



# Reprogramming Government for the Digital Era

BY SUNIL JOHAL & ANDREW GALLEY



**Mowat Centre**  
ONTARIO'S VOICE ON PUBLIC POLICY



School of Public Policy & Governance  
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# Purpose

This report from the Mowat Centre at the School of Public Policy & Governance at the University of Toronto, supported by KPMG, is intended to help facilitate informed, strategic, long-term decision-making in Canada. This report is part of the Shifting Gears series.

The Mowat Centre at the School of Public Policy & Governance has undertaken this study because of our commitment to better understand how governments can improve their ability to deliver high-quality public services and public policy, even in times of fiscal constraint.

KPMG has supported this study financially because of its commitment to help its clients understand the challenges faced by governments and to contribute to the discussion of strategies that can be used to address these challenges.

# Acknowledgements

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# Directory

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<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>SECTION 1: INTRODUCTION: THE DIGITIZATION IMPERATIVE</b>	<b>5</b>
<b>SECTION 2: KEY FUNCTIONS, REPROGRAMMED</b>	<b>11</b>
<b>Formulating Policy</b>	<b>11</b>
WHERE ARE GOVERNMENTS NOW?	11
WHAT'S HAPPENING? TRENDS IN DIGITIZATION	13
WHAT'S HOLDING US BACK?	17
NEXT STEPS	19
<b>Delivering Services</b>	<b>21</b>
WHERE ARE GOVERNMENTS NOW?	21
WHAT'S HAPPENING? TRENDS IN DIGITIZATION	23
WHAT'S HOLDING US BACK?	27
NEXT STEPS	29
<b>Evaluating Programs and Services</b>	<b>30</b>
WHERE ARE GOVERNMENTS NOW?	30
WHAT'S HAPPENING? TRENDS IN DIGITIZATION	32
WHAT'S HOLDING US BACK?	36
NEXT STEPS	38
<b>SECTION 3: CONCLUSION: THEMES AND RECOMMENDATIONS</b>	<b>41</b>
<b>WORKS CITED</b>	<b>44</b>

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While the core functions of government remain the same—design effective policy, deliver services efficiently and evaluate rigorously—how governments undertake and execute those functions in a more complex, fast-moving and inter-connected world must change.

# Executive Summary

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The Shifting Gears series reviews the trends and challenges governments face in delivering high-quality public services in times of fiscal constraint. Today's public servants face a challenging operating environment. Governments are implementing ambitious reforms to service delivery models and administrative systems, while also undertaking short-term cost cutting and revenue raising measures. Yet this agenda also presents government with a significant opportunity to re-envision a public service for the 21st century. Transformative efforts—aimed at providing better quality services with fewer resources—are coalescing around a number of broad trends:<sup>1</sup>

- » the move to **citizen-centred services** re-designed around the needs of the end user.
- » the sharing of responsibility for policy development and service delivery with **new partners** from the private and not-for-profit sectors.
- » the adoption of new **digital technologies** that lower transaction costs and respond to evolving citizen expectations of how to interact with government.
- » the **integration** of operations both within and across government departments.
- » the evaluation of services on the basis of **outcomes** rather than process or method.

Citizens living in a digital era expect increased transparency about government decisions, services and data. However, the current structures and processes of Canadian governments were not designed to deliver upon these objectives and demands.

Many of the structures and processes governments employ for key functions are rooted in the 19<sup>th</sup> century, with incremental, ad hoc adjustments to reflect technological advancements. For much of the past 150 years, those incremental changes were sufficient, but the pace and nature of technological change in the past 20 years demands a more comprehensive reassessment of how governments discharge their core functions. Transforming a government designed for the agrarian or industrial age for the digital age is not simple.

Building a modern, more innovative public service will require adapting to, and adopting, new digital technologies. Canadian governments have recognized this imperative in a broad range of areas such as incorporating a business, filing taxes, updating a driver's license or applying for various permits. Putting these types of services online represented the first wave of digitization—taking simple, transactional services and moving them from paper-based processes to digital.

<sup>1</sup> For a more detailed discussion of the new service delivery models that governments across the OECD are adopting see Mendelsohn et al. 2010 and Gold et al. 2011.

Governments are now grappling with the next phase of digitization<sup>2</sup>—fundamentally transforming long-standing service delivery models and processes to account for the opportunities offered by emerging digital technologies in areas such as big data, social media, the internet of things and mobile computing. These new advances offer great promise to governments, whether as means of better engaging citizens and co-developing solutions, having instantaneous feedback loops between program delivery and policy development, gleaning new insights from vast swaths of data or providing significantly more convenient and efficient delivery of services.

Digitization provides an opportunity to deliver more citizen-centred, collaborative, integrated services in a manner that measurably improves outcomes. But many of the benefits offered by digitization—more openness, speed and transparency—are fundamentally at odds with the watchwords of our traditional system of government: confidentiality, hierarchy, and ministerial accountability. We can't achieve the vision of a 21<sup>st</sup> century public service without re-thinking the structures, processes and culture of government, with digitization as a critical enabler and catalyst for change.

While the core functions of government remain the same—design effective policy, deliver services efficiently and evaluate rigorously—how governments undertake and execute those functions in a more complex, fast-moving and inter-connected world must change. Digitizing transactions was relatively straightforward—a technical fix overlaid on existing processes. Rethinking how governments fundamentally do business is a far more challenging and complex task.

This paper takes a closer look at digital technologies and the potential they hold to fundamentally transform governments' policy and service delivery approaches over the coming years. It is based on the research literature, a focus group with government

practitioners and 35 semi-structured interviews held with researchers, entrepreneurs, thought leaders, and public sector executives, from both Canada and abroad. The paper focuses on the three core functions of government that must be re-considered in the coming years to respond to the ongoing digital revolution and realize the promises of a more innovative, effective and efficient public sector:

» **Formulating Policy**

Identifying problems in a timely fashion with the buy-in and support of key stakeholders, and assessing potential solutions within the fiscal and operational environment.

» **Delivering Programs and Services**

Providing efficient, effective public services in a manner that is accessible and understandable to citizens.

» **Evaluating Programs and Services**

Assessing whether policies and programs are working in order to ensure scarce public resources are being used appropriately and directed towards interventions that are successful.

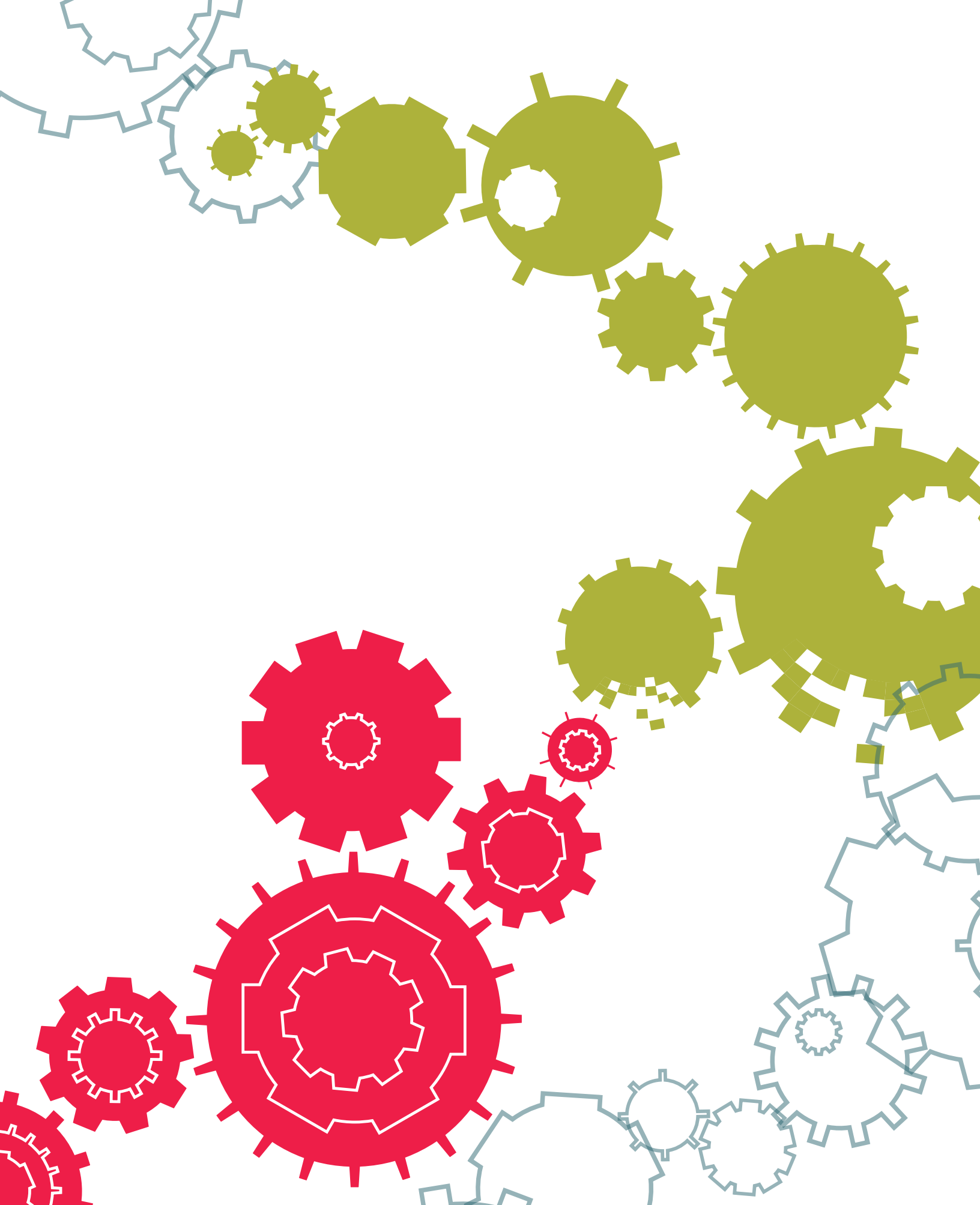
In each of these areas, the paper identifies:


- » where governments are now;
- » transformative opportunities offered by digitization;
- » examples of leading edge digitization initiatives;
- » barriers to implementation; and
- » next steps for governments to consider.

The paper concludes with cross-cutting recommendations designed to establish winning conditions for digital technologies within the public sector.

2 See, for example, the recent 'Open by Default' report issued by the Ontario Government (<http://www.ontario.ca/government/open-default-new-way-forward-ontario>) and the Federal Government's 'Destination 2020 Action Plan' ([http://www.clerk.gc.ca/local\\_grfx/d2020/Destination2020-eng.pdf](http://www.clerk.gc.ca/local_grfx/d2020/Destination2020-eng.pdf)).







Too often, government responses towards the digital challenge and opportunity resemble those of a pre-digital organization attempting to incorporate digital elements that it does not fully understand and for which it was never designed.



# SECTION 1

## Introduction: The Digitization Imperative

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Advances in information and communication technology (ICT) will transform the way governments deliver services, make policy, and interact with their workforce and citizens. The ability to digitally integrate siloed information systems, rapidly aggregate and analyze massive and complex sets of data, and bring people together across vast distances through online communities is creating new opportunities for organizations and individuals.

We use the term 'digitization' broadly. Digitized public services are those that are conceptualized and designed harnessing all of the latest digital technology (e.g., mobile internet, social media, and cloud technology). At the same time, our use of the term acknowledges that progress comes in small stages, and that 'digitization' can refer to more piecemeal changes.

For governments, the potential advantages of digitization are clear:

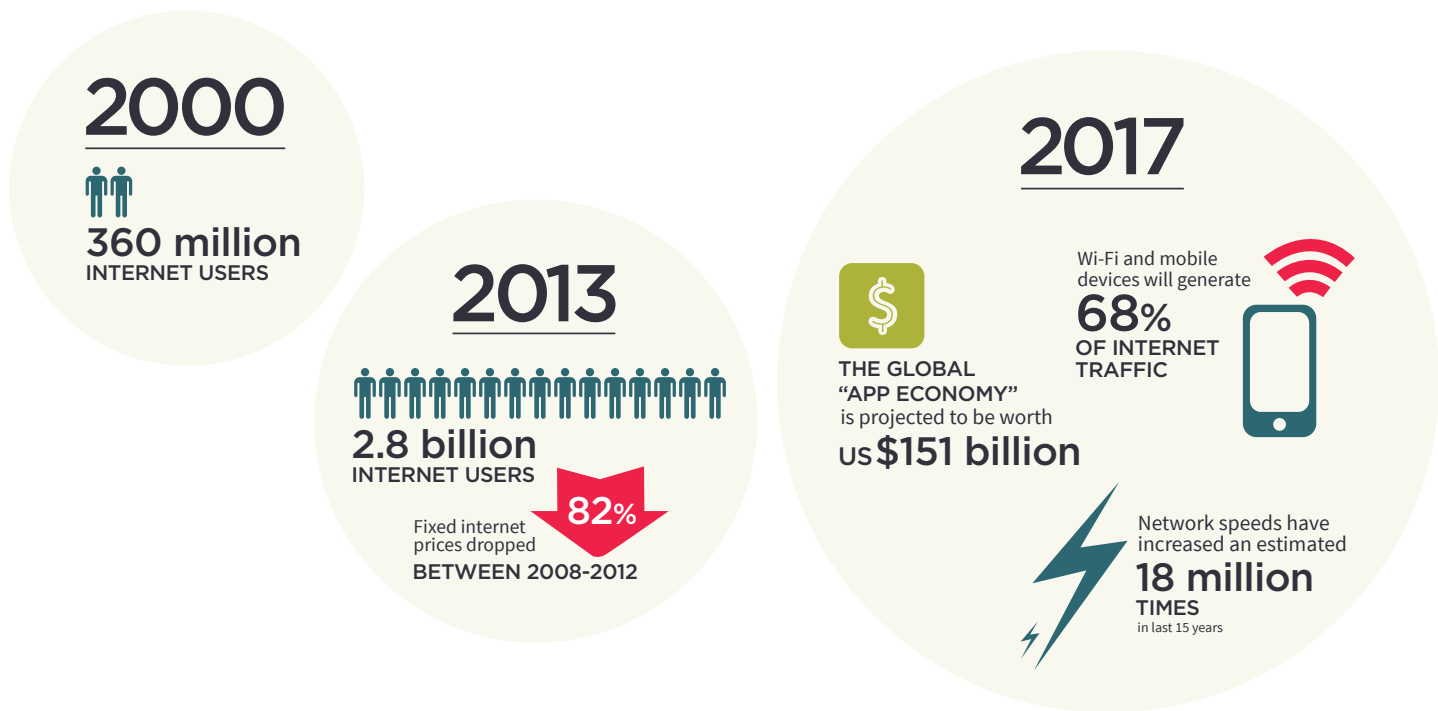
- » improve the speed and effectiveness of decision-making and service provision;
- » reduce costs by targeting resources more precisely;
- » achieve better outcomes by drawing on expertise within and outside of government; and
- » increase transparency and accountability.

Broadband, mobile cloud computing, and big data have already transformed traditional business models around the world—from the recording industry, to banking, publishing, and the news media. Customers who used to visit a video store for a rental now download or stream digital content. Newspaper deliveries and walking into a bank to pay bills are increasingly becoming quaint customs from a bygone era.

Governments within Canada and around the world have already recognized the advantages of digitization and taken a number of steps to harness the potential of digital technologies. Online portals such as Service New Brunswick and Service Canada have improved the transactional experience of citizens and are an important step toward more citizen-centred public service delivery.

In many jurisdictions, however, e-government systems have failed to deliver transformative service improvements and cost efficiencies because they have simply replicated existing institutional structures and processes in digital format.<sup>3</sup> As one interviewee remarked, "only incremental gains can be achieved from applying new technology to old processes." This approach can create a false sense of accomplishment which, ironically, impedes more fundamental and necessary changes to government structures, processes and behaviours. The Encyclopaedia Britannica may have digitized its content by putting it on a CD-ROM, but this was entirely insufficient to compete with the advent of the internet and Wikipedia.

<sup>3</sup> Flumian 2009.



We will continue to have little success engaging the emerging citizens of the digital age by employing structures and processes from the industrial age. Too often, government responses towards the digital challenge and opportunity resemble those of a pre-digital organization attempting to incorporate digital elements that it does not fully understand and for which it was never designed.

Rapid advances in information and communication technologies (ICT) are increasing network speeds, computer processing power, and storage capacity, while at the same time bringing down the costs of accessing these technologies. These advancements have led to the ubiquity of high-speed broadband, mobile and cloud computing, and advanced data analytics, giving rise to online social networks, apps, and big data. These digital technologies are radically changing the way we communicate, share information, do business, make things, and move goods and people.

- » Global internet users in 2000: 360 million. In 2013: 2.8 billion.<sup>4</sup>
- » Network speeds have increased an estimated 18 million times in the last 15 years.<sup>5</sup>
- » Fixed broadband prices dropped by 82% between 2008 and 2012.<sup>6</sup>
- » Wi-Fi and mobile-connected devices will generate 68% of Internet traffic by 2017.<sup>7</sup>
- » The global "app economy"—in existence for less than a decade—is projected to be worth US\$151 billion by 2017.<sup>8</sup>

These technological advancements are so significant that they cannot achieve their potential when merely grafted onto existing systems. Just as the real productivity payoffs from introducing electricity into the manufacturing process were only fully realized once factory layouts and production processes were redesigned, these disruptive ICT innovations also require new governance approaches to unlock their full potential.<sup>9</sup>

4 Internet World Statistics 2014.  
 5 Roy 2013: 2.  
 6 International Telecommunications Union 2013: 4.  
 7 Cisco 2013.  
 8 Hamblen 2013.  
 9 David 1990: 355.

This will require fundamentally re-thinking our system of government and how it organizes its systems, its workers and how it translates public preferences into policies and services.<sup>10</sup> Too often, public servants operate in silos, separated according to level of government and by department or ministry. Consultations are conducted sporadically and are constrained by time and geography. The identification of policy problems and solutions frequently fails to take stakeholder views into account, resulting in sub-optimal outcomes that require time-consuming and expensive adjustments.

Digitization can reduce logistical barriers, enhance feedback loops and make government more agile. This can only happen if we re-examine the assumptions underpinning the policy process.

This transformation is not easy. The structures, processes, and behaviours that have developed over the past two centuries to support the machinery of government tend to be closed and hierarchical, clashing with the open and networked model of 21st century institutions.<sup>11</sup> Yet we are reaching a tipping point where the benefits of action outweigh the risks. Heightened citizen expectations and the increased complexity and scale of problems are powerful drivers of change.

People want to receive the same responsive and convenient quality of service from government that they do with business. Canada has one of the highest internet penetration rates in the world and Canadians spend more time online than citizens of any other country<sup>12</sup>. Almost one in two Canadian cell-phone users own a smartphone.<sup>13</sup> These citizens, educated and engaged with open digital networks, are demanding greater transparency from government, simple, secure transactions, and more influence over the policy process.

Meanwhile, those inside government are interested in applying networked solutions to what the Australian Public Service Commission calls “wicked problems”, which are “highly resistant to resolution.”<sup>14</sup> Wicked problems such as climate change, poverty reduction and unemployment feature many interconnected moving parts, multiple stakeholders with sometimes conflicting viewpoints, time-sensitivity, and consequences that reach beyond the authority of any given public service division or ministry. Increasingly, these are the types of problems that governments are faced with and that the public expects them to solve.

Governments around the world also face increasing debt loads, some of which result from structural deficits. Demographic pressures resulting from declining birth rates and rising life expectancy in OECD countries are increasing the dependency ratio and putting significant strain on public services and entitlement programs. There is evidence that digitization of citizen-government interactions can significantly reduce costs, saving up to 20% of all government expenditures on transactional services according to a UK study.<sup>15</sup> Similar transaction savings for Ontario government departments were modelled by the Office of the Auditor General of Ontario.<sup>16</sup>

Governments understand that they must embrace digitization more aggressively. And citizens demand governments do so. Yet progress is often slow. Transformative IT projects often encounter unexpected difficulties or deliver less than promised.

One reason that implementation of digitization efforts has been so challenging for governments is that their structures, processes and culture are not well-aligned with the assumptions and expectations of digital policy-making or service delivery. Too often, digitization efforts—even ambitious ones—are grafted onto existing bureaucratic structures without an appreciation of how resistant those structures are to the assumptions inherent to the digital world and how incongruous they are with the expectations of digital processes.

10 Noveck 2012.

11 Roy 2013: v.

12 Canadian Internet Registry Authority (CIRA) 2013.

13 Ibid.

14 Australian Public Service Commission 2007.

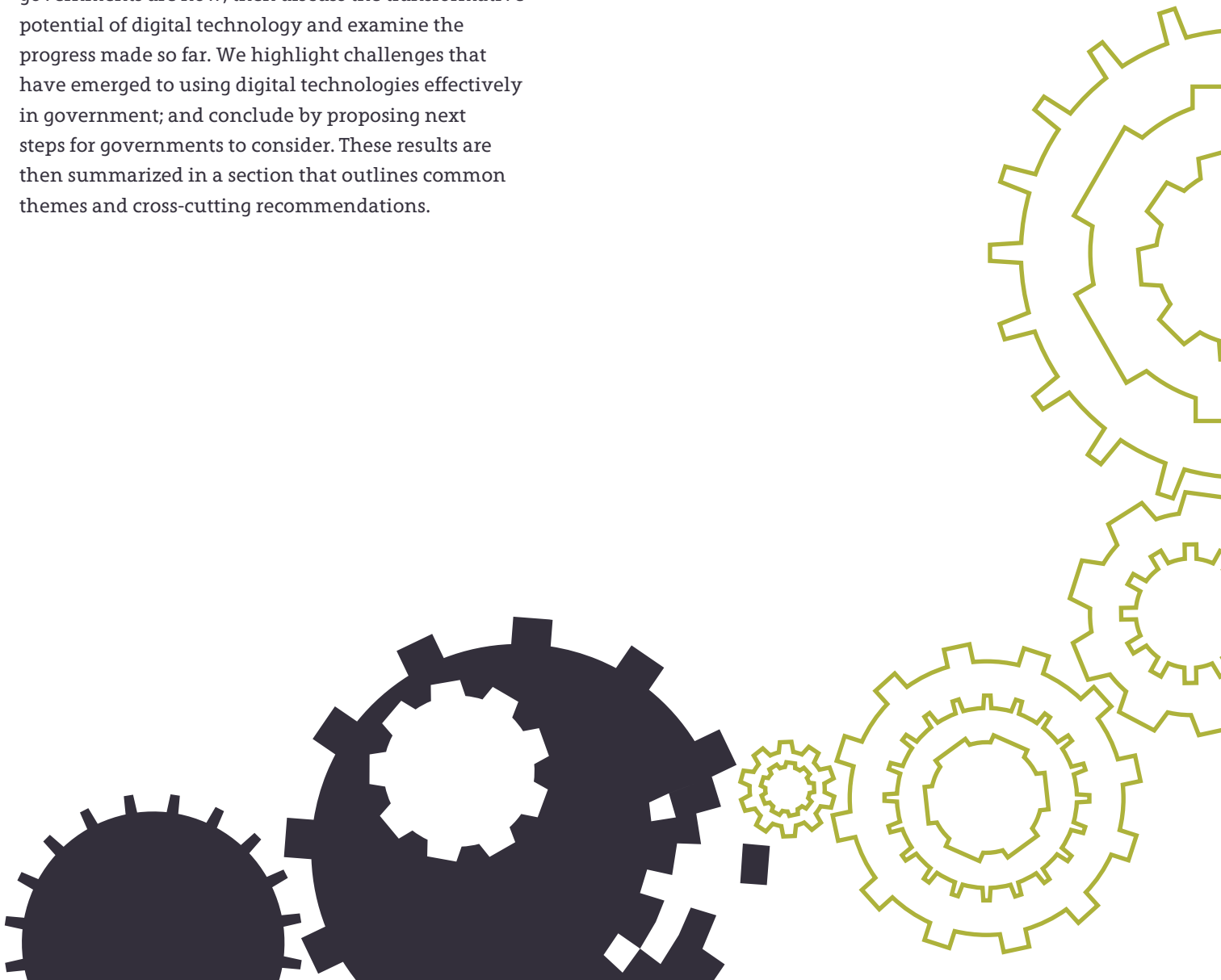
15 UK Cabinet Office 2012.

16 Office of the Auditor General of Ontario 2013: 251.

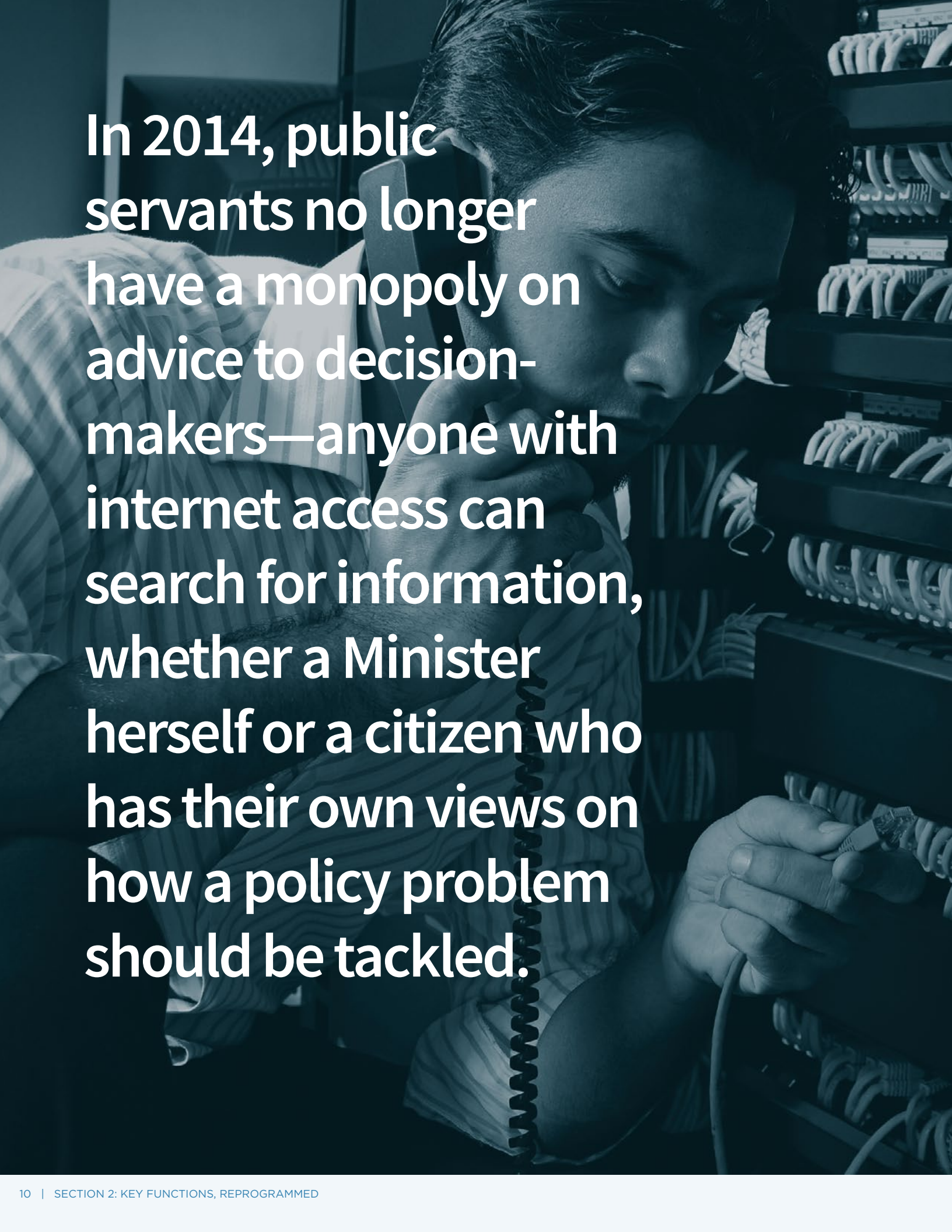
This report focuses on the promise of digitization and the structures, processes and culture of government that require change if we are to deliver on this transformative promise. Change is possible. And digitization can deliver on its promise—but only if governments first recognize and reform the many features of government that inhibit the culture of digitization from taking hold. This paper presents detailed overviews of the ways digital technology can transform three core tasks of government:

- » Formulating Policy
- » Delivering Services
- » Evaluating Outcomes

For each of these three tasks, we first outline where governments are now, then discuss the transformative potential of digital technology and examine the progress made so far. We highlight challenges that have emerged to using digital technologies effectively in government; and conclude by proposing next steps for governments to consider. These results are then summarized in a section that outlines common themes and cross-cutting recommendations.





A man in a striped shirt is talking on a mobile phone. He is looking down and to the right. In the background, there are server racks with many cables plugged into them. The image has a blue tint.

**In 2014, public servants no longer have a monopoly on advice to decision-makers—anyone with internet access can search for information, whether a Minister herself or a citizen who has their own views on how a policy problem should be tackled.**

# SECTION 2

## Key Functions, Reprogrammed

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### 1. Formulating Policy

#### WHERE ARE GOVERNMENTS NOW?

- » Changing dynamics of the policy environment
- » The confidentiality imperative
- » Control and risk-management in a networked world

Formulating policy is the most important task of government. The public expects governments to develop innovative solutions to difficult issues. Canada's provincial and federal governments operate according to the traditional, often unwritten rules and conventions of the Westminster system that have evolved over hundreds of years. Some of the key features of the system as they relate to policy formulation include the role of political parties, the power of the executive (i.e., Cabinet), the Cabinet decision-making process and the role of the civil service as advisors and agents of implementation.

Political parties are elected on the basis of platforms which typically propose a range of new policy initiatives or transformations of existing policies. A government's success in formulating policy—determining what problems or issues need to be resolved and how—is often the basis for voters to determine whether to re-elect that government.

Almost all key decisions are typically made by Cabinet to meet a range of objectives. The civil service plays a critical role in ensuring that many important decisions are supported by neutral, non-partisan advice and managed in a way that respects the busy schedules of Cabinet ministers. A thorough Cabinet process sees public servants develop submissions that identify issues, incorporate thorough research, propose options and provide analysis for political decision-makers on a range of key issues.

Issues that aren't seen as consequential enough for Cabinet discussion or that fall within a ministry's existing mandate are decided by Ministers, or in the case of more operational matters, senior bureaucrats or political officials. This process has served Canadians well.

The entire Cabinet decision-making process is built around the notion of Cabinet confidentiality. Information is typically shared internally on a need to know basis, and collaboration between officials from different ministries is a challenge. Public engagement is limited in scope, and often times strictly prohibited on particularly sensitive or contentious matters.

As a consequence of Cabinet confidentiality, all documents that are prepared by officials in furtherance of a Cabinet discussion are protected by Cabinet confidence—immune from public access to information or freedom of information requests. This promotes a strong culture of shielding information within the public service—not only from the public but in many cases from other civil servants and officials.

***“Because of the way budgets and resource allocation are structured in a Westminster system, someone must own a project; there’s trouble with sharing information across different lines, and a certain protectionism surrounding that bureaucratic authority.”***

*-INTERVIEW, PROFESSOR OF PUBLIC POLICY*

The tactical and strategic political culture of the system, in which governing parties have political as well as policy objectives to consider, further promotes a wall of secrecy between the government and everyone else. Matters that don’t require Cabinet decisions are often decided by the ‘centre’ of government (i.e., the Prime Minister or Premier’s office), with little input from other Cabinet Ministers, let alone the public.<sup>17</sup>

Perceived risks of ‘getting it wrong’ in the media or court of public opinion also provide strong disincentives to collaborate with external stakeholders in the policy development process. Combined with a strong need to steward public funds and meet multiple bottom lines in the face of demands from divergent stakeholder groups, governments have many good reasons to closely guard the policy development gates. While Canada’s public service knows that getting policy right involves reaching a wide array of highly-motivated stakeholders,<sup>18</sup> there are many challenges to doing so.

Influenced by all of these factors, the civil service itself confronts obstacles when it comes to sharing information. Ministries are siloed, information is hoarded for its perceived value and incentive structures are not designed to reward information sharing internally or externally.<sup>19</sup> It is thus no surprise that only 33% of Ontario public servants feel “essential information flows effectively from senior leaders to staff”, while only 34% feel “essential information flows effectively from staff to senior leaders.”<sup>20</sup>

However, governments that are operating in secrecy are out of step with the realities of the digital age. People are getting used to interactivity, a shrinking world and a high pace of change. At the same time, there’s an increased disconnect from government. Rates of participation in traditional politics (such as voting and party membership) have been declining<sup>21</sup> in part due to citizens being cast as consumers choosing between finished public “products”, rather than as an integral part of their creation.

The tools needed for effective citizen participation in 21st-century government are still half-formed. The most popular, such as Twitter and Facebook, are still used primarily as broadcasting platforms rather than for “meaningful, satisfying debates, online.”<sup>22</sup> These platforms have stoked the demand for more participation in policy, but cannot yet satisfy it. Instead we look to emerging possibilities, such as interactive forms of data presentation—using tablets or other touch-sensitive technology—that can educate and elicit feedback simultaneously.

In 2014, public servants no longer have a monopoly on advice to decision-makers - anyone with internet access can search for information, whether a Minister herself or a citizen who has their own views on how a policy problem should be tackled. In a world where privileged access to decision makers and information flow is unimpeded by national, let alone departmental, boundaries, and the ability to tap into broad networks of experts has never been greater, governments must reconsider their approach to policy development.

<sup>19</sup> Galley et al. 2013: 17.

<sup>20</sup> Ontario Public Service Employee Engagement Survey 2011.

<sup>21</sup> See for example Mayrand 2012.

<sup>22</sup> Interview.

<sup>17</sup> Savoie 1999.

<sup>18</sup> Clerk of the Privy Council of Canada 2009.



## WHAT'S HAPPENING? TRENDS IN DIGITIZATION

- » Consulting with Crowds and Communities
- » Networking, Inside and Out
- » Interactivity and Gamification
- » Citizens in a Rapidly Shrinking World

Digitization provides a transformative opportunity to tackle policy problems in a way that involves networked partners who possess different kinds of information and expertise and generate creative ideas and processes to continuously improve outcomes. Breaking down the traditional barriers that have existed between governments and the public due to bureaucratic structures is at the core of this opportunity, and is fundamental to a digitally-fluent policy formulation process.

Taking advantage of the ways that digitization can promote openness and transparency is critical to re-designing collaboration. Digital technology opens up new ways for people to participate in government. It can enhance existing consultation measures and inspire new ones, chiefly by reducing the expense of creating and maintaining public communities of interest.

*The problems facing society are becoming too complex to be solved by a small group of people. Online, people are less polite but they say what they mean, and you gather voices that aren't usually heard.*

*-INTERVIEW, NOT-FOR-PROFIT SECTOR EXECUTIVE*

### Consulting with Crowds and Communities

This new collaboration takes diverse forms but clusters around two organizing principles: the community and the crowd. In crowds, larger numbers of people are asked to participate with a low level of commitment and expertise; they discuss their values, personal experiences and priorities, often anonymously (e.g., the types of input seen on many internet discussion boards or online comment sections of newspapers). Communities, by contrast, are defined by a higher commitment to the shared identity and interests of the group (e.g., a neighbourhood-based consultation about a new high-rise development). However, the higher commitment might also be in the form of committing to more in-depth, high-quality contribution in which a degree of expertise is expected.<sup>23</sup>

The 2013 Province of Alberta Social Policy Framework used a "crowd-based" approach, informed by a large, digitally-enhanced engagement process that offered multiple channels through which

Albertans could contribute. The engagement team created a wiki, whereby citizens could collaborate to edit drafts of the Framework document; an open-data philosophy governed the whole process with documents and updates regularly posted to the web. The overall strategy emphasized two themes key to understanding digitization's impact on policy consultation: the *growing power of networks* and the possibilities for *continuous, more open-ended processes*.<sup>24</sup>

The Peer-To-Patent program in the United States, by contrast, exemplifies the community approach. For Peer-To-Patent, the government recruited volunteer subject-matter experts to comment on patent applications. This is an example of outside experts contributing to government, forming a digital community defined by contributors seeking to manage their reputation and share advanced opinion.<sup>25</sup>

23 Haythornthwaite 2012: 161.

24 Alberta 2013: 8-9.

25 New York Law School 2014.

## VANCOUVER TALKS GREEN

*“Scalpers were selling tickets outside; I believe that was a first for a public consultation.”*

-INTERVIEW, PUBLIC SECTOR EMPLOYEE

In 2010, the city of Vancouver launched one of Canada’s most ambitious and successful public consultations yet accomplished by government. Mayor Robertson and Vancouver’s City Council resolved to make their city the world’s greenest by 2020, building on the city’s existing assets and reputation as environmentally-conscious, innovative, and forward-thinking. An expert advisory panel, including such environmental luminaries as Dr. David Suzuki, came up with 10 long-term goals that would cement council’s vision. Then the city asked the public to tell them how to meet those goals. They called this initiative *Talk Green to Us*.

Talk Green to Us combined live events, traditional and web 2.0 marketing strategies, and moderated forums where participants could submit, debate, and vote on their ideas for meeting Vancouver’s 2020 goals. Importantly, city staff participated fully in the forum process; in addition to acting as moderators, they could provide supplementary material—for example, when participants suggested programs that the city already had in place, they could “close the loop” and educate the public about those existing achievements. They also provided think pieces by specialized experts for participants to consider, and helped less- or un-connected participants get their ideas in front of the voting public. The result was sold-out events, and a lively, months-long conversation culminating in a robust and definitively citizen-owned strategic plan.<sup>27</sup>

<sup>27</sup> Interview.

Collaboration with a small audience can produce useful results when the community of participants is well-defined and well-informed, and public servants have faith in the expertise of participants. The Information Management Office in Australia’s national government used a social media platform to share a draft of its Big Data strategy with 50 representatives of industry, academia and the public, a sample that grew through re-tweeting.<sup>26</sup>

Some projects have combined the two approaches. Governments may wish to harness a broad range of interested parties at varying levels of intensity—Vancouver’s Talk Green to Us consultation exemplifies this approach.

<sup>26</sup> Interview.

## Networking, Inside and Out

As the cost of maintaining a large network of contacts and collaborators goes down, being part of such networks informs the expectations of citizens, just as efficient digital services in leading industries raises the bar for public service providers.

Digitally-enhanced collaboration on policy questions isn't applicable only to external stakeholders. Governments also want to make sure they're capturing the collective wisdom of public servants. This involves not just "breaking down silos" but also giving individuals within the public sector the chance to relate to colleagues in new ways, by applying their specialized knowledge and experience to new and unexpected areas. Federal Canadian public servants, for example, have access to GCPedia, a wiki-based discussion platform where policy and scientific staff can post problems and consult with colleagues from across the country on solutions.<sup>28</sup>

The US federal government has successfully experimented with an online challenge site that consults the broader public, Challenge.gov, to source innovative approaches to problems identified by government. Over 300 different solutions have been generated in the website's four year existence, ranging from how to block robocalls to designing a better glove for astronauts.<sup>29</sup> The federal government recognizes that prizes can spur out-of-the box, cross-disciplinary thinking with the benefits of only paying for success and little risk.<sup>30</sup> Combined with digital technology, the government can tap into experts and thinkers globally to perform policy development at no cost until a proven solution has been identified.

Digitization can also facilitate consultations that cut across the traditional public sector and public divide. The UK Treasury launched the Spending Challenge website in 2010, which was designed to solicit ideas for budgetary savings and efficiencies from both government and the broader public. Over 100,000 ideas were submitted through the site, with over 63,000 of them from public sector workers. The site cost the government 19,300 pounds to set up and is estimated to have delivered over 500M pounds of savings to the government.<sup>31</sup>

## Interactivity and Gamification

Living with social media creates a new norm for dialogue and interactivity. At the same time, gaming technology and game-design theory have reached new levels of both sophistication and mainstream acceptance. Communities based around political causes, personal hobbies, common problems and games have never been easier to build and maintain. Governments are likely to increasingly look to gaming technology to harness the broader public's own motivations as a means of achieving public policy goals. Areas such as childhood obesity, energy consumption and financial literacy would all benefit from the application of gamification.

Gamification engages people to achieve goals—examples outside of government include the Khan Academy's online educational resources and Quirky's online community of 800,000 inventors who collaborate to develop and bring to market new products.<sup>32</sup> In the UK, the Department of Work and Pensions has applied game design theory to capture the existing capacity for innovation among its staff. Their crowdsourcing initiative, called Idea Street, uses a virtual stock market simulator to allow staff to submit innovations and garner "investment" from colleagues<sup>33</sup>.

Closely related to gaming is the concept of interactive policy modelling, which doesn't present a goal for "winning" but still invites participants to explore different policy possibilities in a hands-on way. This can provoke a deeper level of reflection and allow participants to link their preferences and values with likely outcomes. Although there are few examples so far of governments collaborating with the public in this way, other actors such as the New York Times have demonstrated the possibilities. The newspaper's 2010 "Budget Puzzle" challenged readers to balance spending reductions and revenue increases in the U.S. federal budget, and share their deficit solution with friends and colleagues.<sup>34</sup>

28 Eaves 2010.

29 U.S. Office of Science and Technology Policy 2014.

30 U.S. Office of Science and Technology Policy 2013: 9.

31 U.K. Treasury 2010 and Delib 2014: 1.

32 Burke 2014.

33 Burke and Mesaglio 2013.

34 Carter et al. 2010.

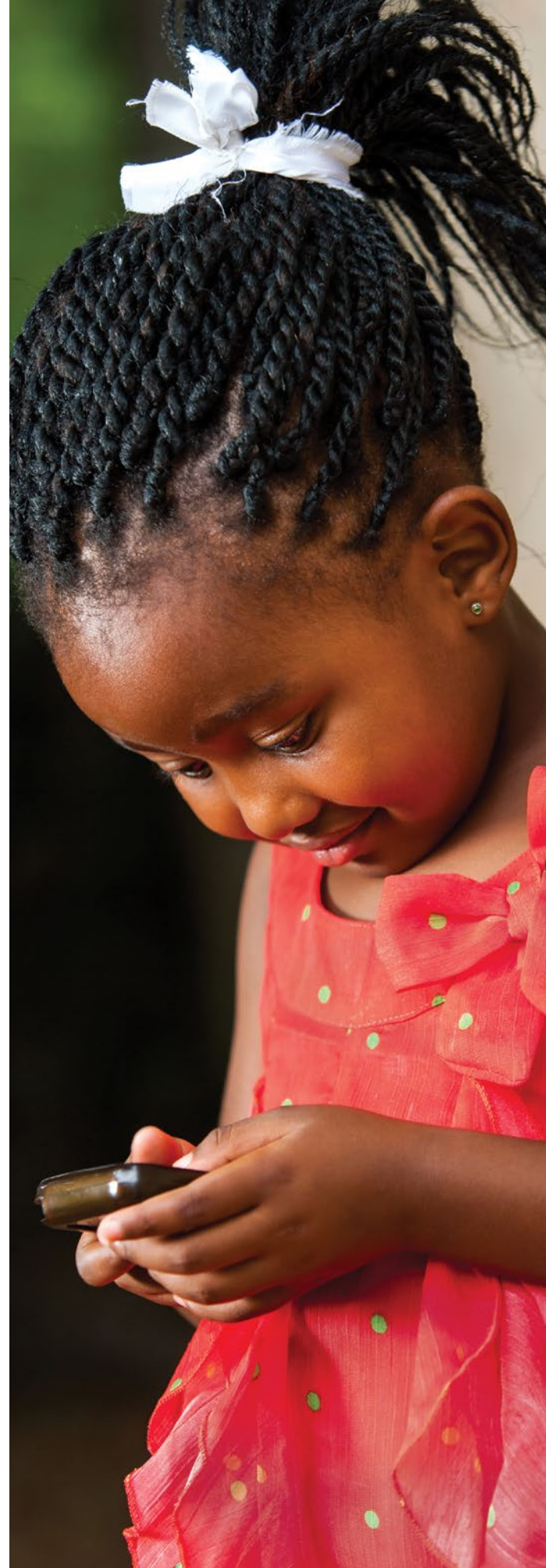
## Citizens in a Rapidly Shrinking World

More open-ended consultation processes will improve the quality of information available to policy-makers by creating sustained communities of interested citizens -- including experts -- who deepen their familiarity with policy issues over time. Digitally-enhanced engagement provides more timely feedback on the direction of policy, advance warning of potential problems and builds credibility. As policy-makers become more comfortable interacting with outside participants, mid-course corrections will be smoother and less costly.

In a landscape of public policy problems with many stakeholders, perspectives and interconnected factors, complexity is also driving the search for more collaborative forms of government. The more complex the issue, the more important quality and depth, rather than just quantity, become in consultation and deliberation. In the past, deep, high-quality consultations meant high cost.

Digital technologies, and the novel forms of community they enable, break that requirement. Citizen juries, open-ended forums, and other forms of highly-engaging public education on policy issues are now more feasible than ever before. This new landscape of collaboration can involve small communities of experts, large crowds of interested citizens, or greater access to the thoughts and expertise of public servants across different areas of government. These channels offer tremendous potential for governments to do business differently but also directly confront many of the traditional government approaches to policy making premised on hierarchy and confidentiality.

The impact of these innovations has both short and long term implications for policy development. In the short term, interactive technology and inexpensive networking are enlivening policy discussion and opening up existing channels to more people in different formats. In the longer term, digital collaboration holds the potential for sustained, open-ended conversations that foster and support communities. This kind of networking will help solve the "wicked policy problems" so resistant to traditional solutions.



## WHAT'S HOLDING US BACK?

- » Appropriate role of elected representatives
- » Resistance by elected officials to public servants engaging directly with citizens
- » Co-optation of processes by narrow interests
- » Rigid requirements for closed-end processes
- » Bureaucratic culture and the perils of 24/7 media coverage

From digitally-enhanced consultations “connecting those who could make it to those who couldn’t,”<sup>36</sup> to build-a-budget applications such as OpenNorth’s CitizenBudget,<sup>37</sup> public-interest organizations are experimenting with innovation and enhanced interactivity in government.

But these experiments face several obstacles:

- » many of them generate considerable political resistance, tied to anxiety around the role of elected representatives in democracy;
- » if not carefully designed they can be co-opted by groups who wish to disrupt the decision-making process;
- » they often remain tied to old assumptions about how long things will take, and about the need for clear end-points and paper-based deliverables; and
- » a bureaucratic and political culture that is rooted in risk-averse behaviours and constantly on guard in today’s scandal-focused media culture.

Democratization experiments can fall victim to a phenomenon termed “the middleman paradox.”<sup>38</sup> Any change to the practice of democracy that lessens the direct authority of political representatives must be approved by those same representatives. Open government advocacy often focuses on the positive benefits derived from weakening the role of politicians and public servants in favour of direct citizen participation, but the middleman paradox often dooms even modest attempts to expand openness in policy-making.<sup>39</sup>

Political representatives have some reasonable grounds for caution. Representative democracies generally enshrine the principle of accountability in political decision-making. When something goes wrong with a crowdsourced decision, who is accountable? If government were to “outsource” significant policy decisions, would it be fair to continue to hold ministers accountable for the results? Governments must anticipate these issues before rushing headlong into the online space.

*Online, you have to engage... [In] every consultation, someone comes to the mic and says “you should do this!” and the person receiving the information knows they already tried it. Traditionally, they just drop silently the [ideas] that don’t work; you miss the opportunity to engage with someone who has ideas and bring them along with you. Let that person have another turn at bat! That builds engagement because that person feels they were heard.*<sup>35</sup>

—INTERVIEW, TECHNOLOGY EXECUTIVE

35 Interview

36 Interview.

37 See <http://www.citizenbudget.com/>.

38 Mahrer and Krimmer 2005.

39 Interview.

## ICELAND'S CROWDSOURCED CONSTITUTION

Iceland's 2008-2011 constitutional process was heralded at the time as one of the most bold and ambitious entries to date of digital tools into a collaborative democratic process. A citizen jury of 25 Icelanders was elected to re-draft the country's constitution after the 2008 financial crisis.

The 25 jurors would not work alone; the drafting process was conceived of as an interplay between the jurors, experts who would transparently provide specialized information to both jury and public at large, and the larger community of citizens. Sections of the draft constitution were posted online as they were completed, and the broader public could read them alongside specialized advisory pieces, comment, and suggest revisions.

By mid-2011 the jurors presented their draft to Iceland's parliament; it would be the world's first crowdsourced national constitution. But Iceland's proposed new constitution has not been brought to a vote. Defined by its effort to include ordinary Icelanders in the domain traditionally monopolized by politicians, the constitutional process was strongly opposed by elected representatives generally, despite support from two-thirds of the public.<sup>40</sup>

40 Gylfason 2013, see also Landemore 2014.

Online participation in policy-making runs into other roadblocks. Early e-participation initiatives suffered from low overall levels of use due to a lack of feedback tying participation to results, and an absence of interactivity (such as policy-modelling, discussed above) with relevant background information.<sup>41</sup> While social media represents a potential solution to some of these drawbacks, so far it is mostly used in a non-interactive way, to push out messages to the public without engagement or interactivity.<sup>42</sup>

41 Maier and Rabler 2010.

42 Mergel 2012, Bermonte 2011.

There may be another limit to how much collaboration digital technologies can introduce into government: the interest of citizens themselves. Not everyone is eager for more involvement in government decision-making; perhaps they just want public services to work, invisibly and cheaply.<sup>43</sup> Additionally, some groups may take advantage of more channels to participate and become obstacles to implementing or designing policy solutions rather than partners. The risks of derailing an engagement process by opening it up to consultation are real, and must be managed skilfully.

These limitations create the impression that initiatives to increase engagement are perfunctory and have no effect on decision making. In the worst cases, governments ask questions after the decision has been made. While the commitment to consultation has become ubiquitous, many consultations in practice consist of inviting the public to download a near-finalized 30-page report, read the whole thing, and leave feedback. This may be characteristic of government culture that prefers to control outcomes and processes rather than substantively open them to outside views.

Finally, the bureaucratic and political culture that has developed over many decades in Canada is characterized by risk-aversion. Taking chances on new initiatives is rife with danger—media scrutiny and front-page coverage, the focus of an Auditor General's report or simply failure, are all potential outcomes that limit the ambition and reach of our governments. The consequences of this culture are far-reaching—from carefully contained public consultations to tightly scripted communications messaging to under-funding of evaluations.

The positive examples outlined above demonstrate some key features of the path forward for digital collaboration in government policy-making: identifying and connecting with the right participants who will provide high-quality data, learning to work with open-ended processes and acquiring more comfort with trying new paths.

43 Interviews.

## NEXT STEPS

Using the Internet to engage the public in government matters is no longer news. The idea that government must have a presence on the internet where the public can engage is now expected. Four key areas of interest emerge as key for future success:

### » Sustaining communities of interest

Digital consultation often retains fixed timelines and “dead-tree deliverables”. Every time a successful consultation closes down, a community of interested citizens and stakeholders is lost and must be rebuilt. However, living documents and open-ended communities enabled by digitization can sustain broader policy conversations beyond the end of a particular process. A gentle first step would be planning for a transition from consultations into an ongoing social media presence (e.g., a regularly updated Facebook group).

### » Establishing trusted spaces to discuss more contentious issues

Concerns about e-participation often centre on the risks of interest groups co-opting the process or losing control of the ‘message’.<sup>44</sup> The government itself may not be regarded as a fair dealer when feelings on an issue run hot. There may be a need for trusted public-interest spaces outside of government, such as public broadcasters,<sup>45</sup> who are themselves re-examining the role they will play in a digital era.

### » Cultivating demand and encouraging responsibility

The degree to which government should cultivate demand for greater engagement where interest is initially limited is an open question. Greater individual freedom and autonomy from government goes hand-in-hand with looking beyond the government only as the provider of solutions.<sup>46</sup> Citizenship confers responsibility as well as privilege and citizens could be encouraged to see themselves as part of the public service.<sup>47</sup> At the same time, different people will naturally participate at different levels, and favour some

issues over others.<sup>48</sup> Governments must also be sensitive to the ‘digital divide’ and recognize that not all individuals and groups will have equal access to purely digital policy discussions.

### » Making hard decisions about when consultations will actually be used and to what extent

In some cases governments will move ahead with decisions that were not going to be swayed regardless of external feedback. In these cases, to mitigate cynicism, governments must be honest with themselves and the public and not consult just for consultation’s sake. To be successful consultation partners, governments must acknowledge that there are going to be issues that will not involve any distributed or delegated decision-making.



Source: Statistics Canada 2012.

44 One in-depth study of these issues is Hepburn 2012.

45 Bruns and Swift 2011.

46 Interview.

47 Interview.

48 Tiers of online participation have been modelled, for example by Osimo 2008, Ferro and Molinari 2010.

Problem-solving capacity in government has to grow faster than the government itself can or should. Communities of interest can create an ecosystem for policy discussion, featuring flexible participation and low-cost sustainability. In such an ecosystem, consultation and education become entwined: when you improve the quality of the feedback using digital concepts such as interactivity, you simultaneously increase engagement.

Consequently, citizens and stakeholders will more readily recognize links between their preferences, behaviours, policies and outcomes. Governments should aim to develop and cultivate these communities of interest to widen responsibility and promote cross-pollination of ideas between governments, stakeholders, and citizens.





## 2. Delivering Services

### WHERE ARE GOVERNMENTS NOW?

- » Transactional successes
- » Moving to customized services
- » The challenge: silos, complex needs

Governments today are facing an increasingly demanding service delivery environment that is exacerbated by tight fiscal circumstances. The lines between private and public sector delivery of services are often blurred in the minds of citizens, let alone the demarcation between which services are delivered by which level of government. Any missteps in the provision of public services run the risk of front-page coverage or inquiries from opposition parties during Question Period. Against this largely thankless backdrop, the public expects governments to do more, do it faster, do it better and do it with less.

Fortunately, there is an unusual convergence of interests in the realization of a more robust digital service delivery realm. For governments, digital services offer the opportunity to realize significant savings while also increasing confidence in government's ability to execute key functions. For citizens, mobile, online and digital services are easier to access, faster and more convenient.

Governments in many industrialized nations are making concerted efforts to make their services more accessible and responsive to individual needs by incorporating online and mobile-enabled channels for citizen feedback and the development of clear service standards.<sup>49</sup> There is also a trend towards more individually-tailored services as governments begin to re-think the way they develop programs and services from the user's perspective.

Design labs such as the Helsinki Design lab and Ontario's new MaRs Solutions Lab bring together individuals from a variety of different disciplinary perspectives in a safe space to brainstorm, test and

bring to scale innovative, citizen-centred approaches to tricky policy and service delivery problems. Most of these efforts to date have focused on the design of specific user interfaces—such as better tax forms or smooth transition of patient information between nurses changing shifts, informed by a product design mindset. But as a next frontier, understanding and re-designing public services by getting to the heart of issues such as why people re-offend could offer a significant opportunity for governments.<sup>50</sup>

Then there is the compelling fiscal case to be made for online and mobile service delivery. A 2012 UK study found that the average costs of digital transactions for government departments were 20 times lower than telephone, 30 times lower than mail and 50 times lower than in person service delivery.<sup>51</sup> A 2011 Canadian government study found that transaction costs for selected departments were 13 cents for online as compared to \$28.80 for in person and \$11.69 by telephone.<sup>52</sup>

Early progress in migrating services online was rapid. The federal government's first forays into online service delivery saw Canada ranked as a global at the leader in 2001<sup>53</sup>. Yet, this ranking slowly slipped over the coming years.<sup>54</sup> More recently, the Auditor General has emphasized the government's lack of clear strategy or integration in its online service delivery portfolio.<sup>55</sup>

49 OECD 2013: 151.

50 Olliff-Cooper 2013.

51 UK Cabinet Office 2013a.

52 OAGC 2013: 14-15.

53 Fraser 2009: 3, and Geist 2013.

54 Fraser 2009: 9, and Geist 2013.

55 OAGC 2013: 14.

## TRANSACTION COSTS FOR GOVERNMENT

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While governments have successfully moved many transactional services such as tax filing or business registration to online portals, they must now turn their attention to more complex services, which bring about their own unique challenges. These services often cross departmental and jurisdictional boundaries making them challenging to align and integrate into a one-stop scenario for citizens. In areas such as child welfare, employment assistance, social housing and business development, governments must address a variety of needs that cannot simply be satisfied through a one-click transaction.

As governments expand their online and mobile-enabled service delivery portfolio, expectations continue to rise for more digital services, but governments are left to grapple with messier, more discretionary and complex services that are inherently much more difficult to migrate.

This challenge is clearly demonstrated in the area of human and social service delivery. Fiscal pressures and siloed delivery structures often mean that clients, many of whom may require access to a number of different services, must navigate a fragmented, uncoordinated space on their own. Siloed approaches are equally unhelpful for governments as they fail to adequately support clients with multiple, complex needs.

Case-management approaches supported by digital technologies place the client's needs at the forefront and drive government integration of various programs and services. These integration initiatives can offer better services for clients, an enhanced focus on outcomes and maximize scarce public funds.<sup>56</sup> But these projects are difficult to implement and require high levels of coordination between and amongst governments.

The success of leveraging behavioural insights to simplify service delivery in the UK and the US<sup>57</sup> is consistent with the overall trend of a more 'outside-in' approach to designing and delivering services. Governments are increasingly recognizing that services must be designed and delivered with full engagement and consideration of not only the needs of citizens, but the expertise and knowledge that citizens and others outside the traditional halls of government can offer. Digitization is a critical tool and enabler of this fundamental shift in how governments will design and deliver services in the years to come.

<sup>56</sup> Gold and Dragicevic 2013.

<sup>57</sup> Galley et al. 2013, Dolan et al. 2010.

## WHAT'S HAPPENING? TRENDS IN DIGITIZATION

- » Digital by Default
- » Mobile Applications: From Open Data to APIs
- » Mobile Opportunities
- » Open Dialogue and Smart Design

In the digital era, data is increasingly recognized as an essential asset that fuels the information economy. Governments are at the core of this transition. They play a critical role in the collection and dissemination of vast quantities of information<sup>58</sup> in the course of delivering public services. Much of this information could have additional uses beyond the purpose for which it was originally collected—but only if it is made publicly available.<sup>59</sup>

Until recently, technological barriers have prevented large quantities of data from easily being made widely accessible. New ICT advancements enable information to be gathered, stored, analyzed, and shared more quickly, easily, and cheaply than ever before.

Having the right data, publicly accessible in formats that enable it to be manipulated and combined with data from other sources is essential to improving service delivery and enabling collaboration on solving complex policy problems. Government can play a key role by positioning public sector information as an open platform upon which applications can be built, creating opportunities for people both within and outside of government to harness it in innovative ways.

### Digital by Default

Online and mobile platforms are increasingly the default medium for how people access and share information. Governments must adapt to this trend by moving toward a “digital by default” model of public engagement and service delivery. This means making a digital medium the default option for service delivery and public engagement, while offering alternative mediums for those who are unable to use digital technologies. This approach is being pioneered in the UK, where all departments providing services with greater than 100,000 transactions per year are required to redesign their operations to create end-to-end digital services.<sup>60</sup>

The trend toward digital consolidation enhances usability and reduces costs by removing duplication and cutting the number of websites governments need to maintain.<sup>61</sup> In contrast with the early

stages of e-government, which saw the creation of government websites designed to reflect the structure of government, the consolidation of digital offerings into a single point of access reflects how services are actually used by the public. A single point of access streamlines service delivery and reduces confusion resulting from overlapping or conflicting information.<sup>62</sup>

Usually, the consequences of major life events and opportunities don't involve a single government department, jurisdiction or service. Current efforts at service integration often focus on bringing necessary reporting or application together. For example, “Tell Us Once” services in the UK make sure that reported deaths are communicated to all necessary public bodies at both the local and national levels, sparing next-of-kin repeated office visits and form submissions.<sup>63</sup> Businesses in Canada benefit from the BizPaL platform, which produces customized

58 Public sector information (PSI) is defined as “information products and services, generated, created, collected, processed, preserved, maintained, disseminated, or funded by or for a government or public institution” (OECD via Ubaldi 2013: 5-6).

59 Ubaldi 2013: 4.

60 UK Cabinet Office 2013a.

61 Interview.

62 Irani et al. 2005.

63 U.K. Government 2014.

checklists and assistance when they must apply for multiple permits or licenses.<sup>64</sup> Both are successful only because different levels and jurisdictions of government agree to share information and harmonize processes.

## Mobile Applications: From Open Data to APIs

Open data<sup>65</sup> initiatives are underway in countries around the world, with the most well-known being those in the UK and US. These initiatives encourage the proactive release of public sector information to promote innovation and increase transparency and accountability.<sup>66</sup> Public sector information such as weather, transit, and business licensing data<sup>67</sup> that facilitates improved service delivery is generally non-contentious and more readily disclosed. Information on government contracting, campaign finances and program performance can be more difficult to access.<sup>68</sup>

An API, or application programming interface, is a programming language that enables two different applications to communicate with one another.<sup>69</sup> Open APIs can augment the usability of open data and are an important part of ‘government as an open platform.’<sup>70</sup> Using APIs, information can be pulled directly from agency websites in real time, eliminating the need for data sets to be downloaded and processed each time they are updated.<sup>71</sup> Organizations release APIs to enable software developers to more easily design applications with their data<sup>72</sup>: for example, Twitter and Facebook have made their APIs public so people can build new applications on top of their interfaces.<sup>73</sup> Governments are now also making APIs available to facilitate private and civil society use of government data.

Private and not-for-profit organizations are making use of open data and open APIs to improve existing methods of service delivery and develop new services that government is unable to develop. For example, the proliferation of transit apps helps the public to get real time information on bus and train arrival times, transit timetables, and other useful transit service information. Government supplied data is also being used to develop apps in other sectors, such as health care.

## Mobile Opportunities

Mobile devices are becoming a broader and more inclusive way for people to access online content than traditional connections. In Canada, mobile phone penetration is exceeding internet penetration<sup>74</sup> and as of 2013, almost half of Canadian mobile users owned a smartphone.<sup>75</sup> Yet the use of mobile applications for connecting to the public is almost nonexistent. Mobile-government can offer more convenient and tailored access to government information and services across a variety of areas, such as education and health.<sup>76</sup> Benefits include enhanced service quality, efficiency, reduced costs and scalability.<sup>77</sup>

The Australian government’s Centrelink program has released a series of mobile apps that enable users to complete simple tasks such as updating contact details, subscribing to and viewing online letters, viewing payments and transaction histories, and capturing and uploading documents.<sup>78</sup> The ImmunizeCA app, produced by a partnership between the federal government, NGOs and others, promotes immunization by combining schedule and appointment management with accessible scientific evidence on recommended immunizations, as well as real-time alerts regarding disease outbreaks in the user’s area.<sup>79</sup> Mobile apps such as Centrelink and ImmunizeCA help expand the reach and efficiency of multiple services by taking advantage of the portability and ease-of-use of smart phones and similar devices.

64 Industry Canada 2014.

65 The Open Knowledge Foundation defines open data as “data that can be freely used, reused and redistributed by anyone—subject only, at most, to the requirement to attribute and sharealike.”

66 Osimo 2012.

67 Ubaldi 2013.

68 Yu and Robinson 2012.

69 Gunelius 2011.

70 Gallagher 2012.

71 Gallagher 2012.

72 Roos 2014.

73 Noveck 2012.

74 Diamond and Roberts 2012.

75 CIRA 2013: 2.

76 OECD/ITU 2011: 11.

77 OECD/ITU 2011: 53-54.

78 Hilvert 2013.

79 See for example, ImmunizeCA at <http://immunize.ca/en/default.aspx>.

## GOVERNMENT AS AN OPEN PLATFORM FOR IMPROVED SERVICE DELIVERY

“DrDoctor” is a smart appointment system being used in the UK for NHS hospitals. Launched in 2012 by a start-up of the same name, DrDoctor lets patients “make, change and manage...healthcare appointments online, via mobile or text.”<sup>80</sup>

This system improves the experience for patients by making it more convenient for them to manage their appointments using the technological medium of their choice. It also improves the overall efficiency of the hospital system. The “late cancellation” function notifies patients if an appointment suddenly becomes available at one of their selected times, thereby enabling the patient to get quicker access while also reducing the number of appointment slots that go unfilled.

80 The host website for the initiative can be found at <http://www.drdoctor.co.uk/patient>.

Preliminary evidence suggests that open data can stimulate the economy by increasing the creation of value-added applications, in turn generating additional tax revenue for government.<sup>81</sup> Given Canadian governments’ focus on job creation and economic issues, this potential benefit of open data should not be overlooked.

## Open Dialogue and Smart Design

Opening up access to government data and programming interfaces both promote a more open form of dialogue in which those within and outside government can collaborate more effectively on service delivery innovations. Business and civil society have proven highly effective at designing interactive media, such as forums, wikis and data calculators, to deliver government information.<sup>82</sup>

As people becomes increasingly comfortable with, and reliant upon, digital technologies to operate on a day to day basis, citizen expectations of how to interact with government are changing. Responding to these expectations requires governments to shift toward “design thinking” — an approach that “imbues the full spectrum of innovation activities with a human-centered design ethos.”<sup>83</sup> Digital technologies can be powerful tools enabling governments to design things smarter, focusing on how information and services are made available to the public with the aim of enhancing usability.

Enhancing the usability of government information and services requires an understanding of when, how, and why they are being accessed by the public. Digital technologies improve this feedback loop by leaving digital trails that enable organizations to see in real-time how people are accessing their information and services.

These digital trails are being measured, monitored, and analyzed by organizations so they can better understand and optimize web and mobile usage.<sup>84</sup> Knowing which sections or functions of web and mobile interfaces are accessed most frequently

81 Tinholt 2013: 2.

82 Ubaldi 2013: 14.

83 Brown 2008.

84 Interview.

enables organizations to make frequently accessed content more easily available, while removing things that users don't find interesting or helpful.<sup>85</sup>

The use of infographics and visual analytics to present information can enable government to more quickly and effectively communicate with the public across a variety of areas. Infographics can be especially helpful in making issues and services more accessible or communicating important information during an emergency situation. For example, the City of Calgary used infographics to provide information about the cause of the 2013 flood, its impact, the government response, and the recovery process.<sup>86</sup>

Visual analytics enable complex and abstract information to be presented in ways that are more easily processed by the human brain. For example, a city such as Toronto may have hundreds of thousands of registrations for its recreation programs, including residential postal codes and course locations. These massive quantities of data are incomprehensible when presented as raw data but, when presented in visual form, clear patterns and groupings are quickly and easily discerned.

The use of visual analytics to represent voting patterns, budgetary expenditures, and policy changes, for example, could facilitate a broader understanding of important issues among the public, better equipping them to engage in policy debates.

Together, these trends point towards a future in which service delivery can be individually-tailored to meet specific needs and data is a sharable asset that promotes dialogue, innovation and transparency. Harnessing the power of digital technologies to make service delivery more efficient, targeted and impactful is an appealing prospect that governments must explore.

## AUSTRALIA'S MYGOV PROJECT

Australia's MyGov project provides a single, whole-of-government channel through which the public can interact with government. MyGov operates on a lead-agency model, coordinating the resources of multiple agencies to coherently and consistently develop policies and deliver services to the public. For example, the Department of Human Services is the primary provider of services directly to Australian citizens and is the natural agency to take the lead on coordinating payments for income support, family payments, child care, and Medicare.<sup>87</sup>

<sup>87</sup> Interview.

<sup>85</sup> Clarke 2013.

<sup>86</sup> City of Calgary 2014.

## WHAT'S HOLDING US BACK?

- » Legacy IT systems
- » Legislative barriers
- » Resistance to “channel shift”
- » Difficulty of Accessing Existing data sets

A number of barriers are currently preventing governments from fully making use of digital innovations to transform service delivery.

### Legacy IT systems

When governments initially started implementing IT, unique systems were adopted by different orders of government and by individual departments within the same government. Many jurisdictions are locked into contracts with external providers for IT systems that no longer meet today's needs.<sup>88</sup> This has resulted in a patchwork IT infrastructure that poses a significant barrier to the development of a more integrated approach to information management, and inhibits the expansion of open data and open API initiatives.

### Legislative barriers

A “digital by default” approach is essential to take advantage of how technology can improve service delivery and policy development. However, existing legislative and regulatory requirements are impediments to fully digital services (e.g., requiring a hard copy document or ink signature).<sup>89</sup>

Many governments are still in the process of identifying these barriers, and those that have been eliminated have often attracted little public attention, such as the UK's Department of Transport removing the need to return physical log books for government vehicles that are sold.<sup>90</sup> Changes like this are unlikely to be controversial but take time.

### Resistance to “channel shift”

The shift away from traditional mediums in favour of digital channels can improve efficiency and accessibility. Yet this kind of “channel shift” faces barriers internal to government and to public uptake. In many cases, government policies, programs, and services are still developed for traditional mediums and then translated into digital format.

Where government has switched to a digital channel for public service delivery, there have been challenges generating public acceptance and uptake. Better design of online channels to improve their user friendliness, including making them mobile-enabled, can increase uptake by making the online channel the most desirable option.<sup>91</sup> In some cases, governments have decided to take traditional options such as in-person or mail-in services off the table and leave no option but an online channel for certain services.<sup>92</sup>

<sup>88</sup> Interview.

<sup>89</sup> Interview.

<sup>90</sup> U.K. Department for Transport 2012: 14.

<sup>91</sup> Interview; Power 2012: 6-7.

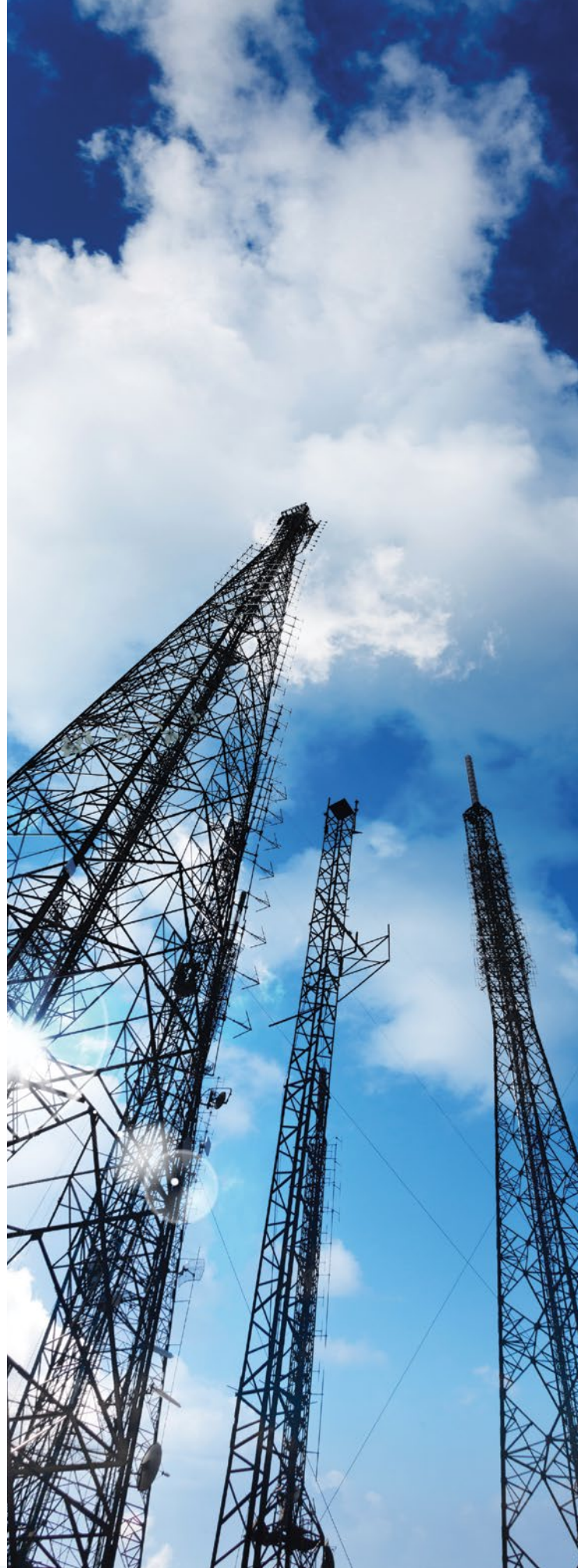
<sup>92</sup> ServiceOntario provides an example of this practice.

## Difficulty of accessing existing data sets

Within government, public servants have varying access to government data needed for policy making.<sup>93</sup> Relevant data gathered in one ministry may not be accessible to a public servant in another ministry, or at another level of government. The result is service gaps or duplication of services and data collection as ministries all responsible for serving the same clients struggle to operate within their own silo. These challenges are exacerbated in a federal system, where different levels of government collect different data and where decisions about methodology and scope of data collection by one government can have far-reaching implications for other governments (e.g., the federal government's recent changes to the long-form Census).

Outside of government, the challenges to accessing public sector information are even greater. While national statistical agencies do make a large amount of data publicly available at no cost, many operate on a cost-recovery model and some data sets can be very expensive to purchase. For the average citizen or SME without membership in a data purchasing consortium, gaining access to information that can enable them to make better informed decisions or produce a value-added product or service can often only be done by making a freedom of information request. These requests are made at considerable administrative burden and cost to both government and the applicant and often result in the limited disclosure of inert information.

<sup>93</sup> Lauriault and McGuire 2008.





## NEXT STEPS

Opening up government information gives public servants the information they need to develop evidence-based policies. It also enables the private sector and civil society to play a part in the co-creation and delivery of valuable public services. Adapting to this new reality requires a rethinking of the role of government and where it can provide the greatest value. Four important trends indicate where government should focus its efforts:

### » **Treating data as critical infrastructure**

Governments are data powerhouses, with public sector information being one of their greatest assets. Instead of cutting back on data resources, governments should be investing in their capacity to develop expertise in facilitating the collection, presentation, and release of this data for others to use.<sup>94</sup> National statistical agencies play a critical supporting role by conducting national censuses and producing more in-depth and topic specific data that have significant value to government, business, and civil society.

The launching of “What Works” institutes (seen in the U.K.) and the development of standards for measuring outcomes can help governments identify the types of data that are needed in order to support innovation and evidence-based policy making, and deliver more efficient, effective services.

### » **Protecting public safety**

The proliferation of privately created mobile applications represents a new “wild west” in digital technology. While many of these apps are innocuous, offering users a more convenient way of accessing transit information or keeping track of tasks, others displace the expertise of skilled professionals, potentially putting their users at risk. The healthcare industry, in particular, is an area where the use of privately created mobile applications can, on the one hand, improve efficiency and patient satisfaction, and on the other, interfere with the diagnoses of medical professionals. Government agencies, in partnership with industry, must work together to develop processes and standards for the selection and vetting of apps in high-risk sectors to ensure that services are delivered safely.<sup>95</sup>

### » **Encouraging a culture of openness within government**

Governments need to move to an “open by default” approach to the collection and dissemination of data, instead of guarding public service information within departmental silos, or behind restrictive use licenses or paywalls. As a first step, freely sharing files and data across departmental lines between bureaucrats would send a strong signal about the importance of openness and collaboration. This may also include, where appropriate, collecting and organizing data from the outset with the expectation that it will be public and in a manner that makes it easily usable.

Open government initiatives are starting to increase the amount of public sector information and data that is publicly available but more needs to be done. The creation of open data portals is an important first step but many of these sites have only limited numbers of data sets. Governments need to continue the release of data sets and the addition of open APIs will greatly increase their usability and promote innovation in service delivery.<sup>96</sup>

### » **Treating smart design as an essential aspect of good governance**

The use of digital trails and visual analytics to make services more accessible and appealing can transform how people interact with government, but only if design is recognized as an essential aspect of good governance. This requires a shift toward “design thinking.” The ability to employ design methodologies requires different skills for departments and public servants. In the UK, the ability to ‘redesign services and deliver digitally’ has been recognized as one of the four core capabilities needed to enable digital by default.<sup>97</sup>

94 Ubaldi 2013.

95 Versel 2013

96 Diamond and Roberts 2012.

97 ICCS 2013.

### 3. Evaluating Programs and Services

#### WHERE ARE GOVERNMENTS NOW?

- » Limited capacity and appetite
- » A series of disincentives
- » Lack of viable feedback loops

The evaluation function has posed challenges for governments for decades. Measuring the outcomes for complex programs and services is critical to good governance. Broader reform of policy frameworks and service delivery models requires effective systems to evaluate what's working, whether there are better program options for achieving objectives, why poor outcomes occur, and how to channel resources into the most effective programs. Indeed, as governments embark on more innovative and fundamental reforms, a rigorous means of measuring the results of such change is crucial to maintaining public confidence.<sup>98</sup>

Canada is regularly highlighted as an outlier on issues around measurement. When compared to their international peers, Canada's federal and provincial governments spend less time, less money<sup>99</sup>, and exercise less rigour assessing what is and isn't working. This needs to change. For this to happen, we need to recognize and address the disincentives that stop governments allocating resources and effort to designing and undertaking rigorous program evaluation.

There are strong disincentives within the public sector to evaluate the true effectiveness of programs and services. Heightened media scrutiny of government missteps has created a culture of risk-aversion, in which public servants and elected officials are reluctant to admit that a program has not been completely effective. Additionally, in times of fiscal constraint, departments are competing with each other for scarce resources, and those that put the best face on program effectiveness are more likely to keep hold of their budgets.<sup>100</sup>

These resource constraints and disincentives are overlaid against a complex policy environment in which there are many different factors shaping policy outcomes. To take one example, Ontario's Ministry of Education has placed a sharp focus on the results of standardized testing in the past decade. The Ministry spends millions of dollars a year on programs to raise test scores, in addition to the funding already dedicated to teacher salaries, infrastructure and other costs. Yet, the correlation between any individual initiative designed to improve test scores and test scores themselves is extremely difficult if not impossible to disentangle.

A variety of different forces could be at play in improving test scores—greater technology access in the home, one particular government initiative that is highly successful, better teachers or a combination of some of these factors or many others. But, we simply do not know precisely which, if any, government interventions are responsible for better student success. As the world grows ever more complex and more inter-connected, governments' ability to tease out the specific effects of niche, targeted programs is reduced further and further. Because most programs are rolled out province-wide, rather than in pilots, there is no ability to compare peer groups of schools or students who have the same profile, but for the deployment of a specific program or initiative. This is a common issue across government programs in Canada and elsewhere.

98 McCrae et al. 2009: 10.

99 A 2009-10 federal study found that departments allocated only 0.08 percent of direct program expenditures to evaluation, or \$77M out of \$95B in spending (Treasury Board of Canada 2010: 13). See also Auditor General of Ontario 2011.

100 See Galley et al. 2013 for further analysis.

Some governments have recognized this challenge and are moving ahead with randomized control trials on certain initiatives which can provide clear evidence that policies are, or aren't, working. For example, the UK's Nudge Unit, which employs behavioural insights approaches, worked with the UK Courts Service to conduct a trial in 2012 testing whether text-message reminders would encourage people to pay court-ordered fines without the need for bailiff intervention. The trial split those owing fines into treatment groups at random and adapted the most promising solutions over multiple phases, to develop a new reminders policy that now saves more than 3 million pounds a year.<sup>101</sup>

In its four years of existence, the relatively tiny Nudge Unit, with fewer than 30 staff, has conducted more randomized control trials than the entire UK government in its history.<sup>102</sup> This is the future of evaluation—rapid trials in the field that are rigorously monitored for success, with programs that succeed being scaled up and those that don't refined or discarded. Having systems in place to know which interventions are actually working is a seemingly basic idea, but one which governments around the world have been shockingly poor at executing.

Meanwhile, governments are also establishing What Works institutes<sup>103</sup> to identify proven approaches that maximize impact and improve outcomes for citizens. They focus on the three roles of identifying and summarizing what works; evaluating the impact of local programs; and building the capacity of organizations to understand, measure, and report on impact.

There is also a strong role for external or independent stakeholders in evaluating the effectiveness of government programs. The media, Auditor Generals' offices, the public, legislature and others all play a formal or informal role in assessing what programs are working and which are not. However, they are all limited to some extent by the amount of relevant information they are able to access, their own capacity or expertise to conduct a rigorous evaluation and their ability to provide their evaluation to

the right people in government who can and will actually do something with that information (i.e., an adequate feedback loop).

Digitization offers governments the ability to harness much more information than ever before and perform more sophisticated analysis of what that information means in pursuit of better evaluation. It also offers the tools to tap into outside sources of expertise to get quick, accurate and unbiased information about specific government programs. As these tools are mastered, systems can be designed with a greater expectation of evaluation, transparency and interoperability. Overcoming internal disincentives to evaluation, building stronger, more rapid feedback loops and maximizing scarce resources are all potential advantages of digitization in the evaluation sphere.

101 Haynes et al. 2013

102 Behavioural Insights Team.

103 For the UK example see UK Cabinet Office 2013b.

## WHAT'S HAPPENING? TRENDS IN DIGITIZATION

- » Mining Big Data
- » Real Time Feedback Loops
- » Integrating Administrative Data

For governments, evaluation in a digital world has three elements. Citizens gain direct feedback loops and service providers must learn how to respond to that feedback effectively and efficiently. Policy-makers gain the ability to access and analyze more data than ever before, much of which could be relevant for refinements to service delivery frameworks. Finally, digital systems lower the barrier to integrating government datasets across departments or ministries for more holistic and efficient review of policy outcomes.

### Mining Big Data

Big Data analytics uses advanced computer technology to digest messy, unstructured information from hundreds of different sources, repurposing it for policy and business intelligence. It uses raw power to overcome many classic problems of information management; in a big data landscape, formatting standards and laborious information-sharing processes are potentially made obsolete.

#### THE THREE FEATURES OF BIG DATA

##### 1. Repurposing

Data collected for one purpose is valuable for others.

##### 2. Cross-referencing

Multiple sources of data in different formats can combine to provide insight.

##### 3. Tolerance for Mess

Using a whole population rather than a sample, errors are smoothed out.

Adapted from Mayer-Schönberger and Cukier 2013.

The cost of data processing and storage has plunged, and “cloud computing” has introduced unprecedented possibilities for remote access to data. It has become possible to work with sets of data that were previously too large for the vast majority of organizations—even governments—to crunch. Most important, these data sets are often “complete” populations rather

than sampled subsets: every street address in North America, airline journey taken in the entire world in a single day, or the details of every death certificate in France might be examples of truly big data. Data mining takes advantage of the existence of big data, allowing researchers to “crawl” through large data sets, looking for specific items of interest.

Big data techniques allow the rapid assessment of broad trends at a population level. This form of analysis may help crack the problem of delivering higher-quality services at lower cost, by drawing unexpected insights from correlated data, more precisely targeting government interventions.

For example, the Land Transportation Authority in Singapore boasts real-time analysis of all road sensor, traffic light and GPS data within the city’s traffic network, as well as crowdsourced reporting of transportation conditions and incidents, to fine-tune day-to-day management of the city’s transportation infrastructure.<sup>104</sup>

The attitude of repurposing existing data, promoted by this new paradigm, could also help build an even stronger case for a culture of disciplined data collection for program evaluation -- since the data itself now has value stretching beyond the political and bureaucratic considerations of the next budget cycle.

Those at the forefront of government data transparency, such as the U.S. federal government, aren’t shy about promoting the synergy between this

<sup>104</sup> Hauber 2014; see also <http://www.lta.gov.sg/>

data repurposing and ongoing efforts to collect and publish public information. On the data.gov website, home to 420,000 datasets covering every aspect of federal operations, the government highlights both private-sector innovations resulting from the data as well as citizen-created apps that create public value.

Many big data entrepreneurs draw on public sector experience handling massive databases. The experience of using data produced by one level of government for the needs of another, and then successfully applying the same “data intelligence” to the needs of business, highlights one of the key aspects of modern data science—re-purposing and re-combination.

Big-data thinking can also help integrate knowledge across functions and departments of government, even when the formal structures themselves aren't ready or able to harmonize their operations. Merging organizations and services is often unfeasible, politically sensitive or prohibitively costly, at least in the near term. The ability to repurpose widely-dispersed information, stored in multiple formats and sources, provides an alternative approach to improving “government intelligence.”

## TORONTO RECYCLES CUSTOMER SERVICE DATA

The City of Toronto is applying a Big Data mindset to its customer-service information, treating it as a living resource to be continually re-explored for maximum value. The 311 service, a multi-channel avenue for citizen service requests, questions and feedback, provides data analytics for city policy makers:

*We use speech and text analytics; every call in to the contact centre is recorded and converted into text, and business analysts look at text of call and do analysis. We can look for specific information or identify broader trends, such as an assessment of the Luminato [Festival] or the Pan Am[erican Games], whether people are saying it's affecting them positively or negatively...*<sup>105</sup>

105 Interview.

## Real-time Feedback Loops

Digital technologies provide citizens with an instant, large megaphone with which to provide feedback on government services. In the past, a letter or complaint would be read by officials and given a response. Today, Twitter provides anyone a platform from which to broadcast their service experience.

Robust geographic data allows governments to target resources and programs more effectively and monitor the effectiveness of policies in real-time. A conceptual example of such techniques would be Google's well-known Analytics application, which detects trends in internet users search patterns.<sup>106</sup>

Government departments are also starting to use social media to monitor the public's interests and complaints. The New York Department of Health and Mental Hygiene scanned nearly 300,000 customer restaurant reviews on food review website Yelp for signs of food-related illness. 468 cases were deemed relevant for follow-up by government epidemiologists, yet only 3% of those people had reported their issue to the city through traditional

106 See <http://www.google.com/analytics/>.

means. Three separate outbreaks that had not been reported were identified—a significant number given only 30 are typically identified in a given year.<sup>107</sup>

With the explosion of use in Twitter, Yelp and other social media sites, there are vast reams of data that governments can access to improve their evaluation of services and also to build informal yet real-time feedback loops with a public that might otherwise not provide that feedback to the government. Applications like Yelp and traditional public health inspections both have a unique role to play. When combined and integrated their impact increases substantially.

Cities have shown particular leadership in the area of using mobile apps to facilitate citizen feedback and evaluation, perhaps because the services they provide tend to be so tangible. Mobile technologies showcase their strengths particularly well with respect to services such as road maintenance, street lighting and safety. A well-run process can also ensure that participating citizens experience a quick, visible response—whereas feedback provided about large, federal programs like Employment Insurance necessarily provides less immediate payback.

Many cities now have their own examples of mobile problem-reporting apps, from CityGuard in Abu Dhabi to the City of Toronto's 311.<sup>108</sup> However, there is also a burgeoning global competition between non-government app platforms and networks, such as the US-based SeeClickFix or Indian-developed UnMuted that serve hundreds of cities, allowing users to not only report and follow up on problems, but to compare local government responsiveness and generate broader regional trend data.<sup>109</sup>

## Integrating Administrative Data

Evolving digital technology has created a “big data” ecosystem for governments and businesses to mine and analyze, often “ready-made” by the public at large for other purposes. It has also allowed forward-thinking governments to make use of mobile apps and web platforms to gather real-time feedback on the services and public goods that residents encounter every day, such as road and traffic management, animal control and park facilities.

However, while this crowdsourcing of day-to-day evaluation is useful, it doesn't touch on the larger, longer-term, and more expensive requirements to review major public programs, as well as the “behind the scenes” bureaucratic processes within government. Progress is slower in this domain, compared to the quick wins of early digitization efforts. Improving internal evaluation technologies requires more deliberation and negotiation than does analyzing data “in the wild.”

There are early, pioneering efforts. Centralized bodies in government are increasingly facilitating the integration of databases across ministries, agencies and departments. Frequently, the catalyst for these efforts is the desire to improve the efficiency of enforcement activities—evaluating not program delivery but the way in which governments carry out their responsibility to police bad behaviour. Smarter, data-enabled regulatory activity relieves law-abiding businesses and individuals of bureaucratic burdens by prioritizing audits of high-risk cases.

The government of Ontario's Ministry of Revenue piloted the Flexible and Integrated Risk System using business-intelligence tools to model high-risk tax compliance behaviours and direct enforcement activities.<sup>110</sup> Similarly, the Analytics Unit of New York City's Office of Policy and Strategic Planning crunches data from across all the city's agencies in order to prioritize limited program-delivery and enforcement dollars. It has been credited with greatly increasing the effectiveness of New York's fire and restaurant safety inspections, among other accomplishments.<sup>111</sup>

107 Phillip 2014.

108 Abu Dhabi Government 2014; City of Toronto 2014.

109 See <http://gov.seeclickfix.com/> and <http://www.gounmuted.com/>.

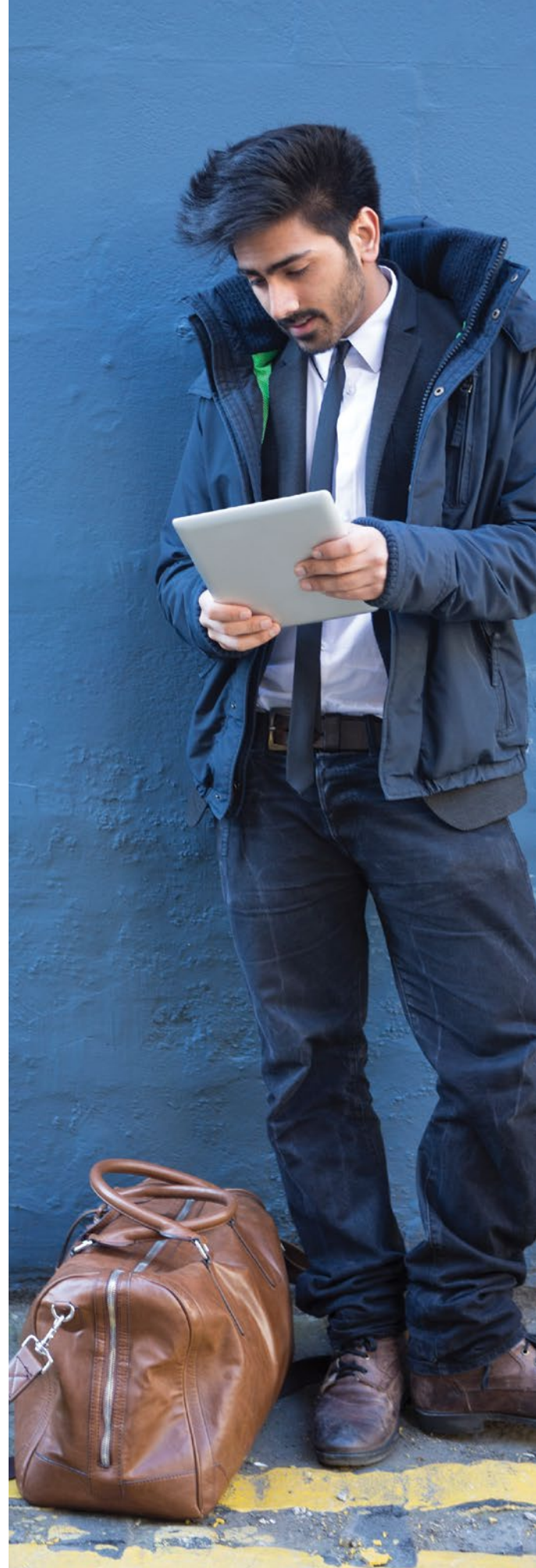
110 Ministry of Finance (Ontario) 2010.

111 Feuer 2013.

While enforcement activity is providing the early wins, the broader principle is one of sharing information between government bodies that was previously kept in closed circuits and would have been impossible with paper records. An example of this approach is the evolving Wellbeing Toronto initiative, which combines open data with integrated evaluation resources. This Geographic Information System (GIS)-based website allows both civil servants and the public to “mix and match” neighbourhood-level data from dozens of city departments, non-governmental agencies, and the census, in order to create custom evaluation metrics and assess local outcomes.<sup>112</sup>

These early efforts signify a movement from basic transparency, in which the government reveals internal data to the public and effectively “outsources” judgement, to a more pro-active attitude where civil servants see that data as part of their own evaluation toolkit. Running government systems on the same, open API that they offer the public has great potential to lower evaluation costs and ultimately the costs of delivering programs.<sup>113</sup>

Evaluation is the key function to which governments typically pay the least attention, and allocate the fewest resources. Digital technologies offer a significant opportunity to gain access to more data at lower cost, analyze that data more effectively, and build feedback loops that see adjustments to services and policies in real-time.



112 See Wellbeing Toronto at <http://map.toronto.ca/wellbeing/>.  
113 Interview.

## WHAT'S HOLDING US BACK

- » Contradictory signals for public servants
- » Re-conceptualizing privacy in a digital world
- » Uncertainty regarding the future role of public servants
- » Not sufficiently valuing data

In order to benefit from the potential of digital technology in policy and program evaluation, government has to overcome a number of obstacles.

### Contradictory signals for public servants

Governments in Canada have recently made what appear to be promising movements towards allowing greater flexibility in data usage, an important prerequisite to integrating administrative data with real-time feedback as well as facilitating “big data”-style analysis. However, these advances sometimes combine formal permission with strong negative incentives, in effect telling public servants “you *can* do this,” while making the prospect of following through unappealing at best.

Ontario’s *Regulatory Modernization Act* and *Freedom of Information and Protection of Privacy Act* (FIPPA) provide examples of this dilemma. The former creates a process by which government ministries may share and integrate their administrative data, thus opening the door to more advanced and holistic forms of evaluation. However, the process is both optional and arduous, requiring senior approvals and reams of paperwork to permit any given exchange of data. As a result, it has rarely been utilized.<sup>114</sup>

Likewise, FIPPA (understandably) prioritizes what *must not* be done with government-held information, while providing a window of exception for those willing to spend time and energy pursuing it. If something is risky, difficult and optional—without a clear and dramatic benefit for success—most public servants will understandably instead focus on performing their traditional duties rather than exploring that new path.

### Re-conceptualizing privacy in a digital world

The rapid proliferation of data and computing capacity to analyze that data also offers both a challenge and opportunity to governments. Governments in both Canada and the United States have recently opened bidding for contractors who will monitor, collect and analyze social media information.<sup>115</sup> For some, this is a natural extension of monitoring traditional media such as newspapers, to gauge public opinion and trending topics. For others, the move provokes considerable anxiety about the loss of privacy.

Government ‘data mining’ is complicated by a lack of clarity generally around what privacy itself means with respect to postings made on openly viewable websites such as Twitter and Facebook. The issues are even further muddled by the fact that some government agencies that are responsible for national communications security engage in data-capture that goes well beyond information intended for public viewing, such as accessing emails and phone calls.<sup>116</sup>

Data mining occurs along a spectrum, with few clear legislative or policy frameworks in place delineating clear distinctions within that spectrum. As private companies and other organizations jump on the “bandwagon” of harvesting and analyzing this data, ethical leadership from government may be critical to maintaining public confidence.<sup>117</sup> Engaging the public in an open discussion about acceptable uses of data by government will be critical to sustaining and building public trust as governments seek to expand use of such data.

114 Interview.

115 Vucci 2013.

116 Pappalardo 2013.

117 Geist 2013a.



## Uncertainty regarding the future role of public servants

In the evaluation sphere, one element of the risks regarding digitization perceived by public servants is longer-term and more abstract, but no less important. The advent of highly distributed, real-time feedback on government programs raises questions about the future role of policy advice from traditional government sources. If the government uses Yelp to target restaurants for inspection, Kijiji to compile labour market information and apps developed using open-source government data promise a more direct relationship between citizens and public services, will this devalue the expertise and threaten the very existence of public servants?

Many civil servants have traditionally based their perceived self-worth, and career capital, on holding monopolies over scarce information.<sup>118</sup> A healthier public service culture must emphasize the value provided by information sharing, networking, and curation over hoarding.

## Not sufficiently valuing data

Finally, governments are grappling with the need to put a higher premium on data. In a digital world, data is the currency that enables smarter, faster decisions, better delivery and more robust evaluation.

One key area that governments can address is the lack of a pilot-testing culture in government. When governments innovate public services, these innovations often require enormous expenditures of political, as well as actual, capital (often forming a core plank of a political party's election platform), and are rolled out universally. These large, 'all-in' investments encourage more risk-averse attitudes towards evaluation and data-sharing. Blame for missteps, course-corrections and ineffective ideas fuel both opposition parties and the media, and even inconclusive or moderately-positive results can result in scandal if shared. There is a strong incentive for those in government to avoid sharing.

The result of these negative incentives has been a halting, uneven trajectory for government data initiatives, with some signs of backwards movement.<sup>119</sup> High quality data is needed to develop evidence-based policies. Often however, insufficient data is collected to effectively identify problems or evaluate programs and services. At a time when technological advancements make it easier to gather, share, and analyze large quantities of information, governments should be making decisions that enable them to take advantage of these new realities.

The data that is collected is generally subject to quality standards that are appropriate for the collecting agency, but work on creating common standards that will allow future data integration—including metadata, tagging and encryption—is at an early stage. Legacy systems, as discussed earlier, represent a huge challenge; of the \$35 million devoted to the City of Toronto's revamping of its 311 system, most went to writing code to ensure 15- or 20-year old computer systems that run vital city services could communicate with the central program.<sup>120</sup>

Too often, data resources are being squeezed, as cutbacks to national statistical agencies result in the loss of valuable demographic, programmatic, and budgetary information. In Canada, the loss of the long form census, the Provincial and Territorial Economic Accounts, or bodies such as the National Council on Welfare and the National Roundtable on the Environment and the Economy, reduces the amount of information policy makers and the public have, in turn reducing the capacity of government to develop effective policies.

118 Galley et al. 2013.

119  
120

Geist 2013b  
Interview.

## NEXT STEPS

Making better use of data and improving the capacity for real-time feedback offer many benefits for public sector organizations in the field of evaluation. They provide government access to more information, and are often available with little need to expend scarce evaluation resources on surveys or other expensive data-gathering approaches.

Big data is tolerant of data-sets that vary in their format and level of accuracy, since minor mistakes are smoothed out by the size of the patterns examined. Because of this high tolerance for “messiness,” big data techniques can vault over some of the hardest technical obstacles in government digitization initiatives: interoperability of legacy systems, inconsistent practices in data collection, and negotiating different data licenses for different government bodies.

Further, government can greatly increase its capacity for program evaluation by integrating the vast stores of administrative data it already possesses and collects. Advances in de-identification and encryption technology are expanding the degree to which such data can be integrated without jeopardizing the privacy of citizens.

The following areas will be key to capturing these potential advances in evaluation:

» **Make the Policy Professional a Data Scientist**

Capturing the benefit of data mining for policy-making, while minimizing drawbacks, requires a plan. Governments must develop strategic plans that outline who should be doing data mining in government, and how much of the data should be owned or managed directly by state bodies. The plans should also address the skill sets required for public servants to make use of data mining and think through potential drawbacks and pitfalls of data mining approaches such as digital divides.

» **Regulate and facilitate the reuse of personal information**

ICT advancements are making the collection, storage, and analysis of information faster, easier, and cheaper than ever before. This is creating new opportunities to share and reuse information about the public to improve policy development, and increase efficiency and convenience in service delivery. Yet this requires data held by one department to be linked with data from another department, raising issues of confidentiality.<sup>121</sup> Governments need to engage in a public conversation about the reuse of personal information and how to balance convenience with confidentiality.

» **Conduct pilot tests to introduce more rigorous program evaluation**

Agencies such as the UK government’s Nudge unit, or Denmark’s Mindlab, provide (among other things) a lower-risk environment for innovative or un-proven public services. The traditional all-or-nothing attitude (where significant political capital must be risked on program changes) dis-incentivizes rigorous evaluation that allows for the possibility of bad news. Given the adversarial nature of both party politics and media coverage, this is unlikely to change radically in the near future. Therefore, governments need a fast-moving, smaller-scale environment to test policies and programs with a commitment to discard those that don’t work while scaling up those that do.<sup>122</sup>

» **Engage critically and constructively with crowdsourced evaluations outside of government**

The worst thing policy-makers could do is to ignore apps and websites that allow the public to assemble evaluations on both private business and public services. However, the second worst thing might be to surrender evaluation entirely to the private “crowd”. Governments maintain an important capacity for rigorous data collection and analysis of outside data; they also retain the important

121 Interview.

122 This issue of scaling up initiatives that work is explored in more detail in Shirey and Galley 2014 (forthcoming).

role of anticipating problems through regulation and inspection, rather than simply enforcing punishment after problems have occurred. Yelp can warn diners that those who visit a certain restaurant have fallen ill, but citizens expect the government to prevent food poisonings. Despite this, the rapid proliferation of evaluation data and capacity outside government is a valuable resource and continues growing in popularity; governments must take it into account.





**Moving towards a 21<sup>st</sup> century government that is fluent and comfortable in the digital world will require a systemic re-thinking of how governments operate on a variety of fronts—ranging from shifting towards a more open and transparent culture to the skills and competencies of public servants.**

# SECTION 3

## Themes and Recommendations

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The evidence presented in this paper paints a picture of a revolution in mid-stride. Canadian governments are well aware of the potential of digital technologies and many have fostered pockets of successful transformation. Fresh ideas go beyond copying existing processes in digital format and instead propose a networked, mobile and digitally-literate public sector that develops policies, delivers services and evaluates outcomes in ways that take advantage of new, powerful digital technologies.

How do we facilitate the move from isolated successes to systemic transformation? The first step is to identify the challenges and opportunities that face governments contemplating a digital world. Our results suggest they cluster around four themes. For each theme we provide some practical recommendations for consideration.

**Theme 1:** THERE IS A GREAT DEAL OF UNCERTAINTY ABOUT THE SKILL-SETS REQUIRED AND APPROPRIATE ROLES THAT PUBLIC SERVANTS WILL PLAY IN A GOVERNMENT THAT FULLY EMBRACES DIGITIZATION.

- » **Establish professional standards for the use of data mining techniques** to better target resources without prejudicing policies and programs based on predicted behaviour. The public sector has a special burden of trust, and many effective data techniques used by businesses to boost their performance require closer study before being applied to government.
- » **Adopt an “open by default” approach to the collection and dissemination of data.** Leadership is needed to make public servants comfortable with releasing information. Governments can move towards a more open civil service by removing legislative barriers and, where necessary, introducing new legislation to support proactive disclosure. Adopting a common tagging system for information that requires special protection will help highlight “low-hanging fruit” and give public servants additional symbolic authorization to pursue open-data projects.

**Theme 2:** PUBLIC SERVICE CULTURE CONTINUES TO BE MARKED BY SILOS AND A FEAR OF FAILURE THAT RESTRAINS PROGRESS ON TRANSPARENCY AND COLLABORATION—BOTH OF WHICH ARE INTEGRAL TO THE SUCCESS OF MANY DIGITAL OPPORTUNITIES.

- » **Promote sharing rather than hoarding information,** as both a spoken and unspoken professional value. Too often, data in the public service is viewed in terms of scarcity, as a resource that increases the worthiness of individuals and ministries by virtue of being owned and controlled. When data is viewed as proprietary, rather than as a corporate or public good every step towards transparency and integration will be long, fraught with obstacles and expensive. Government needs to re-examine performance planning, promotion, budget-granting and hiring practices to recognize and reward ‘sharers’ instead of ‘hoarders.’

» **Make pilot projects a standard prelude to program roll-outs, with a clear pathway to subsequent full implementation or redesign.**

Small initial roll-outs involve less political and resource risk, and are therefore useful for innovative but promising applications. A culture of pilot-testing, however, needs supportive expertise from a central government agency, as well as a formal process to ensure pilots are visible, reviewed and learned from, not merely done and forgotten.

**Theme 3:** GOVERNMENTS MUST SEIZE THE DIGITAL OPPORTUNITY TO CREATE MORE EFFECTIVE PUBLIC FEEDBACK LOOPS AND NETWORKS BY USING MOBILE APPS, CROWDSOURCED INFORMATION AND INTERACTIVE POLICY CONSULTATIONS.

» **Develop a process to build and sustain trusted communities of interest on policy issues between decision cycles,**

to facilitate a continuous feedback loop on policy development. This means designing engagement processes appropriately for the size of community affected, those involved (e.g., the broader public, public servants, academics, subject matter experts) exploring and maintaining multi-channel engagement opportunities, and using digital interactivity to bridge the gap between public education and engagement.

» **Engage strategically with crowd-based sources of policy information,**

which are growing rapidly in scope and depth. There is already interest in government to off-load some data gathering onto civil society, partly because it is seen as voluntary and non-coercive. These private-sector sources of open data can be very valuable, but cannot be used naively—expertise in data quality and analysis are still required, and they can compliment—but not ultimately replace—institutional sources of data.

**Theme 4:** MANY EXISTING LEGISLATIVE AND REGULATORY FRAMEWORKS ARE OUTDATED IN A DIGITAL WORLD AND NEW APPROACHES TO DEVELOPING RELEVANT, FLEXIBLE FRAMEWORKS MUST BE CONSIDERED.

» **Review and amend legislation and regulations that impede end-to-end digital service delivery.**

Significant efficiencies and service improvements can be achieved by moving to a digital by default model of service delivery, yet many regulatory and legislative barriers prevent the adoption of digital alternatives.

» **Initiate a broad public discussion about privacy and the acceptable parameters of government use of personal information, in recognition of technologies that protect individual information while permitting broader use of government data.**

These include de-identification, encryption, aggregation, and streamlined ways of gathering informed consent or allowing individuals to opt-out.

» **Ensure smart review processes are part of all new regulations.** Government can't abandon its duty to regulate but must adapt to the faster pace of change in a digital world. New legislation and regulations need not only better and earlier stakeholder consultations, but also normalized sunset clauses or timed reviews, mandated to ensure continued relevance as technology evolves.

Canadian governments are faced with a number of competing challenges in the coming years. Reforms to complex service delivery and policy frameworks are made more difficult by tightened fiscal circumstances and uncertain broader economic conditions. Public expectations for the provision of public services are high.

This report reviewed some of the ways in which digital technology could offer transformative advances in how governments conduct their core functions—making policy, delivering services and evaluating what's successful. Experience in leading jurisdictions demonstrates that significant cost savings, better outcomes and more engaged citizens are all possible when digital technology is used wisely.

Moving towards a 21<sup>st</sup> century government that is fluent and comfortable in the digital world will require a systemic re-thinking of how governments operate on a variety of fronts—ranging from shifting towards a more open and transparent culture to the skills and competencies of public servants. Fundamentally, we must recognize that one of the core functions of government in today's digital era is managing relationships and mobilizing networks.

Networks, with their attributes of flexibility and horizontal, non-hierarchical complexity, are both social and technological, and touch every area of our lives. We participate in social networks online, are affected by international regulation and collaboration and work for and patronize transnational business. Where we once operated in a world relying on boundaries and regulated checkpoints, increasingly our public and private spaces are marked by integration and flow.

Public services and the public sector have not been immune to this paradigm shift. Governments are recognizing the need for better public engagement, and that new technologies are making this happen. At the same time, public servants at all levels are looking to benefit from greater collaboration across organizational boundaries. Through moderated forums, Twitter feeds, mobile apps, open source policy development, crowdsourced evaluations, and interactive data presentations, governments are inviting people to participate in better, structured processes that are enhanced by digital technology.

In the coming years, the need to re-conceptualize how the public sector undertakes its key functions in the digital age will be of paramount importance. Failing to do so risks a public sector that is out of touch with public expectations, out-dated and unnecessarily costly. This report sets out a practical consideration of where governments are now and what they need to do to take the next steps on the path to becoming digital organizations in a digital world.



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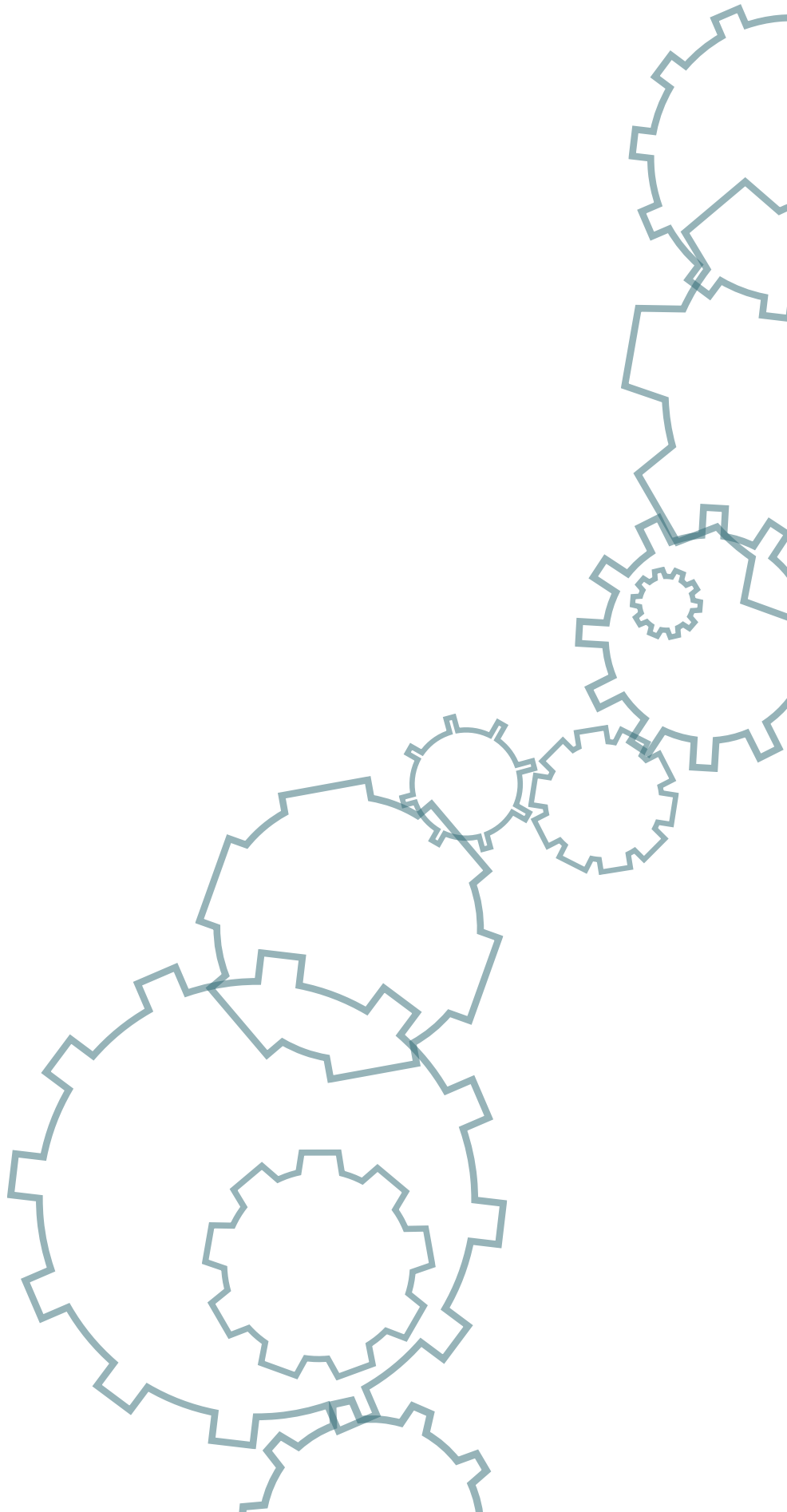
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