



Sectoral Profile

Professional Scientific and Technical Services

Atlantic Region

2018



KEY HIGHLIGHTS

- In 2017, the Professional, scientific and technical services industry group employed 57,300 workers in Atlantic Canada, which represented 5.2% of total employment in the region and 6.5% of service sector employment.
- Professional, scientific and technical services has generated the strongest employment growth in the Region and consistently outpaced employment growth nationally in the sector for at least the last 10 years.
- The pace of job growth in this sector is expected to slow over the next couple of years however, in response to a less robust economic environment, slowing construction activity, and tight government budgets.
- Two industry subgroups; Computer systems design and Architectural, engineering and related services industry comprised the greatest proportion of workers in this industry group in Atlantic Canada, 20.4% and 20.3% respectively. Accounting, tax preparation, bookkeeping and payroll services followed with 15.9% of total sector employment.
- The Architectural, engineering and related services subgroup contributed the most to this industry group's GDP in Atlantic Canada in every year during the 2010-2017 period, and in 2017 accounted for 25% of the sector's total value of production.
- Of the four Atlantic provinces, Professional, scientific and technical services is most significant in Nova Scotia. The province accounted for half of the Atlantic sector's employment and value of production in 2017.

INDUSTRIAL PROFILE

The Professional, scientific and technical services industry group is comprised of a diverse mix of NAICS (North American Industry Classification System) industry subgroups. The distinguishing feature of this sector is that most of the industry subgroups have production processes that are almost wholly dependent on worker skills, while equipment and materials are of secondary importance.¹ The establishments classified in this industry group are characterized as selling expertise, and the individual industry subgroups are defined on the basis of the particular expertise offered.

As is seen in Table One, data from the 2016 Census of Canada indicates that Computer systems design and related services was the largest employer within the overall industry group in Atlantic Canada with 20.4% of total employment. This was also the case in three of the Atlantic provinces. Architectural, engineering and related services was the next largest employer at 20.3%, compared to 18.1% nationally, making it the largest subgroup employer within the sector in the country.

Table One
Employed Labour Force - Professional, Scientific & Technical Services
Atlantic Canada and Canada

	Atlantic	Canada
Professional, scientific and technical services	100%	100%
Computer systems design and related services	20.4%	21.7%
Architectural, engineering and related services	20.3%	18.1%
Accounting, tax preparation, bookkeeping and payroll services	15.9%	13.4%
Legal services	12.8%	11.8%
Management, scientific and technical consulting services	11.4%	12.9%
Other professional, scientific and technical services	8.1%	7.0%
Advertising, public relations, and related services	5.0%	6.6%
Scientific research and development services	3.2%	4.0%
Specialized design services	3.0%	4.6%

Source: Statistics Canada, 2016 Census of Canada, Table 98-400-X2016290

The Professional, scientific and technical services industry group displays a high level of self employment. In Atlantic Canada during 2017, 12% of the Atlantic region's total workforce were self employed. Within the Professional, scientific and technical services sector in 2017 however, 29% of the workforce were self employed.²

The Professional, scientific and technical services sector has a higher proportion of males in its workforce than is found in the overall Atlantic labour market. Atlantic Canada's workforce was 50.1% male in 2017 while in the same year, employment in the Professional, scientific and technical services industry group was 58.5% male.

The sector employs fewer young workers than are found in the overall Atlantic workforce. Just 5.6% of Professional, scientific and technical services workers were aged 15-24 in 2017, while 12.8% of the overall

¹ More information on the 2012 NAICS can be found at:

<http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=118464&CVD=118466&CPV=541&CST=01012012&CLV=2&MLV=5>

² Statistics Canada Cansim table 14-10-0026-01

workforce was comprised of persons in this age group.³ The lower percentage of young workers is quite likely because of the higher educational requirements of the professional occupations in the industry group. Much of the expertise requires a university or college education. As such, the sector was represented by a higher percentage of workers in the 25-54 age group (71.4% versus 64.2% in the overall workforce) while those aged 55 and over occupied the remaining 23% of employment, identical to that found in the general workforce.

Professional, scientific and technical services accounted for 3.4% of Gross Domestic Product (GDP) in Atlantic Canada in 2017. The industry group was also responsible for 4.8% of Services-producing sector GDP in Atlantic Canada in 2017.

The largest proportion (25%) of the value of production in 2017 was generated within the sector by Architectural, engineering and related services. Computer systems design and related services was the second largest contributor to GDP accounting for 24% of the industry group's overall production value.⁴

RECENT HISTORY

Professional, scientific and technical services has been the fastest growing industry group in the Atlantic provinces in recent years, averaging 3.0% annual employment growth since 2007. While the Atlantic Region's employment level was down in each year from 2014 to 2017, the Professional, scientific and technical services industry group saw its employment level fall in 2016 only (-3.6%). Employment in the sector was up again in 2017 but just by 1.1%. This sector serves most sectors of the economy with accounting and legal services, architectural and engineering services, scientific research and computer design, and as such is impacted by cyclical swings as experienced in the forementioned 2014 to 2017 period. The high-tech nature of the sector however, has been instrumental in the overall strong employment and GDP growth over the longer term.

Employment growth in the sector in Atlantic Canada was mostly generated by Computer system design services, the largest employer among the industry sub-groups, which expanded by an average annual growth rate of 5% between 2010 and 2017 (adding 4,000 jobs over this seven-year period).

A recent Statistics Canada survey reported that Canadian businesses spent \$14 billion because of cyber security incidents in 2017, with \$8 billion going to employees, consultants and contractors. Banking institutions, universities and pipeline transportation businesses were the most affected by cybercrime.⁵ A recent Deloitte study found that Canadian firms plan to hire over 8,000 cybersecurity experts over the next two years.⁶

In Atlantic Canada, we have seen new hiring by firms that specialize in cybersecurity, mostly in New Brunswick and Nova Scotia. Fredericton's Diefiendo, Siemens and Canadian Nuclear Laboratories have been adding to their workforce and a new Cybersecurity Centre of Innovation was established in the city's Knowledge Park. In Halifax, Beyond Trust is hiring 150 more employees over the next five years and Bulletproof Solutions also plans to add 60 more to their workforce.

Ocean research is another growing field in 2018, particularly in Nova Scotia. In 2018, ACOA provided Dalhousie University with \$5.9 million to establish a computing platform called DeepSense, to help grow the regional ocean economy. Research Nova Scotia Trust invested \$6.5 million to nine ocean science projects with

³ 2016 data suppressed in Newfoundland and Labrador

⁴ Please note that GDP was not available for some of the sector's smaller subgroups because of suppressed data in Prince Edward Island.

⁵ Financial Post; October 15, 2018

⁶ Global News; December 5, 2018

expectations of 170 new jobs and the provincial government together with ACOA is investing \$920,000 for ocean technology startups. In Nova Scotia alone, there are more than 300 ocean-sector businesses with 60 of them focussed on research and product development that already have a demand from 90 countries around the world. In November of 2018, the federal government signed an agreement to invest nearly \$153 million, to be matched by the private sector, in the Atlantic-based Ocean Supercluster to accelerate innovation and economic growth. It is hoped that the the funding will create more than 3,000 jobs over the next 10 years.

EXPECTED OUTLOOK

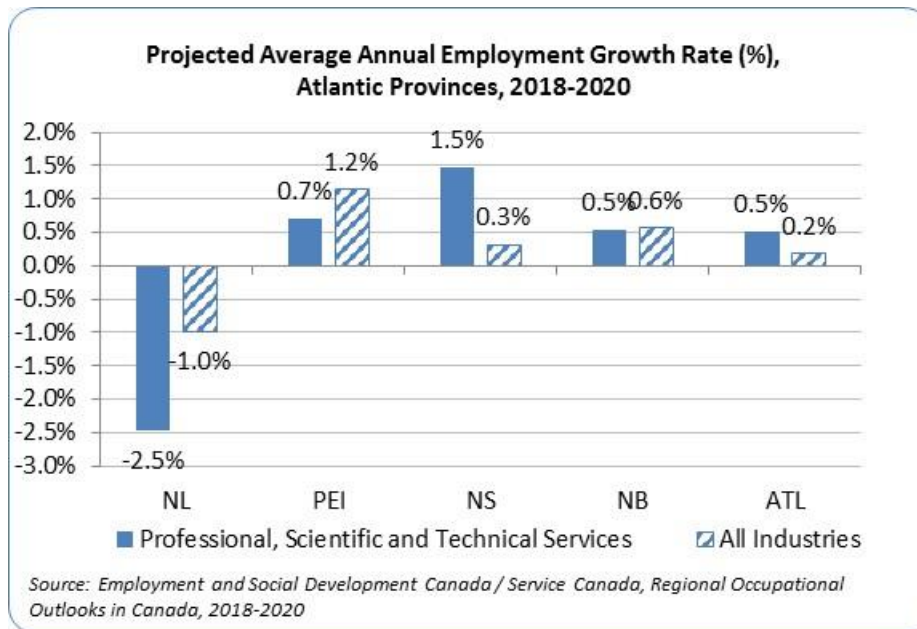
The employment downturn during 2016, driven by a slowing resource sector and related spinoff activities, dampened expectations for Atlantic Canada's job market. Weak employment growth is expected to persist throughout the 2018 to 2020 forecast period.

The Atlantic region's subdued overall employment outlook is attributed to lacklustre labour market performance in Newfoundland and Labrador. The recent slide in resource sector activity, which saw a fifth of the energy sector laid off in response to weak oil prices in addition to unemployment following the closing of iron ore mines has been detrimental to support businesses and other industries as well. Hundreds lost their jobs when a shipyard finished making a large module for Hebron and the resulting reduction in consumer spending has affected real estate prices and sales as well as construction and retail establishments.

The province's fiscal position has also been affected by the associated decline in business and consumer spending and while no layoffs are expected within the provincial government, fiscal restraint can be expected regarding spending on new projects. Since the Professional, scientific and technical services sector provides services to most sectors of the government and business communities, a reduction in demand and employment was inevitable. The three remaining Atlantic provinces however, anticipate a combined slight overall employment increase each year over the 2018-2020 period.

This cautious outlook has been extended to the Professional, scientific and technical services industry group, considering it supports and provides services to individuals and organizations across a range of activities tied to the well-being of the economy. The pace of job growth within the Professional, scientific and technical services industry group in the Atlantic Region is expected to slow over the next couple of years in response to the less robust economic environment, slowing construction activity, and tight government budgets.

The chart below displays expectations of employment growth in the Professional, scientific and technical services sector and in all industries combined over the three-year period from the beginning of 2018 through 2020. Nova Scotia is expected to account for most of the employment gains while anticipated declines in Newfoundland and Labrador will reduce Atlantic average annual employment growth in the sector to just 0.5%.



SUB-REGIONAL DYNAMICS

Newfoundland and Labrador

- Newfoundland and Labrador led employment growth within the Professional, scientific and technical services industry group with a 5.4% average annual growth rate between 2010 and 2017 despite declines in both 2016 and 2017.
- The province accounted for 17.1% of Atlantic employment in 2017 and contributed 22.7% of the Atlantic sector's GDP.
- The largest industry subgroup within the province, Architectural, engineering and design services has added the greatest number of jobs since 2010.

Prince Edward Island

- Prince Edward Island employed just 6.1% of the total Atlantic employment in the sector and contributed to 4.5% of the value of production or GDP.
- Employment growth for the industry group in PEI averaged 3.8% annually between 2010 and 2017, although employment was down in 2017.
- Computer system design services has been responsible for the largest employment gains in the sector on the Island since at least 2010.⁷

Nova Scotia

⁷ Statistics Canada's Labour force survey annual industry estimates: Table 14-10-0202-01

- Nova Scotia accounted for 49.6% of total employment in the Atlantic sector in 2017 and was also the largest contributor to production value with 45.5% of GDP generated by the sector in the Atlantic Region. Provincial employment in the overall Professional, scientific and technical services industry group expanded by 7,300 between 2010 and 2017.
- The province has experienced the second highest rate of employment growth of the four Atlantic provinces with a 4.3% average annual rate between 2010 and 2017.
- Accounting and Tax Preparation has been the fastest growing employer within the provincial sector with 2,100 jobs added between 2010 and 2017, and an average annual growth rate of 10%.

New Brunswick

- The New Brunswick Professional, scientific and technical services industry group has experienced employment declines in five of the last seven years.
- Accounting and tax preparation and Architectural, engineering and design services has accounted for the sector's diminishing employment level in recent years.
- Despite recent declines, New Brunswick was still the second largest provincial employer in 2017 with 27.2% of Atlantic employment in the sector.
- New Brunswick is quickly becoming a cybersecurity hub with recent major investments by companies like IBM and TD Bank, and the Canadian Cybersecurity Institute at the University of New Brunswick. Cybersecurity is a major area of growth within the sector currently.

APPENDIX

Table Two
Real GDP (2017) and Employment (2017) for Atlantic Canada

	Professional, Scientific and Technical Services			All Industries		
	Number	Share of Total	AAGR*	Number	Share of Total	AAGR*
Real GDP (M\$)	\$3,459.9	100.0%	1.4%	\$103,262.4	100.0%	0.4%
Newfoundland and Labrador	\$787.1	22.7%	0.9%	\$31,585.2	30.6%	-0.3%
Prince Edward Island	\$155.6	4.5%	1.3%	\$5,540.0	5.4%	1.5%
Nova Scotia	\$1,573.8	45.5%	2.3%	\$35,955.4	34.8%	0.8%
New Brunswick	\$943.4	27.3%	0.6%	\$30,181.8	29.2%	0.4%
Employment (000s)	57.3	100.0%	3.0%	1099.8	100.0%	0.1%
Male	33.5	58.5%	3.0%	550.8	50.1%	-0.1%
Female	23.8	41.5%	2.9%	549.0	49.9%	0.2%
15-24 years old	3.2	5.6%	-1.4%	140.3	12.8%	-1.5%
25-54 years old	40.9	71.4%	2.5%	706.1	64.2%	-0.7%
55 years and older	13.2	23.0%	6.7%	253.4	23.0%	4.3%
Worked full-time	50.0	87.3%	2.8%	918.9	83.6%	0.1%
Worked part-time	7.3	12.7%	4.1%	180.9	16.4%	-0.1%
Self-employed	16.6	29.0%	3.1%	131.5	12.0%	0.0%
Employees	40.7	71.0%	2.9%	968.3	88.0%	0.1%
Permanent job	36.4	63.5%	3.3%	788.2	71.7%	0.2%
Temporary job	4.3	7.5%	-0.2%	180.1	16.4%	-0.2%
Less than high school	n/a	n/a	n/a	103.3	9.4%	-4.4%
High school graduate	7.1	12.4%	1.4%	286.2	26.0%	-0.8%
Postsecondary cert. or diploma	20.6	36.0%	2.5%	430.5	39.1%	0.5%
University degree	29.2	51.0%	4.3%	279.8	25.4%	3.0%
Newfoundland and Labrador	9.8	17.1%	1.8%	224.1	20.4%	0.3%
Prince Edward Island	3.5	6.1%	5.2%	73.7	6.7%	0.7%
Nova Scotia	28.4	49.6%	5.1%	449.0	40.8%	0.0%
New Brunswick	15.6	27.2%	0.3%	352.9	32.1%	-0.1%

Source: Statistics Canada, Labour Force Survey - Custom Table; Table 36-10-0402-01

*Average annual growth rate for last ten years of available data (GDP 2008-17 and Employment 2008-17)

Note: In preparing this document, the authors have taken care to provide clients with labour market information that is timely and accurate at the time of publication. Since labour market conditions are dynamic, some of the information presented here may have changed since this document was published. Users are encouraged to also refer to other sources for additional information on the local economy and labour market. Information contained in this document does not necessarily reflect official policies of Employment and Social Development Canada.

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