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ICT FUNDAMENTALS FOR CANADA'S INNOVATION AGENDA



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

ITAC on Digital Government

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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 third of ITAC's Innovation Papers, a four-part series that:

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

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

Introduction: **Digital Government**

In the modern economy, a digitally enabled government is not only expected: it is absolutely critical to engaging with citizens and staying competitive on the world stage.

In response to public demand and competition with other governments, the Government of Canada is leveraging information communications technologies (ICTs). But this is not enough to be a truly digital government.

Rather, as the government seeks to develop a successful Innovation Agenda and move Canada's digital needle forward, it must also realize its role in using ICT to transform and modernize its very own infrastructure.

In doing so, the government can build a platform that fuels digitization, supports single-window mandates, and successfully delivers simple and secure citizen- and business-centric services.

Canada also needs to ensure a highly efficient and enabled environment to attract businesses to locate and stay here. As such, this government needs to understand the role it must play in providing organizations with a modern platform in which to operate and interact with government.

There are many advantages to building a truly digital government—particularly the opportunity to leverage procurements surrounding transformation, modernization and digitization initiatives to help companies operating in Canada to grow and scale.

Therefore, Digital Government must become a part of the Government's Innovation Agenda's focus.

Defining "digital government"

Essentially, a truly digital government can be defined as having four main characteristics:

1. Government is easy to work with;
2. Government is easy to work in;
3. Technologies are evergreen and up-to-date; and
4. Government information is digitized and searchable.

These four characteristics are further defined in the Appendix (see pages 6 & 7).

ITAC recommends the following investments, program and policy changes as part of the Innovation Agenda consultations.



Invest in Today to Fuel Tomorrow

Only a strong, stable and secure IT infrastructure will successfully innovate public service delivery. Getting to that point requires investing in systems starting now.

Solve the legacy dilemma

ITAC applauds the Government of Canada and Public Safety Canada for conducting a Federal Cyber Security Review. This review will go a long way in identifying gaps, opportunities and new ideas for shaping Canada's approach to cyber security, new technology and the digital economy.

However, equally important in this review process is addressing how to solve governmental legacy systems.

There are many complexities associated with the Government of Canada's aging IT systems—including data breaches at National Research Council¹ and newly discovered cyber security issues at Canada Border Services Agency.² ITAC's recent response to the Government's Strategic IT Plan³ also speaks to the "legacy dilemma," as do many other governmental publications including the:

- 2010 Spring Report of the Auditor General of Canada,⁴
- Report on the State of Aging IT Across the Government of Canada,⁵ and
- 2015 Fall Report of the Auditor General.⁶

Adding to the challenge, the Government's central IT agency Shared Services Canada (SSC) still has to invest in legacy systems in the near term. Canada has added nearly \$400 million to SSC's budget to maintain mission-critical legacy data centres, networks and security infrastructure. But more funding is needed to maintain a secure, stable state until a transition to newer systems can take place.

In the U.S., the government has recognized the need to maintain legacy while transitioning to newer systems, having 75% of its annual IT budget allocated to operations and maintenance.⁷ Moreover, as part of the Obama administration's Cybersecurity National Action Plan (CNAP), the White House is seeking legislation for \$3.1 billion

¹ <http://business.financialpost.com/fp-tech-desk/canadian-spy-agency-says-chinese-hacked-into-national-research-council-computers>

² <http://www.cbc.ca/news/politics/shared-services-canada-cbsa-report-1.3786286>

³ <http://itac.ca/wp-content/uploads/2012/09/Letter-to-Mr.-John-Messina-Strategic-IT-Plan-response-September-2016.pdf>

⁴ http://www.oag-bvg.gc.ca/internet/English/parl_oag_201004_01_e_33714.html#hd3d

⁵ <http://www.tbs-sct.gc.ca/hgw-cgf/oversight-surveillance/itpm-itgp/it-ti/rsai-revt/rsai-revtpr-eng.asp>

⁶ http://www.oag-bvg.gc.ca/internet/English/parl_oag_201602_04_e_41061.html

⁷ <http://www.gao.gov/assets/680/677436.pdf>

⁸ <https://www.whitehouse.gov/the-press-office/2016/02/09/fact-sheet-cybersecurity-national-action-plan>

⁹ <https://gds.blog.gov.uk/2015/10/23/how-digital-and-technology-transformation-saved-1-7bn-last-year/>

in revolving funds to help transition toward more modern options. This revolving fund will enable agencies to invest money upfront and realize the return over time by retiring, replacing or modernizing antiquated IT infrastructure, networks and systems that are expensive to maintain, difficult to secure, and provide poor functionality.⁸

As such, ITAC asks that—until a strong, stable and secure IT service delivery system can be supplied—the Government of Canada identifies and accounts for all costs associated with Shared Services Canada's need to maintain legacy infrastructure.

Additionally, ITAC recommends the Government develop a transition fund to help departments and agencies kick-start digital initiatives and innovate public service delivery.

Centralize digital leadership

ITAC commends the Treasury Board of Canada Secretariat (TBS) for making strides around its Strategic IT Plan and Cloud Adoption Strategy. This type of central leadership is essential to ensuring a common vision across the Government of Canada.

Equally important is an integrated service strategy and mandate to ensure the whole of government is pulling in the same direction. Innovating public service delivery is a shared responsibility and therefore its underpinnings must be considered so that government's capacity to deliver services is strong, stable and secure.

Governments including the U.S., United Kingdom and Southern Australia have centralized their modernization efforts through the creation of a digital service organization. These entities are responsible for providing digital services to citizens and businesses, report directly to the head of Government, and yield strong benefits. The Cabinet Office inside the Government of the United Kingdom recently reported a savings of £1.7 billion (approximately CDN\$2.5 billion) through digital and technology transformation.⁹

Currently, Canada has no central body of this sort—instead following a more cumbersome, ad hoc approach spanning numerous departments.

If Canada were to create a digital service organization, the whole of government would benefit. Departments and agencies would be able to access ICT subject-matter experts—people who could provide integrated modernization planning and expertise to help those embarking on transformation, modernization and digitization plans. Moreover, the service could report directly to (and be held accountable by) the Prime Minister or a central agency like TBS.



Therefore, ITAC asks the Government of Canada to create Digital Service Canada with a centralized digital mandate. This will help departments innovate public service delivery; support Canada's single-window mandate; and provide Canadians and businesses with the most accessible, efficient and cost-effective tools for communicating with and receiving services from government.

Mind the government talent gap

The ICT skills shortage is increasingly becoming a challenge for Canada. In fact, according to a recent report by the Information Communications Technology Council (ICTC), "the growth in digital jobs has outpaced the overall economy in the last two years by over 4 to 1, leading to a strong demand of 182,000 skilled ICT workers by 2019."¹⁰

As such, we are seeing all levels of government worldwide doing things like encouraging greater involvement in STEM education, and making investments in post-secondary institutions and technology-focused management programs. But while these investments are certainly generous, one other critical investment is markedly absent: funding to help develop governments' *own internal* ICT workforces.

The Government of Canada has approximately 17,385 people employed within the computer systems (CS) group of the federal public service. The average age of CS employees is 45, and these individuals have been working for the federal public service for approximately 15 years.¹¹ As the pace of technology continues to change, workforce development becomes mission-critical.

The workforce development issue was further substantiated in May 2016 at the Standing Committee on Government Operations and Estimates. Former SSC president Liseanne Forand stated that when SSC started its mandate, IT staff inherited from other departments were able to maintain current systems—but had not been trained in transformation. Ms. Forand added: "If I had known then what I learned later on, I would have launched a staff recruitment program much earlier, in 2012."¹²

The University of Ottawa recognized this need and created the CIO Institute of Professional Development, which was recently endorsed by the Chief Information Officer of the

¹⁰ http://www.ictc-ctic.ca/wp-content/uploads/2016/03/ICTC_DigitalTalent2020_ENGLISH_FINAL_March2016.pdf

¹¹ See the CS Population infographic, prepared by the Service and GC2.0 Policy and Community Enablement Division, Chief Information Officer Branch, Treasury Board Secretariat

¹² <http://www.parl.gc.ca/HousePublications/Publication.aspx?Language=e&Mode=1&Pa rl=42&Ses=1&DocId=8312045>

¹³ <https://continue.uottawa.ca/en/course-category-13>

¹⁴ <http://itac.ca/wp-content/uploads/2015/06/Smart-Collaborative-Procurement-Recommendations-for-PWGSC-and-SSC-ITAC-white-paper.pdf>

Government of Canada. This skills-building school prepares CIOs within government and agencies to take on enhanced leadership responsibilities in a dynamic and complex work environment. Mr. Messina has encouraged leaders' need to deepen and expand their skills, capabilities and perspectives.¹³

Unfortunately, there is no one source of information currently available that clearly articulates workforce development requirements of ICT workers across the Government of Canada. Knowing more would help leaders address the issue, and so this data is needed to make the right policy and program investments.

ITAC asks the Government of Canada to (1) better understand the upskilling requirements of its ICT workers; and (2) leverage this data to develop the right policies and programs, which will better prepare its current workforce to support 21st century requirements.

Modernize Procurement

Government procurement accounts for the largest-single share of all ICT procurement in the Canadian economy. Indeed, the government's buying power has a profound impact on the overall prosperity, productivity and investment decisions in the ICT industry. The sheer size of what it buys has the ability to shift markets, fuel partnerships, launch businesses, employ Canadians, and innovate public service delivery.

In other words, government procurement is a powerful instrument of public policy—both economic and social.

ITAC commends the Government of Canada for indicating its desire to update its procurement practices so they:

- are simpler and less administratively burdensome,
- deploy modern comptrollership, and
- include practices that support ICT's economic policy goals (including green and social procurement).

With this in mind, ITAC recommends two ways to move forward in modernizing procurement.

Create one procurement playbook

In June 2015, ITAC provided Public Works and Government Services Canada (PWGSC) and SSC a whitepaper titled "Smart and Collaborative Procurement Recommendations." The paper provided solutions to issues found in both organizations' disparate procurement practices: PWGSC's Smart Procurement Process, and SSC's Collaborative Procurement Process.¹⁴

At the time, the ICT sector asked both entities to strengthen their respective processes. However, as the Government moves into new technology frontiers, vehicles under both



entities are being used more often to provide innovative solutions to government. This decentralized approach can slow down time-to-market and confuse suppliers and employees as they struggle to adapt to varying systems. Moreover, procurements become more prescriptive in nature, focused less on desired outcomes and more on the lowest common denominator.

As such, ITAC recommends Public Services and Procurement Canada (PSPC) and Shared Services Canada reduce complexity by building one procurement process. Both entities can work with the ICT sector to re-examine ways that better support demand and achieve shorter time-to-market—while still ensuring a fair, transparent, smart, collaborative procurement process.

Additionally, ITAC recommends a dialogue with industry on how the Government of Canada can better balance its desired cost savings while procuring solutions that achieve best value.

Procurement policy that fits 21st century standards

Technology has outpaced current governmental procurement policies. For example, areas such as “Limitation of Liability” do not presently consider cloud solutions, and still include dated technologies in its commodity groupings.

In addition to modernizing dated procurement policy, collaboration at the forefront of policy development is essential to its success. The Integrity Framework is an excellent example of a meaningful policy that lacked collaboration during the initial development phase, as highlighted in ITAC’s Integrity Framework Recommendations Report¹⁵ (provided to PSPC in spring 2016). The framework that was developed significantly impacted suppliers and continues to do so as government and industry collaborate on improvements made.

As TBS and PSPC embark on a major initiative to streamline and refresh its policy suites, the ICT sector sees a great opportunity for collaboration. Together with the ICT sector, Government can easily update its policies—thereby simplifying procurement, modernizing comptrollership, and achieving greater socio-economic benefits.

¹⁵ <http://itac.ca/wp-content/uploads/2012/09/Integrity-Framework-Recommendations-by-ITAC-May-2016.pdf>

¹⁶ <http://pm.gc.ca/eng/minister-public-services-and-procurement-mandate-letter>; <http://pm.gc.ca/eng/minister-innovation-science-and-economic-development-mandate-letter>; <http://pm.gc.ca/eng/president-treasury-board-canada-mandate-letter>

¹⁷ <http://www.itworldcanada.com/article/the-age-of-digital-transformation-is-here-but-are-canadian-businesses-ready/382016>

ITAC recommends TBS and PSPC work closely with ITAC and the ICT sector in streamlining and refreshing procurement policies. This strong collaboration will create an agile, robust procurement foundation, enabling Government to respond to current and future priorities.

Additionally, ITAC recommends that TBS and PSPC work with ITAC and the ICT sector to identify ways procurement can be leveraged to embrace innovation, and to support Government’s socio-economic interests.

Build Modern Government by Tapping into Industry First

ITAC appreciates that the Government of Canada recognizes the value of collaboration with industry associations, as demonstrated in various mandate letters.¹⁶

IDC research shows that when Canadian businesses are looking to innovate, three-quarters of them turn first to their ICT partner(s).¹⁷ Government innovation should be no different. Historically, government has engaged ICT on a project basis. But as technology evolves and enterprise solutions are now in play, it makes sense to engage ICT along every step of the strategic process.

Moreover, the current ICT skills gap in government makes frequent engagement with industry advisors ever more important.

Develop a robust, consistent engagement process with ICT

The ICT industry has a wealth of knowledge, having helped guide transformation, modernization and digitization efforts inside governments worldwide. The sector’s collective expertise can identify many ways to strengthen and shape plans and priorities.

ITAC applauds the Government of Canada—specifically TBS and SSC—for recent efforts to engage industry in IT strategies and transformation plans. However, collaboration efforts should extend to all other key areas where ICT experts can provide value and help government meet their deliverables.

ITAC asks the Government to extend its industry engagement efforts to the pre-planning and final development stages of all ICT-related initiatives. This includes (but is not limited to) transformation planning, procurement, policy, and program modernization initiatives.



Create ICT leadership advisory councils

Just as Minister Morneau's Economic Advisory Council of committed leaders focuses on long-term economic development, so too would an advisory council focused on IT transformation, modernization, and digitization plans.

As outlined in ITAC's 2017 pre-budget submission, the ICT sector underscores the need for a centralized digital leadership through the creation of a Digital Services Canada. Forging a successful Digital Service in Canada will require gaining insight from those who have experience with the digital services of other countries.¹⁸

ITAC recommends creating two ICT leadership advisory councils: (1) Digital Infrastructure, focused on long-term planning and priorities for guiding enterprise-wide IT service delivery across the Government of Canada; and (2) Digital Services, focused on short-term digitization strategies enabling Canada to make incremental leaps forward in achieving its single-window mandate.

Conclusion

To ensure a successful Innovation Agenda, the Government of Canada must work toward innovating and modernizing the way it operates itself.

By making investments now, modernizing procurement, and bringing the ICT sector on board more frequently and earlier in planning processes, the Government of Canada—as a truly digitally enabled entity—has a real opportunity to make a profound impact on the Canadian economy.

¹⁸ <http://itac.ca/wp-content/uploads/2016/08/ITAC-2017-Federal-Pre-Budget-Submission-Final.pdf>

Summary of Recommendations: Digital Government

1. Invest in today to fuel tomorrow

- Solve the legacy dilemma by identifying and accounting for all costs needed to maintain the infrastructure, and set aside funds for transition
- Centralize digital leadership to ensure a whole-of-government approach to its transformation, modernization and digitization initiatives
- Mind the government talent gap by better understanding the upskilling requirements of government ICT workers, and building programs to support its workforce development requirements

2. Modernize procurement

- Create one procurement playbook that reduces duplication, balances cost/value, supports demand and achieves shorter time-to-market
- Collaborate with industry to develop a procurement policy that fits 21st century requirements and supports socio-economic interests

3. Build a modern government by tapping into industry first

- Develop a robust, consistent engagement process with the ICT sector by extending engagement efforts to the pre-planning and final development stages of all ICT-related initiatives
- Create ICT leadership advisory councils to help guide the Government in transforming and modernizing its infrastructure, while making strong and secure digital leaps forward to innovate public service delivery

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

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Appendix – Defining Digital Government

A truly digital government can be defined as having four main characteristics. Each characteristic is defined below, including:

- the components of each characteristic,
- the anticipated results enabled by each characteristic, and
- the expected outcomes or benefits of a digital government.

	Result	Outcomes/Benefits
<p>1. All government information is recorded and maintained in a format that is searchable and retrievable through digital technologies.</p> <p>Government information may include:</p> <ul style="list-style-type: none"> • data • documents • publications • events • decisions • policies • regulations • historical materials 	<p>All information is easily accessed by those authorized to do so—including politicians, public servants, citizens, businesses and researchers.</p>	<ul style="list-style-type: none"> • Creates an open, transparent government for authorized stakeholders • Improves stakeholders’ ability to make informed decisions for policy, management, social, economic, and research-based purposes • Reduces duplication
<p>2. Government technologies are kept evergreen and up-to-date.</p> <p>Technologies may include:</p> <ul style="list-style-type: none"> • hardware • end-user devices • operating systems • networks • application software and tools sets (e.g., workplace and collaboration tools, social media, communications) 	<p>Government operates with fully supported modern technology and technology services, meeting the broad needs of government and those accessing information and services.</p>	<ul style="list-style-type: none"> • Government can maintain a stronger security posture • Reduces costs and uncertainty of aging technologies • Attracts next-generation IT (and other) professionals into public service • Enables government to introduce new services and technologies more rapidly • Canadian ICT companies benefit from delivering new and advanced ideas and technology to Government—innovating Canada, and showing Government as an important reference account when ICT companies are promoting their services/products nationally and globally



	Result	Outcomes/Benefits
<p>3. Government is easy to work in.</p> <p>Policies, workplace tools, culture and leadership support a climate where the (increasingly) knowledge worker-based workplace can be empowered to:</p> <ul style="list-style-type: none"> • make decisions, • work across boundaries (subject to privacy/security) • access the necessary information/experts to achieve their mandates 	<p>Public servants are better supported in performing their roles and developing their skills in a changing workplace; and have a better understanding of the broader mission(s) of government.</p>	<ul style="list-style-type: none"> • Improves the service experience for recipients (citizens, businesses or other Public Servants) • Increases workplace satisfaction and creates a digital-by-design culture • Enables increased telecommuting, decreasing the government’s carbon footprint • Enables government to further streamline technologies and information—leading to higher productivity
<p>4. Government is easy to work with.</p> <p>Better information, better technologies and a more knowledgeable and capable workforce help citizens, businesses and other levels of government to:</p> <ul style="list-style-type: none"> • access services and information more effectively • collaborate and integrate their capabilities/services to enhance government’s effectiveness and efficiency in meeting the needs of Canadians 	<p>Services are aligned at all levels of government—allowing citizens and businesses easier navigation across programs and/or departments (whether federal, provincial or municipal).</p> <p>Government engages in a dialogue with citizen and business stakeholders to better understand current and evolving issues—and begins engagement sooner with industry, allowing new ideas to take shape based on vast expertise of those outside government.</p>	<ul style="list-style-type: none"> • Fosters greater trust and efficiency between government, citizens and businesses • Improves service experience for citizens and businesses by reducing self-navigation errors and frustration • Supports Canadian businesses by ensuring government better understands the effects of new programs, regulations and technologies • Before moving forward with projects, government can better understand where it fits within new services or solutions being envisioned; as well as where businesses can provide services and capability