



Advantage women: how an automated future could play to women's strengths

The nature of work is changing. Like all other nations, Canada needs to think strategically about how best to use one of its biggest assets—human capital. Automation is upending established ways of working, and our research suggests that about half of all jobs in Canada will change significantly in the years ahead. Technological disruption will naturally impact both men and women in the labour force. But our analysis shows that women are at greater risk as they hold more than half of the 35% of Canadian jobs that face an elevated threat from automation. This isn't to say that women who've already overcome historical and social obstacles will see their labour market gains undone by new technologies. Our work shows that women may be better positioned than men for the jobs of the future. Our view is supported by evidence that generalist, digital and social skills—the skills that women already use to a greater extent—will be in high demand. Helping women make the transition, however, will require a shift in how talent is evaluated.

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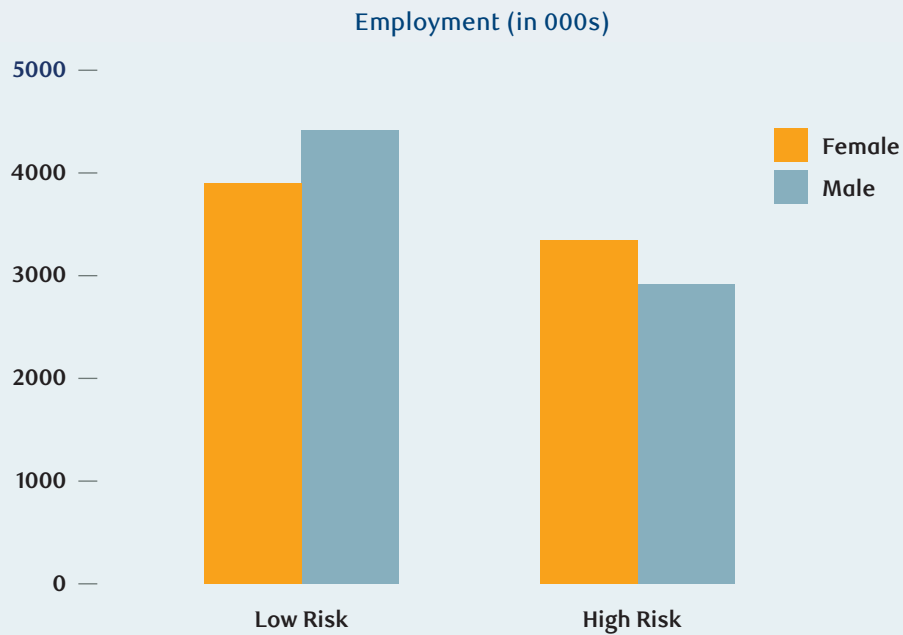


Women's jobs face a higher risk from automation

When thinking of disruption, what comes to mind? For many, it's a male factory worker losing his job to a robotic arm. However, automation is showing up all over the economy, not just in manufacturing. As it makes further inroads into the services sector, women face a higher risk of having their jobs displaced. Administrative, book-keeping, and data-entry jobs—all of which traditionally employ higher numbers of women—are being replaced by artificial intelligence technologies that can maintain, organize and analyze data much more rapidly and efficiently than humans can. By our calculations, 54% of the occupations in the Canadian economy that face a high degree of risk of being automated are held by women. That's 3.4 million jobs.



Women are at greater risk of automation



Source: Statistics Canada, RBC Economics, Frey and Osborne (2017)

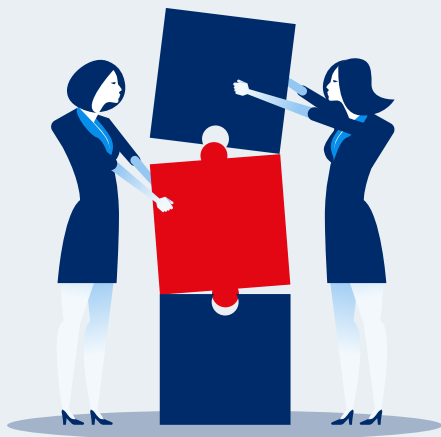
However, women are also well positioned for the future

In *Humans Wanted*, we argued the future of work will rely on a new mix of skills—including critical thinking, social perceptiveness, writing, and problem-solving. And it is here that women possess a notable advantage.

Women are concentrated in occupations that use more generalist skills

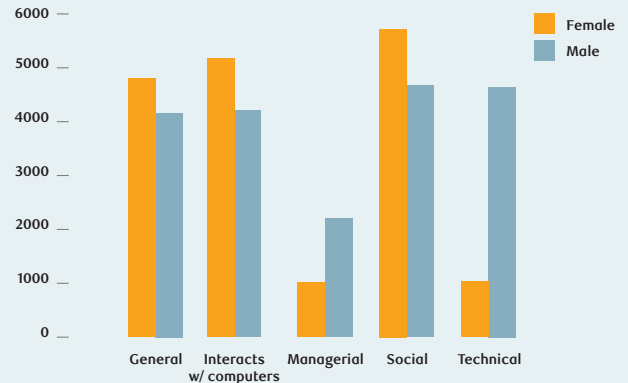
Consider the amount of active listening and speaking in the typical workday of an administrative assistant or customer service representative. These skills have served women well in jobs that are increasingly being displaced by technology. But they are also central to roles that are much more difficult to automate.

More men work in occupations where the primary skills are specialized and task-specific. In Canada, they're more than twice as likely as women to work in at-risk manufacturing roles that don't have close substitutes. This generalist/specialist divide has important implications for how men and women are likely to weather disruption. And since the demand for the generalist skillset is expected to increase while machines displace more task-oriented jobs, women have the advantage in navigating this transition.



Men and women tend to use different skills at work

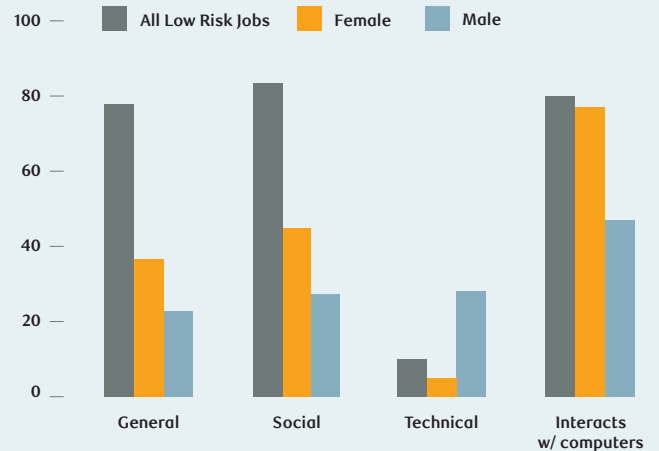
Employment (in 000s) in occupations in which skill is very important



Source: Statistics Canada, O*NET, RBC Economics

Women in 'at-risk' occupations share more skills with low-risk occupations

Fraction of employment (%) which each skill is very important



Source: Statistics Canada, O*NET, RBC Economics

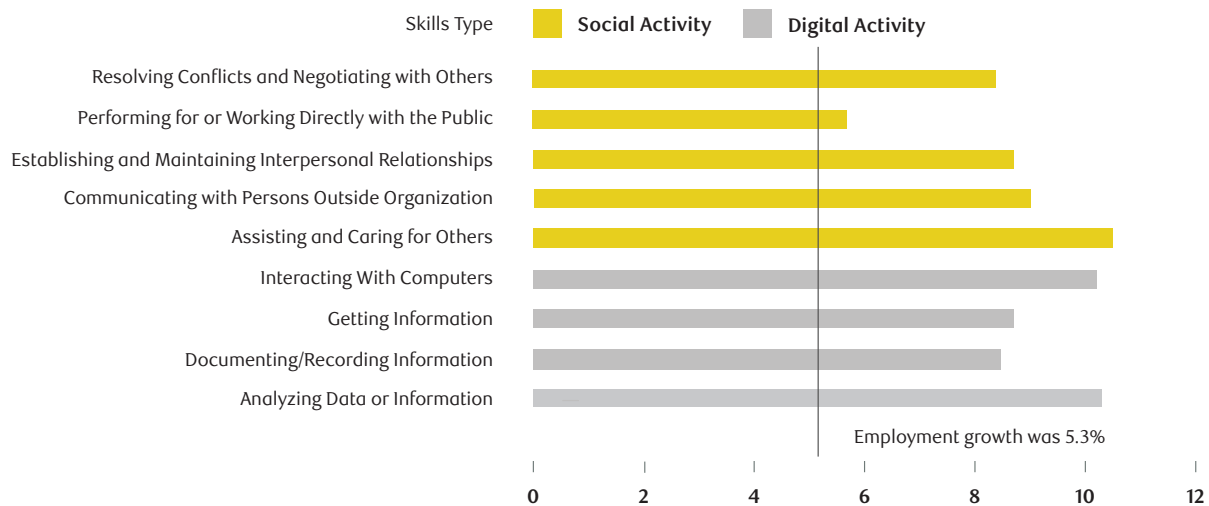
Women use the skills needed in a digital economy

Women in jobs at higher risk of automation are already interacting with computers and data. Consider the cashier who uses a point-of-sale system daily and must organize and maintain records at the end of the day, or the administrative employee who creates documents and organizes files on a computer. This kind of familiarity with technology and data is important for workers in an increasingly digitized world. In fact, we have already begun to see this play out. Growth in occupations that require digital skills has been strong and this will continue.



Occupations that require digital and social tasks have seen strong employment growth

Percent growth over 2013 - 2018 (%)



Source: Statistics Canada, O*NET, RBC Economics

A more human experience

Developments at the industry level support our view. In retail, online technology is creating seismic shifts in shopping patterns that threaten millions of jobs. A May 2017 report by Cornerstone Capital Group suggested close to half of the current U.S. retail workforce—7.5 million jobs—is at risk due to retail technology innovations. While there’s a roughly equal breakdown between men and women in sales occupations, women occupy about three-quarters of U.S. cashier positions. While the trends point to many women’s jobs at risk, there’s clear evidence of a path to the retail jobs of the future. A McKinsey report on skills predicts that, in 2030, time spent by retail workers using technological skills will increase by 50%, and on social and emotional skills by 17%. These are the very skills we’ve argued women in at-risk jobs already use. That suggests women will find work in a retail sector where innovative ways of marketing are increasingly important. The McKinsey report also says healthcare workers of the future will spend more time using those same social-and-emotional and technological skills. The healthcare industry is predicted to keep churning out jobs in the years ahead, thanks largely to demographics. The Conference Board of Canada predicts demand for senior-care nurses growing at a clip of at least 3.4% a year until the mid-2030s.

Source: McKinsey, Cornerstone Capital Group

Women are already in jobs that use the human skills that will be in high demand

Women are more likely to be in jobs that involve direct contact with the public or caring for others, or have another social dimension. We're seeing significant growth in occupations in which these skills are very important. In a more automated future, fluency in both digital and social skills will be in high demand. Take retailing, where transaction-processing is becoming less important but providing an experiential or bespoke shopping experience is becoming more so. Or healthcare, where monitoring patient vitals and record-keeping will become easier with technology, freeing up healthcare workers to focus on improved treatment methods.



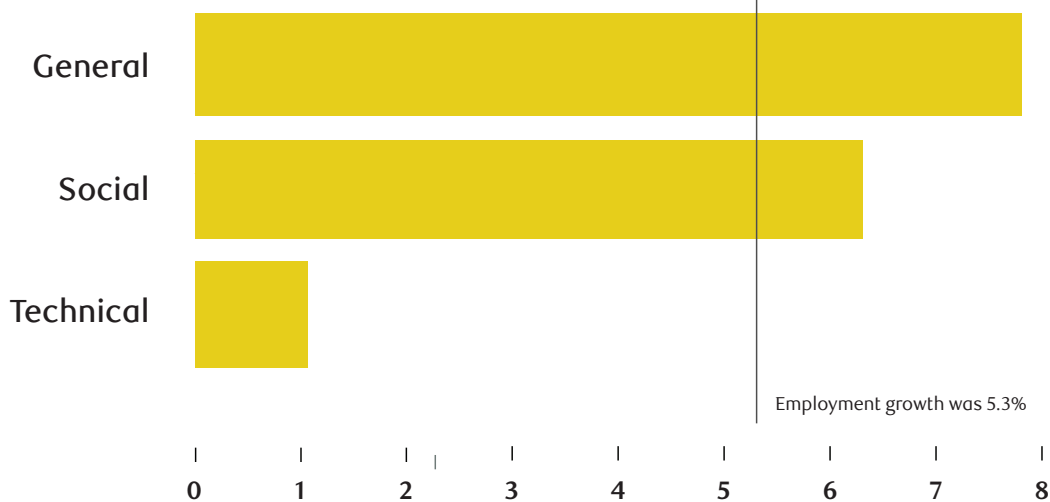
The transition is already beginning

With employment declines in at-risk occupations such as receptionists, library technicians, and office clerks, it is becoming apparent that the negative effects of automation are beginning to take hold. Still, occupations that use similar sets of general and social skills – occupations like nurses' aides and early childhood educators (and assistants) have seen impressive growth. Overall, occupations in which general and social skills are important have grown over 33% faster than the national average, while those using specific technical skills lagging far behind.



Employment growth in occupations that require general and social skills has been strong while those requiring technical skills lag behind

Percentage growth (%) over 2013 - 2018



Source: Statistics Canada, O*NET, RBC Economics

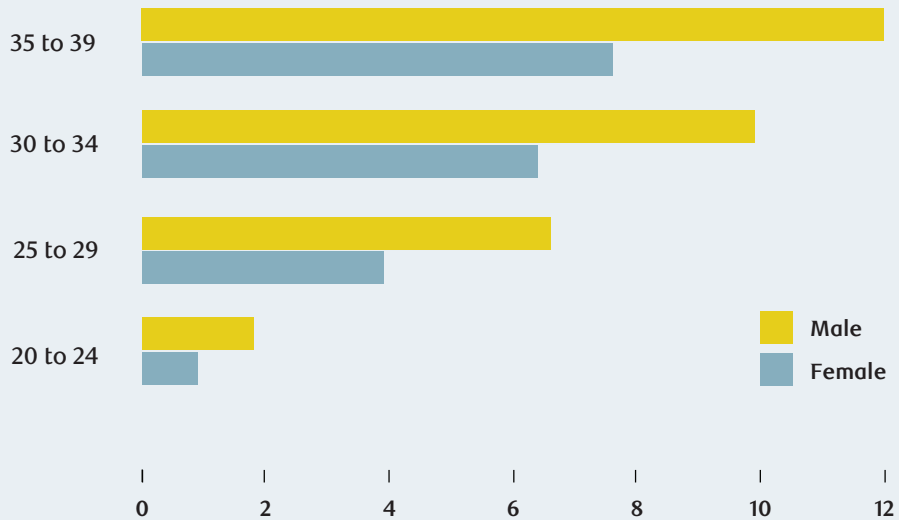
Women still lag behind in the jobs that are least at risk

While we've argued that disruption could find women more prepared than men, women still see lower representation in some of the best-paying and least-automatable professions. This discrepancy shows up most acutely in management occupations, where women's underrepresentation has created a management skills gap. Men tend to gain management experience at an earlier age, which enables them to start acquiring and developing the skills associated with organizing people and projects sooner. Even for Canadians aged 25 to 29 years old, an employed man is almost twice as likely to be in a management occupation as a woman (6.8% versus 3.9%). This early divide compounds over the length of people's careers and makes it more difficult for women to catch up.



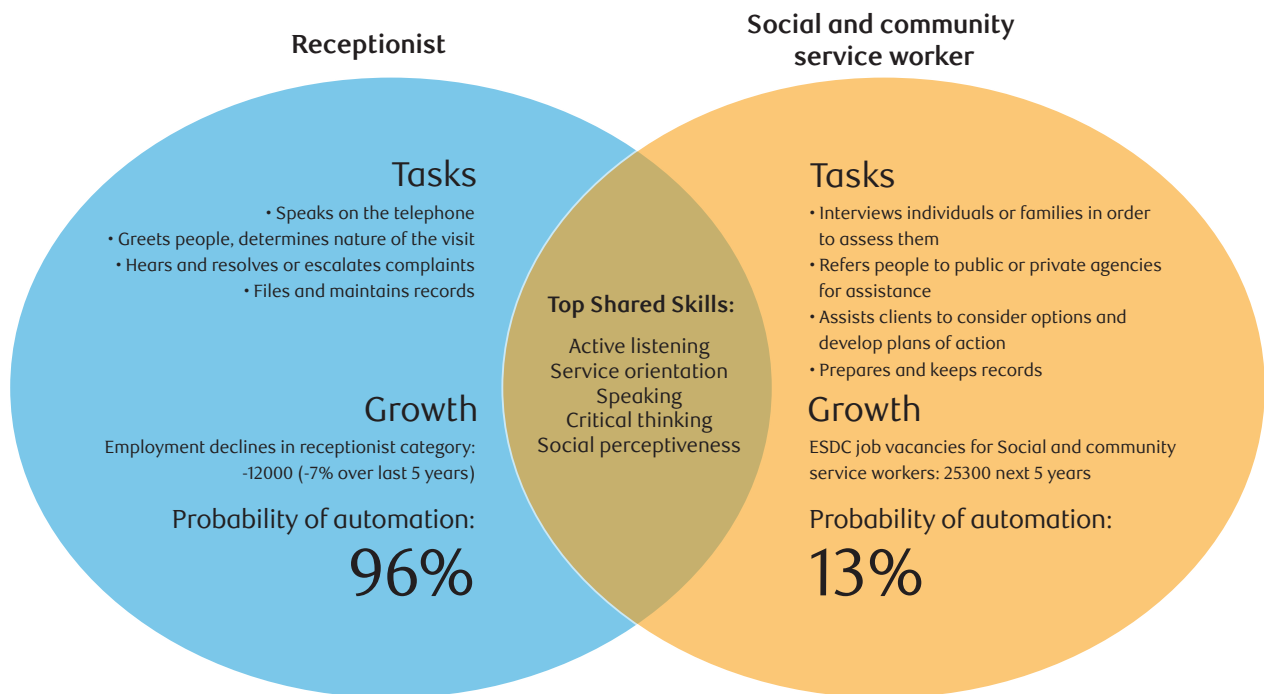
Men become managers more often and at an earlier age

Percentage of employed in management occupations (%)



Source: Statistics Canada, RBC Economics

Workers at risk must take stock of their skills in order to navigate the transition



Source: Task descriptions from the O*NET and Career Handbook

A policy re-think can help women make the transition

While women are well positioned to weather the automation revolution, we believe there's room for smart policy to help them identify and match their skills to the jobs of the future. Much of the reskilling conversation in Canada has focused on the retraining of manufacturing workers who fall victim to well publicized plant closures. But many of the jobs that are under threat—and disproportionately held by women—disappear in silence.

To ensure they have the right opportunities, we need better, open-access labour market data that identifies career path-ways based on skills. The government's efforts to create a national digital platform for skills and jobs information is a first step to help employers link with the workers they need for the future, and could lessen the time for re-training in job transitions. Tools to measure so-called soft skills—such as persuasion and critical thinking—would help employers find the workers who've demonstrably used these skills. Programs that help individuals and employers assess non-task-specific skills could yield substantial gains without the need for expensive and possibly unnecessary retraining. And they could ensure we do not leave women behind.



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