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INFORMATION TECHNOLOGY
ASSOCIATION OF CANADA

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DE LA TECHNOLOGIE DE L'INFORMATION

INNOVATION STARTS HERE:
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 Digital Economy

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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 first 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.

¹ Research includes the following: *Innovation and Business Strategy: Why Canada Falls Short: The Expert Panel on Business Innovation* (Ottawa: Council of Canadian Academies, 2009), http://www.scienceadvice.ca/en/assessments/completed/innovation.aspx; *The Global Information Technology Report 2016: Innovating in the Digital Economy* (Geneva: World Economic Forum, 2016), http://www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report.pdf; and *The Relationship between ICT Investment and Productivity in the Canadian Economy: A Review of the Evidence* (Ottawa: Andrew Sharpe and the Centre for the Study of Living Standards for the Telecommunication Policy Review Panel, 2006), http://www.csls.ca/reports/csls2006-05.pdf

Introduction:
Modern Digital Economy

Many researchers note a correlation between digital infrastructure, technology adoption, and a country's productivity levels.¹

Canada could be looked to as one example: digital technologies are indeed modernizing traditional industries such as mining, automotive and manufacturing, helping them increase productivity and global competitiveness.

That said, Canada continues to lag behind other developed nations when it comes to business adoption of technology—due in part to a taxation and regulatory environment that fails to incent private sector investment in digital technologies and infrastructure.

To realize the economic, social and democratic benefits of the digital economy, Canada must work harder to create world-leading digital infrastructure and facilitate the broader adoption of technology.

This is why ITAC recommends the following policy changes as part of the Government's Innovation Agenda consultations.

Create a Digital Infrastructure

Canada's vast geography poses many challenges for connecting people across the country. This distinct challenge has led Canadians to create some of the most innovative telecommunications companies in the world.

Network infrastructure is the backbone that supports and connects all sectors of the economy, while delivering social benefits such as e-learning and telehealth. Without this infrastructure, there would simply be no modern Canadian economy.

Change the Capital Cost Allowance Rate (CCA) to encourage all companies to invest in digital technology

The Government clearly understands the linkage between technology investment and productivity growth. For example, in 2007, this understanding drove the introduction of an accelerated capital cost allowance, to encourage investment in machinery and equipment used in manufacturing and processing.

In 2016, that same logic should apply to all participants in the economy seeking to boost productivity and spur innovation through the broader adoption of technology.

Capital cost allowances generally favour adoption of information and communications technology (ICT). However, ICT is spread across a broad swath of investment classes—and understanding the allowance for a full package of ICT tools (e.g., from cloud computing, to

servers to applications) can be challenging, particularly for small businesses.

Rationalizing and standardizing CCA for ICT classes of assets would help to encourage technology adoption. Specific attention should be paid to standardizing the classes of depreciable assets listed under:

- Class 8: radiocommunications equipment;
- Class 42: fibre optics; and
- Class 46: data network infrastructure equipment and systems software.

A targeted tax credit that encourages companies to invest in digital and network infrastructure will not only help Canadian businesses to scale and compete globally—it will also unleash socio-economic benefits to Canadians across the country.

> As such, ITAC recommends that the Government standardize and increase the CCA from its current rates to 50% for ICT classes of assets, including those related to communications networks equipment and broadband networks.

Develop partnerships, funding vehicles and policy initiatives to enable 5G technology in Canada

Next-generation 5G technology offer transformational opportunities for Canada: propelling research, powering "smart" cities, producing immense quantities of open data, and ushering in a new wave of telecommunications expertise.

Moreover, 5G technologies have the potential to connect businesses and innovators like never before, solidifying the teleconnections core of the Montreal-Ottawa-Toronto-Kitchener Waterloo super-cluster. 5G could also help support new clusters across the country and strengthen our research and business relationships with the United States.

As other countries test new technologies to enable 5G, Canada has an opportunity to become a world leader and develop the best 5G companies, researchers and talent in the world.

> Therefore, ITAC recommends that the Government seek out industry and government partners to develop the talent, funding vehicles and policies necessary to enable 5G in Canada.

Include "digital" in the definition of infrastructure

Unlike bridges, highways and railroads, telecommunications networks are not defined as infrastructure. This limits the amount of available funding to build out these networks and creates red tape—making deployment of a network even harder.

Including "digital" in the definition of infrastructure would allow urban as well as rural communities to receive better service, and reap the socio-economic benefits of connectivity.

> ITAC recommends the Government integrate telecommunications networks and core supporting technologies, like cyber security protections, into its general definition of "infrastructure."

Inclusivity via Connectivity

The digital economy brings clear economic benefits to Canadians: among them, increasing productivity, modernizing traditional industries, and creating new businesses and jobs. But the digital economy also facilitates a new way of doing things.

One such example is public engagement. This past election saw advanced and innovative social media campaigns as an effective tool for engaging with voters and disseminating information. In addition, the recent 2016 census collected most of its information from citizens who submitted their data online. By creating accessible and convenient touch points through the internet, the government has made it easier to engage with its citizens.

A digital economy built on the right infrastructure can also create new opportunities for learning and receiving medical care, as described below.

Fund telehealth services in both urban and remote communities

Telehealth—that is, offering a convenient, efficient alternative to traditional touch points with medical practitioners—is one of the most transformative ways that technology can positively impact Canadian communities.

Telehealth is particularly important for Canadians who:

- use homecare;
- have mobility challenges; and/or
- live in rural and remote communities—including First Nations and Indigenous populations, where telehealth may be the only means of quickly contacting a medical professional. In this sense, telehealth bridges an important gap by bringing medical practitioners into underserviced areas.

Telehealth presents a huge opportunity in the mental health arena, where many communities are critically underserved; and also creates opportunities to bolster preventative medicine, by increasing the likelihood of frequently check-ins with doctors.

Therefore, ITAC recommends an investment of $30 million over three years to Canada Health Infoway, which will help ensure that telehealth delivers preventative and therapeutic benefits to Canadians in all communities.

Use e-learning to create inclusive education

Similarly, the proper digital infrastructure can literally turn any space into a classroom.

The federal government has a responsibility to educate Canadians. This includes educating federal inmates, public sector employees, Indigenous peoples and others: groups with a variety of learning needs, making them well suited to e-learning.

Canada is already home to several pioneering online universities, such as Alberta's Athabasca University. No matter their location—whether downtown Toronto, or Pond Inlet in Nunavut—Canadians can use online learning modules, from schools like these, to further their education.

E-learning is also ideal for individuals and communities that:
- are underserved;
- lack the physical structures and resources to create a traditional classroom setting;
- have mobility challenges or are isolated due to geography or circumstance; and/or
- are more transient due to floods, fires or other reasons.

In every instance, e-learning can help to bridge the gap for those with difficulty accessing educational opportunities the way it is traditionally delivered.

ITAC recommends that federal education programs and initiatives consider the potential of e-learning as a means of bringing education and training to all Canadians.

Demystify Technology to Further Adoption

Technology changes quickly, and critics have often noted that Canada's business landscape seems to be "captured by a culture of complacency."[2]

To realize the overall economic benefits that stem from technology, government has an important role to play: it must encourage businesses to adopt the technologies that will deliver the greatest economic benefits.

On one level, this means governments need to lead by example, prioritizing technology adoption and business process modernization itself.[3] It also requires developing strategies to help promote technology adoption by business.

These strategies should include:

Create a national strategy on the Internet of Things (IoT)

The fourth industrial revolution, characterized by the use of sensors, big data and connected or autonomous devices, is blending the lines between traditional verticals. The internet is firmly cementing itself as the horizontal powering innovation and productivity across all sectors. Industries such as automotive, mining and agriculture have been radically transformed by digitization. The proliferation of the internet into these sectors has brought with it a boom in machine-to-machine communication, also known as the "Internet of Things."

Connected technologies—including devices embedded with sensors, actuators and fully autonomous devices—are projected to dramatically change Canadian society and the national economy over the next half-century.[4] Competitor jurisdictions worldwide are already adopting national strategies for modernizing their economies to take advantage of the radical opportunities for productivity improvement.[5]

Ensure cyber security

As more of our economic activity moves into digital realms, cyber security has increasingly become the foundational infrastructure that creates trust and enables commerce.

The cyber security threat environment moves extremely fast; and, generally speaking, Canadian businesses are both unaware and unprepared for the real threats that cyber attacks increasingly pose to our economic and physical security.

The Canadian government needs to do more to ensure Canadians and businesses take cyber security seriously. This should include increasing public education and creating a minimum standard for business, similar to the UK's Cyber Essentials program.[6]

ITAC welcomes the Federal Government's upcoming Cyber Review and will build upon these recommendations during the review's submission phase.

[2] Canadian Council of Chief Executives. *From Common Sense to Bold Ambition.* 2008. https://www.ic.gc.ca/eic/site/cprp-gepmc.nsf/vwapj/Canadian_Council_Chief_Executives.pdf/$FILE/Canadian_Council_Chief_Executives.pdf

[3] ITAC will release a paper on Modern Digital Government in fall 2016.

[4] For additional details and recommendations on what Canada can do to take advantage of the opportunities of the Internet of Things, see ITAC's 2016 report, *The Internet of Things: Time for a National Discourse* at http://itac.ca/wp-content/uploads/2012/09/ITAC-Seizing-the-IoT-Opportunity.pdf.

[5] For example, in March 2016, the US Congress passed the *Developing Innovation and Growing the Internet of Things Act*, which creates a national strategy: https://www.congress.gov/bill/114th-congress/senate-bill/2607.

[6] https://www.cyberstreetwise.com/cyberessentials

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Help inform and inspire businesses

The Conference Board of Canada notes that Canadian small and medium enterprises (SMEs) are often not aware of:

• the technologies they should be adopting, and

• how technology could improve their operations.[7]

To address this, the government should find ways to inform, inspire and support SMEs. As an example, this could include creating tax supports for technology consultants working with SMEs, and launching technology demonstration facilities and test factories to help SMEs see firsthand how their operations could be transformed.

Conclusion

Despite Canada's world-leading infrastructure, ICT adoption across Canadian businesses and citizens significantly lags behind other countries, resulting in lower business productivity and reduced prosperity for Canadians.

To ensure a strong and successful Innovation Agenda, the Government must take a lead role in spurring adoption across the nation—demonstrating the benefits of technology across all sectors, while simultaneously investing in the next generation of digital infrastructure.

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[7] Conference Board of Canada. Adopting Digital Technologies: The Path for SMEs. 2014. http://www.nrc-cnrc.gc.ca/obj/doc/irap-pari/dtapp-ppatn/resources-ressources/REPORT_6029_adoptingdigitaltechnologies_en.pdf

Summary of Recommendations: Digital Economy

1. Create a digital infrastructure by:

• standardizing and increasing the CCA to 50% for ICT classes of assets

• seeking out industry and government partners to enable 5G in Canada

• expanding the definition of "infrastructure" to include "digital" (e.g., telecommunications networks and core supporting technologies)

2. Provide telehealth services and e-learning opportunities to all Canadians by:

• investing $30 million over three years to Canada Health Infoway

• integrating e-learning components into all Federal education programs and initiatives

3. Demystify technology to encourage adoption by:

• developing a strategic Internet of Things approach, similar to competing countries

• doing more to educate Canadians and businesses on cyber security

• finding ways to support SMEs to adopt technology

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 for over 60 years. 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.