

The State of Tech in Newfoundland and Labrador

Viet Vu, Angus Lockhart | August 2025



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This report was commissioned by techNL to provide insights into the current state of the technology sector in Newfoundland and Labrador. The research, analysis, and opinions expressed within are those of the Dais Institute and its researchers and do not necessarily reflect the views of techNL.

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Foreword

At techNL, our vision is clear: to become the most sought-after Canadian tech ecosystem, globally recognized for its collaborative community, diversity, and quality of life. This vision is ambitious, but it is also grounded in the remarkable progress the tech sector has made over the past 10 years and the potential we see ahead.

By 2050, we aim that the tech sector will become the leading contributor to Newfoundland and Labrador's economy, surpassing all other industries. That means generating \$2.5 billion of economic value annually by 2030. This is not just a dream — it is a call to action for all of us working in and alongside the tech community. This is about more than growth at home — it is about positioning Newfoundland and Labrador as a globally recognized tech ecosystem, competing on the world stage while rooted in our unique strengths.

To achieve this, measurement is critical. We must be honest and rigorous in evaluating where we are today, where we are excelling, and where more effort is needed. Measuring progress helps us celebrate what we are doing well — so that we can build on it—and also reveals the areas where we must focus our energy to unlock new opportunities.

Over the past ten years, the tech sector in Newfoundland and Labrador has transformed. What was once a steady contributor of about \$1.55 billion to provincial GDP has grown to \$1.8 billion (2023). Employment in the sector now approaches 10,000 people, with strong growth in technical roles and a rising average income. Beyond the numbers, this decade has seen the launch of new companies, expansions into global markets, and the development of a more vibrant innovation ecosystem.

This growth did not happen by chance. Above all, it reflects the power of collaboration — companies, institutions, governments, and individuals coming together to drive momentum that none could achieve alone. From training programs to job boards, from research collaborations to new export opportunities, each initiative adds momentum to this growth journey.

As you read this report, I encourage you to do so with a dual lens: first, to understand the big picture of where we stand as a sector; and second, to extract insights you can apply within your own company or organization. Each of us has a role to play in advancing this shared vision — building a future where Newfoundland and Labrador's tech sector is thriving, globally competitive, and driving prosperity for all.

Together, we can achieve this.

Florian Villaumé -CEO, techNL

Executive Summary

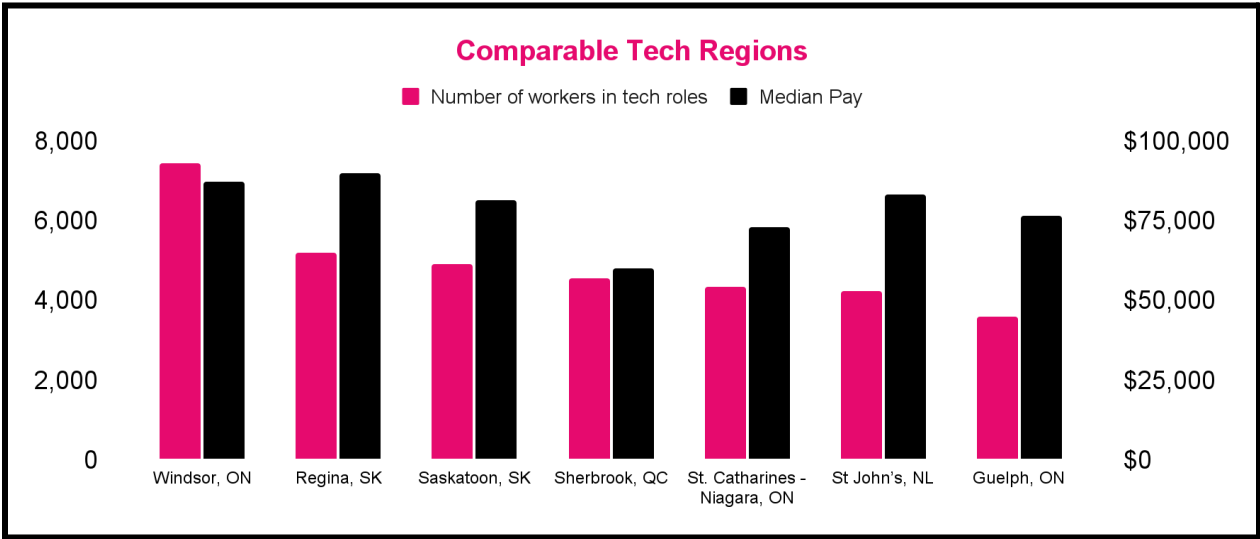
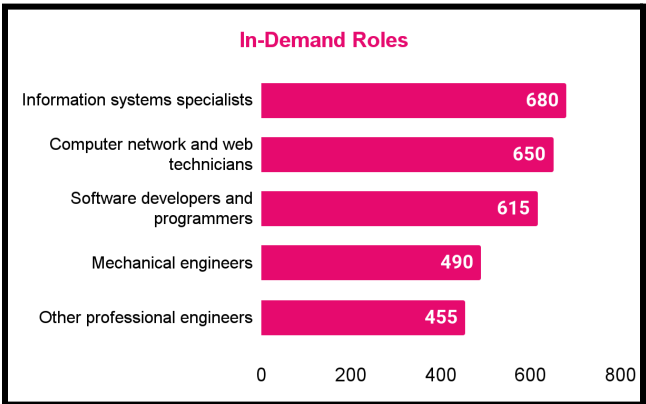
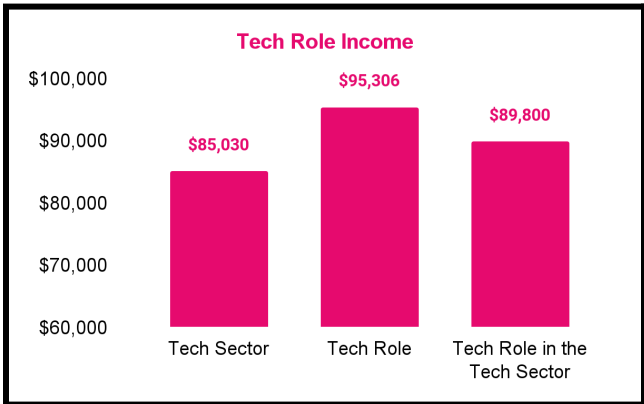
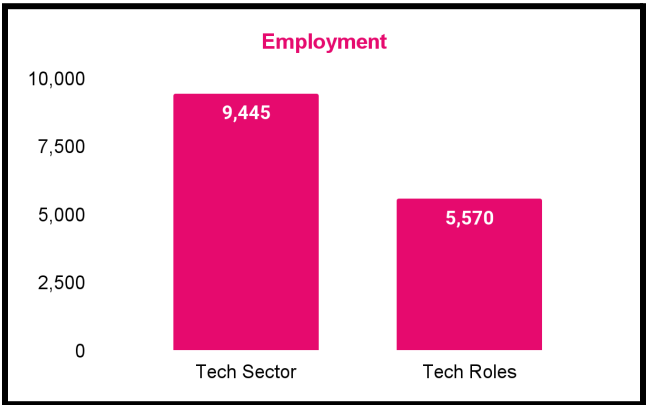
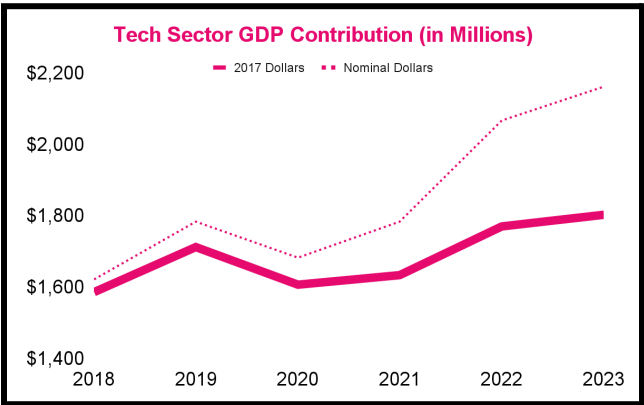
Newfoundland and Labrador's economy has undergone several major transitions—shifting from a reliance on the fishing industry to energy and now towards emerging sectors such as technology. Fostering a sustainable and future-focused industry has become increasingly important as the province adapts to long-term economic fluctuations. In response, Newfoundland and Labrador has invested significantly in the growth of its tech ecosystem in recent years.

With this transition, the tech sector is poised to play a critical role in the province's economic future. As Newfoundland and Labrador's tech sector continues to grow and evolve, it is essential to understand its current state, workforce composition, and future potential. A clear picture of the sector's development enables informed decision-making, targeted investments, and strategic planning to ensure long-term sustainability.

Recognizing this need, techNL, with significant funding support from the federal government, has been working alongside other stakeholders to strengthen the local tech ecosystem. To further inform these efforts, the Dais has conducted a comprehensive analysis by compiling labour market data from multiple sources, such as the Canadian Census, Vicinity job postings, and other benchmarking tools. This data offers valuable insights into the size, demographics, and skills composition of Newfoundland and Labrador's tech workforce.

1. **The province's tech sector currently contributes \$1.8 billion to the economy**, reflecting substantial growth over the past five years. Between 2012 and 2016, the sector's GDP contribution remained relatively stable at approximately \$1.55 billion (in constant 2017 dollars). However, since 2016, this figure has risen to \$1.8 billion, demonstrating positive momentum with a 24 percent increase.
2. **The tech sector in Newfoundland and Labrador employs nearly 10,000 individuals**, encompassing technical and non-technical roles within tech companies. The average annual income across the sector is just over \$85,000.
3. **The total tech occupation workforce in Newfoundland and Labrador stands at 5,570**, consisting of **2,780 individuals** employed directly within the tech sector and an additional **2,790 working in technical roles** outside the sector.
4. Despite its growth, **the tech sector in Newfoundland and Labrador faces diversity challenges similar to those seen across Canada**. However, key differences exist in the province, particularly concerning Indigenous Peoples, newcomers, and visible minority tech workers. Understanding these unique trends will be crucial in developing targeted strategies to foster a more inclusive workforce.

Key Statistics



Introduction

Newfoundland and Labrador has weathered many storms throughout its long economic history. Much of the province's economy has been composed historically of the public sector and the non-service economy. Combined, these sectors are responsible for almost 70 percent of the province's economic activity.¹

As a result, the province has been left vulnerable to cyclical and structural economic forces, including fluctuation in oil prices, global economic conditions, an aging workforce, environmental and climate change, as well as geopolitical shifts.

Within this context, many actors (including governments at both the federal and provincial levels) have focused on identifying investment opportunities that ensure long-term economic resiliency for the province, primarily through the diversification of its economy while maintaining its competitive edge in the resource sector.

The federal government, in 2023, announced significant funding for techNL, an industry association based in Newfoundland and Labrador, through the Sectoral Workforce Solutions Program,² to "strengthen the Newfoundland and Labrador workforce by creating a technology-focused training and upskilling ecosystem". The province also invested in local innovation infrastructure, such as the funding for the techNL Ready Talent team and Co. Innovation Centre from ACOA.

This follows an incredible record for Newfoundland and Labrador's homegrown tech sector, boasting major wins over the past decade, including the sale of Verafin, a fintech scale-up based in St. John's, to Nasdaq for a record \$3.6 billion CAD, while keeping all associated jobs in the province. Other companies, such as Kraken Robotics, CoLab, and Mysa, all show the outsized impact on many areas of tech, including product design and marine engineering of the province's tech ecosystem.

This report offers the current picture of the technology sector in the province, with a focus on talent. It aims to understand the people who power the technology ecosystem in Newfoundland and Labrador.

¹ The Government of Newfoundland and Labrador, "Gross Domestic Product at Basic Prices, By Industry (NAICS), Newfoundland and Labrador, 1997-2022", 2024, https://www.stats.gov.nl.ca/statistics/topics/gdp/pdf/gdp_industry.pdf. We count goods producing sectors, educational services, health services, and public administration in our GDP calculations.

² Employment and Social Development Canada, "Government of Canada Invests in Training for Information and Communication Technology Workers," *News Release*, February 24, 2023, <https://www.newswire.ca/news-releases/government-of-canada-invests-in-training-for-information-and-communication-technology-workers-888356428.html>.

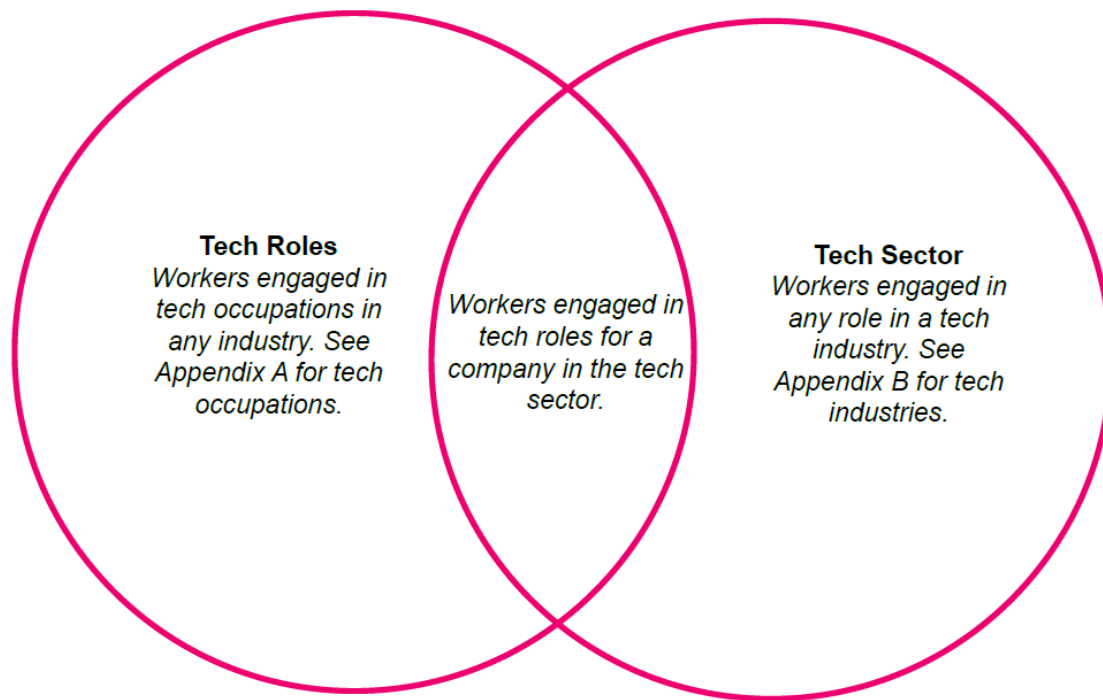
Tech Occupations & Sector - Definitions

Before we engage in this work, it is worth discussing how we are defining tech occupations and the tech sector for the purpose of our analysis. Within the literature, many formal definitions attempt to place boundaries on economic activities that are technology-focused. The approach we use was first developed by the Brookfield Institute (now part of the Dais) in *Who Are Canada's Tech Workers*.³ It has since been tested and utilized in a variety of research contexts, from the state of scaleups in Canada, shifts in occupational digitalization over time, and trends in the diversity of tech workers in Canada.⁴ This definition has also been used in many academic and ecosystem studies in Canada, for example, by the University of Toronto to study the innovation ecosystem and Toast Tech Collective to advocate for women's empowerment in tech.

We first distinguish a tech worker from a tech company. Conceptually, A tech worker is a worker who works in an occupational setting that directly and significantly involves the use of or creation of technology. On the other hand, a tech company is a business whose primary commercial activity involves technology-driven products. Within this definitional frame, tech workers can work for non-tech companies, and tech companies can employ non-tech workers.

³ Viet Vu, Asher Zafar, and Creig Lamb, "Who Are Canada's Tech Workers?," *Brookfield Institute*, 2019.

⁴ Steven Denny, Viet Vu, and Ryan Kelly, "Into the Scale-up-verse: Exploring the landscape of Canada's high-performing firms," *Brookfield Institute*, 2021; Ibrahim Abuallail and Viet Vu, "Race Alongside the Machines: Occupational digitalization trends in Canada, 2006-2021," *Brookfield Institute*, 2022; Viet Vu, "Further and Further Away: Canada's unrealized digital potential," *Brookfield Institute*, 2022.



To understand the tech intensity of each worker's occupational context, we rely on previous work that utilizes the National Occupational Classification (NOC) which classifies all occupations in Canada into 512 standardized occupational groups.⁵ Specifically, we use the occupational measures that directly relate to technology use and creation in these 512 groups to rank them according to how technologically intensive they are. We then take the top 5% of the most technologically intensive occupations to form our tech occupations definition. A tech worker is a worker who works in any of these occupations.

We use the definition of tech occupations to define the tech industries and, in turn, consider companies operating within these industries to be tech companies. Specifically, we use the North American Industry Classification System (NAICS), a taxonomy that classifies each company into a set of 4-digit codes that is standardized across North America. We tally up employment for each of these 4-digit industries and define any industry that has a concentration of tech roles that is three times the average concentration nationally to be a tech sector.⁶ Companies classified within these tech sectors are considered tech companies.

⁵ Viet Vu, Asher Zafar, and Creig Lamb, "Who Are Canada's Tech Workers?," *Brookfield Institute*, 2019.

⁶ This threshold was first tested by the Brookfield Institute in 2016, and has been validated through subsequent work that explores tech workers, and tech scale-ups. Most recently, it was used to understand scale-up behaviours, where tech scale-ups identified through this method had expected behaviours.

The tradeoff with this definition deserves some discussion. As our definitions for both workers in tech roles and tech companies are derived from NOC and NAICS codes, if a tech worker (tech company) is not classified into one of the occupations (industries) that are classified as tech, they will not be counted. Conversely, if a non-tech worker (non-tech company) is erroneously classified into a tech occupation (tech industry), they will be counted. These tradeoffs are unavoidable, but the definition we employ here has been demonstrated to roughly capture the right workers and companies. In addition, a key advantage of this definition lies in how it allows us to have a consistent definition, particularly when we use different sources of data in our analysis.

Tech in Newfoundland and Labrador - Data

To perform our analysis, we use a variety of data sources, both public and private. In this section, we give a brief overview of each data source we use, as well as key properties one should consider using such data.

The Long-form Canadian Census

Every five years, Statistics Canada conducts a Census of Population in Canada that aims to survey every person living in Canada. One component of this census is the Long-form Canadian Census, where 25 percent of all Census respondents are asked to respond to a more extensive set of questions that cover labour market activities, education, and much more.

The respondent data is then matched to a number of existing databases, including income tax data and immigration data, to supplement collected information, creating a unique and rich dataset to explore many aspects of life in Canada.

Crucially, the long-form Canadian Census provides valuable information on a worker's occupation, as well as industry sectors, and rich information on their socio-demographic characteristics, covering identities such as gender, visible minority identities, and Indigenous identities.⁷ Therefore, we use this data to understand the size of the Newfoundland and Labrador tech sector and tech workforce.

It is important, however, to acknowledge that the 2021 Census took place at an unusual time, when the country and the world were still experiencing the COVID-19 pandemic. Data from the Census were collected in May 2021, when the first doses of COVID-19 vaccines were just becoming available, and there were still widespread economic and labour disruptions taking place. These are the factors we need to take into account when using the data.

Job Postings Data - Vicinity Jobs

Vicinity Jobs is a Canadian company that scans job postings on online job sites (including job posting sites such as Indeed and individual employer websites) to allow researchers, policymakers, and others to analyze the collected data for labour market insights.

⁷ While the long form census does collect self-identified Indigenous identities, due to historical injustices related to data collection that Indigenous Peoples in Canada has been subjected to, Statistics Canada allows on-Reserve Indigenous Nations to refuse participation in the Census. This means that data that relates to Indigenous People in Canada only covers Indigenous Peoples who live off-Reserve, or on Reserves that allow Census enumerations to take place.

The specific properties of job posting data are worth discussing here. Job postings appear when an employer notes an intention to hire to fill an active vacancy. A job posting typically lists information about the job itself, including typical duties, as well as the qualifications of who they are looking for, including education, experience, and knowledge. Importantly, there is a strategic aspect to posting job postings. An employer may strategically withhold specific undesirable information about the job to attract candidates or include a wide array of requirements to attract a wide breadth of applicants. There are also non-strategic reasons why a job posting may not correctly reflect job conditions. As job postings are only an employer's best guess as to what job a single person can perform and the skills that one needs to perform that job, there may be workers who possess a different set of skills or have different duties from what is listed in the job posting.

Another aspect of job postings that is relevant to our analysis is that job postings inherently represent a flow, as opposed to stock. An occupational group that may have a high level of churn and people switching jobs (e.g. food services sector) will therefore, also have higher volumes of job postings. As a result, a high number of job postings does not always indicate a high number of workers working in this area.

The modality of how a vacancy is filled also presents an additional consideration. As Vicinity Jobs only collects online job postings, any postings that are posted in an analog format (such as newspaper ads) or any vacancies hired through informal networks or career events will not be captured.

Given all these caveats, extensive research has been done to understand how well online job posting data captures specific labour market dynamics. Broadly, the literature shows that it gives a good measure of labour and skill demands. Forthcoming research has specifically examined the representativeness of online job posting data in the Newfoundland and Labrador context, concluding that it is suitable for use in the province.

Benchmarking with the U.S. - Data Sources

As our work also compares the dynamics of tech workers and the tech sector in Newfoundland and Labrador to other key geographic areas in Canada and the United States, we use two key U.S. data sources for this purpose: The Current Population Survey's Annual Social and Economic Supplement (CPS-ASEC). The CPS-ASEC collects data from American households on a host of topics similar to the Canadian Census, as described above. Importantly, it also collects wage and occupation data that allows us to compare tech worker dynamics across countries. To adjust for the cost of living, we adjust the wages using a Purchasing Power Parity (PPP) adjustment, as published by the Organisation for Economic Co-operation and Development (OECD). This has been shown

in previous work to appropriately adjust for the exchange rate, as well as the cost of living.⁸

⁸ Vivian Li, Mahmehr Hamza, and Anusha Arif, "Mind the Gap: Compensation Disparity Between Canadian and American Technology Workers," *The Dais*, October 2023.

Tech Sector - Insights

Tech Sector in Newfoundland and Labrador - Key Economic Indicators

To understand the economic contribution of the tech sector in Newfoundland and Labrador, we rely on a Gross Domestic Product or GDP calculation. In 2023, the tech sector in Newfoundland and Labrador contributed between \$1.7-1.8 billion to the province.⁹ Previously, techNL reported that the sector achieved \$1.6 billion in sales in 2016, which, given that sales likely overestimate GDP,¹⁰ shows substantial growth for the sector.

Using a constant definition of the tech sector between 2012 and 2023, we can see the growth of the Newfoundland and Labrador tech sector over time. In 2012, the tech sector represented \$1.55 billion for the Newfoundland and Labrador economy. In the past decade, this has grown to \$1.8 billion, although the COVID-19 pandemic had a clear impact on its growth, resulting in a real GDP contribution decline in 2020 that only just recovered in 2022, with further growth seen in 2023.

⁹ The GDP number was computed using Statistics Canada table 36-10-0402-02, including industries that are identified to be in the tech sector. The upper and lower bound represent our best estimate as additional non-tech sub-industries were included in this calculation due to lack of a more detailed disaggregation in the table.

¹⁰ GDP, or Gross Domestic Product measures the value of all goods that are produced within an economy at a given time. When this number is disaggregated at the industry level, one needs to focus on the idea of “value-added”, or the specific value that an industry added to the final product in the supply chain. As a result, sales, which incorporates cost of sales and therefore the value that was added by all other industries tend to be higher than a sector’s GDP. For example, the cost of a computer will include the cost of the raw material (silicon), and the cost of various components made in other sectors, and therefore incorporate values from multiple industry sectors, not just the sectors that assemble and sell the computer.

Figure 1

GDP Contribution of the Tech Sector (in millions), constant 2017 dollars



Source: Statistics Canada Table: 36-10-0402-02

This economic value is generated by almost 9,500 workers who work in the sector (as of 2021), of which 2,780 were specifically in tech roles. Given that the province has around 5,600 tech workers overall, just under half of tech roles in the province are within the tech sector.

Tech Sector Job Postings

Table 1: Tech Sector Job Postings by Year, Newfoundland and Labrador

Year	Job Postings in the Tech Sector
2021	490
2022	1,247
2023	771

When job postings at tech companies were examined, an increase in hiring, matching the GDP rebound, was observed in 2022, with a significant number of postings recorded throughout the year, with continued hiring occurring in 2023 when GDP growth for the sector has stabilized (compared to the rapid recovery experienced in 2022). Combining this with the previous section means that we have reasons to believe the tech sector in Newfoundland and Labrador has grown between 2021 and 2023.

Tech Roles - Insights

Tech Roles in Newfoundland and Labrador - Key Numbers

Our census data shows that in 2021, around 5,600 workers (or 2% of the employed population) in Newfoundland and Labrador worked in one of the identified tech occupations. This is a lower share than the national average (at just under 5%).

Table 2: Top 5 tech occupations in Newfoundland and Labrador, 2021

Occupation	Employment in 2021	Pay in 2021	Pay across Canada in 2021
Information systems specialists	680	\$81,400	\$83,500
Computer network and web technicians	650	\$68,400	\$66,700
Software developers and programmers	615	\$72,200	\$86,400
Mechanical engineers	490	\$128,500	\$95,900
Other professional engineers	455	\$110,000	\$86,200

The top tech occupation, Information systems specialists, in Newfoundland and Labrador mirrors that of the country, representing more than 10% of the province's tech workforce. There are two notable exceptions from national trends, however, with two engineering occupations being represented in the top 5 list, reflecting the prominence of the resource-based industry for the province. Outside of Newfoundland and Labrador, the top 5 tech occupations include both software engineers and designers, as well as computer and information systems managers. Importantly, while pay for these occupations lags behind key metropolitan areas (as will be explored below), it is competitive when compared across the country, with 3 of these top 5 occupations having higher pay in Newfoundland and Labrador than the rest of Canada.

Table 3: Size of the Tech Workforce

	Tech Sector (Total)	Tech Roles (Total)	Tech Roles <i>in</i> the Tech Sector
Worker Count	9,455	5,570	2,780
Average Income	\$85,030	\$95,306	\$89,800

Table 4 shows the distribution of age within both the tech sector and workers in tech roles. While the distributions are similar for both groups, workers in tech roles tend to be younger than those in the tech sector. Isolating specifically those who work in tech roles within the tech sector, we find an even younger cohort of workers - two-thirds are under the age of 45.

Table 4: Age of the Tech Workforce

Age	Tech Sector	Tech Roles	Tech Roles <i>in</i> the Tech Sector
<25	895 (9%)	495 (9%)	305 (11%)
25-44	4,485 (48%)	2,960 (53%)	1,555 (56%)
45-64	3,545 (38%)	1,920 (35%)	850 (31%)
65+	515 (5%)	190 (3%)	65 (2%)

Table 5: Location of Residence, Tech Roles and Tech Sector Workers in Newfoundland and Labrador

Location	Tech Sector	Tech Roles
St. John's	6,570 (70%)	4,210 (76%)
Corner Brook	220 (2%)	40 (1%)
Gander	175 (2%)	-
Elsewhere in the Province	2,480 (26%)	1,320 (24%)

We also see that the vast majority of workers in the tech sector live in St. John's, the province's capital city. However, 3 in 10 tech sector workers in the province continue to reside in other parts of the province. While part of this could be that these workers live in surrounding areas to St. John's, it also potentially signals the ability for many workers to work remotely, something we explore later on.

Job Postings for Tech Roles and Future Projections

Table 6: Job Postings for Tech Roles by Year, Newfoundland and Labrador

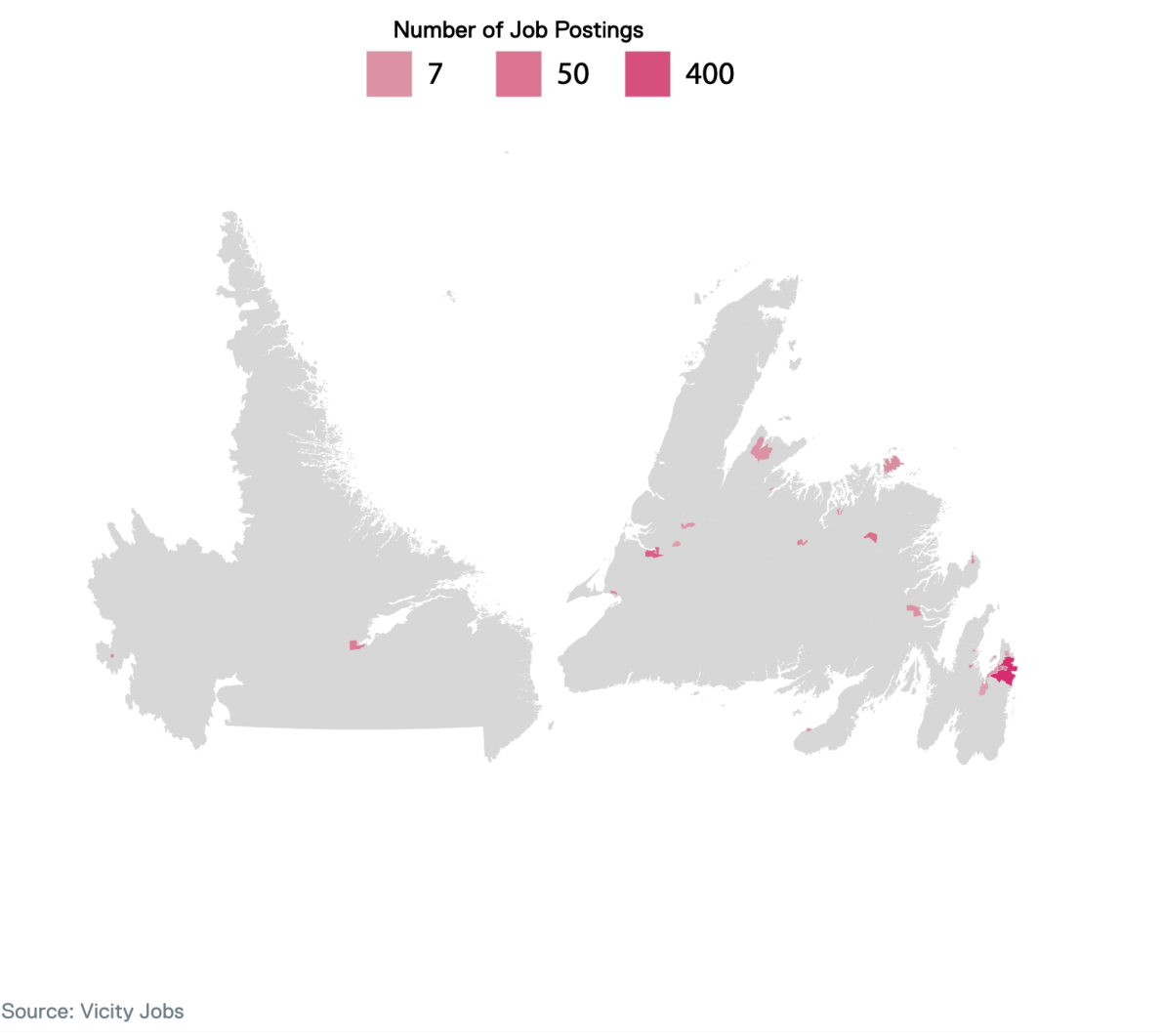
Year	Job Postings in Tech Occupations
2021	328
2022	440
2023	282

In the province, job postings for tech occupations comprised roughly 1% of all job postings in Newfoundland and Labrador. This compares to around 2% of workers in Newfoundland and Labrador being workers in tech roles in 2021, according to the Census. The lower share of job postings (compared to the total number of workers) is expected as jobs with shorter tenures (part-time, short-term) tend to be overrepresented in job postings, and tech jobs tend to be more permanent.

We also see a particularly high growth year for tech hiring in 2022. While we cannot causally attribute it, we note the launch of a dedicated tech job board hosted by techNL in 2022, and the initial encouragement to employers to post job postings on this site as being the reason for more jobs being formally posted (as opposed to informally hired), leading to an increase in the number of job postings being recorded.

Figure 2

Tech Job Postings in Newfoundland & Labrador Census Subdivisions, 2021-2023



Source: Vicity Jobs

Out of many tech occupations in the province, three occupations stood out as having the highest number of postings: "Information systems analysts", "Financial and investment analysts", and "Database analysts and data administrators". Table 7 shows the distribution of the job postings across these three occupations in regions of Newfoundland and Labrador. Reflecting broader trends, the majority of tech sector opportunities for these top occupations in Newfoundland and Labrador are concentrated in the Avalon Peninsula.

Table 7: Geographic distribution of tech job postings in Newfoundland and Labrador

Regions	Job postings	Average hourly wage
Avalon Peninsula	301	\$37.77

Burin Peninsula	10	\$37.11
Humber Valley, Bay of Islands, and White Bay	30	\$35.27
Central Newfoundland	18	\$30.82
Unidentified District Region	22	\$37.96
Happy Valley-Goose Bay + Labrador City	10	\$36.50

An examination of the provincial occupational projection system shows that the vast majority of tech occupations are judged to either be in “balanced supply”, or where modest additional labour supply will be needed to meet market demand. In particular, Computer & Software engineers are expected to consistently require new labour supply until 2028 (after which, the projection reaches a balanced supply status). There is also projected to be increased demand for managers of technical employees, with “Computers, information systems, and other science managers” expected to require a steady pipeline of new talent through to 2030. No tech occupations were classified in the occupational projection category where supply exceeds demand.

Tech Roles in Newfoundland and Labrador - Diversity

Gender

One of the more persistent trends facing the tech sector in Canada is the lack of gender diversity in the profession.¹¹ Nationally, just over 1 in 5 tech roles are held by women, and that number has not shifted significantly over the past 20 years. In Newfoundland and Labrador, 18.9% of tech roles in the province are held by women, a number slightly lower than the national average (22.4%). This represents over 1,000 women working in tech roles in Newfoundland and Labrador.

Table 8: Gender in Tech Roles and the Tech Sector

¹¹ The most recent census in Canada uses the concepts of “Men+” and “Women+” to operationalize gender. This randomly assigns non-binary individuals into one of the two groups as the non-binary group alone would be too small to release publicly. For more information see: <https://www12.statcan.gc.ca/census-recensement/2021/ref/gender-genre-eng.cfm>.

	Tech Sector	Tech Roles	Tech Roles <i>in</i> the Tech Sector
Men+	6,670	5,515	2,280
Women+	2,780	1,055	500

In terms of annual pay, women in tech roles are paid on average \$74,600 while men in tech roles are paid on average \$100,400. This illustrates a pay gap of \$25,800 in salary alone. Notably, this pay gap is larger than the national gender tech pay gap, where women in tech roles in Newfoundland and Labrador are paid less than the national average, while men who are in tech roles in the province are paid higher than the national average. We focus on broad differences here, without focusing on the decomposition of the trends (such as by understanding different rates at which women achieve seniority in tech, which is a documented trend), as we believe that wage comparison at the highest level provides the clearest indication of a gap that still exists and needs to be closed.

Table 9: Gender Pay Gap, Newfoundland and Labrador compared to Canada

	Newfoundland and Labrador	Canada
Men+	\$100,400	\$98,900
Women+	\$74,600	\$79,200
Difference	-\$25,800	-\$19,700

In discussing these results, it is important to note that there have been many initiatives Canada-wide and in Newfoundland and Labrador to tackle this issue. The gap in Newfoundland and Labrador is not unique and represents a challenge facing tech ecosystems across Canada.

Visible Minority Identities

Individuals with visible minority identities play a significant role in the Canadian technology industry. Nationally, over 40% of workers in tech roles had at least one visible minority identity. However, the picture is fairly different in Newfoundland and Labrador, where only 8.8% of workers in tech roles in the province held at least one Visible Minority identity, representing just over 800 workers. This likely reflects the much lower share of the Newfoundland and Labrador population having Visible Minority identities, as the

participation rate in tech work in NL was only slightly lower than that nationally (8.9% vs 11.1%).¹²

Table 10: Visible Minority Identity in Tech Roles and the Tech Sector

	Tech Sector	Tech Roles	Tech Roles <i>in</i> the Tech Sector
Visible Minority	1,210	820	460
Not a Visible Minority	8,240	4,750	2,320

¹² Le taux de participation est calculé en divisant le nombre de travailleurs occupant des postes technologiques d'un groupe donné par le nombre total de travailleurs de ce groupe. Il s'agit d'une mesure distincte de la part des travailleurs d'un secteur qui proviennent d'un groupe donné, car elle tient compte des différences de base dans la taille du groupe.

Figure 3

Tech Workers Pay in Canadian Provinces, Visible Minority identity

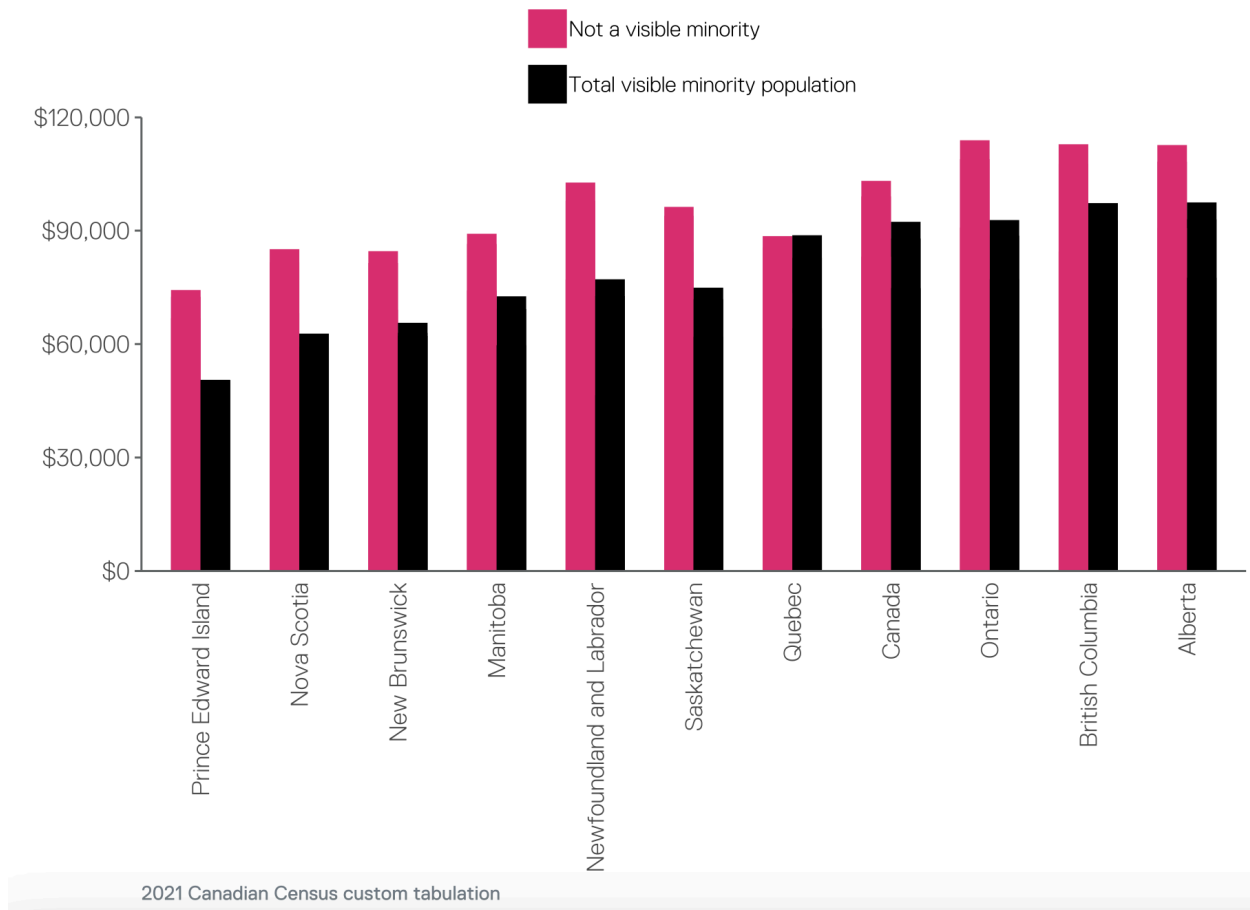


Figure 3 demonstrates a higher pay gap between visible minority and non-visible minority workers in tech roles in Newfoundland and Labrador. The gap means that workers in tech in Newfoundland and Labrador are paid almost 25% less than their non-visible minority counterparts, representing over \$25,000 annually. Nationally, this gap was only 11%, valued at \$11,000. This pay gap does not take into account differences such as seniority or tenure within a given occupation.

Newcomers

In 2021, 725 out of 5,600 workers in tech roles in Newfoundland and Labrador were non-citizens,¹³ of which 470 were permanent residents, and 260 held non-permanent resident status (workers on study or work permits). This means that non-citizens

¹³ Non-citizens include those who do not hold a Canadian citizenship, and can include both permanent residents, and those who are on refugee status, or work permit and/or study permit holders.

comprised 13% of workers in tech roles in the province. This is much lower than the national rate, where almost 50% of workers in tech roles in Canada are non-citizens.

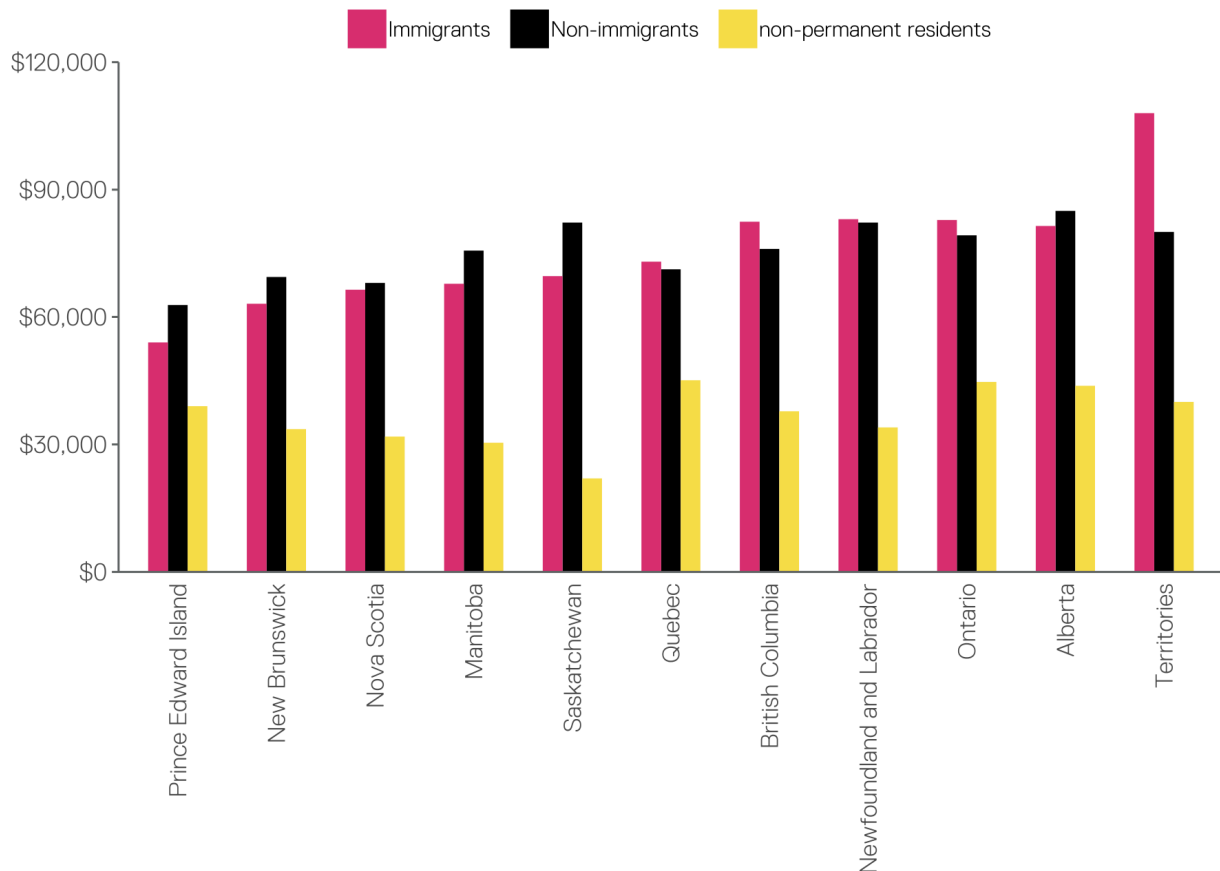
Table 11: Citizens and Non-Citizens in Tech Roles and the Tech Sector

	Tech Sector	Tech Roles	Tech Roles <i>in</i> the Tech Sector
Citizen	8,695	4,845	2,385
Non-citizen	755	725	395

Figure 4 explores the median pay for workers in tech roles in Canadian provinces for various immigration statuses. As can be seen, immigrant workers in tech roles in the province are paid an amount comparable to non-immigrant workers, and importantly, such pay is competitive against other provinces, such as Ontario. However, non-permanent residents (those who hold a work or study permit) recorded considerably lower pay and, while comparable to other Atlantic provinces, lagged behind others. Compensation for all workers in tech roles revealed similar gaps.

Figure 4

Tech Workers Pay in Canadian Provinces, Immigration Status



Source: 2021 Canadian Census Microdata, Author Calculations

When we consider the entire Newfoundland and Labrador tech sector as a whole, including both tech and non-tech roles, the share of workers in the industry who are non-citizens is lower - from 13% for just tech occupations to just under 8% of tech sector workers.

Indigenous Peoples in Canada

Indigenous Peoples in Canada are severely underrepresented within tech work and tech industry more broadly in Canada. Newfoundland and Labrador is the ancestral homelands and unceded territories of the Inuit, the Innu, the Mi'kmaq, and the Beothuk. Today, the province is home to three distinct nations, the Inuit, the Innu, and the Mi'kmaq, and there are likely Indigenous Peoples from other Nations across Canada living in Newfoundland and Labrador.¹⁴

¹⁴ Newfoundland is also the home to the Beothuk people, however the last known Beothuk individual died in 1829. For more information on the Beothuk people, see <https://www.heritage.nf.ca/articles/indigenous/beothuk.php>.

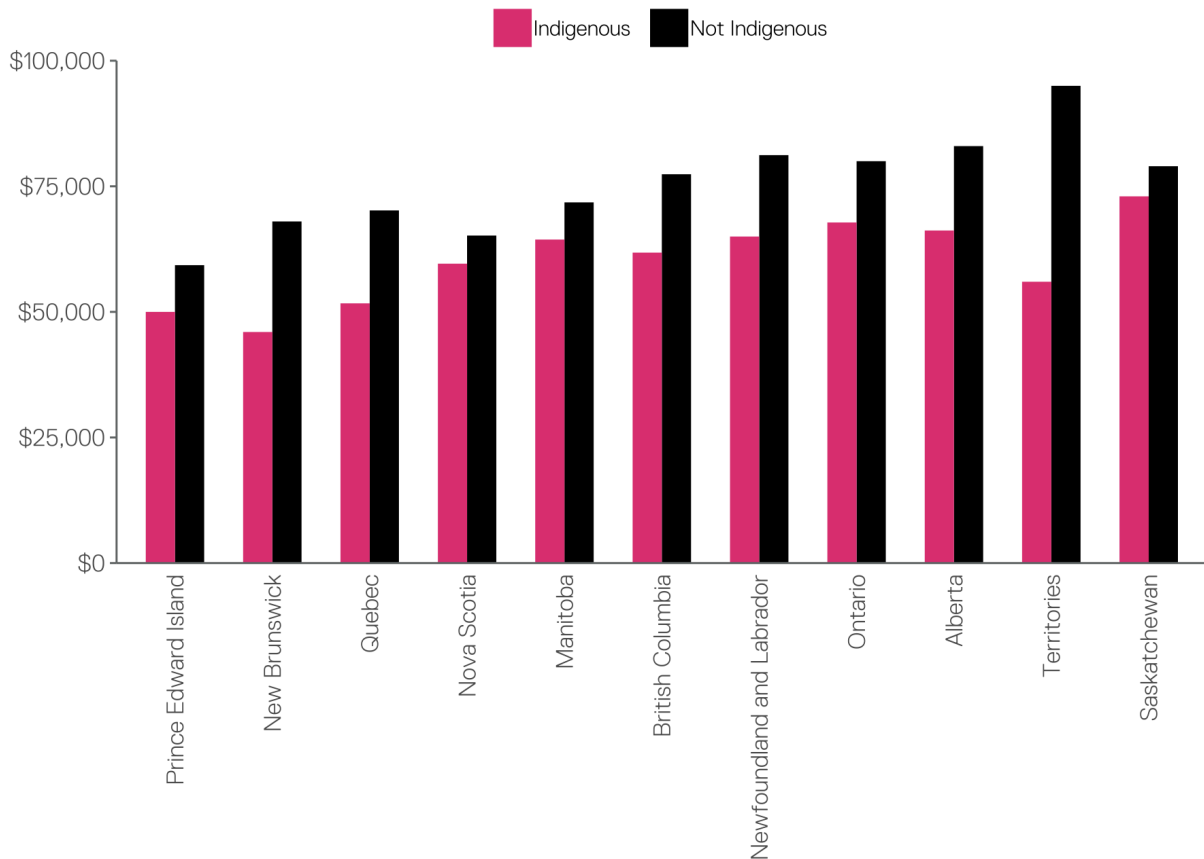
Approximately 4.4% of workers in tech roles in Newfoundland and Labrador—about 250 individuals— held an Indigenous identity. This is significantly higher than the national share, where only 1.1% of workers in tech roles held an Indigenous identity. This is mostly driven by a higher share of the workers living in Newfoundland and Labrador having an Indigenous identity (over 9%, compared to 4% nationally), as opposed to a higher rate of participation in tech. In fact, the rate at which Indigenous Peoples in Newfoundland and Labrador participate in tech work is lower than that for the country (1.1% of Indigenous workers being workers in tech roles, compared to 1.4% nationally).

Table 12: Indigenous Peoples in Tech Roles and the Tech Sector

	Tech Sector	Tech Roles	Tech Roles <i>in</i> the Tech Sector
Non-Indigenous Peoples	8,810	5,320	2,655
Indigenous Peoples	640	250	125

Figure 5

Tech Workers Pay in Canadian Provinces, Indigenous Identity



Source: 2021 Canadian Census Microdata, Author Calculations

Figure 5 compares pay between Indigenous workers in tech roles and non-Indigenous workers in tech roles. It demonstrates that while compared to other Indigenous Peoples across Canada, those working in tech roles in Newfoundland and Labrador are paid a relatively high salary, their salary still lags behind the remuneration received by non-Indigenous workers in tech roles.

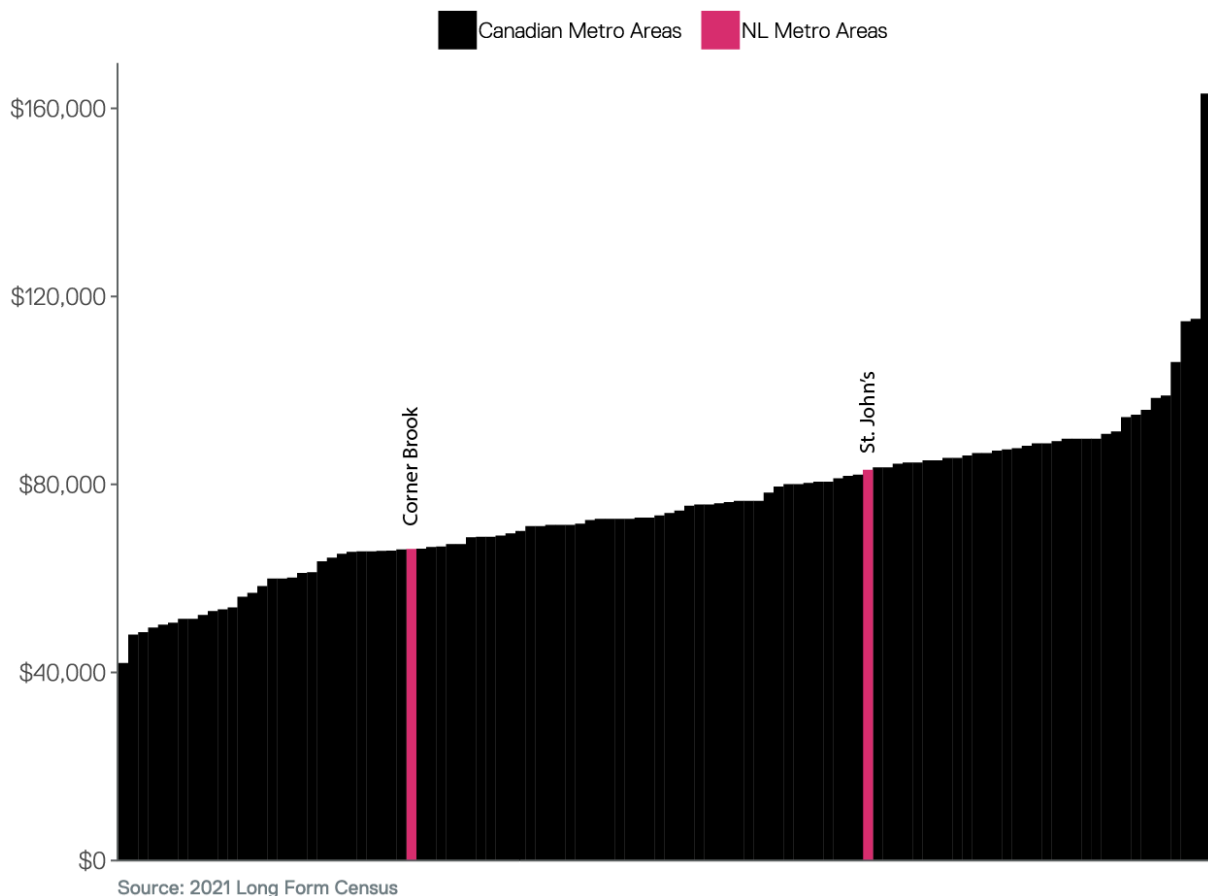
However, the overall share of Indigenous Peoples in Newfoundland and Labrador who work in the overall tech sector is significantly higher than that for tech roles, where almost 7% of tech sector workers reported an Indigenous identity (compared to just over 4% when we consider workers in a tech role).

Tech Roles in Newfoundland and Labrador - Geographic Benchmarking

In this section, we compare tech worker compensation in two metropolitan areas in Newfoundland and Labrador, for which we were able to obtain reliable salary data, to other Canadian and U.S. Metropolitan Areas. We first focus on comparing tech pays in St. John's and Corner Brook with other Canadian Metropolitan Areas. In Figure 6, we can clearly observe there is a significant pay disparity between the two metropolitan areas. A median tech worker in St. John's received \$83,000 in pay, while a median tech worker in Corner Brook only received \$66,000. This gap means that while St. John's is a relatively competitive area within Canada for workers in tech roles, Corner Brook is less so.

Figure 6

Comparison of Tech Occupation Pay - Metropolitan Areas; Canada



However, when U.S. metropolitan areas are added, it becomes immediately apparent that, on the whole, U.S. workers in tech roles are offered higher wages, consistent with previous work on the topic. While some Canadian metropolitan areas are competitive with leading American tech hubs, neither St. John's nor Corner Brook is. In particular, St.

John's workers in tech roles (earning an average of \$83,000) are paid slightly more than a median tech worker in Springfield, MO, and slightly less than a median tech worker in El Paso, TX, two metropolitan areas with a comparable number of workers in tech roles to St. John's (around 4,500 workers in 2021).

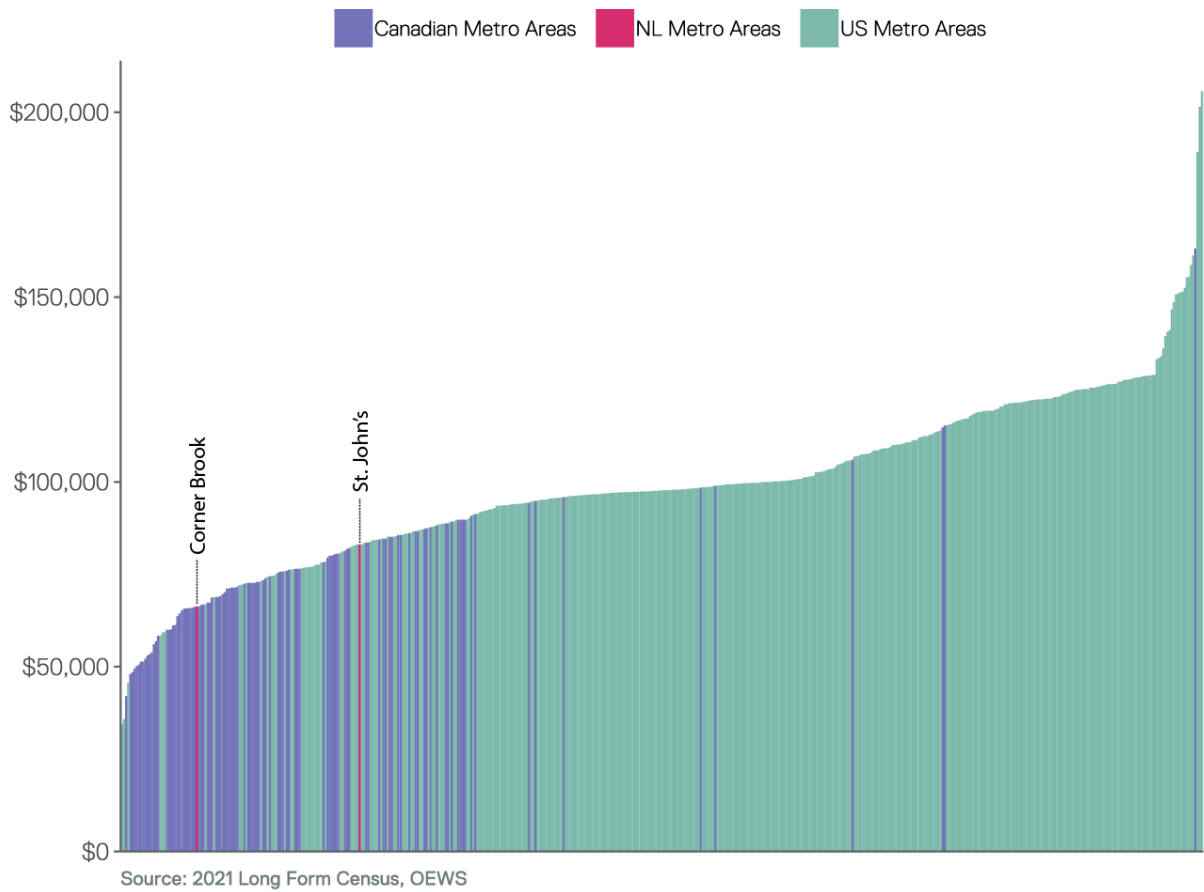
Among metropolitan areas with a comparable number of workers in tech roles in 2021, Charlottesville, VA, stands out as one of the highest-paid regions, where a median tech worker earns \$128,700. Similarly, a median tech worker in Santa Rosa, CA, earned \$133,000 in 2021. On the other end of the spectrum, a median worker in Sherbrooke, QC, was paid the least (\$60,000) amongst metropolitan areas with a similar number of workers in tech roles as St. John's, NL.

Table 13 - Comparator Jurisdictions & St. John's

Metropolitan Area	Number of workers in tech roles	Median Pay
Sherbrooke, QC	4,525	\$59,900
St. Catharines - Niagara, ON	4,310	\$72,600
Springfield, MO	4,640	\$82,400
St. John's, NL	4,210	\$83,000
Jackson, MS	4,070	\$95,200
Montgomery, AL	4,620	\$109,900
Anchorage, AK	4,190	\$121,400
Portsmouth, NH	4,220	\$122,900
Charlottesville, VA	4,210	\$128,700
Santa Rosa, CA	4,530	\$133,400

Figure 7

Comparison of Tech Occupation Pay - Metropolitan Areas



Emerging Issues for the Tech Sector

In this section, we examine how specific emerging trends may impact the tech sector in Newfoundland and Labrador - namely, remote work and the rapid rise of Generative AI that impacts the Newfoundland and Labrador tech sector.

Generative AI

Generative AI (sometimes called GPTs or Generative Pre-trained Transformers) is a new generation of AI technologies that were trained using a vast corpus of textual and image data, and that allows end-users to submit model input using natural language to receive output in a format that can be understood by non-technical experts (such as text, images, audio, or videos). This technology has attracted significant attention, especially in understanding the implications for the economy and wider society. Despite this, data on the prevalence and use of generative AI continues to be scarce and unreliable. The most reliable estimate shows that just 5% of Canadian businesses were using generative AI by the beginning of 2024.¹⁵ In many cases, this reflects early-stage, experimental use of the technology, which has not yet fully matured.

Recent studies show that while generative AI does bring some productivity enhancement at the task level,¹⁶ the adoption of more conventional forms of AI does not bring immediate firm-level productivity gains.¹⁷

The combination of the lack of data, as well as the highly noisy information environment regarding this technology's potential, means that we feel that we cannot yet provide a high-quality picture of how this technology will impact the wider economy, much less the technology sector in Newfoundland and Labrador. As a result, we focus our analysis on two emerging trends where we have greater confidence in both the data quality and our understanding of their impacts.

Remote Work

Historically, it has been hard for Newfoundland and Labrador to attract tech workers, given the distance between the province and other known tech hubs across the country. However, during the COVID-19 pandemic, a new potential opportunity emerged where many in tech transitioned into a fully remote work arrangement. This shift, at the time, created potential for Newfoundland and Labrador to attract remote tech workers to the province.

¹⁵ Statistics Canada, 2024. "Survey of Digital Technology and Internet Use, 2023" Statistics Canada, <https://www150.statcan.gc.ca/n1/daily-quotidien/240917/dq240917c-eng.htm>.

¹⁶ Erik Brynjolfsson, Danielle Li, and Lindsey Raymond, "Generative AI at Work," *Preprint*, 2023, <https://arxiv.org/abs/2304.11771>.

¹⁷ Viet Vu, Vivian Li, Angus Lockhart, Graham Dobbs, and Christelle Tessono, "Waiting for Takeoff", *The Dais at Toronto Metropolitan University*, 2024, <https://dais.ca/reports/waiting-for-takeoff/>.

However, as the pandemic progressed, it soon became clear that not all types of work can effectively be done online. Particularly, work that requires creativity and collaboration benefited from an in-person arrangement. As a result, it was much more common for organizations or people to adopt a “hybrid” work environment, where workers split their time between working out of a physical office and working from home (or other non-work places). This matches the global trend, where almost two-thirds of all workplaces have implemented a hybrid work arrangement, and just under 1 in 5 has a fully remote workplace policy.¹⁸

In the latest data from the Labour Force Survey in November 2023, the share of workers working exclusively from home has declined to around 12% from a pandemic high of 25%.¹⁹ Notably, by June 2022, fewer than 1% of all workers in Canada were working in a workplace in a different province than the one in which they reside. Combined, this data suggests a need for companies to provide flexible work arrangements, but ones that still incorporate workers in a physical office space at least some of the time for specific work requirements. A more recent update from May 2024 is that the share of remote workers continued to fall nationwide, where just 18.7% of workers worked mainly from home.²⁰

However, there were notable geographic variations in these trends, where the rate of remote work decreased mainly in areas with close access to economic centres (such as Ontario and Quebec), and a higher share of workers in the Atlantic provinces (such as Nova Scotia and Newfoundland and Labrador) worked remotely. However, this may be due in part to a national convergence, where provinces with low rates of remote work (in Atlantic Canada) catch up to provinces with much higher rates of remote work. Statistics Canada shows, for example, that while 36% of jobs on the Avalon Peninsula could have been done remotely, only 16.1% (or less than half) worked most of their hours remotely in the latter half of 2022. The numbers were lower in other parts of the province, where 25% of jobs on the West Coast, in Labrador, and on the South Coast are considered suitable for remote work, yet only 7.3% of jobs on the West Coast and in Labrador, and 8.6% on the South Coast, were actually performed remotely.²¹

¹⁸ Zoom, “Navigating the Future of Work”, N.D., Zoom, <https://click.zoom.com/navigating-the-future-of-work-pdf>.

¹⁹ Statistics Canada, 2024. “Research to Insights: Working from home in Canada” Statistics Canada, <https://www150.statcan.gc.ca/n1/en/pub/11-631-x/11-631-x2024001-eng.pdf>.

²⁰ Statistics Canada, 2024. “More Canadians commuting in 2024” <https://www150.statcan.gc.ca/n1/daily-quotidien/240826/dq240826a-eng.htm>

²¹ Statistics Canada, 2024. “Research to Insights: Working from home in Canada” Statistics Canada, <https://www150.statcan.gc.ca/n1/en/pub/11-631-x/11-631-x2024001-eng.pdf>

Conclusion

The Newfoundland and Labrador economy is often recognized for its resilience, frequently shifting short-term investment priorities to adapt to the changing demands of the global market. Amid this volatility, the province's tech sector stands out for its relative stability, allowing for long-term investments largely unaffected by the disruptions that impact other parts of the economy. Over the past decade, the tech sector's contribution to Newfoundland and Labrador's GDP has grown steadily, with no signs of this upward trend slowing.

Much of the province's tech activities are concentrated in its main population centres, including St. John's and Corner Brook, where the former remains amongst the most competitive tech ecosystems in Canada (in terms of pay), outperforming other cities of similar sizes from St. Catharines in Ontario or Sherbrooke in Quebec.

However, the tech sector in Newfoundland and Labrador is not isolated; it is part of the broader Canadian tech ecosystem and, as such, must also address the challenges faced by the sector as a whole. From continuing to invest in ensuring that all those who want to participate in the tech sector can (in an environment where women tech workers have consistently experienced pay differences), to compensation levels that make it harder to stay competitive with comparable U.S. markets, the tech sector in Newfoundland and Labrador still has room to grow and fulfill its potential.

Newfoundland and Labrador's tech sector need to retain its stable progress, one that is marked by careful development of the unique values the province brings (for example, from a proximity to the ocean, and geological industries that drive much of the technical innovation in the province to an attractive offering as a place to live). These unique value propositions are likely to shift into the future, and the existing infrastructure that supports them needs to be nurtured.

We are confident that, with time, proper investment, and continued support, Newfoundland and Labrador's tech ecosystem can grow to become a central pillar of the provincial economy — one where local tech companies can compete for talent on a global scale.

Appendix A - Tech Occupations Definition

The following table lists the set of occupations that are classified as tech under the 2021 National Occupational Classification (NOC)

Table A1: Tech Occupations

Occupation code	Occupation title	Tech intensity (percentile)
21311	Computer Engineers (Except Software Engineers and Designers)	0.9
21232	Software Developers and Programmers	1.0
21301	Mechanical Engineers	1.2
21320	Chemical Engineers	1.4
22220	Computer Network and Web Technicians	1.5
21234	Web Developers and Programmers	1.6
21390	Aerospace Engineers	1.7
10030	Telecommunication Carriers Managers	1.8
21230	Computer Systems Developers and Programmers	2.2
21310	Electrical and Electronics Engineers	2.4
22211	Industrial Designers	2.6
21222	Information Systems Specialists	2.8
22222	Information Systems Testing Technicians	2.8
20012	Computer and Information Systems Managers	2.8
72205	Telecommunications Equipment Installation and Cable Television Service Technicians	2.9
21220	Cybersecurity Specialists	3.2
21223	Database Analysts and Administrators	3.2
52112	Broadcast Technicians	3.3
21233	Web Designers	3.5
21211	Data Scientists	3.9
72204	Telecommunications Line and Cable Installers and Repairers	4.1

21330	Mining Engineers	4.5
21331	Geological Engineers	4.5
21109	Other Professional Occupations in Physical Sciences	4.6
21100	Physicists and Astronomers	4.8
21399	Other Professional Engineers	4.9
22302	Industrial Engineering and Manufacturing Technologists and Technicians	5.1
21322	Metallurgical and Materials Engineers	5.2

Appendix B - Tech Sector Definition

Below, we present our definition of the tech sector. This definition was derived by understanding the concentration of workers in tech roles (workers who are working in occupations as defined in Appendix A) for each detailed industry group. We used national employment for this exercise, as we require a full crosstab of detailed occupations with detailed industries, something that is only possible when one looks at the entire Canadian labour market.

We then classify any industry with a concentration of workers in tech roles that is at least 3 times the concentration of workers in tech roles across all industries (6.45%, or at least 19.35%), as the tech sector. In the table below, we show the list of qualifying NAICS, with accompanying employment in NL, as well as example companies, most of which are techNL members.

Table B1: Tech Sector Industries

NAICS Code	Industry Name	Concentration of Tech Roles (National)	Example techNL member	Employment in Newfoundland and Labrador
3342	Communications Equipment Manufacturing	36%	Rutter Inc	10
4173	Computer and Communications Equipment and Supplies Merchant Wholesalers	37%	C-Core	115
5173	Wired and Wireless Telecommunications Carriers (Except Satellite)	37%	Inmarsat	1,080
5174	Satellite Telecommunications	81%	Inmarsat	165
5179	Other telecommunications	55%	Telelink	55
5415	Computer Systems Design and Related Services	64%	SoftLogic Inc	2,305
5417	Scientific Research And Development Services	21%	eDNAtec	355

5511	Management of Companies and Enterprises	22%	Pelorus VC (non-member)	265
3333	Commercial and Service Industry Machinery Manufacturing	27%	Avalon Robotics	55
3344	Semiconductor and Other Electronic Component Manufacturing	22%	Titan Industrial Electronics, Inc.	30
3345	Navigational, measuring, medical and control instruments manufacturing	24%		
3364	Aerospace Product and Parts Manufacturing	21%	StrobelTEK, PAL Aerospace	140
3369	Other Transportation Equipment Manufacturing	21%	NA	0
4862	Pipeline Transportation of Natural Gas	24%	NA	0
5112	Software Publishers	53%	ClearRisk	90
5182	Data Processing, Hosting, and Related Services	52%		
5211	Monetary Authorities - Central Bank	37%	NA	0
5231	Securities and Commodity Contracts Intermediation and Brokerage	22%	Killick Capital (non-member)	160
5413	Architectural, Engineering and Related Services	20%		
5232	Securities and Commodities Exchange	38%	NA	0
5239	Other Financial Investment Activities	20%	Clientime	440
5261	Pension Funds	30%	NA	25

5269	Other funds and financial vehicles	26%	NA	0
3341	Computer and Peripheral Equipment Manufacturing	35%	AudyseTech	10
3343	Audio and Video Equipment Manufacturing	29%	NA	0