



STRENGTHENING CANADA'S DIGITAL ADVANTAGE

QUARTERLY MONITOR OF CANADA'S DIGITAL ECONOMY

LABOUR MARKET | ECONOMY | TALENT | TECHNOLOGIES

THE INFORMATION AND COMMUNICATIONS TECHNOLOGY COUNCIL (ICTC)

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EXECUTIVE SUMMARY

The Information and Communications Technology Council (ICTC) is pleased to present the Winter 2014 edition of *Strengthening Canada's Digital Advantage (SCDA)*, exploring broad economic trends with respect to the ICT labour market, technology developments and adoption, exclusive results from ICTC's latest study exploring the impact of mobile apps on Ontario's creative media industries, and more.

Several developments and issues have recently captured our attention:

ICT'S CONTRIBUTION TO GDP CONTINUES TO RISE

Real GDP produced by the Canadian information and communications technology (ICT) sector grew by \$459 million in 2013 Q4 and reached \$69.7 billion. ICT sector output grew by 0.7% and was a contributing factor to 0.6% quarterly growth in the overall Canadian economy in the 2013 Q4. Ontario produced the biggest share of the ICT output (\$31.7 billion), followed by Quebec, Alberta, and British Columbia. Please refer to the *ICT Sector Output and Outlook* section for more details.

STRONG SHOWING IN THE LABOUR MARKET

In the [Fall 2013 edition of SCDA](#), we projected the Canadian digital economy labour market to gain momentum and witness a recovery of lost jobs by 2013 end. This turned out to be the case with the creation of 38,000 new digital economy jobs in the final quarter of 2013. We expect the momentum Canada's digital economy gained as 2013 wound down to remain robust with a continuing strong labour market in the first quarter of 2014. Please refer to the *ICT Labour Market Trends* section for more details on the provincial digital economy labour markets.

IMPROVED WORKFORCE DIVERSITY CRITICAL TO CANADA'S FUTURE

Canada's digital economy will continue to require skilled talent. Attracting and engaging women, new Canadians, and tomorrow's prime-age workers in this economy continues to be critical. Following three consecutive quarters of growth in the employment of women in ICT jobs, the number of women employed in ICT occupations declined in 2013 Q4 by 12,000. Overall, 187,000 women were employed in ICT occupations in this quarter, compared to 599,000 men. Employment in ICT occupations among those aged 25 or younger saw a marginal quarterly decrease (↓1,000) in 2013 Q4 as well, bringing the youth employment level in ICT to 47,000. Of the total employed workers in ICT occupations this quarter, 309,000 (39%) were immigrants—up sharply on the quarter (↑9%). The combined jobless rate among immigrants in all professions in Canada is 7.8% at present. In ICT occupations, joblessness among immigrants is consistently lower and is below 3% currently. Please refer to the workforce diversity sections for more details.

IN-DEMAND JOBS

Many jobs have recently been created for Software / GUI developers, informatics / business systems analysts, data analytics, database architects/administrators, web / network support technicians and administrators, software testers, systems technicians. At present, five topmost ICT occupational areas in terms of number of people employed are: (1) informatics / business systems analysts, (2) software / GUI developers, (3) technical support analysts / technicians, (4) multimedia designers / graphic illustrators, and (5) system administrators / network technicians. In fact, these skills have been in high demand for quite some time now. This edition of *SCDA* also highlights current vacancies and allows readers to



search jobs in their preferred locations. Please refer to the *Job Growth* and the *ICT Employment Outlook* sections for more details.

ADOPTING INNOVATIVE SOLUTIONS FOR EXPANDING BUSINESSES

Mobile apps have become a significant contributor to creative economies worldwide. It is crucial to create a body of evidence that highlights the impact of mobile apps on various industrial segments of the national and provincial economies. With its focus on creative media industries in Ontario, ICTC's latest research study bridges that gap and is a first notable step in that direction. This edition of *SCDA* highlights current industry trends and provides reference and guidance to help all creative media enterprises address the opportunities and challenges associated with adopting mobile apps. Please refer to the *Innovative Solutions for Expanding Businesses* section for a discussion of our just-released research findings.

POLICY AND INDUSTRY DEVELOPMENTS

Several key recent policy and industry developments are highlighted and discussed in the *Latest Policy and Industry Developments* section.

KEY TAKEAWAYS

- ➔ In a series of recent studies on wide-ranging topics such as [creative industries](#), [mobile technologies](#), [digital platforms](#), and [cloud services](#), we established that adoption of ICTs is highly beneficial for all economic sectors. Competing in today's digital economy requires a company to utilize technology in order to boost productivity. A workforce that can effectively use the technology is an essential element for a company to realize the productivity advantage. In addition to having higher-skilled ICT professionals in the roster, employers also need to be proactive to up-skill the non-ICT professionals to increase their understanding of the impact and potential of technology. Given the fact that today's mid-level professionals will have to assume greater responsibilities rather quickly as the [baby boomer generation](#) continues to retire, mid-level non-ICT professionals should be the focus of this up-skilling in particular. Specialized organizations such as ICTC have multiple [offerings](#) that would help these professionals progress in their careers and be valuable assets to their employers. The skills they will gain will better enable them to plan, leverage and advise their employers for greater innovation, productivity, and success in today's rapidly-changing, technology-enabled workplace.

- ➔ ICTC was pleased recently to submit its recommendations to Industry Canada's consultation on "Seizing Canada's Moment: Moving Forward in Science, Technology and Innovation.". Our recommendations to the consultation with respect to innovative funding models, reduction of trade barriers and equipping students with "STEAM" skills are described later in this document. Download ICTC's submission at <http://www.ictc-ctic.ca/wp-content/uploads/2014/01/ICTC-submission-IC.pdf>

A FINAL WORD

ICTC researchers are always pleased to discuss your research and data related requirements. We hope you enjoy reading this issue of [STRENGTHENING CANADA'S DIGITAL ADVANTAGE](#).



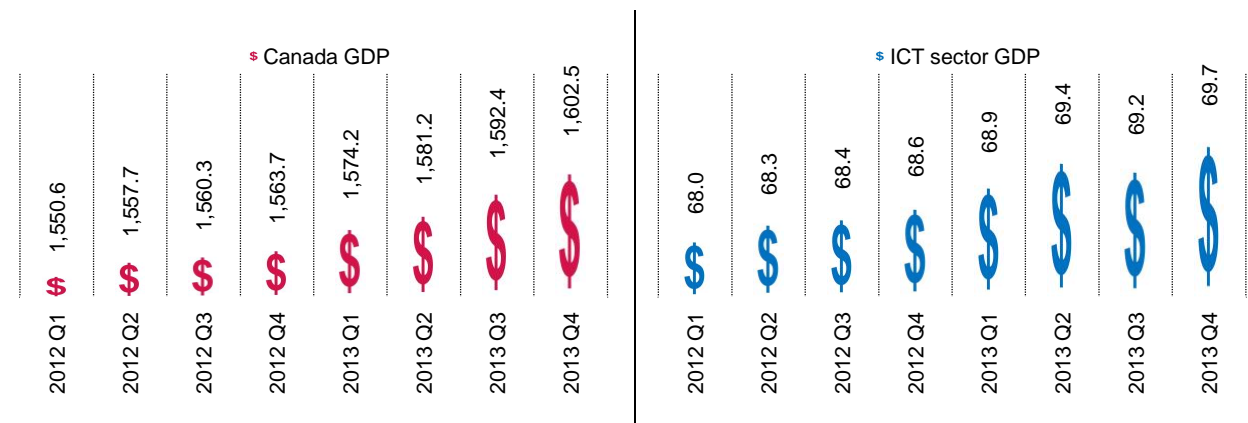
1. CANADA'S DIGITAL ECONOMY

ICT SECTOR OUTPUT AND OUTLOOK

ICT OUTPUT

Real gross domestic product (GDP) produced by the Canadian ICT sector in the fourth quarter of 2013 (2013 Q4) increased sizably (↑\$459 million) compared to the third quarter of 2013 (2013 Q3), contributing \$69.7 billion to Canadian GDP (figure 1).^{1,2} The ICT sector accounted for 4.3% of Canada's total output of \$1,602.5 billion in 2013 Q4. The emergence and adoption of ICT products and services have created incremental economic opportunities for all economic sectors. Technologies are promising new frontiers for innovation and economic growth, resulting in employment creation, efficiency gain, cost reduction, revenue generation, and collaboration across all sectors. The overall impact of ICTs on the Canadian economy as a result is much greater.

Figure 1. Canadian and ICT sector GDP (in billion dollars)



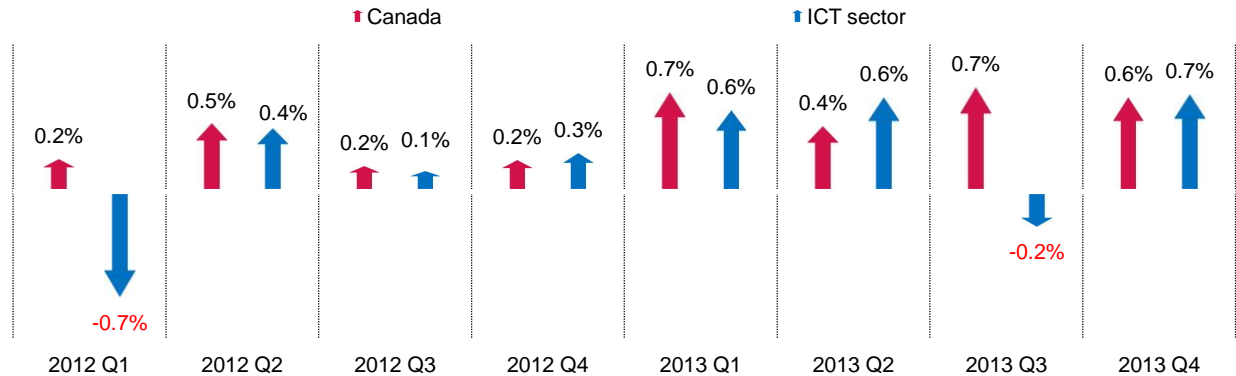
Source: ICTC; Statistics Canada

ICT sector output of \$69.7 billion in 2013 Q4 was \$1.1 billion higher than it was in 2012 Q4—a year-over-year (YOY) output growth of 1.6%. It also represents a 1.7% increase compared to two years ago (2011 Q4) and a 3.3% growth compared to three years ago (2010 Q4). ICTs have a profound direct and enabling impact on the overall economy. These technologies enable workers and businesses to upgrade existing business strategies, workplaces, and operational procedures to improve productivity. Output growth in the ICT sector was a contributing factor to 0.6% QOQ growth in the overall Canadian economy in the 2013 Q4 (figure 2). Growth in the overall Canadian economy was 2.5% in the fourth quarter of 2013 compared to the fourth quarter in 2012, and 3.6% compared to the fourth quarter in 2011.

¹ In 2007 chained dollars. Chained dollars are real dollar amounts adjusted for inflation.

² GDP figures for 2013 Q4 are calculated using October 2013 data only, due to lag associated with availability of output data.

Figure 2. Quarterly growth of GDP — 2012 Q1 to 2013 Q4

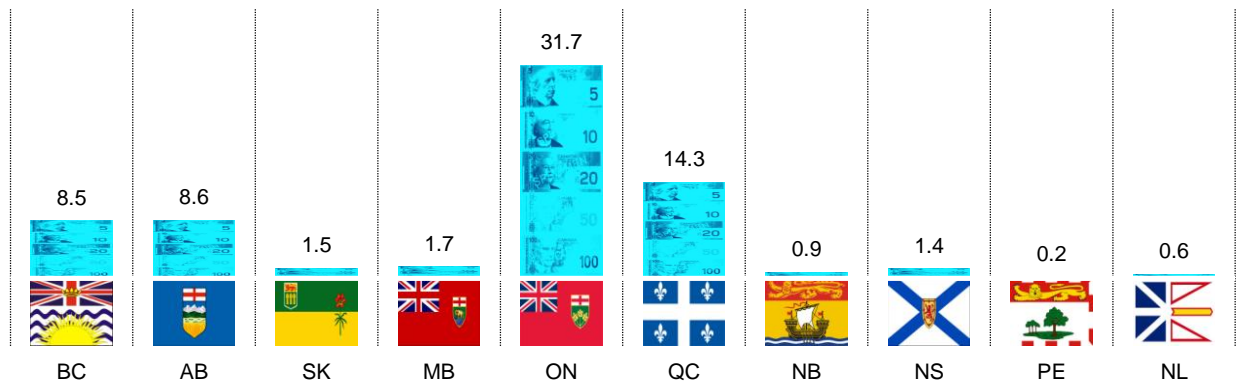


Source: ICTC; Statistics Canada

PROVINCIAL COMPARISON

Ontario is Canada's ICT leader and contributed \$31.7 billion to the total Canadian ICT output in 2013 Q4 (figure 3). In the same period, other notable ICT output contributors were Quebec (\$14.3 billion), Alberta (\$8.6 billion), British Columbia (\$8.5 billion), Manitoba (\$1.7 billion), Saskatchewan (\$1.5 billion), and Nova Scotia (\$1.4 billion).

Figure 3. ICT sector output by province/region (in billion dollars) – 2013 Q4



Source: ICTC; Statistics Canada

An excellent blend of advanced technological, research, and corporate infrastructure means that Canadian provinces offer unique opportunities and the provincial brands need to be built and promoted internationally around this theme. Each province has its unique attribute that gives it competitive advantage in an increasingly connected global market place, be it strong and robust industry verticals and clusters, pool of required skills, policy support, or enabling business environment. Stakeholders need to act in concert and without delay for provincial economy to prosper. It is vital to raise awareness of ICT options and benefits to encourage wider adoption and thus generate demand to increase output. Promotional activities need to go beyond highlighting available technology and promote the amazing skills and talent available in the provinces. In that regard, it is also essential to recognize all available talent to improve understanding of the highly competitive global market and address the skills shortage.



LABOUR MARKET TRENDS

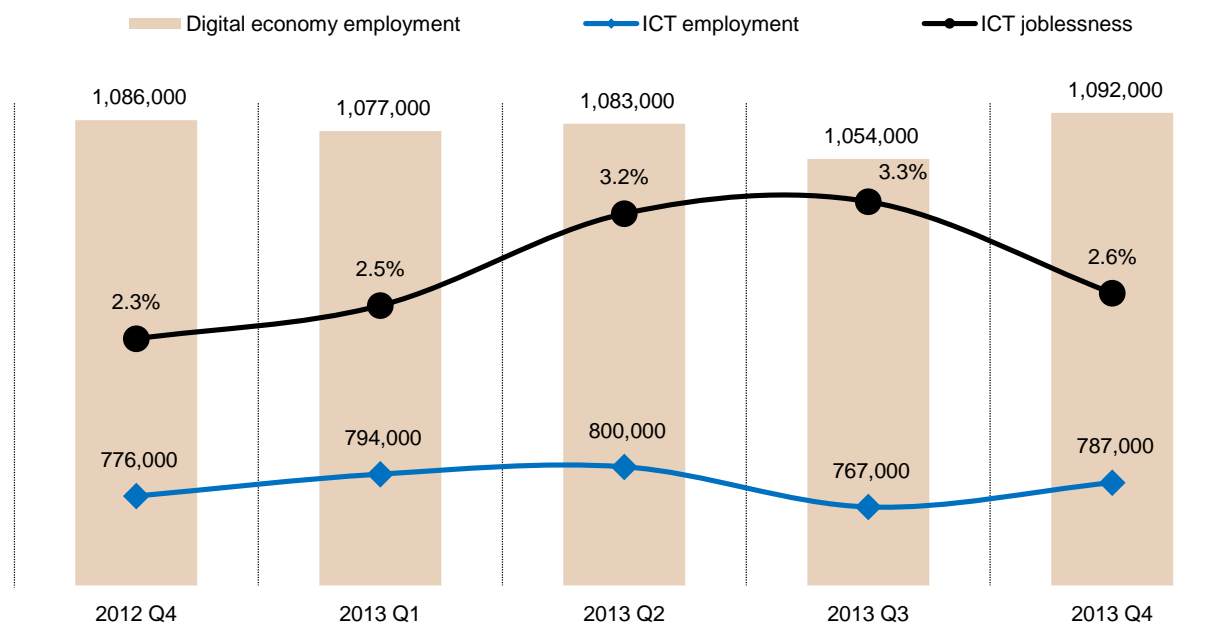
EMPLOYMENT LEVEL AND JOBLESSNESS

787,000 ICT workers were employed in 2013 Q4, increasing significantly (↑20,000) compared to 2013 Q3. The jobless rate decreased as a result from 3.3% in 2013 Q3 to 2.6% in 2013 Q4 (figure 4).

Non-ICT workers employed in the ICT sector are key contributors to its growth and are included in our overall consideration of Canada's digital economy. Employment among these workers increased notably in 2013 Q4 to 305,000 (↑18,000) from 287,000 in 2013 Q3.

The net effect of a sizable increase in ICT employment throughout the economy and notable increase in non-ICT employment in the ICT sector was that employment in Canada's digital economy in 2013 Q4 increased by 38,000 (↑) compared to the previous quarter, bringing the employment level in Canada's digital economy to 1,092,000.

Figure 4. Employment in Canada's digital economy — 2012 Q4 to 2013 Q4



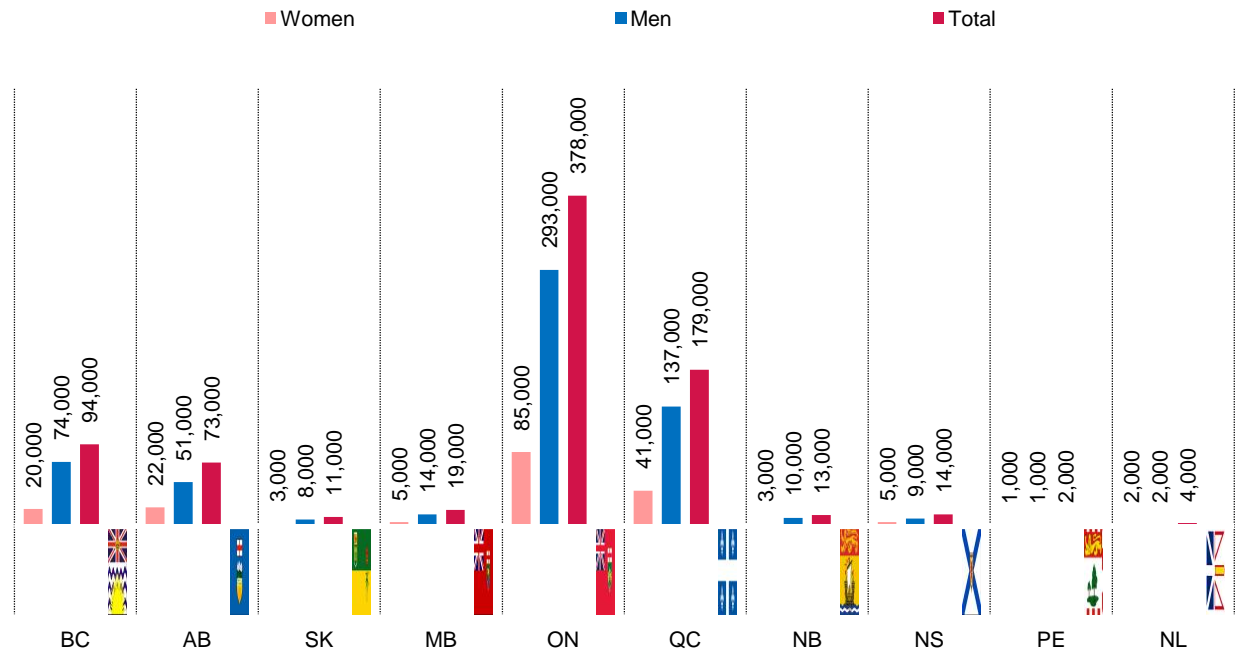
Source: ICTC; Statistics Canada

All sectors of the Canadian economy employ ICTs to boost productivity and efficiency. In 2013 Q4, the Canadian labour market experienced an unexpected and sizable contraction, as 190,000 (↓1.1%) jobs were lost across all sectors in this quarter. In comparison, ICT employment grew by 2.6% (↑) in 2013 Q4. We consider this to be a leading indicator that ICT will play a leading role in the turnaround of the overall Canadian labour market and economy.

PROVINCIAL COMPARISON

Ontario is Canada's largest ICT employer and employs 378,000 of all such workers in Canada. By comparison, ICT employment is 179,000 in Quebec, 94,000 in British Columbia, 73,000 in Alberta, 19,000 in Manitoba, 14,000 in Nova Scotia, 13,000 in New Brunswick, 11,000 in Saskatchewan, 4,000 in Newfoundland & Labrador, and 2,000 in Prince Edward Island (figure 5).

Figure 5. ICT employment by province and gender — 2013 Q4



Source: ICTC; Statistics Canada

WOMEN IN ICT

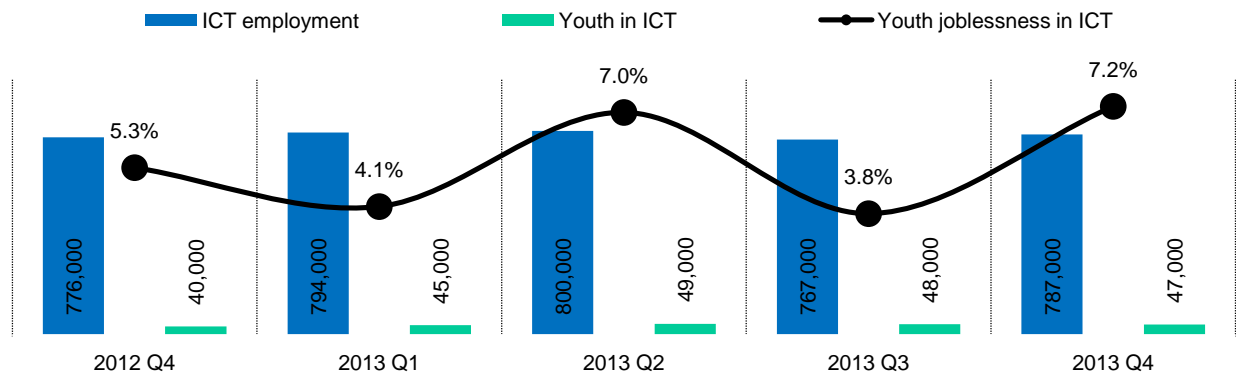
Following three consecutive quarters of growth in the employment of women in ICT jobs, the number of women employed in ICT occupations declined in 2013 Q4 by 12,000. Overall, 187,000 women were employed in ICT occupations in this quarter, compared to 599,000 men.

In ICT positions, the highest number of women is employed in Ontario at 85,000. By comparison, ICT employment for women is 41,000 in Quebec, 22,000 in Alberta, 20,000 in British Columbia, 5,000 in Manitoba, 5,000 in Nova Scotia, 3,000 in New Brunswick, 3,000 in Saskatchewan, 2,000 in Newfoundland & Labrador, and 1,000 in Prince Edward Island (figure 5).

YOUTH IN ICT

Employment in ICT occupations among those aged 25 or younger saw a marginal quarterly decrease (↓1,000) in 2013 Q4, bringing the youth employment level in ICT to 47,000 (figure 6). That level is 18% higher than a year ago in 2012 Q4. And yet, only 6% of all ICT jobs are held by these youth currently, compared to 15% of the jobs held by youth below 25 in the overall economy.

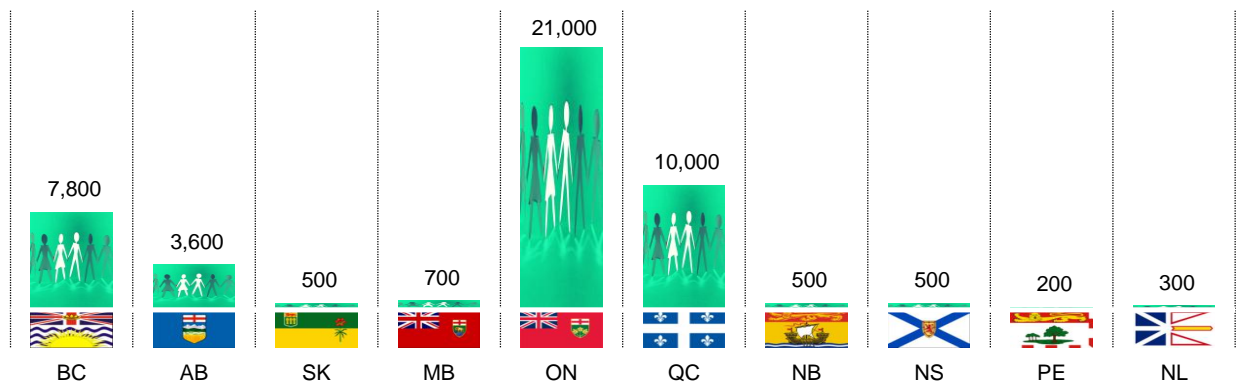
Figure 6. Youth employment in ICT — 2012 Q4 to 2013 Q4



Source: ICTC; Statistics Canada

The jobless rate among those aged 25 or younger in Canada is 12.7% at present. In ICT occupations, joblessness among this age group is notably lower and is 7.2% (figure 6).

Figure 7. Youth employment in ICT by province — 2013 Q4



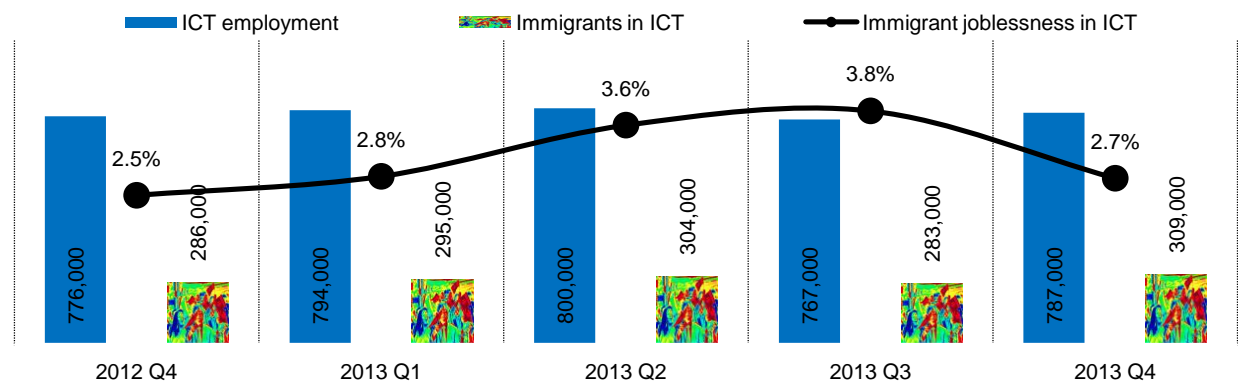
Source: ICTC; Statistics Canada

In ICT positions, the highest number of youth is employed in Ontario at 21,000. By comparison, ICT employment for youth is 10,000 in Quebec, 7,800 in British Columbia, 3,600 in Alberta, 700 in Manitoba, 500 in Nova Scotia, 500 in New Brunswick, 500 in Saskatchewan, 300 in Newfoundland & Labrador, and 200 in Prince Edward Island (figure 7).

IMMIGRANTS IN ICT

Of the total employed workers in ICT occupations in 2013 Q4, 309,000 (39%) were immigrants—up sharply on the quarter (↑9%) (figure 8). Jobs that have a strong emphasis of technical skills—for instance software programming or web development—are easier for new and arriving Canadians to find, as these skills are easily transferable and highly in demand. The proportion of immigrants has been consistent in recent quarters at marginally above a third of the ICT workforce. This is in sharp contrast with the overall economy, where a quarter of all jobs are held by immigrants. This we consider as evidence of an overall demand for skilled ICT workers throughout the economy.

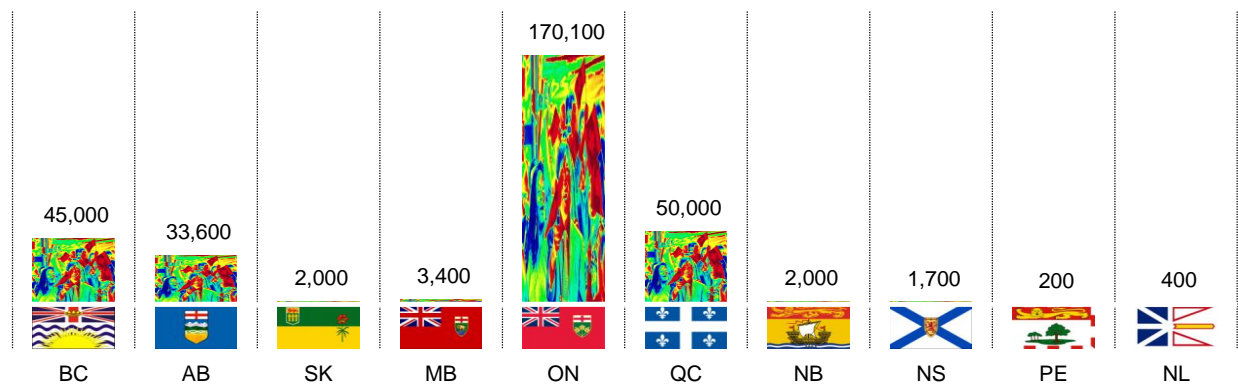
Figure 8. Immigrant employment in ICT — 2012 Q4 to 2013 Q4



Source: ICTC; Statistics Canada

The jobless rate among immigrants in Canada is 7.8% at present. In ICT occupations, joblessness among immigrants is consistently lower and is below 3% at present (figure 8).

Figure 9. Immigrant employment in ICT by province — 2013 Q4



Source: ICTC; Statistics Canada

In ICT jobs, the highest number of immigrants is employed in Ontario at 170,000. By comparison, ICT employment for immigrants is 50,000 in Quebec, 45,000 in British Columbia, 33,000 in Alberta, 3,400 in Manitoba, 2,000 in New Brunswick, 2,000 in Saskatchewan, 1,700 in Nova Scotia, 400 in Newfoundland & Labrador, and 200 in Prince Edward Island (figure 7).

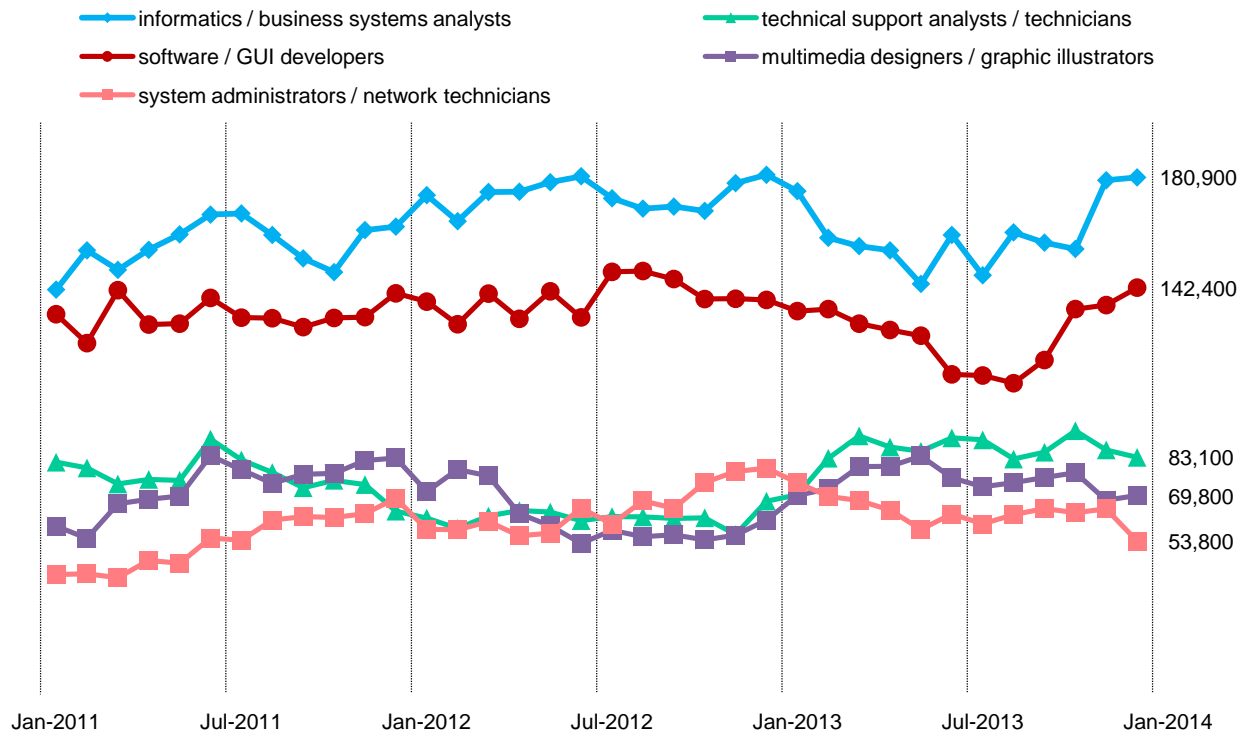
JOB GROWTH

Notwithstanding occasional slumps, demand for ICT skills is robust in general and demand for specific skills rises and falls in cyclical fashion. In the fourth quarter of 2013, the following ICT occupations witnessed the highest quarterly increases:

- ➔ software / graphical user interface (GUI) developers (↑8,400)
- ➔ informatics / business systems analysts (↑7,600)
- ➔ data analytics / database architects/administrators (↑1,000)
- ➔ web / network support technicians/administrators (↑800)
- ➔ software testers / systems technicians (↑500)

At present, five topmost ICT occupational areas in terms of number of people employed are: (1) informatics / business systems analysts, (2) software / GUI developers, (3) technical support analysts / technicians, (4) multimedia designers / graphic illustrators, and (5) system administrators / network technicians. In fact, these skills have been in high demand for quite some time now (figure 10).

Figure 10. Top five ICT jobs — 2014



Source: ICTC; Statistics Canada

With respect to growth in these jobs, demand for technical support analysts / technicians (2%) as well as for software / GUI developers (7%) remained steady over the previous three years. The other three leading ICT occupations, however, experienced notable growth in this period. Since early 2011, employment for multimedia designers / graphic illustrators grew by 18%, for system administrators / network technicians by 27%, and for informatics / business systems analysts by 28%.



DEMAND AND SUPPLY OF SKILLS

ICT EMPLOYMENT OUTLOOK

In the [Fall 2013 edition of SCDA](#), we projected the Canadian digital economy labour market to gain momentum and witness a recovery of lost jobs by 2013 end. Happily, that is exactly how things have turned out with the creation of 38,000 new digital economy jobs in the final quarter of 2013. We are expecting the momentum Canada's digital economy gained as 2013 wound down to remain robust and carry it through a strong labour market showing in the first quarter of 2014.

Industries outside the ICT sector (e.g. creative media, financial services, healthcare, and education) are major users of ICT products and services in Canada. These industries' need for top ICT talent continues to grow and has resulted in expanding career options for ICT professionals, placing competitive pressure on the employers seeking technical ICT talent.

As a result, it is a good time to be hunting ICT jobs in Canada. Based on active vacancies posted on jobsites, employment growth in early-2014 is expected to be the highest for the occupations below.

Note: To begin your search, click on a job title below to view current vacancies. You can narrow your search by selecting a job location from the right-hand sidebar in the new browser window.

- ➔ [informatics / business systems analysts](#)
- ➔ [IT/ICT analysts](#)
- ➔ [information systems / IT managers](#)
- ➔ [software designers/engineers](#)
- ➔ [graphical user interface \(GUI\) developers](#)
- ➔ [mobile application developers](#)
- ➔ [software developers](#)
- ➔ [application programmers](#)
- ➔ [animation programmers](#)
- ➔ [electronics engineers](#)
- ➔ [electronics technicians](#)
- ➔ [computer / network systems engineers](#)
- ➔ [network support technicians/administrators](#)



INNOVATIVE SOLUTIONS FOR EXPANDING BUSINESSES

Mobile apps and related technologies enable workers and businesses to upgrade existing business strategies, workplaces, and operational procedures. There are nearly three million mobile apps currently available in all platforms that are being used for entertainment, productivity, reference, communications, enterprise solutions, and countless other uses. As content distribution tools, marketing vehicles, one-off sales, or conduits to recurring revenue streams, mobile apps have become a significant contributor to Ontario's creative economy.

Combining rigorous analysis and consultation with mobile apps and creative media industries of Ontario, ICTC's latest study shares current industry trends and provide reference and guidance to help all creative media enterprises address the opportunities and challenges associated with adopting mobile apps. It was crucial to create a previously lacking body of evidence that highlights the impact of mobile apps on various industrial segments of the national and provincial economies. With its focus on creative media industries in Ontario, this study bridges that gap and is a first notable step in that direction.

In the first [study](#) of its kind, ICTC finds that 71% of Ontario's mobile apps enterprises focus on developing mobile apps that provide business solutions, a clear indication that more and more organizations are having their own business specific mobile apps developed. The adoption of mobile apps is facilitated by their low cost. For any type of mobile app (including creative industry specific or otherwise) development cost can range from \$3,000 to \$200,000 and costs \$18,000 on average. ICTC's consultation with the mobile apps industry confirms that creative industry relevant mobile apps tend to cost more as they are content rich and more interactive.

An estimated 21,000 Ontarians are involved in development and distribution of mobile apps. Of them, 17,700 are employed in the mobile apps industry and a further 3,300 are employed in creative enterprises. Toronto remains Ontario's mobile apps development hub, with 40% of the jobs located in the greater Toronto area (GTA), 30% in Ottawa, 15% in Kitchener-Waterloo (K-W), and the remaining 15% in rest of Ontario in such places as Hamilton, Oakville, and Cobourg. Driven largely by strong growth in accessing and consuming digital products and services through mobile apps, between 9,000 and 11,000 new jobs are expected to be created in Ontario between now and 2018 as a result of creation of new and more sophisticated mobile apps and wider enterprise adoption.

ICTC estimates that Ontario's mobile apps enterprises currently generate approximately \$618 million annually in revenues. Various Ontario industries are the biggest source of this revenue, with 8% of their revenues coming from OCMI's and 38% from other Ontario-based industries. United States is a key market for Ontario's mobile apps enterprises, as over a quarter (27%) of the revenues is sourced from the U.S. Other Canadian provinces generate 16% of the revenues, while the remaining 11% comes from the rest of the world.

Creative industries are a vibrant, diverse, innovative, and growing segment of Ontario's economy. Mobile apps are being used in a variety of ways for a multitude of purposes in Ontario's creative sectors. Usage of mobile apps for purposes such as communications and information gathering are common to all OCMI's. Unique features of each creative industry's adoption pattern also emerge in this study. Based on the latest output data, ICTC estimates that Ontario's creative industries generate \$14.5 billion in revenues annually, and make a \$7.8 billion contribution to Ontario's GDP. An estimated \$220 million of that revenue results from mobile apps adoption.

There is a key role to be played by Ontario's creative industries, the mobile apps industry, educators, and other stakeholders in ensuring that mobile technologies support Ontario's prosperity. This original research study proposes a series of actions to benefit all stakeholders is available for free [here](#).

LATEST POLICY AND INDUSTRY DEVELOPMENTS

Harper Government Announces New Measures to Benefit Canadian Wireless Consumers

Canadian consumers in urban and rural areas will soon benefit from the deployment of advanced mobile and broadband services across the country, which will lead to better, faster Internet services on the latest technologies ([...more details here](#)).

Cyberbullying targeted in new TV, online ad campaign

The federal government launched a television and online advertising campaign to raise awareness about cyberbullying and the possible legal consequences of using the internet to torment people. ([...more details here](#)).

Discover Tectoria Showcases Victoria's Thriving Tech Sector

As technology companies from around the world converge in British Columbia, areas outside of Vancouver, the epicentre of the industry, are developing their own high-technology hubs. ([...more details here](#)).

BC doctor takes dermatology digital with MoleScope

Dr. Maryam Sadeghi has created software to help diagnose skin cancer in its earliest stages. The software, which collects and manages images on a smartphone, which are then sent to specialists to determine whether further examination and treatment is needed, will be particularly helpful to those living in rural communities with no access to skin specialists. ([...more details here](#)).

Bit Stew Systems Inc. secures funding to expand real-time network operations business globally

Bit Stew Systems Inc., a world-leading provider of integrated, real-time network operations solutions for the utility industry, secured capital investment from Cisco and the highly-respected venture firm Yaletown Venture Partners. ([...more details here](#)).

Fewer than half of Alberta companies offer telecommuting

A survey conducted by BMO Commercial Banking Survey released found that 49 per cent of Alberta employees said their company offers telecommuting to its staff compared with 56 per cent of Canadian employees. ([...more details here](#)).

Upcoming Canada 3.0 conference looks to marry the energy and innovation sectors

The [Canadian Digital Media Conference's](#) (CDMN) upcoming [Canada 3.0 Conference](#), to be held in Calgary in May, will focus on meshing together Canada's massive energy sector and its ever-growing ICT sector ([...more details here](#)).

Taiwan delegation aims for stronger business ties with Saskatchewan

A delegation from Taiwan attended a two-day trade and investment seminar in Saskatoon to learn about potential business partnerships especially in sectors agbio technology, the life sciences and green energy along with agriculture and mining ([...more details here](#)).



Dean Prevost Steps Down as President of Allstream

Allstream President Dean Prevost will step down from the company, effective January 17, in order to pursue other interests. Michael Strople, currently Chief Operating Officer of Allstream, will assume the role of President ([...more details here](#)).

MTS to Build World-Class Data Centre in Manitoba

Manitoba Telecom Services Inc. plans to design and build a commercial, multi-tenant data centre in Manitoba expected to open in 2015 ([...more details here](#)).

High-Tech jobs on the rise in Ottawa as other industries falter

The number of people working in ICT in Ottawa increased from 40,200 in 2012 to 56,200 at the end of 2013 ([...more details here](#)).

Ontario Improving Online Learning

Ontario is creating a Centre of Excellence for Online Learning to give students across the province one window of access to high-quality, transferable online courses, while reducing course duplication ([...more details here](#)).

Ontario Centres of Excellence helps shed right light on 'growing' problem in the north

Researchers at Guelph University are looking to create computer-generated greenhouses for growing vegetables all year round in some of Canada's harshest climates ([...more details here](#)).

Pay-how-you-drive technology may help drivers lower their insurance premiums

A collaboration between Quebec-based Baseline Telematics, Industrial Alliance, and SAP may help lower insurance premiums ([...more details here](#)).

French Company Chooses Montréal to Launch Its International Operations

StarDust, a company specializing in the validation of web and mobile applications, has opted to launch its North American development strategy by opening an office in Montréal ([...more details here](#)).

New Brunswick Liberals promise fund to improve information technology

NB Liberal leader promised to create a fund to teach computer programming in schools. Brian Gallant said the province has a generation of students who are comfortable using technology but are unable to create it, and that needs to be addressed in order to improve the province's economy ([...more details here](#)).



New information and communications technology to aid construction industry in Nova Scotia

New ICT tools are being geared for the construction industry to improve efficiency and reduce overhead costs ([...more details here](#)).

Nova Scotia's digital industries: Fastest growing sector in the province

NS digital industries contribute \$1.5 billion to provincial GDP and show no signs of slowing down. Information and communications technologies (ICT) is now 50 per cent larger than Nova Scotia forestry, agriculture, and fishing combined and employs almost one in 20 workers ([...more details here](#)).

Government Announces Project to Help Women in PEI Advance in Canada's Digital Economy

The Innovation and Technology Association of Prince Edward Island will run a 36-month project to increase the recruitment, retention and advancement of women in PEI's information technology (IT) sector ([...more details here](#)).



KEY TAKEAWAYS

- ➔ In a series of recent studies on wide ranging topics such as [creative industries](#), [mobile technologies](#), [digital platforms](#), and [cloud services](#), we established that adoption of ICTs is highly beneficial for all economic sectors. Competing in today's digital economy requires a company to utilize technology in order to boost productivity. A workforce that can effectively use the technology is an essential element for a company to realize the productivity advantage. In addition to having higher skilled ICT professionals in the roster, employers also need to be proactive to up-skill the non-ICT professionals to increase their understanding of the impact and potential of technology. Given the fact that today's mid-level professionals will have to assume greater responsibilities rather quickly as the [baby boomer generation](#) continues to retire, mid-level non-ICT professionals should be the focus of this up-skilling in particular. Specialized organizations such as ICTC has many relevant [offerings](#) that would help these professionals progress in their careers and be valuable assets to their employers. The skills they will gain will better enable them to plan, leverage and advise their employers for greater innovation, productivity, and success in today's rapidly-changing, technology-enabled workplace.
- ➔ ICTC was pleased recently to submit its recommendations to Industry Canada's consultation on "Seizing Canada's Moment: Moving Forward in Science, Technology and Innovation.". Our recommendations to the consultation with respect to innovative funding models, reduction of trade barriers and equipping students with "STEAM" skills are described below. Download ICTC's full submission at <http://www.ictc-ctic.ca/wp-content/uploads/2014/01/ICTC-submission-IC.pdf>
- ➔ As industries across all economic sectors adopt ICTs, significant opportunities exist for ICT service providers to seize the moment and pursue growth outside of the traditional technology verticals, particularly in micro and small enterprises that comprise three-quarters of Canada's total businesses. In this regard, it is critical that ICT service providers continue to receive strong policy support to venture into high growth markets. Even among ICT service providers, micro- to medium-sized companies exude innovation and play one of the most crucial roles in the global digital economy. Creating an enabling and nurturing environment for them will improve their performance and result in more jobs for Canadians. To that end, complementing the currently available initiatives such as [SR&ED](#) and [IRAP](#) with additional incentives that allow ICT service providers to save on taxes from the profit of their future innovations will encourage them to innovate. One such program—known as the [UK Patent Box](#)—is currently being piloted in the UK, and rather successfully at that. Features of this initiative may be considered and customized for the Canadian business environment.
- ➔ Consultation with ICT service providers during many of our recent research initiatives reveals that many of the SMEs need an injection of capital to grow their operations and are finding it challenging to access the required level. This story we heard from coast to coast to coast, all across Canada. Finding solutions to enable SMEs access the same level of capital as the large corporations is critical to make SMEs more competitive. Recent innovations such as [crowdfunding](#) are a great boost for SMEs in this regard. To allow SMEs to grow, a preferential tax treatment—perhaps even tax exemptions for a limited time—to ease resource constraints will be helpful.
- ➔ Despite having the most innovative of employers and world leading educational institutions, the expertise that the former seeks and the skills that the latter produces are not ideally aligned. Both of these groups have to participate actively to find a solution to this issue. And even when this is adequately addressed, there is a real issue of shortage of ICT skills. Not many of today's youth are pursuing ICT careers and this issue has the potential to snowball into a real crisis in the not-too-distant future. One of the solutions is to make programs available to students at an early age, even



as early as in grade 7. Equipping students in grade 7 and onwards with ICT/[STEAM](#) knowledge and skills will make them interested in this area at an early age that will stay with most of them for the rest of their careers. Even this should be implemented with active engagement by the industry so that theoretical knowledge can be supplemented with hands-on experience and practical skills.

2. ICTC COMMUNITY

In each issue of *Strengthening Canada's Digital Advantage*, we feature news items and case studies from our ICTC Community members. To learn more about the ICTC Community, visit our web site or contact Gesine Freund at g.freund@ictc-ctic.ca.

Entrepreneurship competition pays dividends for BC economy: Beedie study

A new study by the Beedie School of Business at Simon Fraser University makes the case for mentored entrepreneurial competition as a means to contributing to the British Columbia economy. The research report, entitled “New Ventures BC Economic Impact and Entrepreneurial Research Impact”, was co-authored by Beedie Professors Elicia Maine and Pek-Hooi Soh, and Beedie MBA alumnus Lee O'Donnell.



To date, more than 1,400 aspiring B.C. entrepreneurs have entered the competition, with 36 winning major prize packages. Most winners have continued on to form viable companies and to create jobs for British Columbians. The prizes issued by NVBC are intended to grow the most promising early-stage ideas into successful companies. Most importantly, new technology entrepreneurs are created through the educational, mentoring, and entrepreneurship bootcamp stages of the competition: these budding entrepreneurs are expected to facilitate innovation in the province for decades to come.

“This study shows that NVBC makes a strong contribution to the BC regional system of innovation,” said Maine. “Past participants have strongly endorsed the NVBC competition, and NVBC is found to have had a substantive economic impact.”

During the first phase of the economic impact research study, the research team created an enhanced company database of 295 companies that proceeded to the third round of the competition from 2001 to 2011. Of those companies, 56 percent of them are still viable in some form – responsible for an estimated 3,170 jobs, 854 patents, \$194 million in revenue and 1294 unique product offerings. A phase two of the study involved both quantitative and qualitative follow-up with third round participants. The qualitative feedback demonstrated the value of the mentoring portion of the entrepreneurship competition, and provided feedback to improve the competition for future years. 85% of respondents indicated that they had significantly benefited from the competition and would highly recommend the NVBC competition to other entrepreneurs.

More than 1,100 aspiring B.C. entrepreneurs have entered the competition since its inception. These include the likes of 2008 winner Saltworks Technologies – founded by two SFU Management of Technology MBA graduates, Ben Sparrow and Joshua Zoshi. Saltworks is delivering to the desalination industry a revolutionary, affordable and energy-efficient method for producing fresh water. According to Zoshi, the New Ventures BC competition forced the duo to think about crystallizing their business plan to accompany their breakthrough technology – an idea that *The Economist* magazine has referred to as “an ingenious way of using the heat of the sun to drive the (desalination) process.”

Other past participants from the Beedie School of Business have included Hiretheworld.com (NVBC winner, 2010), founded by BBA alumnus and instructor Terry Beech; and Layerboom, founded by EMBA student Howie Wu. SFU Engineering Science students Vincent Yen, Frederick Ghahramani & Bryce Pasechnik, winners of the inaugural NVBC competition in 2001, have grown their venture AirG —



headquartered in Vancouver — into the world's leading mobile social entertainment provider, with more than 55 million unique users in 40 countries.

A warm welcome to these new and (re)newing ICTC Community members!



The CIO Association of Canada - Celebrating 10th Anniversary!

Since 2004 the CIO Association of Canada has been representing Senior IT Executives. Originally based in Vancouver, the Association now has 6 regional chapters in British Columbia, Alberta and Ontario. The organization's mission is to grow IT leaders, to speak with one voice on issues facing CIOs, and to build a vendor-neutral community for safe exchange of ideas and best practices.

www.ciocan.ca

Join us at the **2014 CIO Peer Forum April 10-11**



Beedie School of Business, Simon Fraser University

Since the creation of Canada's first Executive MBA in 1968, Beedie School of Business has championed lifelong learning, productive change and innovation in the delivery of impactful research and teaching. The Beedie School of Business has been accredited by the world's top accrediting bodies, the European Federation for Management Development (EFMD) and the Association for the Advancement of Collegiate Schools of Business (AACSB). This achievement places Beedie School of Business among the 1 % of top tier business schools in the world which have earned both of these international accreditations. [Learn more...](#)

News Item:

A new Canadian institute that will assist developing countries with resource driven economies benefit from their resources in environmentally and socially responsible ways has been officially launched. [Link to full press release](#)



Dapasoft

A true Canadian success story! Dapasoft Inc. is a Microsoft Gold Certified Partner and industry leader in delivering software solutions and integration services for clients in healthcare, public sector and manufacturing. Dapasoft has recently been honored with the global 2013 Microsoft Application Integration Partner of the Year Award.

www.dapasoft.com

Press Release brief | **Dapasoft wins!** Being dedicated to providing leading healthcare integration services utilizing Microsoft technologies, Dapasoft has received a global Microsoft award for 2013 integration partner of the year. [Link to the full press release](#)



ARC Business Solutions Inc.

ARC Business Solutions Inc. is an established, growing and customer-oriented information technology solution provider with proven abilities to incorporate strategy, creativity and technical aspects into business solutions. Core business verticals are: Professional IT Services, Enterprise Content Management, Mobile Solutions and Managed Network Services. ARC's team of dedicated professionals is committed to delivering high quality information technology solutions to meet client-specific business challenges.

<http://www.arcbus.com/>

News

ARC Business Solutions Inc. (ARC), announced the grand opening of its fourth Canadian Regional office in Regina. The event was held for invited guests at the Avord Tower office location.



Information and Communications Technology Association of Manitoba (ICTAM)

ICTAM is an industry-focused association representing Manitoba's ICT sector. Their goal is to accelerate the growth, prosperity and sustainability of the industry through relevant programming, advocacy and collaboration. ICTAM does an outstanding job in assisting their member companies in achieving greater success through talent development programs, networking events, conferences, providing cost-saving benefits and promotional marketing opportunities.

www.ictam.ca

ICTAM Events:

Tech Mash-up

This popular monthly "Lunch & Learn" program showcases ICT Know-how to Winnipeg's businesses. Organizations are invited to share their expertise on a technology product or service, emerging technologies, or proven transformative ICT business processes. Check out [ICTAM's event page](#) for past and future Mash-ups!

The Innovators 2014

ICTAM's signature event, The Innovators, is back! In 2012, Sir Terry Matthews set the standard with his 'no holds barred' style. Last year, Bruce Croxon captured our audience with his down to earth wit and humor. This year, ICTAM celebrates the game changing innovation of **Twitter**. Twitter has grown into a global town square – a public place to hear the latest news, exchange ideas and connect with people – all in real time. We are proud to announce the return of CBC's Mark Kelley for a featured interview with this year's special guest, **Kirstine Stewart, Managing Director of Twitter Canada**. For more information visit www.ictam.ca



ABOUT ICTC

The Information and Communications Technology Council (ICTC) is a leading not-for-profit national centre of expertise conducting research, policy development, and creating talent solutions for the digital economy.

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Keep in touch with ICTC and explore solutions for the digital economy via:



Website <http://www.ictc-ctic.ca/>



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Facebook www.facebook.com/pages/Information-and-Communications-Technology-Council-ICTC



YouTube <http://www.youtube.com/user/DigitalEconomyPulse>



DIGITAL ECONOMY LABOUR FORCE

ICTC's labour market research captures critical economic and labour market indicators to inform competitive business and human resource strategy planning, decision-making and career development in ICT, thereby driving the development of a more prosperous Canadian ICT workforce and industry in a global digital economy.

The table below summarizes the core ICT occupations. The sum total of workers (workers that are employed in these occupations as well as workers that are currently unemployed, but actively looking for work) in these occupations and workers in all other (non-ICT) occupations in the ICT sector (ICTC's framework of Canada's ICT sector is explained below) is the total digital economy labour force in Canada:

Index	NOC Code	Occupation Title
1	0131	telecommunication carrier managers
2	0213	computer and information system managers
3	2133	electrical and electronics engineers
4	2147	computer engineers
5	2171	information systems analysts and consultants
6	2172	database analysts and data administrators
7	2173	software engineers
8	2174	computer programmers and interactive media developers
9	2175	web designers and developers
10	2241	electrical and electronics engineering technologists and technicians
11	2281	computer network technicians
12	2282	user support technicians
13	2283	systems testing technicians
14	5224	broadcast technicians
15	5241	graphic designers and illustrators



ICT SECTOR

The table below summarizes the ICT sector:

Index	NAICS Code	ICT Sub-sector
1	3333	Commercial & Service Industry Mach. Manuf.
2	3341	Computer & Peripheral Equip. Manuf.
3	3342	Communications Equip. Manuf.
4	3343	Audio & Video Equip. Manuf.
5	3344	Semiconductor & Other Electronic Component Manuf.
6	3345	Navigational, Medical & Control Instruments Manuf.
7	4173	Computer & Comm. Equip. & Supplies Wholesale distribution
8	5112	Software Publishers
9	5171	Wired Telecommunications Carrier
10	5172	Wired Telecommunications Carrier (except satellite)
11	5174	Satellite Telecommunications
12	5179	Other Telecommunications
13	5182	Data Processing, Hosting, and Related Services
14	5415	Computer Systems Design & Related Serv.
15	8112	Electronic & Precision Equip. Repair & Maintenance