



FROM BROADBAND ACCESS TO SMART ECONOMIES

Technology, skills and Canada's future

A report from the Canadian Internet Registration Authority

June 2016



INTRODUCTION

In a 2016 survey of 1,200 Internet users and 300 decision-makers in information technology (IT) firms conducted by CIRA and the Strategic Counsel, one in five respondents said Canadian technology companies are currently not globally competitive. Of those who felt Canada was competing well in the global market, just three per cent cited government investment in infrastructure as a contributing factor.

It's largely agreed that broadband access is critical, not only to the digital economy, but to the economy overall. The OECD has found that "no business today is run without the help of information and communication technologies (ICTs) and that in 2014, almost 95 per cent of enterprises in the OECD had a broadband connection." Moreover, accessibility is essential to maintaining Canada's competitive place in the global economy. "An open and accessible Internet, with high fixed and mobile bandwidth, is essential for innovation in the 21st century," the OECD has stated.

Among respondents to the CIRA/Strategic Counsel survey, nearly half of the 300 IT leaders surveyed (49%) said "Canadian technology companies aren't equipped to compete globally," and 75 per cent said, "We need "made-in-Canada" solutions for our major technology challenges."

Broadband is being widely recognized as a foundational element of the digital economy. But is Canada falling behind in areas, such as critical infrastructure, R&D investment and commercialization of products? In its 2015 annual report card, the Conference Board of Canada recently awarded Canada a "C" grade, and ranked it ninth out of 16 countries in the OECD in the innovation category. ICT investment and connectivity are two key indicators where the majority of the country is falling behind.

"ICT investment is important to innovation in that it provides the digital infrastructure for the exchange of ideas and data essential to the development, commercialization, and marketing of new and improved products and services," the report states.

The authors further note that although Canada has seen minor improvements in areas such as connectivity, other states have "leapfrogged" over them in recent years. "There are signs of incremental and persistent declines in some foundational elements of Canada's innovation capacity that could undermine future performance," the report states.

FINDING INNOVATIVE APPROACHES TO BROADBAND DELIVERY

Nearly two-thirds of those surveyed by CIRA and the Strategic Counsel agreed with the statement, "The Canadian government should make universal broadband Internet access a priority," noting that Internet services should be accessible to all.

More than 75 per cent of respondents said, "It is critical to Canada's economic success that rural areas have fast and affordable Internet access."

However, the preliminary results from the CIRA Internet Performance Test (IPT) paint a picture of a nation divided when it comes to broadband accessibility. Canada's most populated provinces and largest cities typically have better access to broadband than those in the north, or those in rural areas.

The CIRA IPT is a diagnostic test that measures speed, ping and other indicators when users attempt to transmit information via test servers at various Internet Exchange Points (IXPs) in Canada, which are distinct from the networks of Internet Service Providers.

An analysis of 126,000 tests done by Canadian Internet users between May and December, 2015 found some startling differences across the nation:

- The IPT showed a national average download speed of 18.64 Mbps. This is well in excess of the 5Mbps target set by Industry Canada in 2014. But it does not meet the 25Mbps minimum access standard adopted by many OECD countries in recent years.
- Urban centres tested at an average download speed of 19.8 Mbps, compared with the rural average of 14.81.
- Many of Canada's largest and most populated cities, perhaps not surprisingly, ranked at the top. But there was a distinct difference between users in the city centres and those in suburban or nearby rural areas. Those in the core of Ottawa, for example, saw an average 22.53 Mbps download speed, while those in Greely, less than 30 kms south of the city centre (and yet still part of the City of Ottawa) claimed download speeds of just 6.08 Mbps. The sample size in Greely was small – less than 200 – but gives a glimpse of the urban-rural divide that persists.

Canada faces some distinct challenges when it comes to provision of Internet. The country's vast geography and harsh climate are two things frequently cited as barriers to universal access.

LINKING SKILLS, TALENT AND BROADBAND ACCESS

Is the lack of equal access to broadband contributing to a skills deficit in Canada's IT and business sectors? What is the ultimate effect on Canada's ability to maintain momentum in global markets?

More than half of IT leaders surveyed (55%) by CIRA and the Strategic Counsel survey believe Canadian technology companies rely on "the ability to recruit and retain skilled workers to be competitive internationally." Despite this, many of those surveyed hinted at a shortage of skilled workers in the IT sector:

- Four in 10 respondents said it's difficult for their organizations to recruit and hire IT professionals.
- Nearly half said their organization had difficulty filling IT positions in the last year.

There was a general agreement among respondents that all Canadians need to be taught IT skills from a young age, and that universal access is essential if Canada is to compete in the global economy.

- Six in 10 of the 1,200 Internet users surveyed agreed students should be taught basic programming/coding skills in high school. Among the 300 IT decision-makers, 88 per cent believed coding should be part of the core secondary school curriculum.
- Sixty-nine per cent of Internet users agreed that, "having Internet access is almost as important as having electricity."

ABOUT THE CANADIAN INTERNET FORUM

The Canadian Internet Forum is an annual meeting of Canada's Internet community, designed to convene discussion on Internet issues of concern. The 2016 Canadian Internet Forum will be held June 1 in Ottawa, ON.

ABOUT THE CANADIAN INTERNET REGISTRATION AUTHORITY

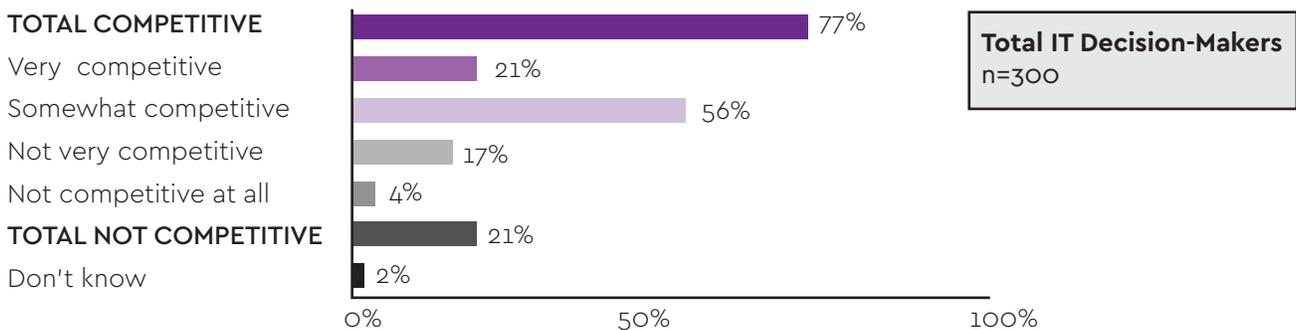
The Canadian Internet Registration Authority (CIRA) manages the .CA top-level domain on behalf of all Canadians. A Member-based organization, CIRA also develops and implements policies that support Canada's Internet community, and represents the .CA registry internationally.

ABOUT THE CIRA INTERNET TRENDS STUDY

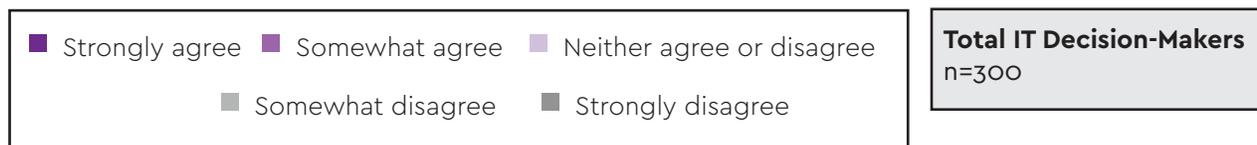
An online panel survey methodology was used to survey n=1,200 adult Canadian internet users (proportionate-to-population by region, age and sex) and n=300 Canadian IT decision-makers in March, 2016. IT decision-makers are defined as those very familiar with and responsible for making decisions about their organization's IT functions, including decisions related to its computer systems, software, networks and IT strategy.

DATA FROM THE STUDY

COMPETITIVENESS OF CANADIAN TECHNOLOGY COMPANIES GLOBALLY



ATTITUDES TOWARD IT SKILLS NEEDS AND ABILITY OF CANADIAN TECH COMPANIES TO COMPETE GLOBALLY

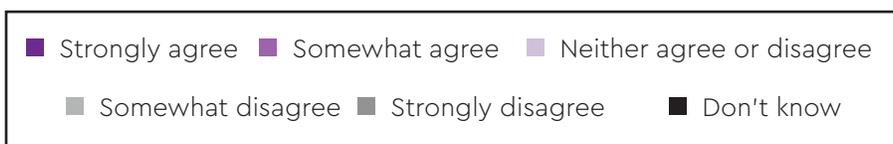


AGREEMENT WITH STATEMENTS ABOUT INTERNET ACCESS

It is critical to Canada's economic success that rural areas have fast and affordable Internet access.

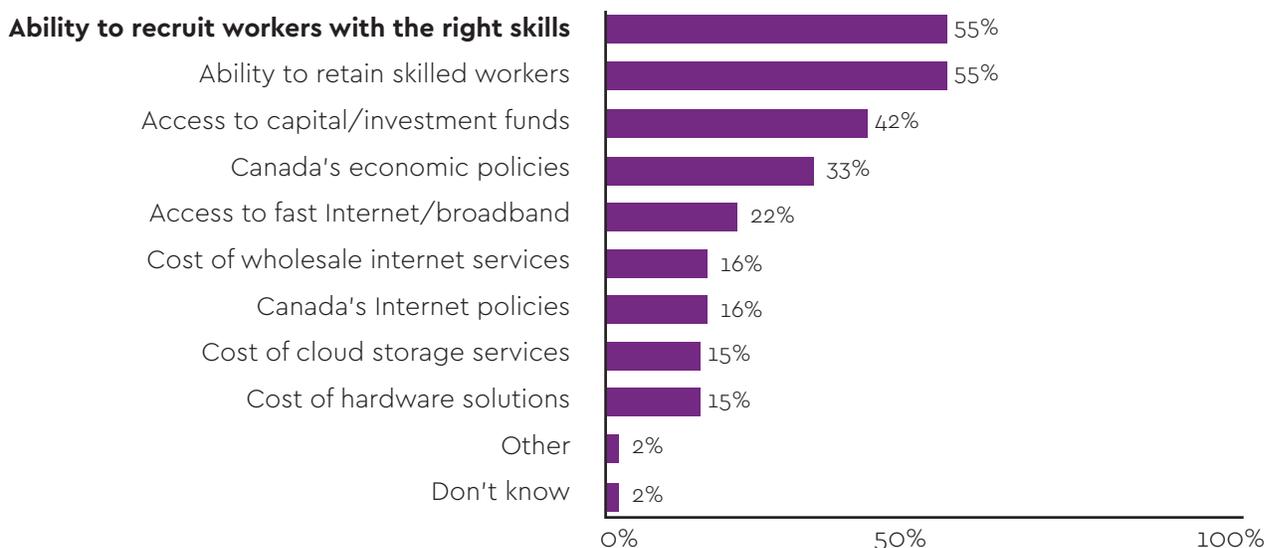
The Canadian government should make universal broadband Internet access a priority.

Newcomers to Canada need Internet access to help them successfully settle here.



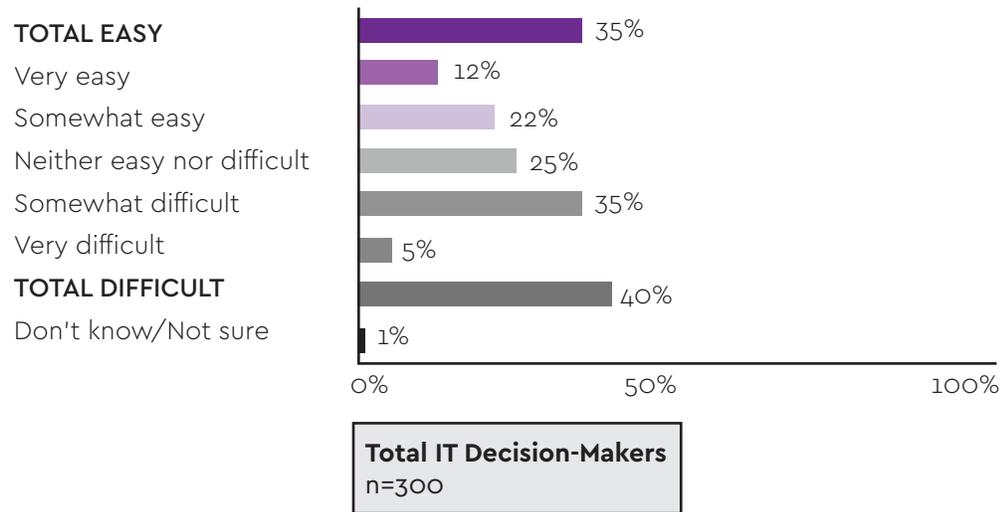
Internet users
n=1,200

FACTORS CONSIDERED MOST IMPORTANT FOR HELPING CANADIAN TECHNOLOGY COMPANIES TO COMPETE GLOBALLY

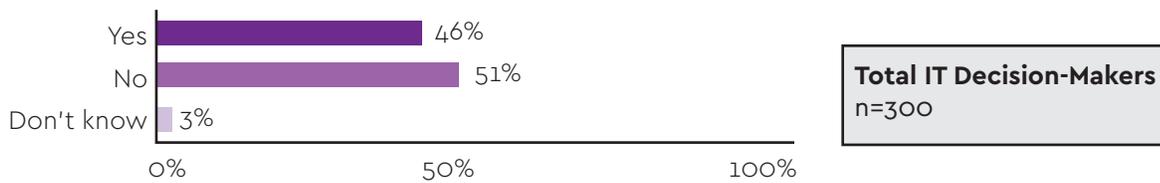


Total IT Decision-Makers
n=300

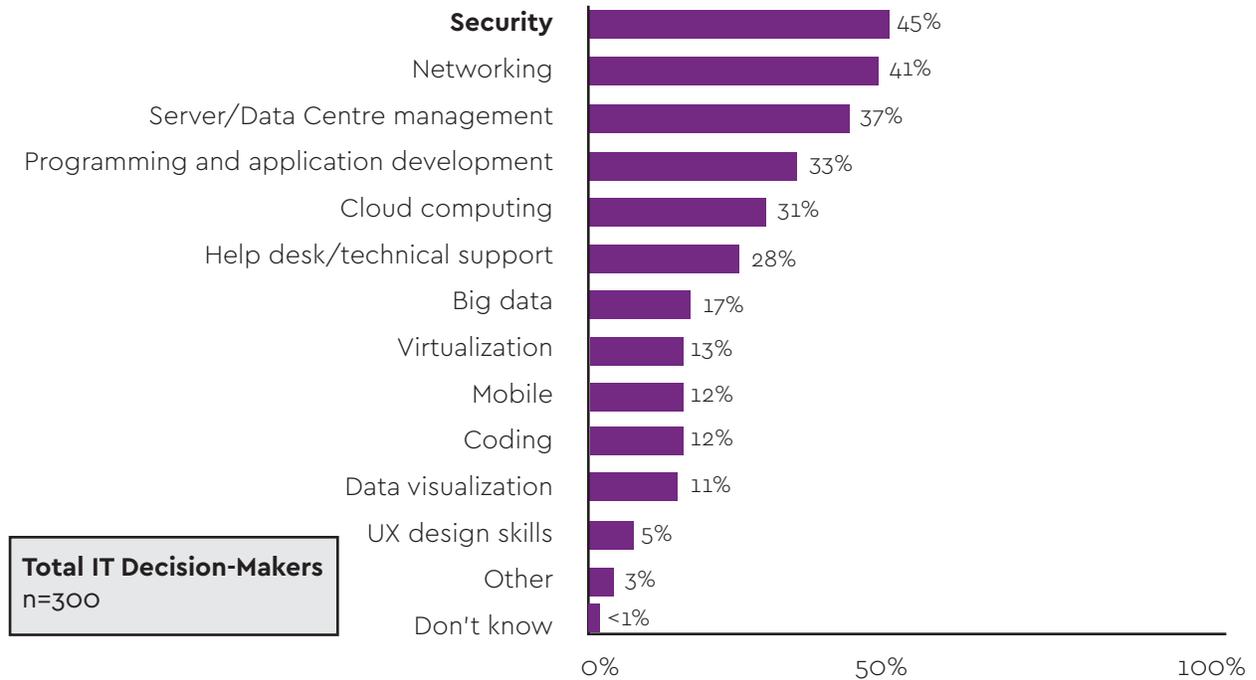
EASE OF RECRUITING/HIRING IT PROFESSIONALS WITH THE RIGHT TECHNICAL SKILLS



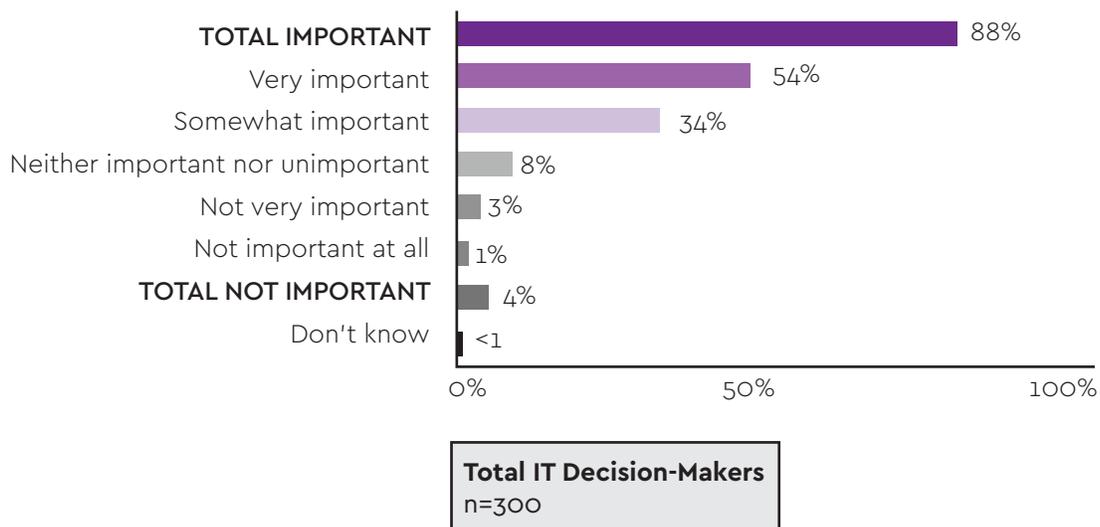
DIFFICULTY FILLING IT POSITIONS IN PAST 12 MONTHS



TECHNICAL SKILLS CONSIDERED MOST IMPORTANT FOR IT EMPLOYEES TO HAVE



IMPORTANCE THAT STUDENTS ARE TAUGHT BASIC CODING SKILLS IN HIGH SCHOOL



AGREEMENT WITH STATEMENTS ABOUT INTERNET ACCESS

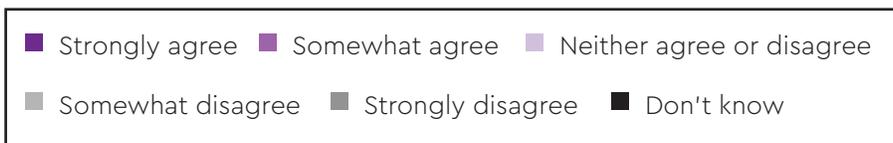
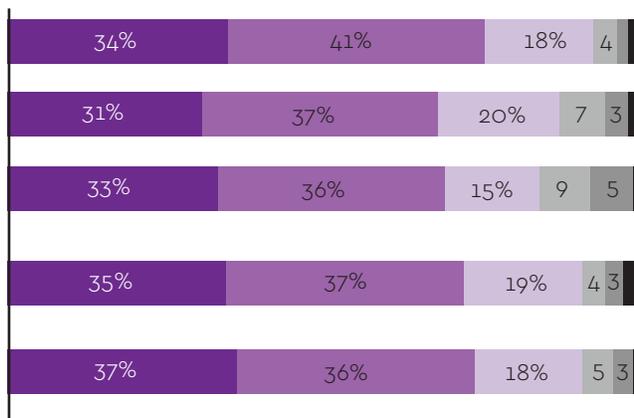
Having Internet access is important to Canadians' ability to learn new skills.

Having Internet access is critical to children's education.

These days, having Internet access is almost as important as having electricity.

Canada's technology companies need to ensure that all Canadians can access Internet services.

It is important that all Canadians can access Internet services, regardless of their economic or social conditions.



Total IT Decision-Makers
n=1,200

SPEED – A COMPARISON OF UPLOAD AND DOWNLOAD SPEEDS AGAINST THE NATIONAL AVERAGE

