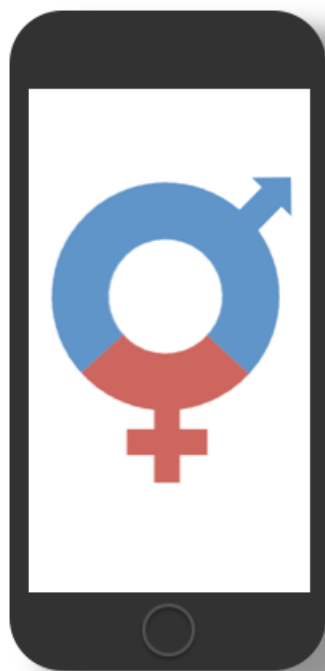


 **UP THE  
NUMBERS**

 **FAISONS GRIMPER  
LES CHIFFRES**



# WHERE ARE THE WOMEN IN THE CANADIAN ICT INDUSTRY?



**WCT** | **FCT**  
Women in  
Communications  
and Technology | Les femmes en  
communications  
et technologie

## PART 1: WHERE ARE THE WOMEN IN THE CANADIAN ICT INDUSTRY?

*Sometimes the most enduring revolutions occur quietly, by stealth*

In Canada in 1953 only one woman in four participated in the workforce. By 2014 women's labour force participation had reached 82 per cent. So more than 8 out of ten women were in the workforce and accounted for 47% of working Canadians.<sup>1</sup> The gender norm today is such that when you encounter a woman between 25 and 54 years of age, you can reasonably assume that she works in a capacity other than (but frequently in addition to) mother and homemaker.

Many factors contributed to this dramatic change. They include changing post-war gender attitudes, rising rates of post-secondary education, improving living standards and increasing expectations and advances in technology in both the home and the workplace – all of which occurred against the backdrop of the Second Wave of the feminist revolution experienced by most Western democracies.

*"...the proportion of female students majoring in computing is not just low – it has fallen dramatically."*

In Canada two generations of women have moved rapidly into the professions. In professional accounting, for example, 50.5 per cent of all auditors, accountants and investment professionals are women.<sup>2</sup> Currently, over 40 per cent of physicians are female and among those aged 44 and under, gender parity has been achieved (53% in 2016)<sup>3</sup>. Similarly, in 2015, 39% of Canadian lawyers were female with the younger cohort (practicing fewer than 5 years) achieving gender parity in many provinces.<sup>4</sup> So gender parity in 2016 does not seem to be an unreasonable expectation.

But the surge of women into the Canadian workforce has not been universally robust across all sectors. Women continue to be under-represented in industries drawing their talent from science, technology, engineering and mathematics disciplines.

For example, the engineering profession reported in 2013 that only 13% of its members were women<sup>5</sup>. And a 2010 study of women in science and engineering noted that "the under-representation of females in natural science and engineering is most severe in computer science".<sup>6</sup> And it appears this level of engagement is consistent with other countries. Citing data from the American

Association of University Women, a recent report indicates "...the proportion of female students majoring in computing is not just low – it has fallen dramatically. In 1984, 37% of computer science majors in the U.S. were women. Today, only 18% are."<sup>7</sup>

With such disproportionately small numbers of women pursuing studies in the disciplines that provide the technology sector with its core competencies and new knowledge, it is therefore, unsurprising that the ranks of women in the industry are thin. With the assistance of analysts at the Information and Communications Technology Council (ICTC), we reviewed data from the Canadian Labour Force Survey (LFS) from January to October of 2016. This showed that on average, women represented 27.1 per cent of people employed in the information and communications technology (ICT) industry.

There has been a notion prevailing in the ICT industry for some time that women constitute about a quarter of the workforce so 27.1% might be seen as grounds for optimism. However, a review of the data for the past 6 years has a dampening effect. In 2011 women represented nearly 30 per cent of the ICT industry. By 2013 their numbers shrank to 25.8% (Figure 2). A longitudinal view of the gender ratio in Canadian ICT suggests that the current figure may represent no more than a small fluctuation in what otherwise reads as a flat line hovering at around 25%.

Figure 1:  
% of women in  
the ICT sector,  
2016

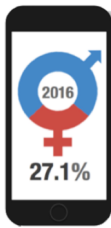
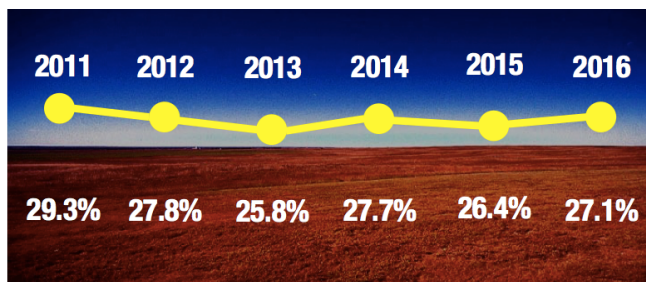


Figure 2:  
% of women in the  
Canadian ICT sector,  
2011-2016

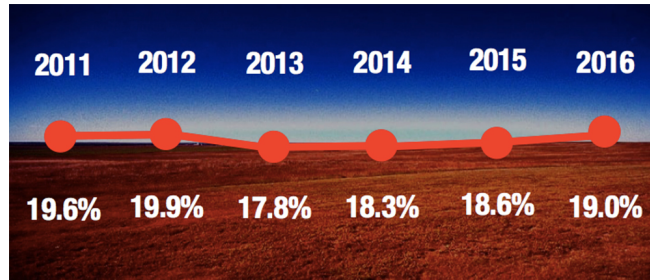


The 27.1% figure is derived from women’s engagement in all National Occupational Codes (NOCs). This reflects the success that many women with non-technology competencies such as accounting, administration, sales and marketing and legal have had in establishing careers in ICT. When we look at the percentage of women employed by the ICT industry in technological occupations (for a complete list of the NOCs used in our calculations please see Appendix 1), the percentage drops to 19.

And, once again, the six-year view shows that this level of engagement is even more stubbornly resistant to change than the percentage of women in the industry. Static or declining enrolment rates for women in engineering and computer science are most sharply reflected here.

Figure 3:

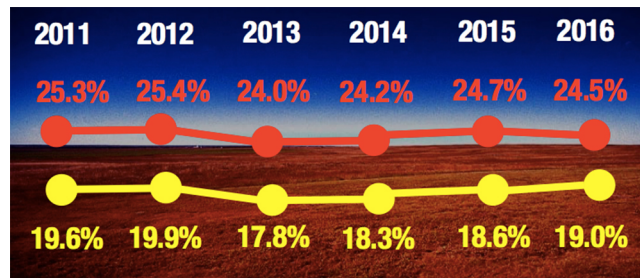
% of women in ICT management roles in the ICT sector, 2011-2016



Of course, technology professionals, including women, are in demand elsewhere throughout the Canadian economy. As our digital economy evolves and sectors from finance to health to retail transform themselves through the increasing adoption of digital tools, the demand for professionals to deploy those tools will grow. This growth will continue to place pressure on the ICT sector to compete effectively for technical talent. The LFS data we reviewed suggests that when it comes to attracting and retaining female technology professionals, the ICT industry is lagging the competition. Today women in ICT roles in the broader digital economy (ICT plus outside of ICT) occupy 24.5% of positions. Over the past six years this ratio and its lead on the ICT industry has been more or less constant.

Figure 4:

% of women in ICT roles in the ICT sector vs. digital economy, 2011-2016



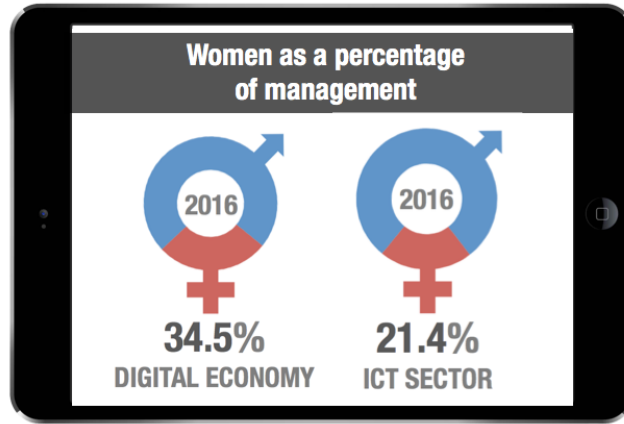
**% OF WOMEN IN ICT ROLES IN THE DIGITAL ECONOMY**

**% OF WOMEN IN ICT ROLES IN THE ICT SECTOR**

Women have also been more successful moving into management roles in the broader economy than in the ICT sector. They currently

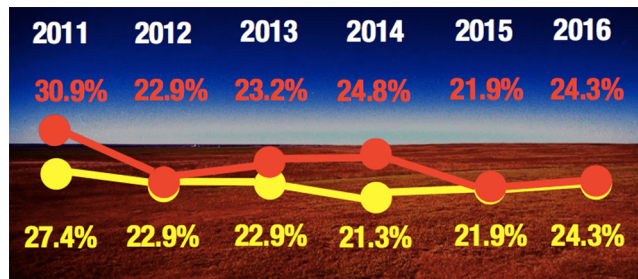
account for about one third of the management workforce compared to 21.4 per cent in the ICT industry.

Figure 5:  
% of women in management roles in the ICT sector vs. digital economy, 2016



The percentage of women in management in technical ICT roles within the ICT industry has tracked closely with the overall management numbers since 2011.

Figure 6:  
% of women in management ICT roles in the ICT sector vs. digital economy, 2011-2016



**% OF WOMEN IN ICT ROLES IN THE DIGITAL ECONOMY**

**% OF WOMEN IN ICT ROLES IN THE ICT SECTOR**

It also follows much the same pattern as women in ICT management roles in the digital economy.

All of these flatlines drawn across the 25% threshold combine to tell their own story of a lack of progress at odds with such a vigorous sector. Women are still seriously under-represented in technology in Canada. They have been for some time and there is no reason to expect this situation will improve. Put another way, the post-war surge in women's employment in Canada appears to have swept right past the ICT industry.

## PART 2: WHY DOES THIS MATTER?

Beyond the social virtues of inclusion and equal opportunity, there are two very simple and compelling reasons to encourage Canadian ICT firms to do a better job of attracting, retaining and advancing women:

*The ICT industry, perhaps uniquely among knowledge industries has just one input to production – human ingenuity.*

1. the ICT industry faces a chronic and dramatic shortage of talent, and
2. diversity improves corporate performance.

The ICT industry, perhaps uniquely among knowledge industries has just one input to production – human ingenuity. No other sector is more dependant on a ready supply of skilled workers. In addition, it is a high growth sector and, like the rest of the Canadian economy, has an aging workforce. And, to make matters worse, the ubiquity of computer technology in virtually every other field of endeavour means that ICT companies compete for talent not only within the industry, but across a all sectors. These factors have contributed to a talent gap shows no signs of going away. As ICTC noted in its National Digital Talent Strategy:

*The growth in digital jobs has outpaced the overall economy in the past two years by over 4 to 1, leading to a strong demand of 182,000 skilled ICT workers by 2019. Unfortunately, the domestic supply of ICT graduates and workers will be insufficient to meet this demand. Engaging all available talent, including women, youth, immigrants and indigenous persons and persons with disabilities will be critical to mitigating the talent shortage.<sup>8</sup>*

The correlation between diversity and corporate performance is well documented. McKinsey's ground-breaking Diversity Matters study stated the case clearly. "Companies in the top quartile for gender diversity are 15 percent more likely to have financial returns above their respective national industry medians. Companies in the bottom quartile for both gender and for ethnicity and race are statistically less likely to achieve above average financial returns than the average companies in the data set."<sup>9</sup>

*...inclusive companies that built diversity and inclusion into their talent management practice had a 2.3 times higher cash flow per employee*

If diversity is critical to overall corporate performance, it is even more requisite in an industry driven by the capacity for innovation. The great management guru Peter Drucker was a champion of diversity and inclusion in all his writing. And now there is a wealth of empirical data to show that he knew what he was talking about. A Deloitte study, for example, showed that inclusive companies that built diversity and inclusion into their talent management practice had a 2.3 times higher cash flow per employee, were 1.8 times more likely to be change ready and were 1.7 times more likely to be innovation leaders in their market.<sup>10</sup> So it seems intuitive that a dynamic industry that prides itself on agility – and where your brand is only as good as your latest innovation -should look for a competitive advantage everywhere it can and embrace diversity and inclusion. Yet the gender gap persists.

Clearly if this situation is to change, commitment to an interventionist strategy is required. Peter Drucker also observed “What gets measured gets improved”. WCT believes that this simple strategy will serve us well – that counting is our best route toward improvement. It launched its Up the Numbers campaign in 2015 with a commitment to track and report key information about where women are in the ICT industry and in the Canadian digital economy. Seven corporate members of the WCT community share this belief and support the campaign: Pythian, Telus, Accenture Canada, Chipworks, Rogers, Cogeco, Microsoft Canada and ICTC. This is our first annual report but it won’t be our last. In coming years we will track improvements or changes in the data points reviewed in this study. We will also explore other aspects of gender diversity in ICT such women in the C-suite in ICT and technology. It may take some time but we believe with that this commitment to counting and reporting we will ultimately “Up the Numbers” and achieve gender parity.

## METHODOLOGY AND DEFINITIONS

To produce this study, Women in Communications and Technology worked with analysts at the Information and Communications Technology Council to review data from the Canadian Labour Force Survey from January to October of 2016.

ICTC defines the “Canadian Digital Economy” as:

- workers employed in ICT occupations across all sectors of the economy (including health, finance, manufacturing, retail etc.) plus
- workers currently unemployed but actively seeking work in the ICT occupations plus
- workers in non-ICT occupations in the ICT sector (including lawyers, accountants, marketing etc.).

ICTC has included the following National Occupation Codes in its definition of ICT occupations:

- 0131 Telecommunications Carrier Managers
- 0213 Computer and Information Systems Managers
- 2133 Electrical and Electronics Engineers
- 2147 Computer Engineers
- 2171 Information Systems Analysts and Consultants
- 2172 Database Analysts and Data Administrators
- 2173 Software Engineers
- 2174 Computer Programmers and Interactive Media Developers
- 2175 Web Designers and Developers
- 2241 Electrical and Electronics Engineering Technologists and Technicians
- 2281 Computer Network Technicians
- 2282 User Support Technicians
- 2283 Systems Testing Technicians
- 5224 Broadcast Technicians
- 5241 Graphic Designers and Illustrators



The ICT Sector is defined by North American Industry Classifications System codes: 3333, 3341,3342, 3343, 3344, 3345, 4173, 5112, 5171, 5174, 5179, 5182, 5415 and 8112.

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**ENDNOTES:**

<sup>1</sup> Statistics Canada, "The Surge of Women in the Workforce"

<sup>2</sup> Catalyst

<sup>3</sup> Physicians' Data Centre, Canadian Medical Association.

<sup>4</sup> Catalyst

<sup>5</sup> 2013 Engineers Canada Membership Report

<sup>6</sup> Women in Science and Engineering, Natural Science and Engineering Research Council. Page 11.

<sup>7</sup> Cracking the Code, Accenture Research and Girls Who Code, 2016.

<sup>8</sup> ICTC, 2016. Page 6.

<sup>9</sup> "Why Diversity Matters" Mckinsey. Vivian Hunt, Dennis Layton and Sara Price. January 2025.

<sup>10</sup> "Why Diversity and Inclusion will be a priority for 2016", Josh Bersin.