

Information and Communications Technology Council  
Annual Report 2016-17



## MESSAGE FROM THE CHAIR

FAYE WEST

As ICTC celebrates its 25th anniversary, we reflect back on the role of our organization in an era of remarkable technological advancements, increasingly competitive global environment, changing business models, and evolving labour and digital skills needs.

ICTC began its journey in Sept 1992 as the Software Human Resources Council, an organization focused primarily on talent development in the world of mainframe computers. The technological shift and resultant economic landscape have dramatically changed since then with the advent of big data, cloud based applications, and more recently, the dawn of artificial intelligence, additive manufacturing, and virtual & augmented reality, to name a few. Spurred by strong consumer appetite, the peer-to-peer economy has also been at the forefront of this global business transformation. This reshaping of global markets and the highly competitive landscape has left many business owners, policy makers, and academic institutions looking for answers. From digital adoption, business scale up, labour and skills needs, cybersecurity, and consumer protection, the list of issues to address is far-reaching.

To better assist our partners and stakeholders in seizing the opportunities offered by this evolving digital landscape, ICTC continued to heighten its research agenda (technology, economics, and labour market intelligence), expand its range of innovative talent solutions, and broaden its policy offerings.

In 2016-2017, ICTC expanded its outreach, partnerships, and range of services to foster innovative and globally competitive Canadian industries empowered by a

talented and diverse digital workforce. As we celebrated a strong year of achievements, sadly we also lost a dear friend and board member, Cecilia Ryan (Vice President, Telus Health Solutions), who passed on August 2, 2016. Cecilia left us with a legacy of thought leadership and strong sense of purpose anchored in warmth and generosity.

In conclusion, we have come a long since the early days of our inception and we continue to be passionate about the digital landscape, its innovations, and its potential for economic growth, employment, and social prosperity.

I would like to take the opportunity to thank our partners and stakeholders for their unwavering support to our mandate, the ICTC board members for their insights and dedication in advancing the goals of ICTC, and the innovative staff that makes ICTC what it is.



# MESSAGE FROM THE PRESIDENT & CEO

NAMIR ANANI

Digital transformation continues to radically change the face of business in Canada. The advent of the collaborative economy, the rise of advanced robotics, the adoption of blockchain in financial services, and advances in autonomous cars are all a manifestation of the innovative nature of the global digital landscape.

These innovations are ushering in a new era of convenience, affordability, and responsiveness that are expected to significantly disrupt traditional markets in the coming years. This accelerated wave of business transformation, however, comes amidst signs of interest rate hikes, changing global trade landscape, and heightening demand for skilled digital talent. In this dynamic environment, ICTC continues to drive a forward looking digital agenda for Canada by delivering advanced research and labour market forecasts, innovative talent programs, and evidence-based policies that chart a path forward for Canada in the global economy.

In 2016-2017, growth, strength, and measurable successes were the hallmarks of ICTC. Our commitment to address the digital skills gap to support industry growth led us to the release of Canada's first Digital Talent Strategy (Digital Talent: Road to 2020 and Beyond). Through partnership with Microsoft Canada, this strategy encouraged crucial dialogue, empowered the creation of the Canadian Leadership Taskforces, and prompted the development of solutions on: Diversity and Inclusion, Education and Skills, and Industry Growth.

We additionally continued to grow the range of tools available to all ICTC's stakeholders that included expanding features on eTalentCanada and the HR Portals. Also, we partnered with key organizations to strengthen the Labour Market offerings in Canada, including the BC Tech Labour Market partnership, and the launch of the EngScape portal by Engineers Canada

We also continued to strengthen our evidence based policy advice and released several key reports, among them: Cybersecurity - Critical infrastructures in a Hyperconnected Economy, All Thing Open – Inspiring Unfettered Innovations, the Digital Economy Immigration Stream, and the Talent Imperative in a Global Context. We also released the 5 year labour and skills outlook, The Next talent Wave: Navigating the Digital Shift, and launched the Small Business Digitization Initiative for Ontario, an innovative and first in Canada program that trains around 100 graduates on advanced technology skills and pair them with SMEs looking to adopt technologies.

The results speak for themselves, in this past year ICTC had wide ranging successes in speaking and advancing important dialogue on innovation and the digital economy at over 17 key national and international events and had the privilege of having 76 leading organizations participate in its advisory committees. On the youth agenda, around 103 recent graduates started careers in the industry through ICTC's CareerConnect program, over 102 Canadian teams participated in the CyberTitans educational competition, while our Focus on IT schooling program continued to expand across Canada. Additionally, over 1,200 internationally educated ICT professionals (IEPs) leveraged the GO Talent Initiative for pre-arrival and job matching services with Canadian employers, and around 49 IEPs participated in ICTC's transformative immigration (IWES) program. I would like to conclude by extending a special thank you to all of our partners and stakeholders for their valuable support and trust in our mandate, to the Board members for their guidance, and to our very talented staff for their remarkable creativity and efforts in advancing the digital agenda in Canada.

2017-18 is shaping to be a very promising year and I encourage you to stay tuned to ICTC's upcoming initiatives.

# TABLE OF CONTENTS

---

## YEAR IN REVIEW

### RESEARCH THAT INFORMS

- National Digital Talent Strategy: Road to 2020 and Beyond
- Digital Skills Report
- Innovation in the Automotive Industry
- Tech Talent BC
- Critical Infrastructure in a Hyper-Connected Global Economy
- Innovation Agents

### PROGRAMS THAT DELIVER DIGITAL SKILLS

- Immigration
  - GO Talent
  - IWES (Integrated Work Experience Strategy)
- Digital Skills for Youth
  - CyberTitan
  - Focus on IT (FIT)
  - Small Business Digitization Initiative
  - CareerConnect

### WOMEN IN TECHNOLOGY

- Women in Technology Program (WIT)
- Advancing Women In Technology in Non-Traditional Sectors (ATW)

### ICTC IN 2017

---

### ICTC IS A NOT-FOR-PROFIT NATIONAL CENTRE OF EXPERTISE FOR THE DIGITAL ECONOMY

---

Fostering innovation and globally competitive Canadian industries empowered by a talented and diverse digital workforce.

We're helping government and industry make innovative, and lasting improvements while promoting ideas that engage and develop exceptional talent.

### WE ARE WORKING TOWARDS STRENGTHENING CANADAS DIGITAL ADVANTAGE IN A GLOBAL ECONOMY.

---

- Globally competitive and inclusive digital economy
- Innovative and entrepreneurial society and economy
- Trusted and secure economy

# ICTC YEAR IN REVIEW



Skills in the Digital Economy Report for Innovation, Science and Economic Development Canada

ICTC and Engineers Canada launch the EngScape - Online portal for engineering jobs in Canada



ICTC launches the Canadian Leadership Taskforces with 32 national leaders in: Diversity and Inclusion, Education and Skills, and Industry Growth



ICTC partners with the [US] Air Force Association's CyberPatriot program to launch CyberTitan in Canada



ICTC Cyber Security Leadership Council on Youth and Education is established



Digital Economy Supply Study: Immigration in Tech



Policy insights "The Talent Imperative"



ICTC Launches  
CyberTitan Competition



Small Business Digitization  
Initiative (SBDI) Launches

Policy Insights: "Inspiring  
Unfettered Innovation is  
released



Innovation agent report on  
youth skills and training

ICTC partners with Jour  
de la Terre for CleanTech



Partnership with Talent Beyond  
Boundries to support refugees

Tech Talent BC report  
launched



Budget 2017: ICTC's Tech  
Insights



# RESEARCH THAT INFORMS

---

## NATIONAL DIGITAL TALENT STRATEGY: ROAD TO 2020 AND BEYOND //

ICTC's National Digital Talent Strategy advocated 7 key areas for Canada's talent to meet its need for a strong, competitive and global technology sector:

- Nurturing a strong youth talent pipeline
- Leveraging Canada's diverse talent
- Supporting workforce upskilling
- Attracting and retaining global digital talent
- Strengthening digital literacy and digital skills for Canadians
- Fostering digital entrepreneurship
- Building labour mobility pathways to fill high demand occupations

This strategy is based on the labour market research by ICTC's team that showed a direct hiring requirement of more than 182,000 in Canadian technology jobs by 2020, excluding emerging fields that have not fully evolved such as artificial intelligence, neural networks, virtual/augmented reality, additive manufacturing and the rapid growth in the Internet of Things.

Following the report on moving from strategy into action, ICTC established three Canadian Leadership Taskforces:

### 01

#### EDUCATION & SKILLS

Nurture a strong youth talent pipeline, strengthen digital literacy and digital skills, and support workforce upskilling to enhance digital adoption.

### 02

#### DIVERSITY & INCLUSION

Leverage Canada's diverse talent at all occupational levels to be inclusive to women, immigrants, Indigenous Peoples, persons with disabilities and other underrepresented groups.

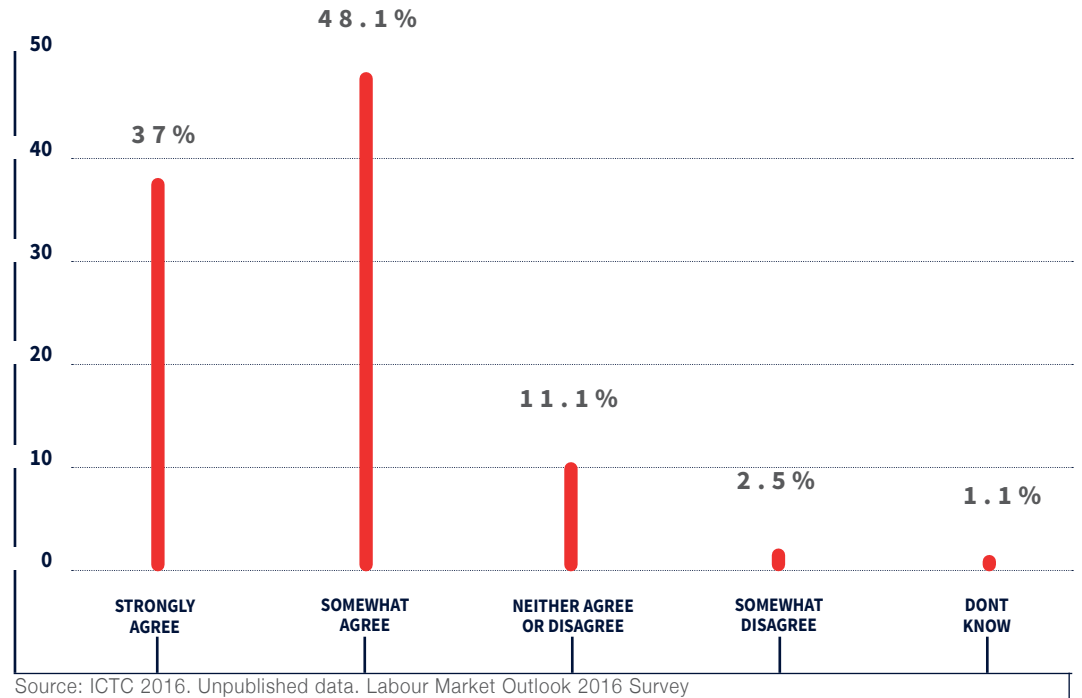
### 03

#### INDUSTRY GROWTH

Attract and retain digital talent, build labour pathways to fill high demand occupations, and foster digital entrepreneurship.

## DIGITAL SKILLS REPORT //

Addressing skills-related challenges effectively would improve employee productivity and help your business grow: would you say you...



ICTC's investigation recommended the following:

- Increase digital skills training in the workplace – investments by employers and incentives from governments
- Increase wage subsidies to small businesses to advance on-the-job training systems, especially for youth
- Incorporation of for-credit experiential learning in secondary / post-secondary schooling to ensure students are learning job-relevant skills. This could also incent stronger alignment of companies and educators
- Expand technology education in school systems
- Enhanced government-industry-educator collaboration with more funding for commercially focused research



## INNOVATION IN THE AUTOMOTIVE INDUSTRY //

---

ICTC was contracted by the Automotive Industries Association of Canada to measure and analyze the sector's innovation. Innovation is a critical issue around the supply chain and parts manufacturers in the automotive industry, where cars have become mobile computing centres (as a key informant put it). The report, published by AIA Canada, notes that there is considerable disruption with new entrants like Tesla and Google, presenting opportunities or challenges for after-market parts manufacturers. The increased computing, telematics, autonomous and electric vehicles are demanding greater technology skills and training for automotive workers.

## TECH TALENT BC //

---

**400+**

**COMPANIES**

**5**

**EMERGING TECH SECTORS**

**20+**

**KEY LEADERS INTERVIEWED**

With funding from the BC Ministry of Jobs, Tourism & Skills Training, ICTC partnered with the BC Tech Association and the Vancouver Economic Commission to create a province-wide labour market research initiative. The report provided a snapshot of the skill needs as well as a forecast of talent demands across the 5 key subsectors: Information and Communications Technologies, Life Sciences, Interactive and Digital Media, Cleantech, and Engineering Services.

The results showcased a growing tech sector in BC, with employment by 2021 reaching up to 196,000, across these 5 sectors. 47,000 of these jobs will be new positions to be filled. The report also underlines BC's tech talent crunch, painting a picture of current supply conditions that, if continued, will create a situation in BC where only 16,500 new workers will be available to fill those roles. This creates an unmet demand of 30,500 jobs.

For more see the full report here.

## CRITICAL INFRASTRUCTURE IN A HYPER-CONNECTED GLOBAL ECONOMY //

---

48%

COMPANIES THAT DON'T TRACK  
CYBER SECURITY INCIDENTS

57%

COMPANIES INCREASING THEIR CYBER  
SECURITY BUDGETS

9.2%

RATE OF GROWTH OF IT CYBER  
SECURITY JOBS

ICTC's research into cyber security highlighted and reinforced the alarming trends of cybercrime in Canada. With the majority of Canadian companies lacking comprehensive security, almost half of companies are not actively tracking cyber-attacks. Canada and the world has significant increases in demand for skill cyber security experts, and this will impact Canada's ability to implement effective security.

Some key findings include the issue of tracking cyber security experts: labour market tracking and reporting do not differentiate between security and other IT professions, leaving a gap in Canada's intelligence to inform policy. The report also notes that collaboration – to counteract a well supported movement of organized crime – is needed.

## INNOVATION AGENTS //

---

ICTC examined how it could empower under or unemployed youth with skills to meet the demand for innovation and technology jobs thanks to the support of the Ontario Trillium Foundation. The Innovation Agent report examined the challenges related to youth getting work, the skills in-demand from employers and the readiness of graduates.

The report showed that:

- Most graduates believe their studies and personal knowledge of technology are sufficient for the workplace. However, students do not have a good idea of the skills employers are seeking.
- Graduates – especially in Arts and Humanities – have many of the skills employers are seeking, but lack critical technology backgrounds to obtain work. Skills like marketing, communications, business development are in demand, but all require technology skills.

- Half of students opt for a lower-paying salary than returning to school to obtain added skills – which is aligned to the higher rate of underemployment in youth in Canada
- Employers often seek experienced workers for entry-level positions, creating barriers to employment for recent graduates. Of the students surveyed, a high number had no work experience in their desired field.

## PROGRAMS THAT DELIVER DIGITAL SKILLS

---

# IMMIGRATION

### GO TALENT //

---

ICTC is part of an alliance – Planning for Canada – along with Canadian Immigrant Integration Program and the Canadian Orientation Abroad to deliver GO Talent – a national pre-arrival support program for newcomers with technology skills. GO Talent supported **310 newcomers last year**, helping bring new talent into Canada to address some of the critical skills shortages. More than 642 companies registered for potential positions – showing that Canada’s demand continues to exceed supply.

Where we are going:

We are expediting the job matching system to maximize the opportunities for partner employers to see workers that are available and are coming to Canada. After just one year, ICTC is ready to bring added expertise and processes to improve the experience for newcomers and employers.

## **IWES (INTEGRATED WORK EXPERIENCE STRATEGY) //**

---

ICTC continues to be a leader in developing workforce solutions that are critical to Canada's future and enable Canadian businesses to improve workforce diversity by accessing talent with the skills needed to drive innovation and productivity. The IWES program provides a unique and targeted workforce solution that has helped over 450 newcomer ICT professionals prepare for gainful employment in Canada's ICT sector. The newcomer ICT professionals are provided insights into Canada's technology and business communities, job search services, and connections with employers. Through IWES, employers are able to diversify their workforce. The program provides a win-win situation – employers find skilled talent to meet their increasing digital skill needs and the ICT professionals connect to the labour market securing opportunities commensurate with their education and experience. The program is funded by the Government of Ontario.

# DIGITAL SKILLS FOR YOUTH

## **CYBERTITAN //**

---

Thanks to the support of Canadian leaders and a strategic partnership with the Air Force Association in the US, ICTC was able to bring a cutting edge middle and high school competition to Canada. Nearly 300 students and coaches (58 teams) participated in competitions across North America to defend networks and systems, competing against more than 4,400 US schools. Canada's top teams will be competing at CyberTitan Nationals in Ottawa in 2018.

Winnipeg-based Sisler High School, whose programs and curriculum helped put Canada on the map, have been critical to bringing CyberTitan to life as well as the amazing leaders across Canada who make up our ICTC Cyber Security Leadership Council on Youth and Education.

## FOCUS ON IT //

---

# 616 3700

STUDENTS CERTIFIED  
IN 2016/17

STUDENTS CERTIFIED  
SINCE 2008

Focus on IT (FIT) is ICTC's youth education program that provides curriculum-linked support to educators, and helps students develop digital skills in more than 200 schools across Canada. The materials provided to teachers are mapped to provincial curricula to help educators integrate them into their learning plans.


## SMALL BUSINESS DIGITIZATION INITIATIVE //

---

The Small Business Digitization Initiative (SBDI) is a training program that connects youth and small businesses together to solve real employer digital adoption challenges. The initiative provides training for in-demand skills to unemployed and underemployed youth to prepare them for the digital workplace, while providing businesses with enthusiastic and knowledgeable talent to implement digital adoption solutions to support their growth. The initiative is funded by the Government of Ontario.

### Equipping Youth with a Path to Employment

Students receive a 24-week experiential training program that includes student bursaries to offset some costs of salaries. Training is delivered in partnership with our college partners and a leading, international training provider, Savoir-faire Linux, for open source software development. Training covers tangible skills that are transferable across industries including project management, technology implementation and resource planning.



SKILLS TRAINED BY  
COLLEGES, PROVEN  
PRIVATE TRAINERS

WORK EXPERIENCE IN  
ONTARIO BUSINESSES

SOLVING CHALLENGES  
USING TECHNOLOGY

90%

STUDENTS EMPLOYED AFTER  
THE PROGRAM

312

COMPANIES USING THE PROGRAM TO  
HIRE, ADDRESS SKILLS GAPS

Over the four-year program, CareerConnect has helped more than 450 Canadians get work experience in technology roles in small businesses across Canada. The program provides employers with a wage subsidy to hire youth for a 6-month role in their field or a related field of study. Recent graduates or newcomers to Canada are able to gain valuable work experience and build networks on their path to long-term success.

## WOMEN IN TECHNOLOGY

481

COMPANIES SUPPORTING  
ADVANCING WOMEN IN TECH

9000

INDIVIDUALS ENGAGED ON THE WOMEN IN TECH  
ACROSS CANADA

1000~

WOMEN IN TECH AND LEADERSHIP ENGAGED

Over the past few years, ICTC has engaged coast-to-coast with Canadian industry leaders, governments, and professionals in the workplace to grow the number of qualified technology professionals.

## WOMEN IN TECHNOLOGY PROGRAM (WIT) //

---

ICTC is completing its final year of the WIT program (2013-2017) to advance equality and increase women's participation in technical occupations. ICTC and Status of Women Canada worked in partnership with six key organizations across Canada to support the advancement of new opportunities for women including training, career development, and mentorship, as well as addressing measures that lead to systemic organizational change.

### PARTNERSHIP

- 154 industry partners
- 326 industry role models
- 343 mentorships to advance women into leadership

### ENGAGEMENT

- 6,949 participants at Women in Tech Events
- 146 professional networking events
- 8 online campaigns and mentoring platforms

### EDUCATION & SKILLS

- 888 women received professional development opportunities
- 10 best practices tool kits
- 6 gender-based-analyses by partner organizations
- 2 Award programs to date, more planned

## ADVANCING TECHNOLOGY WOMEN IN NON-TRADITIONAL SECTORS (ATW) //

---

Advancing more women in technology jobs and leadership positions in Canada is not just an issue for technology companies. A national advisory group of companies interested in advancing women in senior technology positions, focused in natural resources, trades, construction and manufacturing, are working with ICTC to increase retention and advancement opportunities for women in their industries.

Advancing women in leadership positions starts with attracting and retaining women into the organization, a challenge some employers have identified but did not know how to address. Diverse and inclusive businesses are more productive, innovative and provide significant financial gains for businesses and our economy. Empowering companies to be more inclusive and diverse not only helps provide equal opportunities, but also provides returns for the employer.

Through the program, ICTC has engaged more than 400 companies and over 2,000 Canadians to review the issue, identify challenges and solutions.

## DIVERSITY & INCLUSION TOOL //

---

As part of the ATW initiative, ICTC developed an online Diversity and Inclusion Readiness Scale to help companies better understand how “ready” they are to become more diverse and inclusive.

The Scale identifies Stages of readiness, and provides resources to help you move through the process and on to the next Stage.

## ICTC IN 2017

---

ICTC is looking forward to its growth and renewal in 2017. With many federal funding initiatives coming to a close in March 2017, ICTC’s had an opportunity to work with federal and provincial governments on revising, changing and improving programs in core areas, as well as looking at expanding others.

---



### MEASURING INNOVATION

---

Launch Canada’s first Inclusive Innovation Index



### TALENT DEVELOPMENT

---

ICTC’s CyberTitan program is growing quickly and will host CyberDays with partners like CyberNB and the RCMP in early 2017. Look forward to more CyberDays and a National CyberTitan competition in 2018.



### RESEARCH

---

- Deeper looks into technology labour trends, ICTC will release 3 new reports:
- Outlook 2021 – ICTC’s new forecast for Canada’s technology sector
- Additive Manufacturing – An in-depth look at this emerging technology
- Indigenous Peoples in ICT – a look at the digital economy labour supply of technology workers from Canada’s Indigenous Peoples