



Sectoral Profile

Professional, Scientific and Technical Services

Ontario

2016-2018



Sectoral Profiles provide an overview of recent labour market developments and outlooks for some of the key industries in various regions of the country.

PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES – CONTINUED ADVANCES FROM A POSITION OF STRENGTH

- Growth in the professional, scientific and technical services (PSTS) sector is generally tied to infrastructure and business investment, energy development and information & communications technology (ICT) industries
- This sector's success is dependent on other areas of the economy since businesses and government are its main clients
- Increased use of technology spurs computer systems design, sustained activity in real estate and construction drives demand for architecture, engineering and design services, and businesses always require legal & accounting services
- As demand for PSTS remains solid going forward, average annual employment growth in the industry is expected to be 1.5% over 2016-2018, adding just over 26,000 jobs to the economy

The Canadian professional, scientific and technical services (PSTS) sector is concentrated in Ontario, which accounted for almost half of the nation's employment within the sector. Out of the approximately 579,600¹ people in the province employed in the sector, about 62% are located in the Toronto economic region. This is mainly due to Toronto being home to the headquarters for many companies which use this sector's services, particularly financial services institutions, and the various technology companies located in Ontario.

In terms of employment, the dominant subsectors within PSTS are computer systems design services (27%), followed by legal & accounting services (23%), architectural, engineering & design services (21%), and management, scientific & technical consulting services (14%). The large majority of the workforce in the PSTS industry is highly-skilled due to the higher educational and skills requirements for many positions. Close to 30% of the workforce consists of financial auditors and accountants (NOC 1111), information systems analysts and consultants (NOC 2171), lawyers (NOC 4112), paralegal and related occupations (NOC 4211), computer programmers and interactive media developers (NOC 2174), and bookkeepers (NOC 1231). The PSTS sector workforce is also characterized by a significant proportion of self-employed workers (32%). It is important to note that occupations found in this sector, such as accountants, engineers, payroll, HR & marketing personnel,

¹ Statistics Canada, CANSIM TABLE 282-0088 – LFS Employment by NAICS (2015 Annual Average)

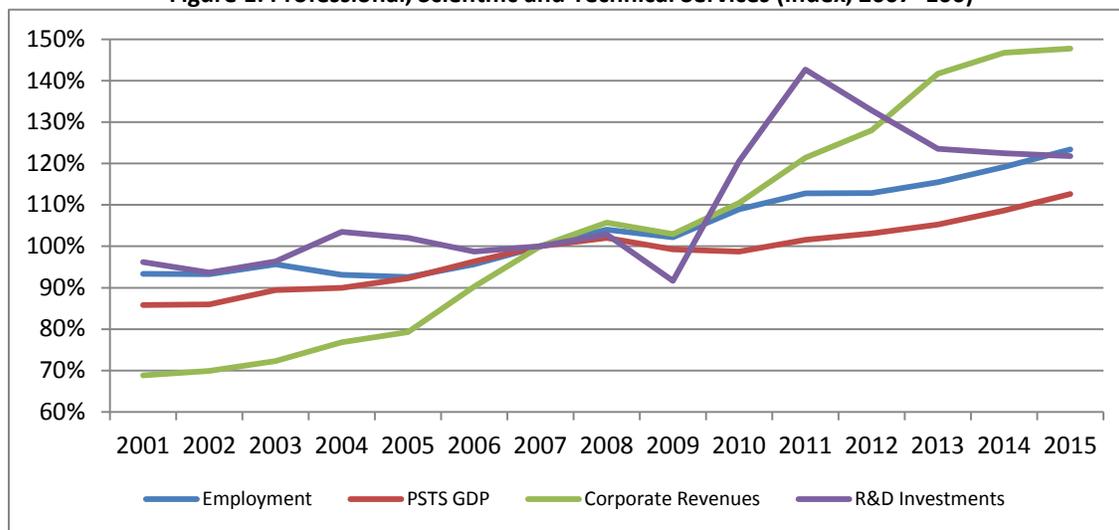
researchers and even some lawyers, are also found in other sectors (i.e., finance, manufacturing, mining, etc.) where organizations employ these workers 'in-house'.

Solid recovery from a relatively shallow employment decline in 2009

The entire PSTS sector has been growing steadily since 2001 (barring the 2009 recessionary dip), driven by the strength of the technology and real estate sectors which spurred demand for architecture & engineering services. In 2015, the sector's GDP was estimated at \$39.2 billion; \$11.3 billion from computer systems design, \$10.1 billion from legal and accounting, \$9.1 billion from other professional services (including scientific R&D), \$6.3 billion from architectural and engineering, and \$2.2 billion from advertising, Public Relations, and other services. The industry's GDP accounted for almost 7% of Ontario's total GDP.

From 2005 to 2015, employment in the sector increased by 33%, making it the fastest growing industry in the province. In comparison, total employment across all industries increased by 9%. Figure 1 below illustrates the steady GDP growth during the 2001-2008 period followed by a slight decline in 2008-2010 from which it has since recovered to continue at a steady moderate pace. Employment growth was fairly stagnant from 2001 to 2005. After 2005, there was significant employment growth which coincides with a boom in corporate revenues from 2005 onwards.

Figure 1: Professional, Scientific and Technical Services (Index, 2007=100)



Source: Statistics Canada, LFS and CANSIM Tables 187-0002 & 358-0161

Investments are the lifeblood of the sector

The PSTS sector relies heavily on the performance of the domestic economy and is driven by corporate revenues, business activities and sustained levels of investment in research & development (R&D), machinery & equipment (M&E) and structures². These investments come from both private and public sectors. The government supports sector growth through investments in skills, education and infrastructure while also providing support through grants, tax credits and other funding programs. Government infrastructure spending is also important to this sector. In recent years, government infrastructure investments have been much

² Structures are defined as the construction, major renovations or conversions of residential, industrial, commercial and institutional buildings, as well as permanently built-in equipment (usually split into residential and non-residential)

greater than the investment contributed by business. This investment tends to spur other businesses/sectors that are clients of the PSTS sector corporations and will also drive employment in the sector, in particular demand for technical researchers (to develop ideas for more efficient and cost effective products), architects, engineers and designers (to make the plans that turn the ideas into reality), and even management consultants, accountants and lawyers (to determine whether the investments will be beneficial to clients and are strategically, economically & legally feasible). Depending on what kind of assets the investments go towards developing, it could also impact employment in the computer systems design sub-sector (to help design and create the relevant computer systems and software for the particular asset).

In the years just prior to the 2008-2009 recession, government and business investment in structures and M&E had a similar upward trend and did not have a significant gap. During the 2008-2009 recession while business investment declined, government investments jumped (particularly in structures) likely due to the large investments provided by the government to stimulate the depressed economy. By 2011, business investments recovered but were increasing at a slower rate compared to earlier in the decade, as businesses were cautious about the economic environment. Businesses still remain cautious and are expected to move carefully when it comes to investment spending.

Government investment had stagnated in recent years as governments began to focus on tightening fiscal spending. Going forward, the federal government budget will increase spending, particularly in R&D and the innovation economy. Provincially, the Ontario government is focused on fiscal tightening and balancing the budget by 2018. That being said, it plans to invest significantly into green initiatives and related infrastructure which will likely positively impact many areas of the PSTS sector. The economy will also look to businesses to provide key investments to drive employment.

Although the PSTS sector is focused in domestic markets, it is sensitive to the impacts of global externalities since overall economic stability is important to all sectors, and clients of firms offering professional, scientific and technical services could be businesses which focus on foreign markets. The computer system design sub-sector is especially exposed to the foreign market since almost 20% of its revenues come from exports, mainly to the United States. In the 2016-2018 period, strength in exports will be key to many Ontario industries. Factors such as exchange and interest rates currently support continued export revival and this should spur further business investment. Should exports falter, it could seriously impact future growth to the downside.

Computer system design services, and architectural, engineering, & design services lead growth among subsectors

Architectural, Engineering & Design Services

Architectural, engineering & design services has shown solid growth in both production and employment over the past decade. Increases in residential and non-residential construction investment, and government investment in infrastructure and energy projects have contributed to growth and demand for labour. This is an area of the labour market which is often thought of as being in shortage. However, perceived shortages may be explained by location mismatches between workers and jobs (surplus of workers in urban areas and shortage of workers in rural areas) and a lack of accreditation recognition of highly skilled/educated immigrants.³ Architectural, engineering and related services employment is expected to continue growing overall. The potential for a real estate market slowdown could slow growth in during the forecast period, however, this possible slowdown from peak levels has yet to come to light. Many infrastructure & capital spending projects

³ OSPE and Prism Economics report, Crisis in Ontario's Engineering Labour Market: Underemployment among Engineering-Degree Holders, Jan 2015.

that were expected related to the 'Ring of Fire' and other mining developments in northern Ontario have been delayed or halted with the commodity price declines. However, some are expected to continue (road and transit systems). Other projects (energy/utilities projects and accessibility to Northern Ontario) may need additional private sector funding in conjunction with public sector investment to deal with potential high costs, and this would further increase demand for engineering services.

Computer Systems Design Services

Computer systems design services was and continues to be driven by the demand for new ICT products and services and the quick pace at which they are adopted in businesses and governments. The subsector has been historically strong and production has grown by an annual average of 2% over the past decade.⁴ Many of these products/services are exported, particularly to the United States. The computer system design services sector is expected to continue high levels of production and stable employment growth over the 2016 to 2018 period. Increasing ICT business needs and rapid technological advances imply new products will always be readily available to create new opportunities. The industry will benefit from firms outsourcing IT work to companies specializing in computer design services in order to reduce costs and gain efficiencies. The Canadian dollar's recent weakness increases the cost of foreign IT services for Canadian companies, which could lead to even more domestic IT services being called upon and would bode well for local employment, including specialized occupations such as information systems analysts and consultants (NOC 2171), database analysts and data administrators (2172), software engineers and designers (2173), computer programmers and interactive media developers (2174), web designers and developers (2175).

Legal and Accounting and Other Professional Services

The legal & accounting and other professional services (such as advertising, public relations, management consulting, and HR) subsector has shown strong employment growth over past the past decade, however employment in accounting and legal services stagnated from 2011 to 2014. Changes affecting the legal profession such as globalization (i.e., competition from international firms), technology, and client desire for "more for less" are leading to pressures on legal service providers to cut costs.⁵

Although public sector demand for professional services could be mixed due to contrast in fiscal spending at the various levels of government, rising corporate profits and continued corporate activity such as merger & acquisition deals across industries are expected to drive employment for legal, accounting & consulting professionals. Changes to capital standards policy (Basel III) for financial institutions and accounting (IFRS) & regulatory changes will increase demand for legal & accounting professionals. Also, with the recent 'Brexit' and the focus on international trade deals, potential legal and regulatory changes to adapt to various trade situations may increase demand for legal professionals and consultants in the near-term.

Employment in other professional services is expected to do well as public sector investments in R&D activities begin to increase with the new federal budget plan. This could impact demand for various researching and scientific services. The translation services sector is important in Canada, having two official languages, and will be in demand with continued globalization and expansion of international trade. Veterinary services will be in high demand as pet ownership continues to increase and is sensitive to the animal farming sector.

⁴ Table 379-0030 – GDP by NAICS and provinces

⁵ CBA Legal Futures Initiative. Retrieved from:

http://www.cba.org/CBAMediaLibrary/cba_na/PDFs/CBA%20Legal%20Futures%20PDFS/Futures-Final-eng.pdf

Sector Outlook 2016-2018

There is currently a high level of business activity related to the services provided by the PSTS sector. The sector will continue to benefit from the trend of companies (from various industries) which outsource corporate functions to specialized firms to improve operational efficiencies. In addition, the depreciation in the Canadian dollar might temper offshoring and boost demand for domestic services. Despite this, the pace of growth is expected to slow compared to earlier in the decade, due to economic uncertainty. Overall, average annual employment growth in the industry is expected to be 1.5% over 2016-2018, adding just over 26,000 jobs to the economy.

Sub-provincial trends

Ontario's PSTS sector consists of almost 180,000 establishments⁶, mainly concentrated in urban areas, with about 64% located in the Toronto region, followed by Ottawa with 11%, Kitchener-Waterloo-Barrie at 7% and Hamilton-Niagara at 6%.

The **Toronto economic region** accounts for about 63% of employment in the Ontario PSTS sector. Toronto is a leading commercial, distribution, financial and economic centre, and has the third largest financial sector in North America. It is home to many of Canada's corporate headquarters including those of Canada's five largest banks and the Canadian headquarters for many of the foreign companies operating in Canada.⁷ The Toronto region can expect many gains in the PSTS sector, particularly in professional services related to financial services and real estate. Business investment expenditures in Toronto are forecast to show strong growth as large scale infrastructure and utilities projects, both public and private funded, throughout the region and a strong tech sector will push demand for architects, engineering and computer system programmers. Heightened private R&D investments in scientific research will also account for demand. While government spending constraints at the provincial and municipal levels may partially offset demand, increased federal spending in R&D and innovation initiatives and provincial focus on green initiatives will boost certain areas of this sector.

The **Kitchener-Waterloo-Barrie economic region** accounts for about 7% of employment in the PSTS sector. The region's economic prosperity is linked to a large and growing technology sector which is home to more than 1,000 technology firms including BlackBerry, Google Canada and at least 700 start-ups.⁸ The expansion of the technology sector in this region is expected to continue as more tech firms and start-ups are established. The region is a key part of Ontario 'Digital Corridor' which is home to various multi-national tech firms and ICT companies are major economic drivers to the region.⁹ The increased investment in projects will drive many of the PSTS sub-sectors. The academic institutions in the region focus on engineering and computing programs which draw many companies to open up their regional operations in the region. Infrastructure projects in urban centres like Kitchener and Waterloo will also be a contributor to PSTS sector employment in the region.

The **Ottawa region** accounts for about 12% of employment in the PSTS sector. The PSTS sector plays an important role in the Ottawa region, mainly due to the growing technology sector. Given the new federal government's budget and innovation agenda, the ICT sector should continue to experience gains as the federal

⁶ Canadian business counts, by NAICS, Canada and provinces, December 2015 – Tables 552-0002 & 553-0002

⁷ Toronto Region Board of Trade report, *Toronto as a Global City: Scorecard on Prosperity – 2014*, pg. 58, paragraph 6.

⁸ Ontario Chamber of Commerce – Regional Economic Outlook 2015 (Kitchener-Waterloo-Barrie)

⁹ Newdesk. (September 2014). **York Region - Digital Corridor**. *TechVibes*. Retrieved from: <http://www.techvibes.com/blog/york-region-an-integral-leader-in-digital-corridor-2014-09-08>

government is a major client in the region.¹⁰¹¹ Multiple major infrastructure projects either planned or already in progress, will drive demand for architecture & engineering related employment.

The **Northeast** and **Northwest economic regions** combined account for only 2.8% of employment in the PSTS sector, over 50% of which are found in the Thunder Bay and Sudbury CMAs. Mining and utilities are important industries in these regions and, investment and development in these industries through major projects will have some positive spill-over effects on PSTS sector employment. Demand for architects, engineers and scientific researchers will be positively impacted. Many lawyers and accountants in these regions are self-employed with their own practices rather than being part of large firms; other business professionals are in-house employees at companies. Overall, the outlooks for these regions during the forecast period are likely to be consistent with the provincial average. However, certain specialized skills required for some of the occupations in the PSTS industry may be more difficult to find in these regions.

Other economic regions such as **Hamilton-Niagara**¹² and **London** continue to move towards a knowledge-based economy (increased high-tech, life sciences research and financial services). **Stratford-Bruce** and **Muskoka-Kawarthas** regions have shown increased levels of employment in engineering and researching positions due to the higher number of energy/utilities projects. The **Windsor-Sarnia** region's manufacturing-centric economy could contribute to increased employment in engineering and design roles, while **Kingston-Pembroke** region's service-centric economy with a strong government presence may increase employment of legal, consulting and other professional services.

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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¹⁰ Pechloff, Tom. (March 29, 2016) **Ottawa tech sector hits employment high.** *Ottawa Business Journal*. Retrieved from: <http://www.obj.ca/Technology/2016-03-29/article-4480815/Ottawa-tech-sector-hits-all-time-employment-high,-says-Invest-Ottawa-survey/1>

¹¹ Silcoff, Sean. (September 20, 2015). **Ottawa's push for tech revival.** *The Globe and Mail*. Retrieved from: <http://www.theglobeandmail.com/technology/ottawas-resurgent-tech-scene/article26430302/>

¹² Hamilton Economic Development. Retrieved from: <http://www.investinhamilton.ca/key-industries/information-communication-technology-digital-media/>