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ICT FUNDAMENTALS FOR CANADA'S INNOVATION AGENDA



To compete to win in the next phase of the global digital revolution, Canada must take bold steps *now* to lay the right foundation.

ITAC on Talent

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TO COMPETE TO WIN in the next phase of the global digital revolution, Canada must take bold steps *now* to lay the right foundation.

The Innovation Agenda presents an incredible opportunity for the current government to make substantive policy changes—thereby benefiting all Canadians by growing our economy and ensuring continued prosperity for our country.

The Information Technology Association of Canada (ITAC) has identified four fundamental priorities that must be addressed by government in order for the Innovation Agenda to succeed: **Modern Digital Economy, Trade and Competitiveness, Modern Digital Government, and Talent and Skills Development.**

This is the final of ITAC's Innovation Papers, a four-part series that:

- provides insight into the state of Canada's digital economy, and
- offers recommendations to enable Canada's Information and Communications Technology (ICT) sector to reach its world-class potential.

Together with industry, ISED and all government stakeholders can build an Innovation Agenda that works for Canada.

Introduction: Talent

Globally, talent—or lack thereof—is the single biggest issue standing in the way of Chief Information Officers achieving their objectives in today's digital economy.¹ Unfortunately, talent management practices are not keeping up with the ever-increasing and changing needs of the digital world.

The shortage of skilled ICT talent in the technology sector is a major issue hampering the growth of innovative companies in Canada. Meanwhile, our nation's long-standing skills gap amongst ICT workers continues to widen. In fact, by 2019, Canada will need 182,000 ICT (Information and Communications Technology) workers—with an additional 36,000 required just one year later. This prediction does not include emerging occupations or disruptive technology fields.²

Canada is not alone in experiencing a skills gap. The European Commission anticipates a shortfall of 825,000 ICT positions by 2020; and the United States Labor Department forecasts 1.4 million computer specialist job openings by 2020—with domestic universities being unable to keep up with this demand.³

Canada has the potential to become a leader in the global digital economy. To do so, the Government must act swiftly to create, attract, and retain the talent of tomorrow's economy. This requires continued focus on developing skills locally, while attracting talent globally.

Therefore, ITAC recommends the following policy changes and considerations as part of the Government's Innovation Agenda consultations.

Solving the Problem Domestically

To solve the skills gap within Canada, greater emphasis must be placed on three things: recognizing and improving upon gender diversity issues in ICT, offering more skills training options to youth, and updating the categorization and collection of employment data.

Women in ICT

Women are one of the most underrepresented groups within Canada's ICT sector—as workers, and as leaders. In fact, the level of engagement of women in ICT has remained stagnant at around 25% for the last decade.⁴

This consequently stifles Canada's economic growth, as numerous studies have demonstrated that women's economic opportunity is good for business.⁵

Studies also show that companies benefit from gender diversity in leadership positions, with more diversity

¹ https://www.gartner.com/imagesrv/cio/pdf/cio_agenda_insights_2016.pdf

² ICTC, Digital Talent: Road to 2020 and Beyond, A National Strategy to Develop Canada's Talent in Global Digital Economy, page 8.

³ ICTC, Digital Talent: Road to 2020 and Beyond, A National Strategy to Develop Canada's Talent in Global Digital Economy, page 8.

⁴ Gender Diversity of Boards of Directors of Canadian ICT Companies, report by Karen Wensley for the Information Technology Association of Canada, July 2013, page 1

⁵ *United Nations Women, Fact and Figures*, <http://www.unwomen.org/en/what-we-do/economic-empowerment/facts-and-figures#notes>



going hand-in-hand with organizational effectiveness.⁶ One particular study by McKinsey and Company found that companies with three or more women in senior management functions scored higher on organizational effectiveness.⁷ Research also shows that encouraging more women to join Boards and executive ranks can have a multiplier effect—resulting in more women joining those companies.

Still, there appears to be a shortfall of female executive leadership. For example, women constitute only 16.5% of public ICT corporation Board members.⁸ This shortfall makes it harder for women to enter the ICT workforce and to aspire to occupy senior positions. A low rate of women employees also means that companies have a smaller talent pool to draw from.

The Government can do much to encourage women to pursue careers in science, technology, engineering and mathematics starting from kindergarten and continuing through their adult life. While much of this work requires partnership with the Provinces support for programs such as Ladies Learning Code, afford the Government with a leadership opportunity which can be followed by the Provinces.

ITAC recognizes that the Government is committed to bringing more women into ICT, as demonstrated by the following two things:

- With help from Minister Hadju and the Department of Status of Women, ITAC was able to launch its *Women on Boards* program in mid-2016. This initiative helps women become “Board-ready,” and then stores their resumes in a searchable database. The goal is that ICT companies who wish to improve gender imbalance in their boardrooms and workplaces will use the database.
- ITAC is also encouraged by some of the language included in Bill C-25, which seeks to amend the Canada Business Corporations Act, Canada Cooperatives Act, and Canada Not-for-profit Corporations Act to—among other things—“require certain corporations to place before the shareholders, at every annual meeting, information respecting diversity among directors and the members of senior management.”⁹

By continuing to highlight the lack of diversity and economic benefits that flow from having executive women, ITAC believes companies will begin to hire more women and place them in positions of authority.

⁶ McKinsey & Company, Women Matter 2014

⁷ McKinsey and Company, page 3

⁸ Gender Diversity, page 3

⁹ <https://openparliament.ca/bills/42-1/C-25/>

To help close the digital skills gap in Canada, ITAC asks the Government to strongly encourage more women to enter ICT by providing and supporting targeted programs and scholarships geared toward this group.

Train and re-train Canadians

Invest in youth

Canada faces significant rates of youth unemployment. With 200,000 vacancies in ICT expected by 2020, the youth skills gap presents an opportunity for Government.

Prime Minister Trudeau clearly understands the potential of youth in technology. This is demonstrated by the government’s strong focus on youth and jobs in Science, Technology, Engineering and Mathematics (STEM); and its work on the Youth Employment Strategy.

That said, with the pace of today’s technological advancement, it can be challenging for industry to find the skilled employees they need—and for educational institutions to create curricula that keep pace with those needs. Meanwhile, it is estimated that around 90% of all jobs over the next 20 years will require some level of digital skills. Therefore, digital skills must be at the heart of Canada’s education system.

ITAC understands the needs of today’s employers and has developed programs to provide high school and post-secondary students with the digital skills they need:

- With a placement rate of 90%, ITAC’s **Business Technology Management (BTM)** program provides post-secondary students with technology and business skills. This program exists due to generous contributions totalling more than \$1 million dollars from the federal Government and private sector.
- **CareerMash** inspires high school students to pursue post-secondary training in the ICT sector by helping them realize the connection points between technology and health, the arts, and other disciplines. To date, CareerMash has reached over 80,000 students, encouraging them to develop the digital skills required by tomorrow’s employers.

To fill the skills gap and help combat youth unemployment across Canada, ITAC seeks to expand the CareerMash program nationally—and asks the Government to provide funding of \$2.5 million over five years to assist in this endeavour.



Launch and continue investing in experiential learning

A powerful tool to combat the knowledge gap and boost employability of Canada's domestic workforce is through experiential learning opportunities such as co-ops and paid internships.

These opportunities pair industry with young talent, ensuring people have the right skills to succeed: skills like collaboration and teamwork, which were recently identified in a Business Council of Canada survey as key skills for entry-level employees (other skills in high demand were communication, problem solving and people skills).¹⁰

Dave McKay, CEO of the Bank of Canada, helped launch a task force through the Business Council of Canada to investigate the use of experiential and work-integrated learning. Passionate about this approach to learning, he referred to it in a recent speech as "how people learn today. This is a hands-on generation. They like to experiment, to challenge and to share." He also commented on its ability to help improve economic access for minority groups such as Indigenous peoples.¹¹

McKay has also stated that "Expanding access to experiential learning is a national challenge that can be addressed only when universities, colleges, business and government work together."¹² This sentiment has been echoed by Governor General David Johnston, who stated that he "wouldn't start a university if it didn't have experiential learning for every student." With a wealth of academic experience, the Governor General's emphasis bolsters the ICT industry's views that experiential learning is an essential component of creating the workforce of tomorrow.

ITAC applauds the Government's recent contribution to such programs—including investing \$73 million over four years to support experiential learning.

ITAC encourages Government to continue investing in digital literacy and upskilling; and to launch its experiential program shortly, so that Canadians can begin reaping the benefits of experiential learning.

¹⁰ *An Agile Future Through Work Integrated Learning* - May 2, 2016
<http://thebusinesscouncil.ca/publications/davemckaywil/>

¹¹ <http://thebusinesscouncil.ca/publications/davemckaywil/>

¹² <http://www.theglobeandmail.com/report-on-business/rob-commentary/experiential-learning-agile-employees-getting-our-students-on-the-right-path/article29825807/>

¹³ Global Talent Flows

¹⁴ ICTC Digital Economy Talent Supply: Immigration Stream, 2016.

More data needed

One of the simplest and most cost-effective ways to close the skills gap is for the federal Government to collect better labour market data about ICT.

Proper data enables universities, colleges, and specialized private programs (such as BTM and CareerMash) to see where growing demand areas are, and begin educating workforces accordingly. This will ultimately decrease Canada's reliance on temporary foreign workers (see next section, below).

Currently, data collected about ICT and other technology fields are grossly outdated. One example is Canada's National Occupation Codes (NOC). These codes provide key data about employment in the industry—but because they are outdated, a number of professionals are "pigeon-holed" in broader employment categories. This makes it harder for government and decision-makers to pinpoint vacancies within the workforce where programs should be developed.

To prepare Canadian students for the workforce of tomorrow, ITAC recommends that the Department of Employment and Social Development Canada works with Statistics Canada to collect detailed, granular labour market data about ICT. This includes updating the NOCs every two years, to ensure the most useful and complete data sets are available.

Solving the Problem Internationally

To ensure Canada remains competitive, our country needs regular access to the best and brightest minds: some who are born outside Canadian borders, and others who are Canadian-born but internationally trained. The ability to benefit from this pool of talent requires creating smoother processes for accessing international talent, and for welcoming back homegrown talent.

Temporary foreign workers (TFWs)

According to a recent *Global Talent Flows* report by the World Bank, Canada is one of the top four destination countries in the world for high skilled migrant workers.¹³ Indeed, these high-skilled workers are often uniquely qualified and sought-after by other nations, who fight hard to attract and retain these people. Currently, more than 350,000 immigrants are employed in ICT jobs in Canada—with 4% being TFWs.¹⁴

TFWs are critical for Canada's technology sector because, often, these people offer the best talent for special projects. For example, if the Bank of Canada was the victim of a cyber attack, it would want the best engineer available to rebuild its security. That person may be an Israeli citizen who specializes in bolstering cyber protections for banks, and/or a member of what's known in the technology business as a "fly-in



squad”—an elite group of specialists who are brought in to complete special projects.

TFWs are also very important for two other reasons:

- **Scaling Canadian businesses:** Many government and media reports have noted the challenge Canada has when it comes to scaling up our companies. One such obstacle, as noted by the Lazardis Institute, is the lack of management and executive domestic talent who have experience running a global company.¹⁵ Canada has very few technology companies who have successfully gone global; if a company wants to conquer a new market or go public, they likely need to bring in outside talent with this kind of experience. TFWs can bridge this important gap using the expertise Canadian companies need to grow, scale and compete globally.
- **Export experience:** Canada suffers from an acute shortage of executives with export experience. TFWs have the ability to fill that gap, inspire others and lead a team. Experienced foreign workers can help impart their knowledge to younger workers and drive innovation.¹⁶

Unfortunately, misunderstandings around TFWs are making it politically difficult for the Government to make necessary program reforms. Minister Navdeep Bains spoke to this recently, acknowledging that while Canada needs to open the door to more highly skilled immigrants, he needed help convincing Parliamentary colleagues as well as Canadians.¹⁷ Minister McCallum’s recent announcement that he would be increasing the number of high skilled workers and international students who are permitted to come to Canada is welcome news but more work needs to be done to educate the public and facilitate inclusive growth within Canada.¹⁸ Minister Morneau’s recent announcement that Canada will establish a 2 week turn around standard for approving visas and work permits for select applicants is also welcome news.¹⁹

Many people often group low- and high-skilled TFWs together, when there is actually a vast difference between these two types of workers. Common arguments against

TFWs include that they take jobs away from Canadians, are subjected to unfair treatment by employers, and depress wages. But where high-skilled TFWs are concerned, research suggests otherwise. For example, a report from the National Academies of Sciences, Engineering, and Medicine found that an inflow of skilled immigrants could have positive wage effects for some subgroups of native-born workers, as well as other benefits to the economy on a broader level.²⁰

In other words, instead of adopting a mindset of protectionism or fear, Canadians should view foreign workers as a way to boost our domestic economy and create new jobs.

Improving the TFW program

The Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities released its report on foreign high skilled technology workers in September 2016.²¹ The report is the culmination of consultations and briefings that took place in summer 2016, during which ITAC CEO Robert Watson provided recommendations on behalf of ITAC.

As the Government now looks to respond to this report and consider new legislative changes, ITAC would like to restate its recommendations, and acknowledge where they appear to have been included.

1. Monitor labour patterns

To help educational institutions tailor programs that meet demand, Employment and Social Development Canada (ESDC) and Statistics Canada should work together to collect granular data about labour patterns in the ICT sector.

2. Restore sectoral exemption and/or create a “trusted employer” program

Restoring the pre-existing sectoral exemption—which previously exempted technology workers from needing a Labour Market Impact Assessment (LMIA) before entering Canada—would help the industry to grow. If such exemptions are not feasible, then a “trusted employer” program could be created, in which a company could be exempted by proving itself through a government set of criteria. The Committee’s third recommendation suggests that the Government may be willing to consider this.²²

3. Revamp National Occupation Codes (NOCs)

NOCs provide key data about employment within the ICT industry. However, they are outdated for the technology sector—making it difficult for Canada to pinpoint vacancies within the workforce where programs should be developed, and leading to increased rejections when companies apply for TFWs. Updating these codes would have a dual benefit of helping to train domestic workers, while also facilitating the short-term solution of accessing

¹⁵ See *Scaling Success: Tackling the Management Gap in Canada’s Technology Sector*, Lazardis Institute, Wilfred Laurier University, March 2016, page 17-20.

¹⁶ See <http://theesa.ca/2016/10/25/attracting-foreign-post-canada/>

¹⁷ <http://www.cbc.ca/beta/news/politics/bains-immigration-economic-boost-1.3801708>

¹⁸ <http://www.cbc.ca/news/politics/canada-immigration-levels-mccallum-1.3829496>

¹⁹ <http://www.theglobeandmail.com/report-on-business/economy/ottawa-to-make-it-easier-for-some-businesses-to-import-foreign-talent/article32622768/>

²⁰ *The Economic and Fiscal Consequences of Immigration* (2016) Francine D. Blau and Christopher Mackie, Editors; Panel on the Economic and Fiscal Consequences of Immigration; Committee on National Statistics; Division of Behavioral and Social Sciences and Education; National Academies of Sciences, Engineering, and Medicine

²¹ http://www.parl.gc.ca/Content/HOC/Committee/421/HUMA/Reports/RP8374415/421_HUMA_Rpt04_PDF/421_HUMA_Rpt04-e.pdf

²² Committee, page 28



TFWs. The need to address NOCs is supported by the Committee's second and 11th recommendations.²³

4. Create service standards for processing applications

Applications often take at least six months to process. This delay can cause Canadian companies to lose clients and mandates to foreign competitors. This recommendation is supported by the Committee's second recommendation and by Minister Morneau's recent announcement.²⁴ ITAC looks forward to these changes being implemented early next year. As the Committee has recommended a review of the LMIA occur, ITAC also suggests the following considerations be a part of that review:

- **Exempt ICT companies from having to disclose salaries in LMIA advertisements**
ICT companies are domestically and globally very competitive. The requirement that companies publicly disclose salaries when advertising the LMIA is therefore off-putting for many companies. This can be especially difficult for smaller Canadian companies, who cannot always match the salaries offered by large multinationals.
- **Clarify the definition of "specialized knowledge" in the International Mobility and TFW programs**
This definition may be graded and based on several factors including: education, work experience, training, certifications, and salary. This will make the application process more predictable and easier for both applicants and assessment officers.

ITAC recommends the Government consider two important changes to better facilitate how LMIA applications are processed: (1) by exempting ICT companies from having to disclose salaries in advertisements; and (2) clarifying the definition of "specialized knowledge" in the International Mobility and TFW programs.

Bring tech talent home

There is a significant number of Canadians working in tech in California and New York. These Canadians are part of strong ex-pat networks, leveraged by Global Affairs Canada as part of its Global Accelerator program.

Many professionals go to the U.S. when they are younger, but may wish to return home as they start and grow a family. As such, Canadians getting experience in tech hotbeds like Silicon Valley is not necessarily a bad thing. Returning to

Canada, these people would bring back with them additional skills, connections and innovative thinking developed within the world's most dynamic tech clusters. In other words, where filling the talent gap is concerned, this younger cohort of Canadian tech talent is a crucial demographic to target. However, many ITAC members have commented that they almost did not return to Canada—particularly due to slow, complicated and frustrating processes associated with bringing an American spouse with them.

ITAC recommends the Government develop policy mechanisms to smoothen and hasten the process of repatriating Canadian tech talent working abroad.

Conclusion

Canada's ITC skills gap represents a huge opportunity for Canada—including youth, as well as those underrepresented in the industry such as women and Indigenous people who are underrepresented. By addressing the skills gap, the Government can simultaneously build expertise while also diversifying the Canadian economy.

²³ The Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities, September 2016, 42 Parliament, 1st Session, page 28

²⁴ Committee, page 28



Summary of Recommendations: Talent

1. Solving the problem domestically

- Provide and support targeted programs and scholarships to encourage more women to enter ICT
- Expand the CareerMash program nationally by providing \$2.5 million in funding over five years
- Continue investing in experiential learning, digital literacy and upskilling
- Collect detailed, granular labour market data about ICT employment

2. Solving the problem internationally

- Exempt ICT companies from having to disclose salaries in LMIA ads, and clarify the definition of “specialized knowledge” in International Mobility and TFW programs
- Develop policy mechanisms to facilitate the repatriation of Canadian talent working abroad

As Canada's national ICT business association, the Information Technology Association of Canada (ITAC) champions the development of a robust and sustainable digital economy in Canada. A vital connection between business and government, we provide our members with the advocacy, networking and professional development services that help them to thrive nationally and compete globally. A prominent advocate for the expansion of Canada's innovative capacity, ITAC encourages technology adoption to capitalize on productivity and performance opportunities across all sectors. A member-driven not-for-profit, ITAC has served as the authoritative national voice of the \$170 billion ICT industry. More than 36,000 Canadian ICT firms create and supply goods and services that contribute to a more productive, competitive, and innovative society. The ICT sector generates one million jobs directly and indirectly and invests \$4.9 billion annually in R&D, more than any other private sector performer.

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