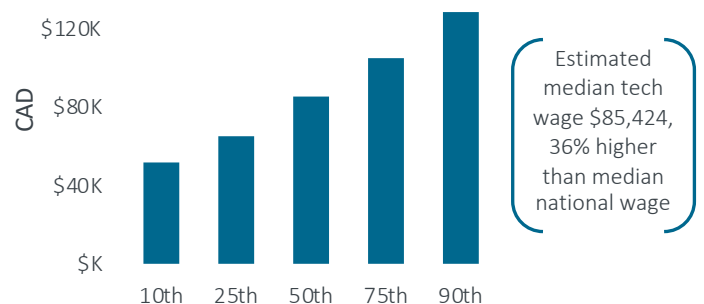
⁴Projection for 2021

TECH EMPLOYMENT CONCENTRATION



³In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped within Systems Analysts.

TECH OCCUPATION WAGES [by percentile]



APPENDIX TABLES

NET TECH EMPLOYMENT	2015	2016	2017	2018	2019	2020	2021 proj.
Canada	1,539,516	1,562,847	1,599,916	1,659,625	1,716,242	1,659,963	1,678,450
Alberta	181,332	173,057	173,880	174,825	173,162	162,676	161,957
British Columbia	180,478	189,414	195,643	206,890	218,895	216,015	220,538
Manitoba	38,023	37,501	38,352	40,141	40,419	41,232	41,879
New Brunswick	20,962	21,362	21,607	22,163	22,589	22,397	22,632
Newfoundland and Labrador	14,662	14,550	14,452	14,059	13,742	13,164	13,092
Nova Scotia	31,177	31,285	31,136	31,081	31,663	30,894	31,029
Ontario	665,405	681,519	703,827	738,416	767,724	736,370	744,865
Prince Edward Island	4,281	4,346	4,490	4,636	4,755	4,622	4,666
Quebec	371,922	378,872	385,669	396,788	412,525	402,725	407,829
Saskatchewan	28,520	28,292	28,140	27,774	27,834	27,119	27,169
Montreal	252,512	256,319	262,836	269,124	278,341	272,265	275,458
Toronto	382,691	393,744	414,169	439,019	456,995	441,099	447,212
Calgary	97,937	93,090	92,726	93,192	91,565	85,555	84,745
Edmonton	58,277	55,258	55,803	56,012	56,289	53,997	54,046
Vancouver	128,539	135,602	140,394	148,380	157,290	155,529	158,865
INDUSTRY EMPLOYMENT	2015	2016	2017	2018	2019	2020	2021 proj.
Canada	973,056	972,038	988,556	1,026,804	1,061,709	1,054,210	1,065,497
Alberta	122,414	114,119	115,865	116,569	114,004	107,603	106,493
British Columbia	118,648	123,707	126,715	134,749	142,603	143,454	146,305
Manitoba	20,842	19,808	20,405	22,850	23,422	26,626	27,537
New Brunswick	11,977	11,860	12,275	13,151	13,603	13,565	13,774
Newfoundland and Labrador	8,636	8,457	8,563	8,516	8,202	8,089	8,069
Nova Scotia	18,577	18,518	18,098	17,992	18,547	18,542	18,659
Ontario	417,996	419,416	425,800	444,781	464,459	457,715	462,994
Prince Edward Island	2,644	2,616	2,735	2,815	2,962	3,011	3,067
Quebec	232,468	235,194	239,566	247,272	256,111	257,504	260,453
Saskatchewan	17,096	16,800	16,924	16,388	15,988	16,366	16,386
Montreal	170,082	171,141	175,084	179,965	185,727	187,215	189,272
Toronto	251,191	253,730	258,845	272,732	285,613	281,307	284,659
Calgary	68,029	63,413	63,822	64,545	62,309	58,604	57,638
Edmonton	38,943	36,097	36,531	36,293	36,216	35,062	34,959
Vancouver	87,208	91,514	93,084	98,513	104,821	105,905	108,095
OCCUPATION EMPLOYMENT	2015	2016	2017	2018	2019	2020	2021 proj.
Canada	1,037,830	1,069,254	1,113,030	1,163,933	1,210,518	1,160,665	1,175,871
Alberta	106,636	104,488	105,547	107,396	108,255	102,538	102,845
British Columbia	117,338	124,873	130,929	138,881	147,388	144,108	147,329
Manitoba	24,773	24,960	25,821	26,191	26,081	24,706	24,739
New Brunswick	14,323	14,690	14,931	15,155	15,665	15,529	15,705
Newfoundland and Labrador	9,505	9,390	9,262	8,856	8,916	8,403	8,391
Nova Scotia	20,052	20,431	21,218	21,400	21,677	20,865	20,977
Ontario	467,229	486,825	514,223	547,154	571,971	546,641	554,601
Prince Edward Island	2,704	2,729	2,877	3,021	3,125	2,983	3,018
Quebec	255,134	261,058	268,411	275,844	286,918	275,291	278,569
Saskatchewan	18,479	18,137	18,087	18,280	18,741	17,910	17,994
Montreal	167,360	172,041	178,647	182,358	187,530	179,620	181,329
Toronto	265,522	279,220	303,123	326,922	342,367	331,366	337,567
Calgary	58,114	56,884	56,712	57,540	57,811	54,478	54,468
Edmonton	34,276	33,305	34,074	34,797	35,343	33,906	34,093
Vancouver	83,348	89,399	94,300	100,180	106,305	103,986	106,330

Sources: EMSI | CompTIA

NET TECH EMPLOYMENT	2019	2020	2021 proj.	Numeric Change 2019-2020	Numeric Change 2020-2021	% Change 2019-2020	% Change 2020-2021
Canada	1,716,242	1,659,963	1,678,450	-56,279	+18,486	-3.3%	1.1%
Alberta	173,162	162,676	161,957	-10,486	-720	-6.1%	-0.4%
British Columbia	218,895	216,015	220,538	-2,880	+4,524	-1.3%	2.1%
Manitoba	40,419	41,232	41,879	+813	+647	2.0%	1.6%
New Brunswick	22,589	22,397	22,632	-192	+235	-0.9%	1.0%
Newfoundland and Labrador	13,742	13,164	13,092	-578	-72	-4.2%	-0.5%
Nova Scotia	31,663	30,894	31,029	-770	+135	-2.4%	0.4%
Ontario	767,724	736,370	744,865	-31,354	+8,495	-4.1%	1.2%
Prince Edward Island	4,755	4,622	4,666	-133	+44	-2.8%	0.9%
Quebec	412,525	402,725	407,829	-9,800	+5,105	-2.4%	1.3%
Saskatchewan	27,834	27,119	27,169	-715	+50	-2.6%	0.2%
Montreal	278,341	272,265	275,458	-6,075	+3,192	-2.2%	1.2%
Toronto	456,995	441,099	447,212	-15,896	+6,114	-3.5%	1.4%
Calgary	91,565	85,555	84,745	-6,010	-810	-6.6%	-0.9%
Edmonton	56,289	53,997	54,046	-2,292	+49	-4.1%	0.1%
Vancouver	157,290	155,529	158,865	-1,761	+3,336	-1.1%	2.1%
INDUSTRY EMPLOYMENT	2019	2020	2021 proj.	Numeric Change 2019-2020	Numeric Change 2020-2021	% Change 2019-2020	% Change 2020-2021
Canada	1,061,709	1,054,210	1,065,497	-7,498	+11,286	-0.7%	1.1%
Alberta	114,004	107,603	106,493	-6,401	-1,110	-5.6%	-1.0%
British Columbia	142,603	143,454	146,305	+850	+2,851	0.6%	2.0%
Manitoba	23,422	26,626	27,537	+3,204	+911	13.7%	3.4%
New Brunswick	13,603	13,565	13,774	-39	+209	-0.3%	1.5%
Newfoundland and Labrador	8,202	8,089	8,069	-114	-19	-1.4%	-0.2%
Nova Scotia	18,547	18,542	18,659	-6	+117	0.0%	0.6%
Ontario	464,459	457,715	462,994	-6,743	+5,278	-1.5%	1.2%
Prince Edward Island	2,962	3,011	3,067	+49	+56	1.7%	1.9%
Quebec	256,111	257,504	260,453	+1,393	+2,949	0.5%	1.1%
Saskatchewan	15,988	16,366	16,386	+379	+20	2.4%	0.1%
Montreal	185,727	187,215	189,272	+1,487	+2,057	0.8%	1.1%
Toronto	285,613	281,307	284,659	-4,306	+3,352	-1.5%	1.2%
Calgary	62,309	58,604	57,638	-3,705	-967	-5.9%	-1.6%
Edmonton	36,216	35,062	34,959	-1,153	-104	-3.2%	-0.3%
Vancouver	104,821	105,905	108,095	+1,084	+2,190	1.0%	2.1%
OCCUPATION EMPLOYMENT	2019	2020	2021 proj.	Numeric Change 2019-2020	Numeric Change 2020-2021	% Change 2019-2020	% Change 2020-2021
Canada	1,210,518	1,160,665	1,175,871	-49,853	+15,206	-4.1%	1.3%
Alberta	108,255	102,538	102,845	-5,717	+307	-5.3%	0.3%
British Columbia	147,388	144,108	147,329	-3,280	+3,221	-2.2%	2.2%
Manitoba	26,081	24,706	24,739	-1,374	+32	-5.3%	0.1%
New Brunswick	15,665	15,529	15,705	-136	+176	-0.9%	1.1%
Newfoundland and Labrador	8,916	8,403	8,391	-513	-13	-5.8%	-0.2%
Nova Scotia	21,677	20,865	20,977	-812	+113	-3.7%	0.5%
Ontario	571,971	546,641	554,601	-25,329	+7,960	-4.4%	1.5%
Prince Edward Island	3,125	2,983	3,018	-142	+34	-4.6%	1.2%
Quebec	286,918	275,291	278,569	-11,627	+3,278	-4.1%	1.2%
Saskatchewan	18,741	17,910	17,994	-830	+83	-4.4%	0.5%
Montreal	187,530	179,620	181,329	-7,910	+1,709	-4.2%	1.0%
Toronto	342,367	331,366	337,567	-11,000	+6,201	-3.2%	1.9%
Calgary	57,811	54,478	54,468	-3,333	-10	-5.8%	0.0%
Edmonton	35,343	33,906	34,093	-1,437	+187	-4.1%	0.6%
Vancouver	106,305	103,986	106,330	-2,319	+2,343	-2.2%	2.3%

Sources: EMSI | CompTIA

INDUSTRY EMPLOYMENT 2021 proj.	IT Services	R&D, Testing, and Engineering Services	Telecom and Internet Services	Tech Mfg.	Software	Total
Canada	339,232	253,423	145,880	102,860	53,270	894,665
Alberta	25,730	38,579	13,112	3,504	2,286	83,212
British Columbia	36,632	38,965	23,522	7,426	10,443	116,989
Manitoba	4,143	4,549	11,383	4,344	402	24,826
New Brunswick	3,814	3,649	3,776	677	291	12,217
Newfoundland and Labrador	1,597	2,578	3,065	67	131	7,466
Nova Scotia	5,536	3,798	4,222	2,426	368	16,355
Ontario	169,438	94,834	52,902	38,071	27,354	382,598
Prince Edward Island	996	508	410	536	99	2,574
Quebec	87,765	60,704	28,133	44,992	11,337	232,931
Saskatchewan	3,491	4,521	4,750	758	539	14,063
Montreal	66,676	39,346	20,671	36,894	9,067	172,657
Toronto	113,592	49,762	34,827	21,768	12,443	232,392
Calgary	14,823	19,611	7,550	2,023	1,268	45,275
Edmonton	8,652	13,014	3,771	1,069	631	27,148
Vancouver	28,393	29,082	17,318	5,806	8,865	89,473

OCCUPATION EMPLOYMENT 2021 proj.	Software and Web Developers	Information Systems Analysts and Consultants	IT User Support Technicians	Other IT	Engineering and Other Technician	Total
Canada	235,153	185,814	97,343	202,659	321,827	1,042,796
Alberta	14,924	14,367	6,982	15,426	34,606	86,306
British Columbia	35,336	17,371	15,903	22,538	36,766	127,914
Manitoba	4,102	3,414	2,896	3,752	8,785	22,949
New Brunswick	2,699	2,391	2,522	2,376	4,535	14,523
Newfoundland and Labrador	1,077	892	914	1,243	3,782	7,909
Nova Scotia	4,078	3,153	2,436	3,320	6,405	19,392
Ontario	114,327	93,370	45,615	100,503	134,348	488,163
Prince Edward Island	608	476	474	443	722	2,724
Quebec	55,201	47,165	17,880	49,675	84,668	254,590
Saskatchewan	2,688	2,959	1,646	2,870	6,563	16,725
Montreal	40,182	29,649	11,742	33,553	49,957	165,082
Toronto	72,404	64,502	25,116	62,662	69,900	294,584
Calgary	8,884	8,167	3,408	7,702	17,327	45,488
Edmonton	4,903	4,983	2,574	5,801	10,536	28,798
Vancouver	28,337	13,236	10,616	16,334	25,345	93,867

METHODOLOGY

CLASSIFICATION SYSTEM

Canadian Tech Industry and Workforce Trends utilizes the North American Industrial Classification System (NAICS) to define the tech industry. The NAICS is a hierarchical system, with six-digit numbers assigned to the most specific industries. The NAICS is constructed around the concept of production and is able to reflect advances in technology, including many new service-oriented businesses. Economic units with similar production processes are classified in the same industry. Because *Canadian Tech Industry and Workforce Trends* analyzes the tech industry by using industry classifications, the report in general focuses on companies and sectors, not individual occupations.

NAICS was devised by the United States, Canada, and Mexico to allow industry analysis across all three nations. NAICS codes are revised periodically to reflect the emergence of new industry sectors or sub-sectors. The *Canadian Tech Industry and Workforce Trends* NAICS definition of the tech industry has evolved over the years to reflect these changes. Consequently, the data in this report may not be entirely comparable with previous reports.

For occupation analysis, *Canadian Tech Industry and Workforce Trends* utilizes National Occupational Classification (NOC) System, which is a standard used by federal agencies to classify workers into occupational categories.

NET TECH EMPLOYMENT

The tech workforce consists of two primary components. The foundation is the set of technology occupation professionals working in technical positions, such as IT support, network engineering, software development and every related roles. Many of these professionals work for technology companies (56 percent), but many others are employed by organizations across every industry sector in the Canadian economy (44 percent).

The second component of the discussion consists of the business professionals employed by technology companies. These professionals play an important role in supporting the development and delivery of the technology products and services used throughout the economy. Slightly more than 26% of the net tech employment total consists of tech industry business professionals.

See page 3 of this report for more details on the concept of Net Tech Employment.

TECH INDUSTRY DEFINITION

There are a number of considerations when developing a definition of the technology industry. In some cases, NAICS codes do not perfectly reflect industry dynamics. This can be especially challenging in times of rapid innovation, when new tech sectors emerge in a short period of time. More recently, the degree to which technology has become core to so many industry sectors poses new questions. For example, a technology platform designed to facilitate the online sale of goods may have traditionally been viewed as a retailer, although given the intense use of technology, an argument could be made to classify it as a technology firm.

Conceptually, *Canadian Tech Industry and Workforce Trends* focuses on the sectors involved in making, creating, enabling, integrating, or supporting technology, whether as a product or service. At this time, *Canadian Tech Industry and Workforce Trends* does not include industry sectors categorized primarily as users of technology.

Canadian Tech Industry and Workforce Trends includes 14 NAICS codes in its definition of the tech industry. Broadly these can be thought of in two broad categories: tech manufacturing and tech services. These industries sufficiently represent the technology industry within the framework provided under the NAICS system.

TECH OCCUPATION DEFINITION

The occupations covered by *Canadian Tech Industry and Workforce Trends* are broadly categorized into core information technology (IT) positions and then engineering, repair, technician, and assembly positions. In total, 12 distinct NOCs are used to define the tech occupations found across every industry sector of the economy.

TECH INDUSTRY SECTORS BY NAICS¹

TECH MANUFACTURING

3341	Computer and peripheral equipment manufacturing
3342	Communications equipment manufacturing
3343	Audio and video equipment manufacturing
3344	Semiconductor and other electronic component manufacturing
3345	Navigational, measuring, medical and control instruments manufacturing
3346	Manufacturing and reproducing magnetic and optical media

IT SERVICES

4173	Computer and communications equipment and supplies merchant wholesalers
5415	Computer systems design and related services
8112	Electronic and precision equipment repair and maintenance

TELECOMMUNICATIONS AND INTERNET SERVICES

5173	Wired and wireless telecommunications carriers (except satellite)
5174	Satellite telecommunications
5179	Other telecommunications
5182	Data processing, hosting, and related services

SOFTWARE

5112	Software publishers
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TECH OCCUPATIONS BY NOC²

CORE INFORMATION TECHNOLOGY OCCUPATIONS

213	Computer and information systems managers
2147	Computer engineers (except software engineers and designers)
2171	Information systems analysts and consultants
2172	Database analysts and data administrators
2173	Software engineers and designers
2174	Computer programmers and interactive media developers
2175	Web designers and developers
2281	Computer network technicians
2282	User support technicians
2283	Information systems testing technicians
131	Telecommunication carriers managers
7246	Telecommunications installation and repair workers

¹North American Industry Classification System (NAICS)

²National Occupational Classification (NOC)

For prior year definition taxonomies, see 2020 report. As noted in the introduction, the definition for the 2021 changed.



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