

ANYWHERE, ANYTIME, ANY DEVICE: INNOVATIONS IN PUBLIC SECTOR SELF-SERVICE DELIVERY

A Report Prepared for the:

PSSDC-PSCIOC Research Committee

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Anywhere, Anytime, Any Device: Innovations in Public Sector Self-Service Delivery

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Executive Summary

Self-service delivery has become a major means of promoting citizen-centred service and cost savings, but governments vary greatly in the range and sophistication of their self-service initiatives. Many governments have made significant advances, but many others have done relatively little beyond enabling basic Internet self-service.

Public sector self-service delivery is commonly viewed as a process by which citizens access government services without direct assistance from or direct dealings with government personnel. However, there can be “assisted self-service” involving government personnel who facilitate citizens’ self-service by providing some level of enabling assistance (e.g. directing a citizen to a computer at an in-person centre). There are also many instances of what might be termed “self-service plus” in which a portion of a service experience is handled on a self-service basis and the rest involves dealing with government personnel through one of the traditional channels.

To a large extent, self-service is conducted through “self-service technologies” (SSTs) that are often described as channels or modalities and include the Internet, mobile devices, electronic kiosks, and telephone IVR. In countries around the world, citizens are increasingly being encouraged or required to use these technologies to obtain government services. Self-service initiatives are more widespread in the private than in the public sector.

There is a substantial amount of evidence that Canadians want self-service delivery. In Canada’s public sector, the Internet is the dominant *self-service* channel. Moreover, as early as 2008, the Internet was almost as popular as the traditional in-person and telephone channels. Canadians want convenient, easy-to-access e-services; they expect services to be available across their preferred channels; and they expect a similar level of service from the private and public sectors.

For seasoned observers of public sector service delivery, it is startling to see how forward-thinking and innovative some governments are and how far others are lagging behind. Most governments can benefit by exploiting current knowledge about the management and technology of self-service delivery, and positioning themselves to respond effectively to new developments. This report describes many innovative initiatives that public organizations can consider adopting or adapting to their own circumstances.

Using Self-Service Technologies

Governments have devoted substantial effort to fostering self-service by improving online access to existing services through such means as consolidating websites and improving their visual and technical elements. However, attention needs to be paid also to the extent to which the Internet channel is used to offer new or improved service.

Mobile technologies offer many self-service benefits. For example, hand-held mobile devices are enabling employees to move away from fixed, location-based work environments to dispersed or field locations from which workers can have remote access to their organization's Intranet and field data. Governments' current efforts are focused on enhancing mobile access to existing services with too little attention being paid to improvements in the design, navigation and content of the mobile channel.

Electronic kiosks are much less pervasive in the public than in the private sector and less popular than other service channels, but the various uses to which public organizations are putting service kiosks attest to their value for particular purposes.

Among the benefits of IVR are increases in operating efficiency and improvements in customer experience, decreases in overall operating costs and the extension of service hours. Since answering telephone calls is costly and many calls don't require the expertise of employees, organizations can benefit from using IVR to answer frequently asked questions.

Self-Service and Related Issues

The movement toward self-service delivery has implications for other service delivery issues, including identity management, multi-channel management, service bundling, and end-to-end service integration.

Surveys show that a large percentage of Canadians have concerns about the privacy of their personal information, identity theft and website security, how the information given may be used, and the sharing of personal information between departments. Many citizens will not use self-service channels, or migrate to them from other channels, if government cannot ensure the privacy and security of their communications.

Among trends in channel management are 1) recognizing that Canadians are becoming more comfortable using technology either through the Internet or mobile applications and, therefore, expect their governments to adapt their service delivery channels accordingly, and 2) governments encouraging citizens to serve themselves or migrate to the online channel in order to reduce infrastructure and personnel requirements, thereby reducing operational costs.

Providing easy access to bundled services through self-service channels encourages migration to those channels and can, therefore, enhance service quality and cut costs.

Living up to the principle of digital inclusion is challenging for government officials who are under pressure to reduce costs by using self-service channels. However, the nature of the challenge is changing, especially with the increasing use of mobile devices by all segments of the population.

Benefits, Barriers and Building Blocks

Benefits

Governments are becoming more sophisticated in calculating channel costs, although metrics are scarce on the comparative costs of the self-service channels. Data from a few jurisdictions compare the costs of the traditional in-person and telephone channels to those of the online self-service channel. These data are consistent in demonstrating the low cost of online service compared to telephone service and the low cost of both of these channels compared to in-person service. Ideally, channel choice for both citizens and governments would be informed by data on the relative cost of the channels, including each self-service channel, for delivering each service. The cost per transaction can vary greatly from one jurisdiction to another, depending in part on the extent to which the “true costs” are calculated. Note also that the quality of online service must be as good as, or better than, the traditional channels. A single high cost contact can be less expensive than several unsuccessful low cost contacts.

Barriers

The four main types of barriers to achieving self-service delivery are political and legal, structural, managerial and operational, and cultural barriers.

Politicians are sensitive to complaints that mandatory migration to digital channels affects adversely access to services for disadvantaged persons.

Many public organizations face a common structural barrier in the form of service channels that operate as silos and thereby inhibit cooperation, coordination and collaboration in channel management.

As noted above, managerial and operational barriers posed by citizens’ concern about privacy, security and identity management are a central concern in self-service delivery. An important managerial barrier to designing and implementing self-service strategies is the lack of sufficient resources. In particular, too few resources are devoted to marketing the benefits of self-service channels, not only to the public but also to many senior managers.

Technological and financial challenges are a significant operational barrier to digital service delivery since few existing services were designed with digital requirements in mind. Consider the demand for self-service delivery through mobile devices with the advent of mobile government. Governments are beginning to meet this demand for digital channel service by designing new services specifically for digital delivery.

The cultural barriers to improving self-service delivery are often explained in terms of turf tension (e.g. competition for resources between the in-person and online channels) and tunnel vision (a silo perspective on channel delivery). Effective and sustained collaboration, leadership and change management are essential to overcome these

cultural challenges.

Building Blocks

Several considerations should be taken into account in designing a self-service delivery system.

The first requirement is knowledge of the kinds of self-service innovations and practices that are available. In assessing whether certain innovations can be emulated in their own government, readers must consider, for example, the extent to which an innovation is scalable and, in particular, whether innovations in other countries or other domestic jurisdictions can be effectively transplanted.

A second requirement is a solid foundation of data on each service or program under consideration. Ideally, hard data would be obtained on the clients to be served, the channels through which the service is – or could be – delivered, the clients' channel preferences, and the transaction costs of the various channels for delivering that service.

A third requirement is a channel management strategy that makes specific provision for self-service delivery, including channel migration. Public organizations need to consider the extent to which their channel strategy contains appropriate plans and actions to foster a shift to the self-service channels. Among several broad issues to be considered in designing a channel strategy are the provision of a common database enabling the sharing and use of consistent data across all channels, the protection of privacy and security, the assurance of digital inclusion, the organizational design and performance measurement system for channel management, and the desirable extent of channel shift.

A fourth requirement is consideration of the means and measures to implement the channel strategy. With particular reference to shifting users to self-service channels, it is critical to assess carefully the range of incentives that can be employed, including increased marketing initiatives, redirecting users to digital channels, providing high-quality websites, and offering financial incentives.

Next Generation Self-Service Delivery

Public organizations that are lagging behind in the movement towards self-service delivery may understand the urgent need to catch up when they contemplate the additional challenges arising from emerging developments in technology and public management.

Big Data is complementing the Open Data movement. Both public and private organizations will be deluged with data from such sources as the Web, contact centres, mobile devices, and social media. Governments will be pressured to capture and analyze these data and to make them available to the public on a self-service basis. The information and insights gleaned from data analytics can be used for such self-service

purposes as understanding clients' channel usage and preferences, calculating channel costs, and segmenting and personalizing service delivery.

Another anticipated development, with major implications for self-service, is the emergence of a period characterized by an explosion of machine-to-machine (M2M) communications. M2M devices are "those that are actively communicating using wired and wireless networks, are not computers in the traditional sense and are using the Internet in some form or another." A related prediction is the flowering (by 2030) of a broader phenomenon known as "the Internet of Things" that involves "a future in which everyday objects such as phones, cars, household appliances, clothes and even food are wirelessly connected to the Internet through smart chips, and can collect and share data."

The self-service challenges covered in this report have significant implications for employee recruitment and skills development in public organizations. A large percentage of the workforce, including the public service, will soon be composed persons born after 1990 who will live in a world where their constant use of mobile devices will make their online and offline lives converge. The next generation developments just mentioned will also require an increasing number of public servants with the requisite mathematical and statistical skills to exploit data analytics and the managerial skills to cope with the impact of M2M communications and the Internet of Things.

Anywhere, Anytime, Any Device: Innovations in Public Sector Self-Service Delivery

"It is not a knowledge of abstract principles, nor an indefinite and general account of their application to the great works of Europe [that we want] ... These we possess in books ... What we earnestly wish to obtain is the means of executing all those works in the best manner, and with the greatest economy and certainty. ... We desire to obtain working plans ... so that those works may be executed in Pennsylvania, without the superintendence of a civil engineer of superior skill and science."

Pennsylvania Society for the Promotion of Internal Improvement - 1825¹

Introduction

The public sector is searching for innovative and tested approaches to foster self-service. Self-service delivery has become a major means of promoting citizen-centred service and cost savings, but governments vary greatly in the range and sophistication of their self-service initiatives. Many governments have made significant advances, but many others have done relatively little beyond enabling basic Internet self-service. For seasoned observers of public sector service delivery, it is startling to see how forward-thinking and innovative some governments are and how far others are lagging behind. Most governments can benefit by exploiting current knowledge about the management and technology of self-service delivery, and positioning themselves to respond effectively to new developments.

Public sector self-service delivery is commonly viewed as a process by which citizens access government services without direct assistance from or direct dealings with government personnel. However, there can be "assisted self-service" involving government personnel who facilitate citizens' self-service by providing some level of enabling assistance (e.g. directing a citizen to a computer at an in-person centre).

There are also many instances of what might be termed "self-service plus" in which a portion of a service experience is handled on a self-service basis and the rest involves dealing with government personnel through one or more of the traditional channels. An example would be completing an online benefits application followed by a face-to-face interview.

The Citizens First national surveys have shown that a majority of Canadians use two or more channels to meet their service needs. Findings from the 2012 Citizens First 6 survey show a substantial number of respondents saying that "[t]he website did not have all the information I needed." The survey also shows that a considerable majority of

¹ From Gavin Weightman, *The Industrial Revolutionaries*, p.140. Quoted in Robert Carlson "British Railroads and Engineers and the Beginnings of the American Railroad Development," *Business History Review*, vol. 34, no. 2, Summer 1960, p. 140.

Canadians would be encouraged to use the Internet rather than other service channels if they had the option to telephone someone while online, to have a live chat while online, or to e-mail someone questions while online. If they were unable to complete a transaction online, the majority of Canadians would switch to the telephone (55%) while 26% would switch to e-mail, and 10% would visit an office or a service centre. Only 4% would resort to regular mail, 2% to a service kiosk, and 1% to Fax.

“A considerable majority of Canadians would be encouraged to use the Internet rather than other service channels if they had the option to telephone someone while online.”

To a large extent, self-service is conducted through “self-service technologies” that are often described as channels or modalities and that include the Internet, mobile devices, electronic kiosks, and telephone IVR. The term self-service technologies (SSTs) was first used in 2000 to refer to “technological interfaces that enable customers to produce a service independent of direct service employee involvement.”² In countries around the world, citizens are increasingly being encouraged or required to use these technologies to obtain government services. In addition to the adoption of new self-service channels or improving the existing ones, self-service can be fostered by such other means as new or redesigned processes or organizational arrangements, including, for example, the removal of channel silos in an organization or government.

Self-service initiatives are more widespread in the private than in the public sector. Among a remarkable array of private sector initiatives are online banking, airport check-in kiosks, supermarket check-out lanes, banking ATMs, and self-service gasoline stations. The growing number of public sector initiatives includes online tax returns, online payments, online program registrations, online problem reporting, automobile licencing kiosks, and airport customs gates.

While this study focuses primarily on innovations in the public sector, it is also informed by developments in private sector organizations. One public servant interviewed for this study observed that “the private sector provides a benchmark for self-service that governments haven’t been able to hit,” and “technological advances give governments opportunities to make service innovations that will help to reduce negative perceptions of governments’ performance.” Michael Jordan (Public Sector and Government Services partner for PwC Canada), in commenting on the Citizen Compass Report discussed later in this report, said that:

Canadians are asking why government can't provide the same level of customer service experience online as banks or retailers. ... This pressure is on for governments to look at how they deliver eservices to meet Canadians' demands

² M. Meuter, Ostrom, A., Roundtree, R. and Bitner, M., “Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters,” *Journal of Marketing*, vol. 64, July 2000, p. 50, <http://www.journals.marketingpower.com/doi/abs/10.1509/jmkg.64.3.50.18024>.

while reducing costs. ... Success for the next wave of eservices will rely on innovative techniques. Governments are exploring the challenges associated with mobilizing electronic channels to reduce costs while also enhancing the eservice experience, and at the same time, building awareness and maintaining the public's trust in government.³

Scholarly and professional publications on self-service delivery are scarce, especially in the public sector where there has been little research to illuminate current practices and future possibilities. This report provides a “scan” of selected leading edge and innovative practices, both nationally and internationally, with a view to helping governments understand and adopt self-service approaches to service delivery. Illustrative material is drawn from all levels of government in Canada and in other countries and from private sector experience. The report’s emphasis is in keeping with the opening quotation in this report that relates to the Industrial Revolution but is applicable to the current Digital Revolution as well in its call for a focus on working plans rather than abstract principles.

This introductory section is followed by a second section on innovative initiatives in self-service delivery. The third section examines the implications of the self-service movement for other important aspects of service delivery, namely identity management, multi-channel management and service bundling. The fourth section discusses benefits, barriers and building blocks associated with the movement to self-service delivery and considers anticipated developments that are likely to impact significantly the self-service movement. In the appendices there are four cases studies and a series of resource ideas for further reading. For a helpful illustration of several of the self-service issues covered in this report, readers may specifically wish to consult Case Study #1 from the **City of Hamilton** contained in Appendix 1.

The Research Process

Research Questions

The major research question is what leading-edge practices and innovations in self-service can inform service delivery decisions in Canada’s governments? Among the more specific research questions are these:

1. What are the most notable practices and innovations in the sphere of self-service delivery:
 - a) in Canada’s governments
 - b) in governments outside Canada?
 - c) in the private sector?

³ “Canadians want convenient government eservices, with 62% preferring a single government ID card: PwC Citizen Compass report,” *Canadian Newswire*, June 27, 2012, <http://www.newswire.ca/en/story/1000191/canadians-want-convenient-government-eservices-with-62-preferring-a-single-government-id-card-pwc-citizen-compass-report>.

2. What practices and innovations involving self-service delivery have significant implications for such other service delivery matters as identity management, multi-channel management, end-to-end service integration, and service bundling?
3. What are the main benefits and barriers involved in moving governments toward increased and improved use of self-service delivery?
4. What developments in the next generation of public sector service delivery are likely to influence self-service approaches?

Methodology

The study is based on:

- a review of research and practice regarding self-service delivery at all levels of Canadian government and in selected governments outside Canada;
- a review of research and practice regarding self-service delivery in the private sector;
- an e-mail message to all members of the Public Sector Service Delivery Council and the Public Sector Chief Information Officer Council and to all members of the Councils' Research Committee requesting information on innovative initiatives and knowledge leaders in self-service delivery;
- telephone interviews and written responses to questions from key stakeholders/informants from the public and private sectors who are knowledgeable in the sphere of self-service delivery;
- the preparation of case studies on innovative self-service delivery practices in Canada's governments.

Those persons who provided either telephone interviews or written responses to interview questions are described throughout this study as interviewees.

Citizens Want Self-Service Delivery

This section provides basic information on the use of service channels. In Canada's public sector, the dominant *self-service* channel is the Internet. As early as 2008, the Internet was almost as popular as the traditional in-person and telephone channels.⁴ In British Columbia, research indicates that citizens would prefer in-person service to online access if they had to choose only one service channel. However, if they had several channel options, 60% of citizens would select the online channel first,

“60% of citizens would select the online channel first, before telephone and in-person access.”

⁴ Erin Research Inc. for Institute for Citizen-Centred Service, *Citizens First 5*. Toronto: Institute for Citizen-Centred Service, 2008, p. 48.

before telephone and in-person access.⁵ Canadians' romance with the Internet is also manifest in the fact that Canada leads the world in the amount of time citizens spend online⁶ and in the adoption of online banking;⁷ moreover, online banking is by far the preferred method of paying bills, compared to pre-authorized debits, branch banking, telephone banking, at an ATM, and by mailed cheque.⁸

Accenture's 2012 online survey⁹ of 1400 respondents from seven countries (Australia, France, Germany, India, Singapore, the UK and the US) divided citizens' transactions with government into three types:

- Initiation (notifying government/public services of an issue, making inquiries, or submitting forms);
- Resolution (resolving an issue);
- Tracking and Payment (receiving notifications, making a payment, using secure identity as a service).¹⁰

The survey found that most respondents preferred the Internet and e-mail for the initiation phase, and the Internet for tracking and payment purposes, but they preferred the in-person and telephone channels to resolve issues. Almost half of the respondents said that they would *not* use social media to contact government officials for the purposes of requesting a service or resolving an issue. Preliminary findings for the 2012 Citizens First 6 survey show that only one percent of respondents used each of social media, text or app in their recent service experience. Channel satisfaction scores were much higher for the Internet than for social media.

However, an extensive report on the use of social media in US cities found that many governments are using these tools to improve services in ways "ranging from distributing

⁵ British Columbia, *Citizens @ the Centre: B.C. Government 2.0: A Transformation and Technology Strategy for the BC Public Service*, p. 17, http://www.gov.bc.ca/citz/citizens_engagement/gov20.pdf.

⁶ Les Perreux, "What makes Canadians spend more time online?" *Globe and Mail*, December 28, 2010, <http://www.theglobeandmail.com/technology/tech-news/what-makes-canadians-spend-more-time-online/article561413>.

⁷ ComScore, "Canada leads world in online banking usage," July 10, 2008, http://www.comscore.com/Press_Events/Press_Releases/2008/07/Canada_Online_Banking; and CBC News, "Canadians lead in time spent online, says report," March 2, 2012, <http://www.cbc.ca/news/technology/story/2012/03/02/canadians-more-time-online.html>.

⁸ Investment Executive, "Canadians prefer online banking to manage everyday finances: poll," September 8, 2011, <http://www.investmentexecutive.com/-/news-59555>.

⁹ *Build It and They Will Come? The Accenture Digital Citizen Pulse Survey and the Future of Government Operations*, 2012, <http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Digital-Citizen-FullSurvey.pdf>.

¹⁰ *Ibid*, p. 6.

health and safety information, to responding to requests for graffiti removal and infrastructure repair, to encouraging and soliciting citizen participation in policy-making.”¹¹ The report argued that

[t]oday, there is no escaping the widespread adoption of social media. Similar to the rise of the personal computer, mobile phones and the Internet, the ascent of social media is historic and transformative in the way people think, behave and communicate. In few other places is this transformation more unique and revolutionary than in the implementation of social media into government administration.¹²

The **City of Hamilton** case study appended to this report explains that the City is examining the desirability of employing social media to send timely messages to citizens. “Social media not only allows the City to communicate directly with citizens who opt-in to receive alerts, but it also encourages citizens to alert each other about changes in municipal services, through for example the activities of *sharing* Facebook postings and *re-tweeting* Twitter messages.” At various points in this report, reference is made to the use of social media by federal and provincial organizations such as **ServiceOntario** and **Passport Canada**.

The 2012 PwC Citizen Compass project¹³ on e-services in Canada reported several significant findings. Canadians want convenient, easy-to-access e-services; they expect services to be available across their preferred channels; and they expect a similar level of service from the private and public sectors. In comparing methods of accessing government services at present and in the future (see Figures 1 and 2), Canadians identified online usage as dominant now and continuing to grow. Use of the traditional channels (telephone, in-person and mail) will continue, but will decline over time. Use of new channels (e.g. smart phones and tablets) is increasing rapidly but both current and likely future use is predicted to be smaller than for the online and traditional

“Canadians want convenient, easy-to-access e-services; they expect services to be available across their preferred channels; and they expect a similar level of service from the private and public sectors.”

¹¹ Lauren Hansen-Flaschen and Katherine P. Parker, *The Rise of Social Government: An Advanced Guide and Review of Social Media’s Role in Local Government Operations*, Fels Institute of Government, University of Pennsylvania, 2012, p. iv, <https://www.fels.upenn.edu/?q=webform/social-media-report-webform>.

¹² Ibid, p. 4.

¹³ PricewaterhouseCoopers, *Next Generation of Eservices, Citizen Compass: Enhancing Service Delivery in the Canadian Public Sector*, June, 2012, http://read.ca.pwc.com/i/71911?utm_source=landing-page&utm_medium=referral&utm_campaign=citizencompass.

channels. Note, however, that in global terms mobile Internet users are predicted to exceed desktop Internet users by 2015.¹⁴

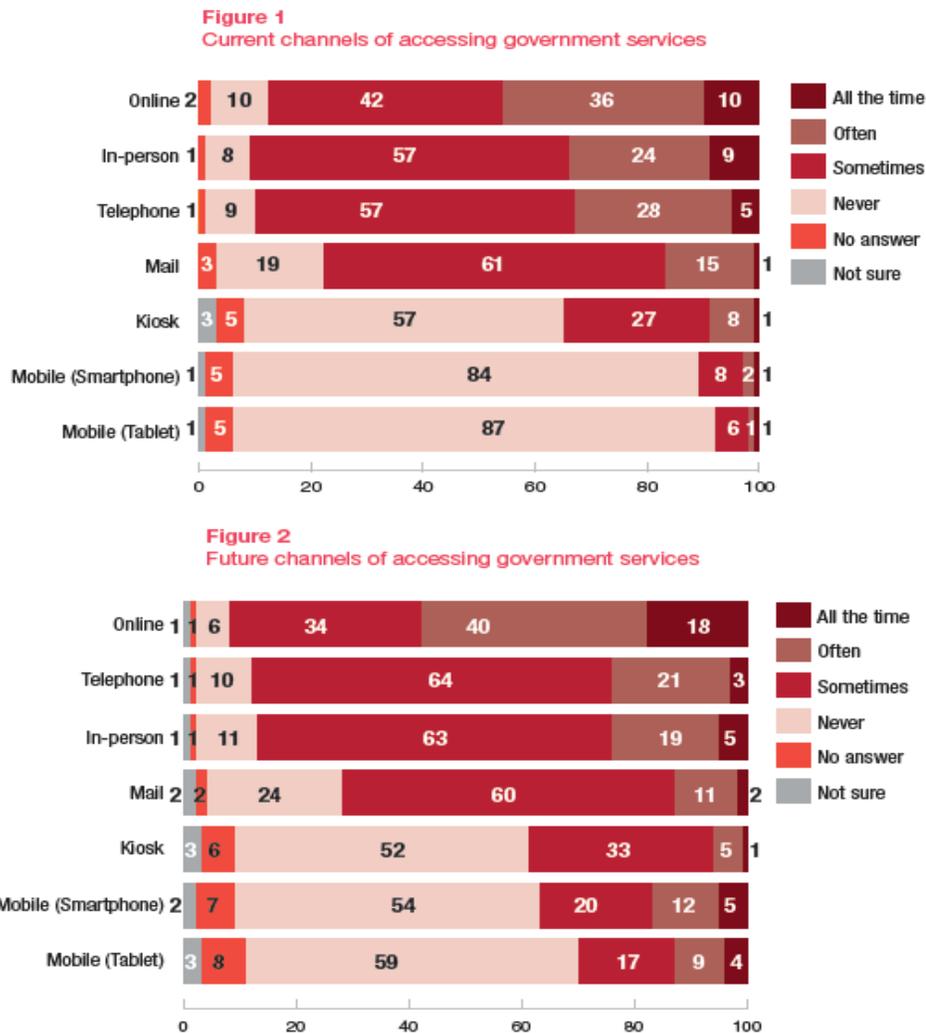
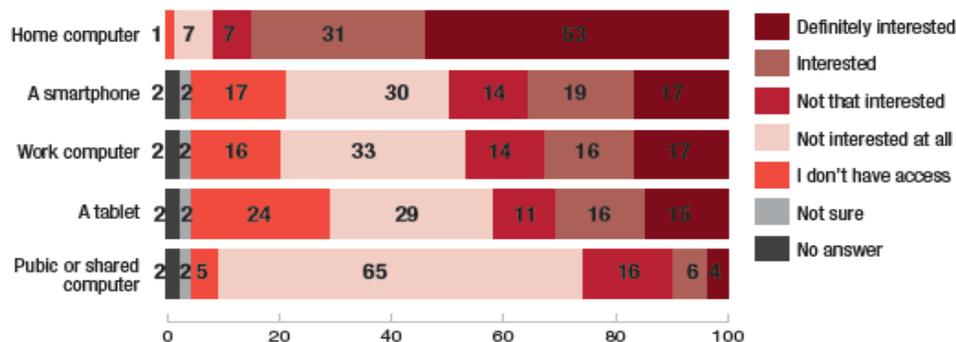


Figure 3 shows Canadians' level of interest in specifically self-service channels.

¹⁴ Morgan Stanley, *Internet Trends*, April 12, 2010, http://www.morganstanley.com/institutional/techresearch/pdfs/Internet_Trends_041210.pdf.

Figure 3
 Canadians' level of interest in accessing eservices
 from different devices in the future



The Citizen Compass study also found that almost 90% of Canadians want to receive automatic notifications about available government services (e.g. services for newborns); 31% showed definite interest in location-based services (e.g. information on weather or road construction); and 65% would like to be able to renew their IDs, including licence, health card and passport, by using the online or smart phone channels to take their own photos and submit them electronically.

According to the Citizens First 6 findings, a substantial percentage of Canadians want all government services from all orders of government delivered at any government office, across a single point of contact for all governments, at one website, at one kiosk, and at one telephone number. A much smaller percentage wants these services delivered through new, rather than traditional, channels.

Note also that a significant percentage of Canadians say that they *never* use some of the new and emerging digital technologies. Fifty-one percent never use mobile devices with data, such as mobile applications. The “never-use” percentages for other technologies are text messaging (38%), Facebook (37%), Twitter (78%), YouTube (30%), and blogs or message boards (53%). Only 18% say that they never use online payments or online banking.

“Canadians want all government services from all orders of government delivered at any government office, across a single point of contact for all governments, at one website, at one kiosk, and at one telephone number.”

Self-Service Delivery Initiatives by Channel

Digital Strategies

Governments' recognition of the value of self-service delivery for improving service and lowering costs is evidenced by the strong commitment to increased use of SSTs voiced by the national governments of the UK and the US. On November 23, 2010, the **UK** Government announced a strategy to apply a “digital by default” approach to providing

government information and transactions (e.g. booking a driving test, registering for tax self-assessment).¹⁵ To support this policy, the Government appointed a Digital Advisory Board of experts from industry, business and academia, chaired by a UK Digital Champion, to advise a Cabinet Office team that is responsible for transforming government digital services.¹⁶ The first major government service to be digital by default will be the new “universal credit” benefits system delivered by the Department for Work and Pensions.¹⁷

In the **US**, President Obama issued a directive on May 23, 2012 announcing a strategy on digital government¹⁸ that aims to

enable more efficient and coordinated digital service delivery by requiring agencies to establish specific, measurable goals for delivering better digital services; encouraging agencies to deliver information in new ways that fully utilize the power and potential of mobile and web-based technologies; ensuring the safe and secure delivery and use of digital services to protect information and privacy; ... and requiring agencies to use web performance analytics and customer satisfaction measurement tools on all ".gov" websites.¹⁹

Notable in the Canadian context is **British Columbia**'s transformation and technology strategy that envisions improved self-service as one of three major shifts required in the public service. “To advance service innovation and improve options for self-service,” the

¹⁵ Cabinet Office, *Digital by Default Proposed for Government Services*, November 23, 2010, <https://update.cabinetoffice.gov.uk/news/digital-default-proposed-government-services>. See updated strategy statement in HM Government, *Open Public Services 2012*, http://files.openpublicservices.cabinetoffice.gov.uk/HMG_OpenPublicServices_web.pdf, p. 93.

¹⁶ Cabinet Office, *New Digital Advisory Board Supports Government to Deliver Online Services Revolution*, April 25, 2012, <http://www.cabinetoffice.gov.uk/news/new-digital-advisory-board-supports-government-deliver-online-services-revolution>.

¹⁷ “New dole system is ‘digital by default’, like it or not,” *Guardian Government Computing*, February 6, 2012, http://www.theregister.co.uk/2012/02/06/universal_credit_service_first_to_be_digital_by_default.

¹⁸ United States, *Digital Government: Building a 21st Century Platform to Better Service the American People*, May 23, 2012, <http://www.whitehouse.gov/sites/default/files/omb/egov/digital-government/digital-government.html>. For a lengthy analysis of the digital strategy, see John Moore, “Digital strategy launches great mobility build-out,” *Federal Computer Week*, June 22, 2012, <http://fcw.com/articles/2012/06/30/feat-digital-mobile-strategy.aspx>.

¹⁹ United States, The White House, Office of the Press Secretary, *Building a 21st Century Digital Government*, May 23, 2012, http://www.whitehouse.gov/sites/default/files/uploads/2012digital_mem_rel.pdf.

strategy seeks, for example, to

- Pilot the use of innovative Web 2.0 tools and platforms to expand access to online services and content. ...
- Corporately foster excellence in user-centred design and content development through shared web development toolsets across government, including improved approaches to content creation and maintenance. ...
- Renew emphasis on user, citizen and stakeholder preferences for self-service improvement, feedback and awareness.²⁰

Notable also is the “client service vision” of **Quebec’s** Régie des rentes du Québec:²¹



- Automate everything with potential to foster the efficient operation of the Régie and make it easier for clients to use its services. ...
- Call on organizations best suited to facilitate client processes with the Régie. ...
- Encourage client autonomy by offering a wide variety of services online and through IVR, through a *My Account* online service full of potential, but also through all of the initiatives undertaken to simplify client processes.
- Focus our interventions where it counts, specifically on services we cannot automate, cannot entrust to a partner or that the clients cannot do themselves.

Self-Service Technologies

These strategies can be implemented through a variety of SSTs that, for analytical purposes, are divided here into four types: the Internet, mobile devices, electronic kiosks, and IVR. Each of these types is examined below. Note, however, the increasing convergence among these technologies, including the use of smart phones that enable users to access the Web, send and receive emails and text messages, and use IVR. Note also the growing range of self-service options and opportunities being offered. **Air Canada**, for example, lists several self-service options for easy summer travel in 2012:

²⁰ British Columbia, *Citizens @ the Center: B.C. Government 2.0: A Transformation and Technology Strategy for the BC Public Service*, 2010, p. 19, http://www.gov.bc.ca/citz/citizens_engagement/gov20.pdf.

²¹ Translated from information provided by Marie-Andrée Lefebvre, customer service architect, Régie des rentes du Québec, July 5, 2012. See Case Study #3 in Appendix 1.

- Aircanada.com has all the information for a one-stop easy self-service travel experience
- Web and mobile check-in offer the quickest and easiest way to check in
- Apps for Blackberry and iPhone provide wide range of real-time flight information and self-service options
- Customers are invited to use web-based self-service rebooking tool during disruptions
- Daily Travel Outlook and Travel Advisories available at aircanada.com
- Follow @AirCanada on Twitter for latest travel updates²²

Similarly, **Passport Canada** is currently using several SSTs and is exploring the potential for more. In addition to online and telephone IVR, it has revamped its website to include QR (Quick Response) codes that are accessible from mobile device scans; it is a leader among federal government departments in using social media tools to direct clients to its website; it uses 2D barcode on its PDF form to allow for some information to be collected electronically; it provides a web link to courier services so that clients can track their packages themselves; and it allows clients to complete their passport applications at kiosks located in Service Canada centres. Among new initiatives being considered are an interactive application form, online renewals, an IVR system to enable status checks, an appointment system through IVR, and electronic kiosks/workstations in Passport Canada offices.

Several of the strategies for improving self-service delivery in the banking and insurance industries are similar to those needed for public organizations. The insurance industry strategies include facilitating integrated and consistent cross-channel interactions, offering an inviting customer front door (e.g. a high quality IVR system), moving customers from the phone to the Web, and making effective use of customer data and segmentation.²³ Among the innovation leaders is **Geico**, for example, that expanded its interaction with customers by connecting its website to Facebook so that customers can tell their stories about product quality and cost savings. **Esurance**, an auto insurance company, was ranked first among 20 car insurers for its website's capacity to permit customers to handle online such matters as claims, quotes and payments, to provide well-organized information with less insurance industry jargon, to facilitate access by presenting research results clearly, and to offer mobile access.²⁴ Customer assistance is

²² "Air Canada Self-Service Options Make for Easy Summer Travel," <http://www.newswire.ca/en/story/999403/air-canada-self-service-options-make-for-easy-summer-travel>.

²³ Genesys, Customer Service Strategies for the Insurance Industry, 2007, <http://www.genesyslab.com/resources/brochures/customer-service-strategies-for-the-insurance-industry-strategy-guide-emea.pdf>.

²⁴ "New study says Esurance website no. 1 in self-service capabilities for consumers," June 7, 2012, <http://www.prnewswire.com/news-releases/new-study-says-esurance-website-no-1-in-self-service-capabilities-for-consumers-157766615.html>. For a case study of Esurance's initiatives, see Online Insurance Company Claims the Mobile Space

available by telephone and email for those who can't find answers online. Esurance's motto is "Technology when you need it. People when you don't."

We turn now to an examination of the major SSTs, including reference to several innovative initiatives from Canada and elsewhere.

The Internet

The large topic of Internet self-service is divided here into the three sub-topics of websites, service simplification and paper reduction, and virtual service agents.

Websites

In discussions of service delivery, it is common to hear the assertion that "access is everything." Hence, the importance of high-quality websites that offer easy and effective access to government information and services. When the **City of Hamilton** overhauled its website in connection with its online garbage and recycling calendar project, it reduced the number of pages on the website from 130 to 18 without losing any information. "This not only improves the experience for citizens trying to find relevant information but also makes the website much easier and less costly to maintain." **Service Canada** is engaged in what it terms a ROT (Redundant, Outdated, Trivial) data exercise that has so far reduced the number of its web pages from 19,000 to 14,000. At the same time, the pages are being reviewed for plain language, accessibility and readability, and a much more robust search engine is being built.

Case study #4, on My Service Canada Account (MSCA), illustrates how critical a website can be to an organization's success. "Access My Service Canada Account" is the most popular link on **Service Canada**'s homepage. Over the twelve-month period ending March 2012, the MSCA landing page received 23.4 million logins. The case study shows not only the several applications to which MSCA currently provides access but also six new and innovative features that are being added. The additions will include, for example, Check Application Status – "a secure, convenient online tool that lets users track the progress of their application and related processes from initial submission to final decision."

Websites are often used in combination with other channels and some of these channels involve assisted self-service such as a telephone agent helping clients to access the Internet. Some websites describe themselves specifically as self-service ones. For example, **Ontario's Ministry of Training, Colleges and Universities'** Online Referral Guide lists 13 self-service websites, including Aboriginal Job Centre, Ontario Job Bank, and Starting Your Own Business.²⁵ The **Canada Revenue Agency** (CRA) has a

with New Service Delivery, May 4, 2009,
http://www.microsoft.com/casestudies/case_study_detail.aspx?casestudyid=4000004120.

²⁵ At <http://www.tcu.gov.on.ca/eng/eopg/tools/referralguide.html#1>.

webpage entitled Self-Service Options, including My Account, My Business Account and Telefile.²⁶ And the City of Toronto's 311 online channel provides a list of self-service request topics, including waste collection, roads and property issues.²⁷

Several interviewees were fulsome in their praise – and envious – of the quality of the US and UK websites (US.gov and gov.UK) that were variously described as “a thing of beauty” and “way ahead of the rest.” Among innovative initiatives designed to improve access to services through government websites is the **UK's** launch in February 2012 of a beta version of gov.uk that will serve as a single website for online public services, thereby eliminating the need for citizens to wade through many separate websites.²⁸ It is envisaged as delivering better service at a lower cost. Among other features, the new website provides more services for business and for non-residents.²⁹

To improve US Government websites, the Obama Administration issued an April 27, 2011 executive order to federal agencies on “Streamlining Service Delivery and Improving Customer Service.”³⁰ By June 2012, this reform effort had, among other things,

- Set up the .gov Reform Task Force to recommend updates to federal web guidelines and policies.
- Asked agencies to identify sites that can be eliminated, consolidated, and/or streamlined.
- Conducted an inventory of federal domains and sites, a survey of federal web governance policies and a national dialogue on improving federal web sites, and used the data to create the State of the Federal Web report.
- Required agencies to develop Web Improvement Plans (included in the State of the Federal Web Report).³¹

“UK's launch in February 2012 of a beta version of gov.uk that will serve as a single website for online public services, thereby eliminating the need for citizens to wade through many separate websites.”

²⁶ At <http://www.cra-arc.gc.ca/cntct/menu-eng.html>.

²⁷ At <http://www.toronto.ca/311/request.htm>.

²⁸ FR Tech Hub, “Gov.uk launches one UK government website to rule them all,” February 1, 2012, <http://blogs.ft.com/fttechhub/2012/02/beta-gov-uk/#axzz1xyqgFSIF>.

²⁹ Rahul Joshi, “UK govt revamps information and services portal,” *futureGOV*, July 20, 2012, <http://www.futuregov.asia/articles/2012/jul/20/uk-govt-revamps-information-and-services-portal>.

³⁰ The White House, Office of the Press Secretary, *Executive Order 13571*, <http://www.whitehouse.gov/the-press-office/2011/04/27/executive-order-streamlining-service-delivery-and-improving-customer-ser>.

³¹ USA.gov, “.gov Reform Effort: Improving Federal Websites,” <http://www.usa.gov/WebReform.shtml>.

At the state level in the US, **Alabama** unveiled improvements to its award-winning website (<http://Alabama.gov>) on May 7, 2012.³² The site provides access to state, federal and local information, and for visitors using a tablet or mobile device the site will conform to the size of the user's screen. The website was redesigned at no cost to taxpayers through a partnership between the state and Alabama Interactive, a company that provides e-government applications and services to Alabama's state, local and quasi-government agencies.

Governments have devoted substantial effort to fostering self-service by improving online access to existing services through such means as consolidating websites and improving their visual and technical elements. However, attention needs to be paid also to the extent to which the Internet channel is used to offer new or improved services. Note, for example, two recent online service initiatives from the Province of British Columbia (BC).

BC is planning to create the first tribunal in Canada offering online technologies to allow families and small businesses to settle civil disputes outside of the courts, thereby helping to reduce delays in the court system.³³ The process will include assisted self-service in the sense that when the parties cannot reach agreement online a case manager helps to facilitate agreement either online or by telephone. If necessary, a final stage will involve a tribunal member who will engage the parties online or by telephone, videoconference or, occasionally, in person and will give a binding decision.

“BC is planning to create the first tribunal in Canada offering online technologies to allow families and small businesses to settle civil disputes outside of the courts.”

The **BC Ministry of Jobs, Tourism and Innovation** reports that its WelcomeBC website is breaking records in the number of site visits.³⁴ It provides, among other tools, a Newcomers' Guide to Resources and Services and 43 occupational guides to help newcomers find employment using their training, skills and experience. An “Ask the Expert” link allows newcomers to pose questions about living and working in BC, and the main website is supplemented by a mobile one and by social media offerings.

³² Enhanced Online News, “New Alabama.gov introduces efficient features to State’s official website,” <http://eon.businesswire.com/news/eon/20120517005793/en/Alabama/www.alabama.gov/new-and-improved-state-website>.

³³ Ministry of Justice, “Online civil dispute tools to save time, money,” *News Release*, May 7, 2012, http://www2.news.gov.bc.ca/news_releases_2009-2013/2012JAG0068-000600.htm.

³⁴ “WelcomeBC websites break record,” *Information Bulletin*, May 25, 2012, http://www2.news.gov.bc.ca/news_releases_2009-2013/2012JTI0066-000736.pdf.

The **City of Kamloops**, British Columbia aims to ensure that its web pages contain the most commonly requested information, so that front counter staff can provide assisted self-service by informally referring

clients/citizens (in person or by phone) to the web site for more information so that they can on their own look up the information they need. Frequent users such as real estate agents and business consultants can benefit substantially from self-service. The general public also looks on-line to gather information prior to contacting staff. Making sure the information is available means reducing in-person contact, which is limited by office hours compared to web information which is available 24/7.³⁵

Service Simplification and Paper Reduction

These two objectives are mutually supportive in that simplifying access to services (e.g. by offering online self-service) can lessen the paper burden for citizens, businesses and governments. Moreover, the desire of all three groups to lighten their paper burden can drive movement from the in-person and regular mail channels to the simpler self-service ones.

Estonia has been celebrated for its leadership in electronic government. Its President, Toomas Hendrik Ilves, has explained that “e-governance does not mean putting a 1040 taxation form into HTML. You have to redo things. You have to make it for the user. You have to stop thinking in terms of 19th Century bureaucratic rules where everything is on paper. That ends up meaning redesigning government and how you interact with people.”³⁶

“E-governance does not mean putting a 1040 taxation form into HTML. You have to redo things.”

Moving services online to simplify access to service and reduce the paper load has become common practice in Canada and elsewhere.³⁷ What needs to be noted, however, are practices that alert public organizations to innovations that they could effectively emulate in their own jurisdictions.

The **Australian Government** announced in March 2012 that it is moving to “digital information management” requiring federal agencies to move from paper to digital record

³⁵ Case Study: *From BizPaL to MyCity in Kamloops*, at http://www.iccs-isac.org/en/msd/casestudies/msd_kamloops_mycity.htm

³⁶ Presentation, FOCAS 2012, Towards Open and Innovative Governance, Aspen Institute, August 8, 2012.

³⁷ See Kenneth Kernaghan, *Clicks, Calls and Counters: Innovations in Municipal Service Delivery*, Toronto: Institute for Citizen-Centred Service, pp. 19-21; and *International Innovations in Public Sector External Service Delivery*, Ottawa: Treasury Board Secretariat of Canada, 2010, pp. 13-15.

keeping.”³⁸ Henceforth, most government records will be created, stored and managed digitally and new paper documents will be scanned. The rationale for this change is to slash the cost of storing paper records and create more open, transparent and accountable government by simplifying public access to the records.

Norway’s Altinn (“everything in”) portal has since its inception in 2003 become a major information exchange platform for government, business and citizens that is used by more than 40 government bodies to offer 130 electronic self-services. Large savings are attributed to “improved data quality and rationalizing data handling by the public authorities; the time savings for companies; and the tax savings for citizens, based on a reduction in administrative costs.”³⁹

One, sometimes unanticipated, consequence of moving to self-service channels is a substantial increase in citizens’ applications for benefits. Several US states have recently developed portals to provide self-service access to food stamp benefits, leading to “explosive” and “skyrocketing” applications. Telephone call volumes are down and online applications are way up.⁴⁰

Why not aim to eliminate, rather than just reduce, the paper burden? The Accenture seven-country survey mentioned previously found that among the digital services that citizens are most likely to use in the future, “digital post” ranks (at 60%) just behind website or portal (70%), electronic renewal alerts (70%), and electronic emergency broadcasts/alerts (69%). A digital post is defined as ‘[a]

“A digital post is defined as ‘[a] government-provided electronic mailbox for bills and government correspondence that could eventually replace physical postal mail.’”

government-provided electronic mailbox for bills and government correspondence that could eventually replace physical postal mail.’”⁴¹

Denmark is acting on the call for a paperless system to replace postal mail.⁴² By 2015 it plans to replace the surface mail channel for government-citizen interactions with a completely paperless system. The government will supply all citizens and businesses with a digital mailbox that it will use for all written communications with citizens and

³⁸ Shahida Sweeney, “Australia goes digital with government records,” *Asia Pacific futureGOV*, March 21, 2012, <http://www.futuregov.asia/articles/2012/mar/21/australia-goes-digital-government-records>.

³⁹ Accenture, *Government Online: New Life from an Old Concept*, April 2012, <http://www.accenture.com/us-en/Pages/insight-government-online-new-life-old-concept.aspx>.

⁴⁰ Sundhar Sekhar and Wade Horn, “Technology Speaks,” *Policy and Practice*, June 2009, http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_.

⁴¹ Accenture, *Build It and They Will Come*, p. 6.

⁴² Epractice.eu. *DK: New Digitisation Strategy Aims to Make the Public Paperless by 2015*, 2011, <http://www.epractice.eu/en/news/5312648>.

through which citizens will communicate with government for such purposes as getting a new passport or registering children for a nursery. Citizens who are not technologically adept can seek assistance from local service centres and call centres and will even be allowed to arrange a digital power of attorney with relatives who can assist them with their digital communications.

Similarly, **Australia Post** announced in April 2012 the creation of a Digital Mailbox for every Australian. The service offers “your own digital mailbox to securely receive important mail, ... easy payment of your bills,” and “private and secure storage for your important documents.”⁴³ Users sign up to use this online mailbox that can be accessed anytime, anywhere on one’s favourite device. For security purposes, the Digital Mailbox will support multi-factor authentication. Communications will be encrypted to ensure that only the intended recipient can view them.

Anywhere, anytime service is also the goal of **Canada Post** that announced in June 2012 the launching of a digital mailbox system aimed at giving all Canadians a secure and authenticated identity linked to their home address. Canada Post’s vision is reported to entail “taking its successful ePost service – which sends consumers online bill notifications for everything from hydro to credit card bills – and building it out as an online portal where consumers can access government services, receive e-flyers from businesses, and have Web-based coupons or daily deals offers sent to their ePost inboxes.”⁴⁴

Virtual Service Agents

A chatbot (also described as a chatter robot or a chatterbot) is a software program that is used to engage in intelligent online conversation with a human partner in natural language. Chatbots are often used for their entertainment value as, for example, when they simulate live conversation in a manner that convinces users that they are chatting with a live person. They can also be used

“A chatbot (also described as a chatter robot or a chatterbot) is a software program that is used to engage in intelligent online conversation with a human partner in natural language.”

deceptively for such purposes as stealing credit card numbers. In legitimate venues, they are used for psychological research, for developing artificial intelligence and, most important for this study, for interaction between business and public organizations and the people they serve. In business and government milieus, chatbots are usually described as virtual service agents, virtual assistants or automated online assistants. Chatbots can be faceless or they can be accompanied by an avatar. A well-known chatbot features Anna as the virtual face of **IKEA**. She answers customers’ questions in

⁴³ Simon Sharwood, “Australia Post launches inbox and cloud storage for all,” *The Register*, March 26, 2012,

http://www.theregister.co.uk/2012/03/26/australia_post_digital_mailbox.

⁴⁴ Christine Wong, “Canada Post poised to roll out digital mailbox system, *itBusiness.ca*, June 14, 2012, <http://www.itbusiness.ca/it/client/en/home/News.asp?id=67962>.

18 languages and connects the user to a human consultant if a question is too complicated for her. Chatbots guide users through the organization's products and services and can reduce considerably the cost of dealing with inquiries.

The use of virtual service agents has become a popular service channel in the private sector. **IntelliResponse**, a Canadian company, promises to apply its award-winning AnswerSuite to transform not only a business' website but also its mobile application, social media channels and agent desktop. The AnswerSuite empowers customers to ask questions in normal conversational language through "an engaging virtual concierge" named Iris. The company goes so far as to assert that its AnswerSuite provides "a self-service experience like no other and one that often matches or exceeds the support provided by live service representatives – without the costs, inconsistency and wait times."⁴⁵ IntelliResponse notes that, unlike its competitors who use search-based approaches, it uses a unique knowledge-matching solution.⁴⁶

Scotiabank's customer service approach includes IntelliResponse's Instant Answer Agent which the bank has branded "Ask Scotia." It permits customers to ask online questions in natural language and to receive a rapid response and reference to relevant links. Scotiabank reports that this innovation has improved customer service by enabling the bank to give instant answers to approximately 95% of the questions asked online. In addition, because email volume has declined by about 20%, staff can focus on more complex service calls. An unanticipated benefit is that the bank can now track the questions asked as a basis for tailoring its website to respond quickly to customers' needs.⁴⁷

A list of almost 1000 chatbots from all over the world (www.chatbots.org) contains ten Canadian ones, none of which involve public organizations. Some of the 48 public sector chatbots on the list from other countries offer a broad range of services. For example, on the website of the

Swedish City of Malmo, Interactive Assistant Sara not only has an extensive knowledge base but can turn customers over to customer service when she can't provide a satisfactory answer. And Betty, a virtual assistant in the **Danish City of Frederiksberg**, provides information on a wide range of matters, including passports, driving licences, parking, public health insurance, and culture and leisure activities.

"Innovation has improved customer service by enabling the bank to give instant answers to approximately 95% of the questions asked online."

⁴⁵ <http://www.intelliresponse.com/web-self-service-software/answer-suite>.

⁴⁶ <http://askiris.intelliresponse.com/askiris/?interfaceID=2&requestType=NormalRequest&source=3&question=Financial+Services+Customers&id=1546>.

⁴⁷ Intelliresponse, *Case Study, Web Self-Service at www.scotia bank.com Helps Premier Bank Improve Customer Service*, 2009, http://www.intelliresponse.com/files/resources/Case_Study_-_Banking_-_Scotiabank_-_Smal_Business_Div_Intranet.pdf.

Other government chatbots serve more specialized audiences. **France**'s public health insurance website – ameli.fr - is the third largest public service site in the country. It hosts an animated virtual agent named Amélie whose creation was a response to the problem of the telephone channels being flooded with requests for information that was already on the website. Other specialized chatbots include Erik who answers questions on personal income taxes for the **Swedish National Tax Board**; Bob who gives advice about construction laws in the **Netherlands**; and Edu who responds to inquiries about sexuality issues for the Ministry of Health of the Province of **Cordoba** in Argentina. Chatbots can be used within organizations as well. For example, **Shaw Communications**' external agent, Amy, has been supplemented by "Super Amy" who supports Shaw's contact centre agents.

Service Canada is contemplating the use of a virtual agent to perform a chat function so as to reduce the demands on staff in its busiest in-person centres. Clients who have difficulty online (e.g. completing an Employment Insurance application) could receive assisted self-service from a virtual agent while they are still online.

Mobile Devices

Smart Phones and Tablets

Smart phones and tablets are currently the main mobile technologies by which users help themselves to information and services from public, private and not-for-profit organizations. Among the approaches to providing mobile service are 1) offering access to the site through a separate URL; 2) having the mobile device being automatically recognized as a mobile platform and directed instantly to the mobile version with no other interaction by the user; and 3) loading the regular version of the site first and providing a link to access the mobile site.

For public sector services, respondents to Accenture's seven-country survey said that in the future they were more likely to use websites or portals (70%) than mobile websites and apps (52%). The latter were defined as "secure websites optimized for mobile devices and downloadable applications specifically for mobile devices that allow self-service for many transactions."⁴⁸

In Canada, for the overall service sector, PCs are still more popular than mobile devices for Web browsing, but Web surfing, television viewing and online banking are increasingly being carried out on smart phones and tablets.⁴⁹ In the US, a self-service innovation, by **USAA** bank, enables customers to use their mobile phones to deposit a cheque remotely by taking

"Web surfing, television viewing and online banking are increasingly being carried out on smart phones and tablets."

⁴⁸ *Build It and They Will Come?* p. 6.

⁴⁹ KPMG, *The Converged Lifestyle: Consumers and Convergence* 5, 2011, p. 6, <http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/consumers-and-convergence/Documents/the-converged-lifestyle.pdf>.

pictures of the front and back of the cheque and emailing the pictures to the bank.⁵⁰ Mobile phones are rapidly becoming ubiquitous, and commentators are predicting that these phones will soon outnumber PCs – as they already do in many developing countries. Gartner has provided an eye-opening identification of ten cutting-edge mobile application trends for 2012, including location-based services, mobile payment, mobile instant messaging, mobile email, and mobile video.⁵¹

The high sales volume of tablets, their widespread use and the emergence of competitors to Apple's iPad are also eroding PC sales. Note the pilot project of the **Singapore Police Force** in which officers on foot or on bicycles are using tablets that are pre-loaded with crime prevention material. The officers can collate and share information that they record during their patrols – a function that used to be performed in a time-consuming manual manner.⁵² Governments are obliged to provide service for both mobile phones and tablets. **Hydro Ottawa**, a Canadian utility company, has won an award for creating a mobile website (www.hydroottawa.com for smart phones and www.m.hydroottawa.com for tablets).⁵³ Customers can access their account balance, billing and payment history, and information on electricity consumption, power outages and electricity rates.

Benefits of Mobile Services

The benefits that can flow from adding or improving mobile government services include

- **Wider reach.** Because mobile penetration exceeds internet penetration [in many jurisdictions], public services that are offered via mobile phone are available to a greater number of people than those offered on the Internet.
- **Always carried, always on.** Because people carry their mobile phones with them all the time, while most computers are connected to a specific location, public services that are offered via mobile phone are accessible everywhere and at all times. This is especially important in case of urgent messages and crisis communication.

Benefits of Mobile Services

- Wider reach
- Always carried, always on
- More personalization for targeting users
- Cost-effective
- Better management
- Faster information flow
- Increased democracy
- Solution to digital divide
- Better the lives of disabled

⁵⁰ Susan Stellin, "Bank will allow customers to deposit checks by iPhone, *New York Times*, August 9, 2009, <http://www.nytimes.com/2009/08/10/technology/10check.html>.

⁵¹ ITBusinessEdge, "10 Cutting-edge Mobile Application Trends for 2012, <http://www.itbusinessedge.com/slideshows/show.aspx?c=87261>.

⁵² Clarice Africa, "Singapore police deploy tablets," *futureGOV*, June 26, 2012, <http://www.futuregov.asia/articles/2012/jun/26/singapore-police-deploy-tablets>.

⁵³ "Hydro Ottawa launches mobile website," *Canada Newswire*, July 10, 2012, <http://www.newswire.ca/en/story/1005367/hydro-ottawa-launches-mobile-website>.

- **More personalization for targeting users.** Computer is shared among different users, but mobile devices are designed for a single user. Information reaches to the preferred addressee at any time through one specific device.
- **Cost-effective.** M-government provides many cost saving opportunities for the government as well as for the citizen (data gathering; sending a stamped letter vs. the price of one SMS etc.)
- **Better management.** New technology can help government officials to better manage allocated financial and human resources.
- **Faster information flow.** Mobile technologies enable government staff to save time and assure that there will be a decrease in time for transferring data
- **Increased democracy.** ... As a subset of e-government, m-government is also about transforming the relationship between citizens and governments. Beyond just providing information to citizens and electronic service delivery, e-government and m-government should involve the use of ICT to incorporate citizens' deliberation into policy development and the selection of leaders. ...
- **Solution to digital divide.** The adoption rates of mobile phones are faster than those of PCs. Potentially, mobile applications can bring a part of the solution to the digital divide. Moreover, computers do not travel along with citizens, but information and public services can because of the instant availability of mobile devices and/or services. ...
- **Better the lives of disabled.** ... Many hearing-impaired people find text-messaging to be an ideal form of communication However, those who are visually impaired are less likely to use text-messaging. As with other factors, multiple channels of message delivery therefore must be considered.⁵⁴

A survey of US federal managers conducted the day after the launching of the Digital Government strategy mentioned earlier supports these perceived benefits. A large percentage of respondents said that mobile technology would increase productivity and cost savings by facilitating offsite work and telework and would improve decision making by providing immediate access to agency data. However, a substantial number of respondents also thought that purchasing mobile devices and providing security for them would increase costs.⁵⁵ A May 2012 survey of 22 **Australian** Government websites found that less than a quarter of them were mobile-friendly. The most common deficiency was page and image sizes that took a long time to load. It is reported that no Australian agencies offer a mobile version of their website, unlike for example, m.usa.gov - the single-column version of the US Government directory usa.gov.⁵⁶

⁵⁴ Rain Rannu, Siim Saksing, Triin Mahlakoiv, *Mobile Government: 2010 and Beyond: White Paper*, January 2010, www.mobisolutions.com/.../Mobile%20Government%202010%20and%20Beyond%20v100.pdf.

⁵⁵ Camille Tuutti, "Feds don't always see mobile as cost saver," *Federal Computer Week*, May 25, 2012, <http://fcw.com/articles/2012/05/25/aol-mobile-survey-federal-managers.aspx>.

⁵⁶ John Hilvert, "Government websites fail mobile access tests," *itnews*, May 17, 2012, <http://www.itnews.com.au/News/300669,government-websites-fail-mobile-access-tests.aspx>.

However, **ForeSee**, the customer experience analytics company, found that only 32% of US federal websites have a functional mobile version or applications.⁵⁷

The US Digital Government strategy recognizes the rapidly growing demand of citizens for mobile government. The strategy provides that “[t]he general public and our government workforce should be able to access government information and services on demand and on any device.” To foster the movement to mobile platforms, all federal agencies were directed to “mobile enable” a minimum of two of their priority customer services during the next year. “Agencies will also be required to deliver information in new ways that fully harness the power and potential of mobile and web-based technologies and ensure that all domains (e.g. www.agency.gov) can be easily accessed and used on mobile devices.”⁵⁸

Bring Your Own Device

The US Digital Government strategy also requires the Office of Management and Budget to set up a Digital Services Advisory Group to foster adoption of mobile technology and provide guidance on managing the bring-your-own-device (BYOD) issue. The **City of Toronto** defines BYOD as the “use of personal (employee-owned/individually liable) devices in a work environment” where “user preference, not corporate initiative, drives adoption of technologies.”⁵⁹ The benefits to the organization include potential cost savings and greater employee accessibility, and the benefits to the individual include potential increased productivity and job satisfaction.

Among the many issues associated with the adoption of a BYOD policy are security and privacy concerns and users’ unhappiness with the organization’s choice of devices (reflected in the acronym CYOD - choose your own device). The experience of the **City of Peterborough**, Ontario in dealing with this issue reveals the difficult policy, technical, security and privacy implications involved.⁶⁰ An award-winning BYOD innovation in **Charles County, Maryland** allows employees to use their personal smart phones on the job. Employees can forgo a County-issued BlackBerry and use their own web-connected cell phone, for which they are reimbursed by the County. The County uses software that enables it “to push enterprise email out to a wide variety of employee-owned devices, including tablets. The County also has a new mobile device management system to help administer the program, with built-in flexibility to accommodate future developments in

⁵⁷ Matthew Welgelt, “Is mobility the way out of customer satisfaction stagnation?” Federal Computer week, August 15, 2012, <http://fcw.com/articles/2012/08/15/buzz-mobile-measurement-satisfaction.aspx>.

⁵⁸ United States, *Digital Government*, p. 21.

⁵⁹ Grant Coffey and Tony Paulic, *Towards a Mobile Computing Strategy for the City of Toronto*, Presentation to MISA 2012 Conference, Hamilton, Ontario, May 27, 2012, slide 16.

⁶⁰ Nick Powers and Chris Gould, “Mobile devices: What is your plan? City of Peterborough builds strategy to deal with complex issue,” *Municipal Interface*, vol. 19, no. 1, January 2012, pp. 14-16.

the mobile device market.”⁶¹

Self-Service Mobile Initiatives

The **State of Texas** has launched what it describes as a mobile-friendly website that “lets Texans access government services anytime, anywhere with any device.”⁶² Texans can use this new website (m.texas.gov) to

- Access government services organized by topic: Drive, Pay and Work
- Find relevant information using the highly-functional Search feature synonymous with Texas.gov
- Complete secure transactions via Texas.gov’s most popular services, including Vehicle Registration Renewal, Driver Records, and Birth Certificates
- Contact Texas government agencies with a tap of a button
- Share information and services via social media

When users access the main state website with a smart phone, the website recognizes this and automatically adjusts its content to the appropriate screen size.

Many public organizations are adopting – or considering – the use of “responsive web design” that involves “making a single website that works effectively on both desktop browsers and the myriad of mobile devices on the market.”

People who browse while on-the-go have very different needs than those sitting at a desk. Responsive web sites re-organize themselves automatically according to the device viewing them, so that the same website provides a great experience everywhere. Desktops get a full-blown interface with videos, large images and animations. Smartphones get a simplified website that runs fast without the bells and whistles. Tablets and netbooks get something in between.⁶³

The **US Digital Government** strategy describes a similar approach as “device agnostic”, that is, the service “is developed to work regardless of the user’s

“Responsive web sites re-organize themselves automatically according to the device viewing them, so that the ‘same website provides a great experience everywhere.’”

⁶¹ Noelle Knell, “2012 digital counties survey winners announced,” *Government Technology*, July 16, 2012, <http://www.govtech.com/e-government/2012-Digital-Counties-Survey-Winners-Announced.html>.

⁶² “Texas.gov goes mobile,” *Enhanced Online News*, June 5, 2012, <http://eon.businesswire.com/news/eon/20120605006343/en/NIC/egov/egovernment>.

⁶³ Aidan Foster, “Responsive web design: What is it and why should I care?” *Responsive Web Design*, February 12, 2012, <http://responsivedesign.ca/blog/responsive-web-design-what-is-it-and-why-should-i-care>.

device, e.g. websites, mobile applications, and social media).”⁶⁴

A Gartner case study⁶⁵ explains how the **Government of South Australia** (SA) and Deloitte collaborated in the 2011 launch of the EzyReg mobile app. This app permits users to renew their vehicle registration, check their payment history, locate customer service centres, and check the registration status of any SA vehicle. Users can renew their registration either by scanning a bar code on their bill with their smart phone camera or providing manually such information as their plate number. Usage has gone beyond the innovation’s intended purposes to include identifying stolen license plates that don’t match car descriptions and confirming the details of hit-and-run vehicles. The cost of Web and app license renewals is estimated to be one-tenth of the cost of traditional channels. Among the learning points offered are these:

- Set clear goals for your m-government project. Keep your expectations modest, and invest prudently.
- Incorporate functionality in your app to measure usage, and/or leverage tools from third parties and mobile platform vendors.
- Start by identifying key mobile use cases, then focus on polishing the user experience. Less is more, but the app should not provide less than the Web experience for each use case.

Mobile Payments

Mobile devices also offer new ways whereby citizens can make payments for services more rapidly, conveniently and efficiently.

The benefits of embracing a digital payments system are abundant. In the near future, members of a busy family will move through the aisles of a grocery store scanning items with smartphones, comparing prices, tallying their purchase total, then heading directly to their car without passing through a checkout. A small-business owner will finance a new venture with a loan against specific receivables that will be paid on specific days known precisely in advance. ... And a government will pay benefits to its citizens more swiftly, cheaply and securely than ever before.⁶⁶

Mobile payments is an area where governments could reduce costs and improve service by examining payment methods employed in the private sector. A study for Canada’s Payments System Review found that “[i]ncumbents (such as Canadian banks), new entrants (such as e-commerce specialists) and global payments providers (such as the

⁶⁴ *Digital Government: Building a 21st Century Platform to Better Service the American People*, p. 1.

⁶⁵ Song Chuang, *Mobile Government Best Practices, and South Australia’s EzyReg Vehicle Registration Smartphone App*, June 26, 2012.

⁶⁶ Task Force for the Payments System Review, *Moving Canada into the Digital Age*, December 2011, p. 10, <http://paymentsystemreview.ca>.

credit card networks) are rapidly expanding the range and breadth of payments options available to Canadians.”⁶⁷ Moreover, electronic payment mechanisms such as debit are expanding while paper-based approaches such as cheques are declining. The study identified 13 separate payment methods, including digital or mobile “wallets” which, among many other potential functions, permit users to make payments by mobile phone.⁶⁸ Mobile wallets are a form of contactless payment that permits people to “tap and go” with their phones or smart cards rather than swipe their credit cards. For such payments, mobile phones must be equipped with Near Field Communication (NFC), that is, self-contained microchips that can transmit information wirelessly over very limited distances. Gartner predicts that NFC as an enabling technology for mobile payments will not begin to blossom until about 2015.⁶⁹

Digital wallets are in a very early stage of development, but their use is under vigorous examination and piloting by such organizations as Paypal and Google. For example, **Paypal** is collaborating with a clothing chain whose stores “will be equipped with scanners that can read a unique barcode that is generated by the Paypal inStore mobile phone app. The app will be linked to the mobile phone owner's PayPal account and accessed through a unique Pin. Once the barcode is scanned, payment is taken from the PayPal account.”⁷⁰

A significant public sector initiative in this area is the **UK Post Office**'s announcement that it will be installing contactless payment terminals covering 30,000 counter positions in its 11,500 UK branches so that customers can pay using either NFC-enabled phones or contactless cards.⁷¹ This is an example of the convergence of SSTs, in this case kiosks, smart phones and smart cards.

Problem-Areas for Digital Devices

- Risk of Theft or Loss
- User Authentication
- Malware
- Connecting to the Enterprise
- Ensuring BYOD Devices are Safe is More Complex
- Multiple Wireless Interfaces
- Location Disclosure
- Mixing Personal & Professional Use on a Single Device
- Lack of User Awareness
- Eavesdropping, Data exfiltration or extrusion, denial of service, and masquerading

⁶⁷ Deloitte, *Canadian Payments Landscape*, p. 2, <http://paymentsystemreview.ca/wp-content/uploads/Payments-Landscape-Full-Report-e3.pdf>.

⁶⁸ Mobile Wallet Task Force, *Mobile Wallet – Definition and Vision, Part 1*, Mobey Forum, November 2011, <http://www.mobeyforum.org/Industry-Insight/Mobile-Wallet>.

⁶⁹ “Gartner predicts significant mobile payment growth through 2016,” *Mobile Payments Today*, May 29, 2012, http://www.mobilepaymentstoday.com/article/195057/Gartner-predicts-significant-mobile-payment-growth-through-2016?goback=%2Egmp_133190%2Egde_133190_member_119780144.

⁷⁰ Lisa Bachelor, “Post Office to introduce contactless payment,” *The Guardian*, May 30, 2012, <http://www.guardian.co.uk/money/2012/may/30/post-office-contactless-payment>.

⁷¹ “UK Post Office announces largest NFC deployment in Europe,” *Mobile Payments Today*, June 1, 2012, <http://www.mobilepaymentstoday.com/article/195297/UK-Post-Office-announces-largest-NFC-deployment-in-Europe>.

The Downside of Mobile Devices

Governments that are seeking to improve access to services through digital devices should take note of the several risks identified for US federal agencies by the Computer Security Division of the National Institute of Standards and Technologies:

- **Risk of Theft or Loss** is much greater with mobile devices, especially smartphone, than with laptops. The sheer small size of smartphones, along with their capacity to hold large amounts of data, puts them at a greater risk of loss or theft than laptops. ...
- **User Authentication** is an issue with mobile phones. How do you know the person using the phone is the authentic user or an imposter? Biometrics is more difficult on small form factor smart devices.
- **Malware** can route and attack smartphones, capturing all voice and data on it, as it circumvents the telecom service provider. ...
- **Connecting to the Enterprise** becomes a potentially vulnerable activity, especially if the phone is set to automatically access an internal government network and stay connected whenever it is turned on. Additionally, “data in transit” between the smartphone and the government network has to be encrypted and protected.
- **Ensuring BYOD Devices are Safe is More Complex.** Before a government agency issues a phone that it provisions, a cryptographic key is put on it right out of the box, along with other remote management software to track and wipe the phone if lost. New phones are in the possession of the agency IT staff before the cryptography is added and phones being re-issued can be wiped clean eliminating the threat of previously installed malware. Not the case with BYOD phones that can’t be wiped entirely clean before installation of security software takes place.
- **Multiple Wireless Interfaces** exist on mobile devices that potentially allow an adversary to attack the devices, for example Bluetooth and payment systems that use NFC, as well as Wi-Fi. ...
- **Location Disclosure** is increasing in popularity now, such as Foursquare and geo-tagging in Facebook, that can leave an entire digital footprint of one’s life and daily routines and habits. This disclosure could be a real hazard for employees of certain agencies, especially the intelligence community, armed forces, and law enforcement, as well as high-level officials that might be targets of terrorism or device theft. ...
- **Mixing Personal & Professional Use on a Single Device** poses new risks. One such risk is lack of compliance to agency policy on use of devices. For example, for a generation used to always being connected, a policy for automatic device shut-off when idle for a specified period of time might not be accepted or may be overridden. Another policy that BYOD users might be tempted to not comply with is alerting IT immediately when a device is lost if it means wiping their entire device, including personal pictures and contacts, and not just the government-related information. ...
- **Lack of User Awareness**—the human element—poses perhaps one of the greatest internal vulnerabilities. Users are generally unaware of the security risks

associated with mobility, beyond loss of the device, and so are often not as careful as they should be. ...

- **Eavesdropping, data exfiltration or extrusion, denial of service, and masquerading** (where an attacker pretends to be an authorized user of a system in order to gain access to it) are other risks with mobility that vendors and service providers have to address or help agencies devise policies and response plans around.⁷²

Governments' current efforts are focused on enhancing mobile access to existing services with relatively little attention being paid to improvements in the design, navigation and content of the mobile channel. To reduce or overcome some of the concerns listed above, governments need to ensure an especially satisfying experience for mobile users so they will not turn to other, more costly, service channels. There is pressure also for governments to provide mobile access to services at an enterprise level rather than obliging citizens to download a large number of applications for a variety of specialized services.

Remote Access

The age of civil servants in fabric-covered cubicles is over. It is over because the public expects services to be delivered where and when they want them, anywhere at any time. It is over because the new generation of public servants will not work in the boxed-in confines of an Industrial Era workplace. It is over because governments cannot afford the legacy costs of delivering services by conventional means. It is over because mobile technologies are making mission-critical data (voice, data, video, maps) available on-demand and on-site through mobile devices and the networks that support them.⁷³

Hand-held mobile devices are already enabling employees to move away from fixed, location-based work environments to dispersed or field locations from

“The age of civil servants in fabric-covered cubicles is over.”

which workers can, for example, have remote access to their organization's Intranet and field data. One survey, covering both the public and private sectors, found that the top four mobile applications in the field were personal information management (e.g. emails), intranet access, field data collection, and customer relationship management.⁷⁴ Here are some notable innovative initiatives in the use of mobile devices in the field.

The **City of Nanaimo** in the Province of British Columbia took advantage of its mobility infrastructure to deploy a new application that looks up inspection details on a property, captures data, automatically updates back-end databases, reports findings, and prints

⁷² IJones, “Making mobility secure for government,” *GovWin*, June 26, 2012, http://govwin.com/ljones_blog/making-mobility-secure-for-government/579136.

⁷³ Center for Digital Government, *Out of the Cubicle and into the Field*, p. 2, http://archive.teleworkexchange.com/OutoftheCubicle_Blackberry.pdf.

⁷⁴ *Ibid*, pp. 4-5.

reports — all from the field. Inspectors also view their schedules remotely, eliminating the need to stop by the office. Customer service is improved too because inspectors can now schedule return visits on the fly so owners no longer need to call in to the office to schedule an appointment.⁷⁵

Toronto Road Operation Services maintains such roadside assets as curbs, sidewalks and boulevards. To improve service, the Scarborough Road Operation Unit of Transportation Services changed its way of doing roadside asset inspections; it switched to a customized GIS application and tablet PCs mounted on pedal-powered tricycles. City employees can now easily access information and make recommendations for efficient infrastructure management. Eliminating pen-and-paper data entry cuts down on work hours and errors resulting from the conversion of paper-based surveys into digital data. The mobile GIS system permits immediate on-site validation and quality assurance of data, as well as providing a platform for future integration of other geospatial information.⁷⁶

The Department of Aging Services in **Hillsborough County, Florida**, reports that it is using the GPS reporting features of handheld devices to provide driving directions and mileage in connection with service delivery to the elderly. The Department will soon “use the time and task features to capture the time it takes for each task such as personal care and meals to produce more accurate billing and time sheets.”⁷⁷ The meal delivery drivers, case managers and site coordinators also view the GPS capabilities of the devices as a safety measure.

Smart Cards

Smart cards are a kind of miniature computer that does not have a keyboard or display screen. As evidenced by the Smart Card Alliance home page, they can be used for a remarkable – and increasing – number of purposes. Smart cards are used around the world in such applications as making payments (e.g. contact and contactless credit or debit cards), telecommunications (e.g. pay telephone payment cards); secure identity (e.g. driver’s licences), and healthcare (e.g. portable medical records cards).⁷⁸

At present, the use of smart cards is a much more widespread form of payment than mobile phones and is becoming increasingly frequent in the banking sector. Such banks as **CIBC in Canada** and **Barclays in the UK** are now issuing “contactless” cards. The **UK Post Office** announced in 2012 that it would be using contactless technology to enable customers to wave MasterCard PayPass or Visa payWave cards over a sales terminal without needing to enter a pin number. A **Singapore** initiative shows that a

⁷⁵ Ibid, p. 5.

⁷⁶ Kernaghan, *Clicks, Calls and Counters*, p. 19.

⁷⁷ Center for Digital Government, *Out of the Cubicle and into the Field*, p. 5.

⁷⁸ Smart Card Alliance, <http://www.smartcardalliance.org/pages/smart-cards-intro-primer>.

contactless payment system can be used for other purposes.⁷⁹ The country's Land Transport Authority (LTA) is piloting a project to provide users of bus services with real time information on how crowded various bus routes are. This system is enabled by Singapore's already existing contactless fare system. Customers are required to tap their card both when they get on the bus and when they get off. These real time data are used to calculate the extent of bus crowding and the results are posted on the LTA website.

While contactless cards are currently receiving a great deal of attention, there are actually three main types of smart cards.⁸⁰ A *memory* card is a step up from a magnetic stripe card in that it has more memory and the embedded chip provides much better security. Unlike the magnetic stripe credit card that, if stolen, can be charged up to the card limit, the memory card doesn't lose even its face value. In the **United States**, several state governments are changing over to smart cards for driver's licences because governments can store such data as electronic fingerprints and iris scans so as to prevent the issuing of multiple licences.

Another step up in smart cards is the *chip* card that provides more memory and programming capability. A chip card can be used for several purposes, including security authentication, and it has sufficient capacity to store personal and medical information.

“A chip card can be used for several purposes, including security authentication.”

Then there is the *contactless* card that, unlike the memory and chip cards, does not have to be inserted into a card reader. Indeed, card readers can sense the cards carried, for example by railroad travellers, in their wallets or pockets. These cards can be tracked if they are lost or stolen.

Despite the attractions of self-service channels for making government payments, it is important to keep in mind that for certain programs and purposes other channels are necessary. A June 2012 report⁸¹ for the **Canada Revenue Agency** (CRA) found a high level of client support not only for electronic access to information but also for such traditional channels as surface mail and in-person service. For *accessing information* bearing on tax questions, the toll-free telephone service and the website are the most popular methods, but for *making tax payments*, the most popular method is direct mail to the CRA (48% of individuals, 72% of businesses and 78% of tax practitioners), followed by payments made at a financial institution, either in person or by online banking. The least popular option is in-person payment at a Tax Services Office.

⁷⁹ Clarice Africa, “Singapore trials real time bus condition update,” *futureGOV*, June 12, 2012, <http://www.futuregov.asia/articles/2012/jun/12/singapore-trials-real-time-bus-condition-update>.

⁸⁰ S. Srinivasan and Alan S. Levitan, “Secure and practical smart card applications,” *Information Systems Control Journal*, vol. 5, 2003, pp. 27-31, <http://www.isaca.org/Journal/Past-Issues/2003/Volume-5/Pages/Secure-and-Practical-Smart-Card-Applications.aspx>.

⁸¹ Corporate Research Associates, *Payment and Enquiries Counter Research: Final Report*, Prepared for Canada Revenue Agency, June 2012.

Electronic Kiosks

In the private sector, electronic kiosks are the focus of a large industry where companies compete to provide kiosk service to banks, airports and grocery stores, among others. The kiosk industry is supported by such entities as ATM Marketplace, selfserviceworld.com and KioskMarketplace.com that provide information on events, trends and innovations in the use of automated teller machines (ATMs) and other types of kiosks. The remarkable variety of kiosk types includes Internet kiosks, photo kiosks, financial services kiosks, ticketing kiosks, donation kiosks, DVD rental kiosks, visitor management and security kiosks, and hospital and medical clinic registration and check-in kiosks. Kiosks are often used in combination with other channels (e.g. when kiosks are located in walk-in service centres). Kiosks are also converging with other self-service channels (e.g. the use of smart phones and smart cards at the UK Post Office pay terminals).

Private Sector Kiosk Innovations

SoloHealth, described as a leader in self-service consumer healthcare, develops and deploys interactive health screening kiosks and other platforms “to empower consumers about their health through awareness, education and action.” This company won the 2011 Intel Innovation Award for its SoloHealth station, a kiosk that enables users to measure “vision, blood pressure, weight, and body mass index; receive an overall health assessment; and access a database of local doctors.”⁸² The kiosks offer free health screenings and recommendations for follow-up care, with a view to preventing illness and lowering health care costs.

A large mall in **Syracuse, New York** is adopting “digital signage kiosks” to serve as digital directories (replacing old paper directories) that offer “wayfinding” functionality.⁸³ They will also provide an interactive social media sales sheet that is similar to Twitter and that will permit both merchants and shoppers to comment on sales and promote products, brands or events. The kiosks will email directions to shoppers’ smartphones and provide access to the mall’s Facebook page.

⁸² “SoloHealth wins Intel’s health IT innovation and technology award, 24-7 *pressrelease*, November 11, 2011, <http://www.24-7pressrelease.com/press-release/solohealth-wins-intels-health-it-innovation-and-technology-award-246348.php.d>

⁸³ “Social media ‘changes everything’ for digital signage kiosks,” *selfserviceworld.com*, July 10, 2012, http://www.selfserviceworld.com/article/197103/Social-media-changes-everything-for-digital-signage-kiosks?utm_source=NetWorld%20Alliance&utm_medium=email&utm_campaign=EMN-AAMC07112012.

KAL ATM Software has launched a trial of a cashless Retail Teller Machine (RTM)⁸⁴ to supplement the ATMs located in financial institutions and promote “branchless banking”. The RTM, which contains no cash, can be situated in such retail locations as stores, hotels and restaurants where a customer uses it to withdraw money from his/her bank account in the form of a voucher that is used to pay the cashier. This arrangement, among other benefits, offers convenience and security for the customer, foot traffic for the store, and enables a bank to install kiosks at one-tenth of the cost of a regular ATM. The RTM provides a full range of bank services and even offers video conferencing with a teller via a 17-inch liquid crystal display.

Internationally, ATMs in banks that allow deposits of currency and checks at image-enabled machines now outnumber those requiring envelope-deposit.⁸⁵ The claimed benefits are speed and security for the consumer and time saving for the banks.

Union Bank of India, one of India’s public sector banks (where a majority stake is held by a government), has developed customized ATMs to meet the needs of the visually impaired and other disabled persons in a safe and secure manner.⁸⁶ The ATMs include a keyboard with Braille stickers, audio, voice-guidance, wheelchair ramps, head phones and a means of blanking out the screen for safety reasons.

Mention was made earlier of **Scotiabank’s** analysis of data obtained from questions posed by customers using the bank’s virtual agent system. ATM marketplace reminds us that the ATM and mobile channels are a rich source of information that can be mined for insights that can help to improve customer service and bank profits. “Data-driven analytics is being increasingly used to power [the banks’] self-service channels to grow revenues, increase availability and drive productivity gain-shares.”⁸⁷

New York City is proposing to replace 250 old telephone booths around the city with 32-inch “smart screens” and is considering the eventual replacement of all of the city’s pay phones with these screens.¹ The free touch screens will provide local neighbourhood information (e.g. nearby restaurants, traffic updates) in many languages, and link users to 311 online for submitting complaints or requesting city information.

⁸⁴ Suzanne Cluckey, “KAL unveils cashless ATM,” *atm marketplace*, June 18, 2012, <http://www.atmmarketplace.com/article/196065/KAL-unveils-cashless-ATM>.

⁸⁵ “Deposit automation goes mainstream: Benefit today, prosper tomorrow,” *atm marketplace*, 2012, <http://www.atmmarketplace.com/whitepapers/5393/Deposit-Automation-Goes-Mainstream-Benefit-Today-Prosper-Tomorrow>.

⁸⁶ “India’s UBI rolls out ATMs for disabled customers,” *atm marketplace*, June 8, 2012, <http://www.atmmarketplace.com/article/195605/India-s-UBI-rolls-out-ATMs-for-disabled-customers>.

⁸⁷ “Transforming self-service with agile analytics,” *atm marketplace*, August 8, 2012, <http://www.atmmarketplace.com/blog/8611/Transforming-self-service-with-agile->

Public Sector Kiosk Innovations

In addition to the large number and variety of private sector kiosks that might be adapted for public sector use, there is a growing array of government kiosks that deserve consideration. In comparison to other service channels, only a small percentage of respondents to the Citizens First 5 survey use and prefer government kiosks.⁸⁸ However, kiosks receive *satisfaction* scores on par with government offices and the Internet⁸⁹ and the highest scores by far for ease-of-access ratings among respondents who used a single channel to obtain service.⁹⁰

While kiosks are much less pervasive in the public than in the private sector and less popular than other service channels, the various uses to which public organizations are putting self-service kiosks attest to their value for particular purposes. For example, governments are using kiosks to:

- Increase efficiencies in border control by implementing self-service international toll booths – this results in reduced border personnel costs.
- Optimize vehicle registration and driver's license renewal by offering self-service options for DMV services – this ultimately cuts down on customer wait times and improves worker utilization.
- Streamline payment processes by providing citation payment kiosks – this decreases administrative costs and customer wait times.⁹¹

The **Australian Government** has introduced SmartGate⁹² as a self-service process for eligible travellers (both Australians and New Zealanders) arriving at Australia's international airports. These travellers can use the electronic information in their ePassport (containing an embedded microchip) and face recognition technology to carry out the customs and immigration checks that are normally performed by public servants. Note that in June 2012 the Australian National Audit Office reported that usage of the system has been much less than anticipated and that there has been an unduly high level of false rejections and questionable performance reports.⁹³

⁸⁸ Erin Research Inc., *Citizens First 5*, pp. 48-50.

⁸⁹ *Ibid*, p. 53.

⁹⁰ *Ibid*, p. 57.

⁹¹ "Self-service spreading to government," *kioskmarketplace.com*, April 17, 2012, <http://www.kioskmarketplace.com/blog/7794/Self-service-spreading-to-government>.

⁹² Australian Customs and Border Protection Service, *SmartGate: Frequently Asked Questions*, http://www.customs.gov.au/webdata/resources/files/Frequentlyaskedquestions_January2012.pdf.

⁹³ Andrew Colley, "SmartGate passport system fails audit," *AustralianIT*, June 26, 2012, <http://www.theaustralian.com.au/australian-it/government/smartgate-passport-system-fails-audit/story-fn4htb9o-1226408937527>.

In Canada, a pilot project at **Vancouver's International airport** called Automated Border Clearance is moving to full operational status and being expanded to other airports.⁹⁴ The initiative's purpose is to reduce wait times, minimize congestion and enable faster processing of travellers. Canadians returning to Canada insert their passports into the document reader of the kiosk and then insert their completed Declaration Card. They receive a transcription receipt that they then take to a Border Service Officer who verifies their identity and visually authenticates their passport.

ServiceOntario, the Province's service agency, offers kiosk service allowing the use of credit or debit cards to renew licence plate stickers, purchase a driver abstract, or change an address for a health card, driver's licence, vehicle registration, and outdoors card. In June 2012, all 72 kiosks were temporarily shut down because of security violations. The concern arose from persons using card skimming devices to copy information from credit and debit cards that could be used to replicate the cards.⁹⁵

Security concerns have also arisen with the use of private sector kiosks. For example, there is a growing problem of thefts from self-serve checkout kiosks in supermarkets.⁹⁶ Thefts are reported to be five times more likely when checkouts are unattended, thereby making it important for retailers to provide "assisted" self-service.

The explosive increase in the use of mobile devices has led to debate over the future of electronic kiosks in the private sector. The optimistic view is that mobile and kiosk technology will have "a supportive and synergistic relationship." The pessimistic view is that "mobile devices will narrow the kiosk field and cull the industry with Darwinian results."⁹⁷

Interactive Voice Response

An Interactive Voice Response (IVR) system is a computer-based system that permits callers to receive or provide information, on most occasions without assistance from trained specialists. Callers are given a number of options and/or questions regarding the

⁹⁴ "Canada expands airport kiosks, *selfserviceworld.com*, April 23, 2012,

⁹⁵ Robert Benzie, "ServiceOntario kiosks, including four in the GTA, shut down after security breach," *thestar.com*, June 7, 2012, <http://www.torontosun.com/2012/06/07/serviceontario-kiosks-shut-for-security-violations>.

⁹⁶ "Theft at self-checkout a growing problem, retail analyst warns," *selfserviceworld.com*, June 20, 2012,

<http://www.retailcustomerexperience.com/article/196193/Theft-at-self-checkout-a-growing-problem-retail-analyst-warns>.

⁹⁷ "Industry insiders square off on the future of kiosks." *Self-serviceworld.com* August 14, 2012, http://www.selfserviceworld.com/article/198901/Industry-insiders-square-off-on-the-future-of-kiosks?utm_source=NetWorld%20Alliance&utm_medium=email&utm_campaign=EMN_AAMC08152012.

purpose of their call and answers to frequently asked questions (FAQs) are provided. Callers who need assistance beyond this point are directed to trained specialists. Among the benefits of IVR are increases in operating efficiency and improvements in customer experience, decreases in overall operating costs and the extension of service hours.⁹⁸ Since answering telephone calls is costly and many calls don't require the expertise of employees, organizations can benefit from using IVR to answer frequently FAQs.

Among innovations heralded for IVR are the wide application and deployment of IVVR (Interactive Voice and Video Response); expanded use of IVR in mobile banking; and improvement in the quality and accuracy of speech recognition technology.⁹⁹ There is, however, little high-quality research and writing on IVR innovations in either the public or private sectors.

Voxeo, an IVR vendor, notes that IVR applications for government include

- **Auto-Attendant:** Many government offices and agencies benefit from a Voxeo IVR-based, voice-driven auto-attendant to answer their main office numbers. A voice-driven auto-attendant lets callers connect with the desired party by simply speaking the name of the person, office, or agency they want to reach.
- **Telephone Notification:** Most government agencies and offices are looking for solutions to quickly deliver time-critical information to officers, employees, and citizens. Voxeo enables instant delivery of time-critical information via outbound calls to any desk or wireless phone. This solution is invaluable during emergencies and for important announcements.
- **License, Tax, and Ticket Reminders:** Offices and agencies responsible for collecting license fees, taxes, and unpaid tickets use Voxeo's Prophecy IVR solutions to place automatic payment reminder calls to customers both before and after payments are due, reducing uncollected fees for the agency/office and legal problems for citizens.¹⁰⁰

ServiceOntario is transforming and redesigning the IVR applications in its contact centre channel into a more streamlined design that provides more self-service opportunities where information provisioning and transactions are automated. This allows the customer to use this channel (without necessarily always having live agents available) to fulfill their information/service needs. ServiceOntario is planning to use IVR applications to allow information provisioning and transactional self-service capabilities such as appointment booking for a Health Card or Enhanced Driver's Licence while providing 24x7 support to customers.

⁹⁸ Interactive Voice Response Systems, *HowTo.gov*, April 23, 2012, <http://www.howto.gov/contact-centers/technologies/interactive-voice-response-systems>.

⁹⁹ See, for example, Sujata Garud, "IVR innovation makes for a bright future," *TMCnet.com*, February 24, 2011, <http://www.tmcnet.com/channels/ivr/articles/148109-ivr-innovation-makes-a-bright-future.htm>.

¹⁰⁰ "IVR Applications – Government IVR", <http://www.voxeo.com/markets/government-ivr.jsp>.

The **New York State Department of Health** uses IVR to enable residents to perform background checks on healthcare providers. Many of the calls seek information on the professional status of nurses - information that is needed by hospitals, nursing homes and insurers. The vendor reports that fewer than 20% of calls need to be transferred to a live customer service agent.¹⁰¹

Surveys on the comparative use of service channels do not usually separate data on IVR from those on the traditional telephone channel. The Citizens First national surveys show that despite rapid growth in the number of people naming the Internet as their principal channel, the telephone rates highly in both usage and preference. At the same time, however, the telephone receives a relatively low satisfaction rating. One of the main reasons for this low rating is: "I had trouble using an automated phone system."¹⁰²

In some jurisdictions, IVR has not proved to be an effective self-service channel. For example, Ontario's **Peel Region** has been moving away from the use of a corporate IVR system because their service philosophy is live answer. The Region has found that the use of IVR can be complicated and difficult for some clients, and that economies of scale, especially in the Region's consolidated contact centre, have made the cost per regular telephone call reasonable.

Implications of Self-Service for Other Service Delivery Issues

The movement towards self-service delivery has important implications for other issues in government service delivery. Foremost among these issues is Identity Management and Authentication (IdM&A), but important also are the implications for multi-channel management, end-to-end service integration and service bundling.

Identity Management

The citizen has to have a way, when they are serving themselves, of making sure that other people involved in the transaction are really who they say they are That's probably the single biggest technical issue that needs to be sorted out over the next few years.¹⁰³ (Peter Baril, Nunavut's Chief Information Officer)

Governments must ensure that the right people are viewing, accessing and managing the personal data in question. However, without the ability to verify the identity of citizens, the data security risks associated with online access are

¹⁰¹ *Case Study: NY State IVR-Based System Streamlines Public Inquiries*, Plum Voice Automated Telephony Solutions, <http://www.plumvoice.com/sites/default/files/casestudies/NYState.pdf>.

¹⁰² Erin Research Inc., *Citizens First 5*, p. 55, and Preliminary Findings, *Citizens First 6*.

¹⁰³ Jennifer Kavur, "Nunavut's CIO: Why citizens deserve self-service," *itWorldCanada*, July 12, 2010, <http://www.itworldcanada.com/news/nunavuts-cio-why-citizens-deserve-self-service/141079>.

enormous, and potentially unlimited.¹⁰⁴ (Ann Cavoukian, Canada’s Information and Privacy Commissioner)

Identity management is concerned with how people are identified across computer networks, including how users are given an identity, the protection of that identity, and the technologies supporting that protection (e.g. network protocols, digital certificates, passwords). The dramatic increase in the use of mobile devices has accelerated concern about identity management. The US Digital Government strategy asserts that “[a]s the government moves to an information-centric and mobility-enabled digital environment, existing security, privacy and data protections ... must be considered throughout the entire life cycle of existing and emerging technologies as part of agencies’ overall organizational risk management.”¹⁰⁵

Discussion of the large and complex subject of identity management is limited in this study to brief observations on its relation to self-service delivery. For a detailed report on IdM&A in Canada, readers can consult the 2007 Final Report of the Inter-jurisdictional Identity Management and Authentication Task Force. That report considers IdM&A for all service channels, but is mainly concerned with online

service delivery because “this channel presents the greatest IdM&A challenges and is likely to yield the greatest service delivery benefits.”¹⁰⁶ A 2010 draft *Blueprint for the Federation of Identity Management* built on the Report by providing “a guide to achieving an interoperable approach to identity management, working across channels, services and organizations to provide, within legislated parameters, timely access to integrated service delivery.”¹⁰⁷

“For a detailed report on IdM&A in Canada, readers can consult the 2007 Final Report of the Inter-jurisdictional Identity Management and Authentication Task Force.”

The concern about identity management that has arisen at several points in this study indicates that many citizens will not use self-service channels, or migrate to them from other channels, if government cannot ensure the privacy and security of their communications. Effective privacy and security protection is a critical enabler of increased self-service delivery. For example, an interviewee predicted that greater personalization of service will begin to address various segments of the customer base (e.g. new parents who want instant online self-serve referrals to child-related resources in

¹⁰⁴ *Privacy and Government 2.0: The Implications of an Open World*, 2009, p. 15, <http://www.ipc.on.ca/images/Resources/priv-gov-2.0.pdf>.

¹⁰⁵ United States, *Digital Government: Building a 21st Century Platform to Better Service the American People*, p. 23.

¹⁰⁶ *Pan-Canadian Strategy for Identity Management and Authentication, Final Report*, July 2007, p. 14, http://www.cio.gov.bc.ca/local/cio/idim/documents/idma_final_report.pdf.

¹⁰⁷ Service Canada, Integrity Services Branch, Identity Policy and Programs, *Blueprint for the Federation of Identity Management*, June 7, 2010, p. 5, <http://www.iccs-isac.org/en/km/transformation/docs/Blueprint%20for%20the%20Federation%20of%20Identity%20Management.pdf>.

their own neighbourhood). “In moving toward this personalization, broader information sharing across organizations will test boundaries in the privacy arena, while promoting greater customer convenience and improved quality of service.”

Findings from the 2012 Citizens First 6 survey show a large percentage of Canadians with concerns about the privacy of their personal information, identity theft and website security, how the information given may be used, and the sharing of personal information between departments. The 2012 Citizen Compass study found that 54% of Canadians regard privacy protection as their most important concern about electronic delivery of government services.¹⁰⁸ Sixty-two percent support the idea of a single government identity card.¹⁰⁹ This latter finding is in keeping with the 2008 Citizens First 5 survey showing that among those who used the Internet “almost every day” 67% preferred a single ID for federal government services and 58% preferred one for services at all levels of government.¹¹⁰

Portugal’s Citizen Card (CC) is a noteworthy approach to the secure use of identity cards. It was adopted in 2006 to reduce to one the number of identity cards for obtaining government services (e.g. social security, tax, justice, healthcare) via the in-person, telephone and Internet channels. The government claims that the CC enjoys a high level of security through a sophisticated authentication system.¹¹¹

Estonia has won acclaim for its national identity card through which access to the state portal is achieved by swiping the card through a reader and entering a personal identification number. Among the services that can be accessed in this fashion are applications for unemployment benefits, notary services, tax payments, and new company registrations. The system can also be used to access such private sector entities as banks, telecom providers and energy companies.

When banks in Estonia realized that the government-designed e-ID authentication system was more secure than alternatives, they began requiring customers to use government e-IDs when transferring large amounts of money. Today, customers can log into their bank accounts directly from the state portal. They can also claim loyalty rewards at the local cinema, purchase bus tickets, pay electricity and phone bills, and renew medical prescriptions.

Addressing privacy concerns effectively has been one of the main reasons for the system’s success.

India is in the process of providing an identity document with a unique identification number for each of the country’s one billion residents. The platform used is an open application programming interface (API) that enables other entities such as banks to

¹⁰⁸ PricewaterhouseCoopers, *Next Generation of Eservices*, p. 5.

¹⁰⁹ Ibid, p. 6.

¹¹⁰ Erin Research, *Citizens First 5*, p. 88.

¹¹¹ *Citizen Card*, epractice.eu, May 21, 2012, <http://www.epractice.eu/en/cases/citizencard>.

embed the government's APIs for the purpose of verifying a user's identity. The head of India's Unique Identification Authority explains how privacy is sought:

[T]he information we collect from individuals is very simple: just the name, address, date of birth, and gender, with e-mail addresses and phone numbers optional. We also have biometric data, but we use this only to prevent duplication (to make sure a person gets only one unique ID number) and also for authentication. We don't share people's data with banks; the banks' data aren't shared with the ID system. So whether a person is withdrawing 100 rupees or 1,000 rupees is known only to the bank. You can think of it as a federated architecture, where each player knows only his or her part of the activity.¹¹²

The government's expectation is that the platform's open API will spur the development of more apps by both public and private sector organizations.

As noted, customers of private sector organizations in Estonia and India are allowed to authenticate through a government portal. In contrast, **Canada's** federal government began implementing in May 2012 a new service called SecureKey Concierge that permits clients to use their bank authentication credentials (starting with TD Bank Group, Scotiabank and BMO Financial Group) to access government online services. Implementation of the service for all departments and agencies is expected to be complete by November 2012. The government gets no access to clients' login credentials or the name of their bank, and the bank gets no information on the government service that clients are accessing.

Scotiabank's website describes its Online Government Authentication in terms of

- **Simplified sign-in** Use your ScotiaCard® and password to access government websites
- **Convenient** Reduce the number of passwords and usernames you need to remember
- **Peace of mind** Your personal information is protected and is never shared between the government and Scotiabank.¹¹³

“Canada's federal government began implementing in May 2012 a new service called SecureKey Concierge that permits clients to use their bank authentication credentials (starting with TD Bank Group, Scotiabank and BMO Financial Group) to access government online services.”

Service New Brunswick enables clients to make payments through its website using Interac Online. This service is described as “very secure because: You use your existing online banking service with your User ID and password.”

Note that the Citizens Compass study found that 57% of respondents were uncomfortable logging in on a government site using one's username and password, but those who banked online were more comfortable doing this than other Canadians.¹¹⁴

¹¹² Ibid, p. 9.

¹¹³ [Http://www.scotiabank.com/ca/en/0,4209,00.html](http://www.scotiabank.com/ca/en/0,4209,00.html).

¹¹⁴ PricewaterhouseCoopers, *Next Generation of Eservices*, p. 13.

According to Dave Nikolejsin, B.C.'s Chief Information Officer, adequate security requires that "simple IDs and passwords must be switched out and secure contactless 'near field communications' (NFC) secure-chip based authentication credentials switched in."¹¹⁵ B.C. is adopting this approach by replacing its health CareCard, beginning in late 2012, with a more secure B.C. Services Card that will include a photograph of the beneficiary, anti-forgery features and high-level identity proofing, as well as a security chip.¹¹⁶ Citizens can choose to have a separate services card or to combine the card with their drivers' licence. B.C.'s initiative is being closely watched by other Canadian jurisdictions seeking a solution to identity management issues.

Multi-Channel Management

Multi-channel management involves the selection, rationalization and integration of service delivery channels, including in-person, telephone, mail, fax, Internet and mail channels as well as newer channels such as text messaging, social media/networking and mobile applications. Most of these channels are self-service ones that are widely touted as helping governments and businesses to improve service and/or cut costs. A private sector interviewee argued that "no channel is inherently superior to all the others. They all have benefits and drawbacks. Their value depends on what you're seeking to accomplish and from where?"

Multi-channel management aims to help overcome widespread deficiencies in channel management in general. These deficiencies include

- managing new, digital channels as 'bolt-ons', with business and technical architectures that are entirely separate from traditional face-to-face or paper-based channels;
- no common view of citizen service across multiple channels;
- operational practices, unit costs and service standards for many channels which fall well below standards set for those channels in the private sector;
- a reliance on government-owned channels, with insufficient understanding of how to partner with private and voluntary sector organisations who have existing trusted channels to government customers;
- unproductive and costly competition among service delivery channels.¹¹⁷

¹¹⁵ "Chipping away at the identity challenge," *Canadian Government Executive*, vol. 18, no. 5, May 2012, p. 17.

¹¹⁶ British Columbia, Ministry of Health, "B.C. paves way for new card to replace CareCard," *News Release*, May 19, 2011, <http://www.newsroom.gov.bc.ca/2011/05/bc-paves-way-for-new-card-to-replace-carecard.html>.

¹¹⁷ John Borrás, "The OASIS Transformational Government Framework," *European Journal of ePractice*, no. 15, February/March 2012, <http://www.epractice.eu/en/people/89938>.

A report by the UK National Audit Office expressed concern that channel shift activities in many organizations in the national government have often been inadequate and the anticipated benefits have not been realized.¹¹⁸

A 2012 report¹¹⁹ on Canada that provides a detailed account of the current state of channel management and migration contains several references to self-service initiatives. Among the channel management trends identified in the report are:

- **Self-Service / Channel Migration to the On-Line Channel.** This trend can be looked at from two angles – 1) Recognizing that Canadians are becoming more comfortable using technology either through the Internet or mobile applications and, therefore, they expect their governments to adapt their service delivery channels to allow those citizens who are able and want to serve themselves the opportunity to do so. 2) Governments encouraging citizens to serve themselves or migrate to the on-line channel in order to reduce infrastructure and personnel requirements, thereby reducing operational costs.
- **Channel Optimization.** Ensuring that governments are offering their services through the most appropriate and effective mix of channels.
- **Consistency.** Ensuring that citizens are provided with the same clear and accurate information and services regardless of which service delivery channel they use or, for that matter, whether they are using one service delivery channel repeatedly or multiple service delivery channels.
- **Privacy, Security and Identity Management.** Ensuring that citizens' personal information remains private and secure throughout the government service delivery process. Also ensuring that citizens are properly authenticated and identified so that the individual is protected and governments are not subject to fraud.
- **Technology.** Ensuring that governments continue to implement improvements to service delivery by taking advantage of innovative technological advances.

Another report on channel migration or channel “shift” that focuses on UK experience concludes that “for the service provider to save money the customer needs to fully self-serve, but without the support of the human contact that traditionally guided them through the process they may struggle to do this.”¹²⁰ To foster effective self-service, the report recommends that resources be invested in the following ways and in this order of priority:

¹¹⁸ *Digital Britain One: Shared Infrastructure and Services for Government Online*, National Audit Office, December 2011, http://www.nao.org.uk/publications/1012/digital_britain_one.aspx.

¹¹⁹ *A Report on Channel Management / Channel Migration in Canada's Public Service Organizations*, Best Practices Sub-Committee of the PSSDC-PSCIOC Research Committee, 2012.

¹²⁰ Gerald Power, *Channel Shift: Realising the Benefits*, White Paper, govDelivery, April 2012, <http://www.govdelivery.co.uk/pdfs/whitepaper-channelshift.pdf?elq=9fab5d76b6b74cb29655fb014ec028f2&elqCampaignId=>

1. Reduce Avoidable Contact. It is always better to eliminate contact than shift it and investment in better communication in areas of known high avoidable contact often offers rapid returns

2. Promote Existing Digital Options. If you have existing digital services then encouraging more customers to use them by providing better, more proactive signposting should cut costs

3. Improve what you have. If existing services have high failure rates and support costs then look at how these can be reduced

4. Target Specific New Services. Targeting new services at simple high volume transactions for self-service can yield good returns

The migration strategy of La Régie des Rentes in the **Province of Quebec** has five objectives aimed in part at reducing avoidable contacts: 1) Increase the use of self-service. 2) Reduce the use of telephone services and increase use of Internet and IVR. 3) Significantly reduce the use of mail. 4) Significantly reduce the use of the in-person channel. 5) Contain and even reduce the number of emails.

One of the indicators in the UK's National Indicators for Local Authorities was avoidable contact, defined as "the proportion of contacts within key service areas that are a poor use of customer and officer time."¹²¹ Case studies of **South Tyneside Council**¹²² and **Surrey County Council**¹²³ identify successful initiatives to avoid low value and no value contacts with the public so as to encourage use of self-service channels.

Service Canada has provided the following graphic to explain how some organizations use a tiered approach to determine the optimum use of channels:

¹²¹ HM Government, Communities and Local Government, *National Indicators for Local Authorities and Local Authority Partnerships: Handbook of Definitions*, February 2008, http://www.google.ca/#hl=en&output=search&client=psy-ab&q=nI+14+consultation+third+definition&oq=nI+14+consultation+third+definition&gs_l=hp.3...2021.12507.0.13588.37.25.0.0.1.2577.15848.5-2j1j6j2j1.12.0...0.0.n2nX_AzJBdk&pbx=1&bav=on.2,or.r_gc.r_pw.r_qf.,cf.osb&fp=c6c71ebb4be7d8a&biw=861&bih=724. This indicator was later abandoned because of measurement problems at the local level.

¹²² South Tyneside Council: "Improving Efficiency and Service Delivery through 'Avoidable Contact' and 'Channel Shift,'" *Astun Technology*, 2009, <http://www.pscsf.org.uk/wp-content/uploads/2011/02/Astun-Technology-South-Tyneside-Council-Case-Study.pdf>.

¹²³ CSI Surrey, *Surrey CC Channel Shift Business Case*, November 2010, http://www.psfbuzz.org.uk/2011/09/pscsf-compendium-of-channel-shift-self-service-resources/#.T_W42RzO9qw.

Client Interactions	Service Delivery
<p>Information Out</p> <p>Requires easy to use searchable self-service channels Requires clear plain language information</p>	<ul style="list-style-type: none"> • Smart search function and a benefits finder to improve self-service • General information needs to be clear and concise • Clients to have same search capabilities as CSO's • Information out needs to be in real-time
<p>Simple Transactions</p> <p>Require easy to use convenient self-service channels Repetitious large volume services to automation</p>	<ul style="list-style-type: none"> • Automation for high volume transactions • Supported e-service channels (mobile apps, IVR, enhanced Q&A's) • Single, integrated view of clients across departments • ID authentication and client needs assessment completed once • First contact resolution at point of contact
<p>Life Event Navigators</p> <p>Require interactive assistance Client require more direct information on personal needs</p>	<ul style="list-style-type: none"> • Assistance providing service channels (Call centre, In-Person, Web-chat) • Generalist staff providing service who can access specialist when needed • Assistance walk-through on service questions for simple transactions
<p>Complex Cases</p> <p>Require advice, access and personalised service</p>	<ul style="list-style-type: none"> • Specialised case workers in case management system • Service marginalised populations that require specialised responses • Provide personalised decisions on complex cases or appeals

Many public organizations are using “email alerts” to drive citizens to self-service channels. **Service New Brunswick** found that 87% of registrants for vehicle licence renewals who sign up for an email reminder subsequently used the online channel. The **City of Hamilton** is examining opportunities to provide email reminders to citizens regarding garbage pickup days, with increased messaging around holiday time. “Email reminders are one method of reducing avoidable contact by alerting citizens to important information before they need to go looking for it.”

This report contains several references to the **City of Hamilton**'s self-service initiatives (Case Study #1) that are designed in large part to eliminate avoidable costs by eliminating avoidable contact. “Ultimately, the goal ... is to migrate citizens to self-service channels and reduce avoidable contact.” Note also a case study on Hamilton's initiative in recreation registration that showed “how a focus on channel migration through leadership support and setting targets, combined with a multi-disciplinary team focused on process, staff and customers, achieved an impressive increase in self-service channel uptake – from 11.7% in 2005 to 71.8% in 2009.”¹²⁴

Among several notable **ServiceOntario** initiatives is a “money back” service guarantees approach that encourages customers to use the online channel for nine government services. For example, about 80% of birth certificate applications are received online and the guarantee of 15 days or your money back (or 5 days for premium service) is met more than 99.8% of the time. Among other guaranteed services are marriage and death certificates, master business licences and publications.

¹²⁴ Case Study, *Online Adoption and Citizen Satisfaction in Hamilton's Recreation Program*, http://www.iccs-isac.org/en/msd/casestudies/msd_hamilton_RC.htm.

Customer Service Representatives at ServiceOntario's in-person channel offer demonstrations on how to access government information and services using public access terminals. These terminals are personal computers connected to a printer that provide easy access to government-specific websites and thereby promote "channel-shifting" from the in-person to the online self-service channel. Similarly, **Service Canada** has a "training clients" program whereby staff offer to walk clients through the online process at their service centres' computer access workstations. RBC has built this approach into its performance evaluation system by providing rewards for staff who are successful in moving clients online.

ServiceOntario is also using social media to drive self-service. Customers can receive real-time responses to questions or concerns through Twitter. Moreover, ServiceOntario's presence on Facebook and YouTube allows it to share information with a broader audience and help break down barriers to service; for example, language barriers can be overcome by providing visual instruction explaining how to access service through videos posted to YouTube.

Segmentation analysis¹²⁵ can be used to facilitate self-service. The **Swedish government's** social insurance provider divided its customers into twelve segments that were then grouped into three major delivery channels, namely, Self-service (e.g. for new pensioners, younger senior citizens); Customer service centres (e.g. for older senior citizens, persons recovering from illness); and Personal case worker/administrator (e.g. for citizens entitled to disability support, persons currently suffering from ill health). This information helped the government to move customers to the less expensive self-serve channels.¹²⁶

Service Canada has provided a list of points to keep in mind when developing a channel migration strategy.

- Clients are attracted to services that are **accessible** and **easy to use** whatever the channel.
- Client **preferences vary** considerably by age, socio-demographic group and location, as well as by service.
- Service Canada needs to improve what is already online and **increase the number of transactional services**
- **New channels** are not replacements for traditional channels but complementary to them.
- Availability of **core services** online can drive web take up. Core services should be at the heart of the channel migration strategy and integrated well to promote cross utilisation of web services.

¹²⁵ Segmentation involves dividing the large heterogeneous body of citizens into homogeneous groups on the basis of shared attitudinal and demographic characteristics.

¹²⁶ Accenture. *From e-Government to e-Governance: Using New Technologies to Strengthen Relationships with Citizens*, 2009, pp. 63-4, http://nstore.accenture.com/egovernance/main_egov3.

- **Visibility** of some services provides more benefit than others in terms of public satisfaction and a perception that key issues are being tackled –service areas such as those related to foundational programs such as EI/CPP/OAS.
- Effort should be made to **direct people to the most cost-effective channel**.¹²⁷

Readers are invited to consult the “Benefits” section of the Service Canada case study for an examination of measures to persuade clients to shift from the phone and regular mail channels to the online one.

Service Canada is putting much greater emphasis on increasing first-contact resolution (FCR) so that clients don’t have to keep coming back to have their needs met. This emphasis arose in part from marketing information showing that each client has already had an average of three contacts with Service Canada before coming to an in-person centre. Service Canada’s approach is influenced by Oracle’s Best Practice Guide that describes FCR as “both an efficiency measure and an effectiveness measure. It is a leading indicator of customer satisfaction because customers want their support requests resolved immediately. FCR is also important to the support center because high FCR saves money.”¹²⁸

Bundling Services

Service bundling involves linking services, either within or across governments, so that citizens can access these services in a one-stop seamless experience using the delivery channel they prefer. Services are often bundled according to major life events such as birth or bereavement. Providing easy access to bundled services through self-service channels encourages migration to those channels and can, therefore, enhance service quality and cut costs. The **Province of Nova Scotia** is aiming to reduce processing time and increase self-service for citizens, in part through its Life Event Bundling Project. The potential benefits identified for event-based bundling include reducing paperwork, administrative burden and turnaround time for clients to receive benefits and the reduction of delivery costs by providing online self-service and data sharing.¹²⁹

Services Québec offers a “My Quebec Services Account” that is a personal online file allowing users to gather together and save information relating to their contacts with government departments and providing them with access to the departments’ information and transactional services. The Account enables users to create and save personalized itineraries if they complete a questionnaire at the time of a specific life event (e.g.

¹²⁷ Service Canada, Integrated Channel Management Directorate – CSB, *Channel Management / Channel Migration: Strategy and Roadmap*, Presentation to PSSDC, February 2012.

¹²⁸ Oracle, *Best Practices for Improving First-Contact Resolution in the Contact Center*, April 2012, p. 2, <http://www.oracle.com/us/products/applications/improving-contact-resolution-1599286.pdf>.

¹²⁹ Access Nova Scotia, *Event-Based Bundling Blueprint & NS Life Event Bundling Project*, February 2011, slide 7.

becoming a parent). Users then receive a list of steps that is personalized to their particular situation and that must be followed to obtain government services.

A cross-jurisdictional example of service bundling is the **Service Canada/Government of Ontario** collaboration whereby parents of a newborn can register his or her birth and obtain a provincial birth certificate, a federal Social Insurance Number and a Canada Child Benefits application all at the same time through a single online process. This 4-in-1 service is fully automated and involves no extra fees for customers. Nova Scotia is expanding on a similar birth bundle by offering online birth registration at kiosks located in hospitals.

Another cross-jurisdictional example entails the bundling of business services by the **Canada Revenue Agency (CRA)**, in partnership with provincial governments. Case #2, in Appendix 1 of this study, provides a detailed account of the evolution and current status of the CRA's partnership with the Government of **British Columbia (BC)**. The CRA's Business Registration Online (BRO) service permits business clients to register CRA Business Number (BN) program accounts (e.g. payroll deductions, corporate income tax). The partnership with BC takes the form of an integrated Internet application enabling business clients to register for both CRA and BC BN program accounts in one online session. Among other benefits, this online self-service partnership has reduced the staff resources previously needed to process paper transactions and resulted in less direct client contact with the CRA. For example, the number of calls directly related to the failure of the BRO registration related to BC businesses registering for CRA accounts has fallen from more than 60 calls per week to no calls.

Outside Canada, a well-known bundling initiative is **Singapore's** Central Provident Fund (CPF) that provides online access to the country's comprehensive social security savings plan covering retirement, healthcare, home ownership, family protection, and asset management. The Fund's programs and services are packaged according to such life events as reaching 55 years of age. Singaporeans can access the bundles to learn how the decisions they make at the time of each life event can impact their retirement savings. The website offers such features as interactive calculators and animated and educational videos on CPF matters.

End-to-end Service Integration

Within the scope of this project, sufficient information for end-to-end service integration was not collected. However, it is worth reaching out to the City of Toronto regarding their 311 initiative, or some of the work coming out of British Columbia.

Additional Topic: Digital Inclusion

An issue that emerged from the interviews and research that was not originally identified as a priority item was digital inclusion.

A commonly voiced principle of service channel management is that *citizens can receive through each delivery channel the level of service they require, regardless of their social, demographic, geographical or technological circumstances*. The purpose of digital inclusion is to narrow or eliminate the digital divide between such groups as disabled persons and others, the technologically literate and illiterate, the old and the young, urban and rural residents, and the rich and the poor. Living up to this principle of digital inclusion is challenging for government officials who are under pressure to reduce costs by using self-service channels.

However, the nature of the challenge is changing, especially with the increasing use of mobile devices. A recent Pew Internet report on digital differences in the US found that among smartphone owners, young adults, minorities, persons without college experience, and those with lower household income levels are more likely than other groups to describe their phone as their primary means of Internet access.¹³⁰ Improved Internet access in general is helping to bridge the digital divide. In the City of Toronto, for example, a large portion of the City's most vulnerable persons – those requiring social assistance – prefer to use online access to this assistance through the City's WAYS (Web Access to Your Services) program. This self-service approach enables them to

- get 24/7 access to comprehensive information and services;
- quickly and anonymously self-assess their potential eligibility;
- complete a fast, easy and customized application;
- self-schedule their first interview with a caseworker; and,
- get directions from their home to the appropriate office.¹³¹

Much of the concern about digital exclusion focuses on disabled persons. The Pew Internet report notes that in the US 54% of disabled adults use the Internet compared to 81% of adults without a disability; 41% of disabled adults have broadband or wireless access compared to 69% of those who are not disabled; and 2% of adults say that they have a disability or illness that makes Internet use difficult or impossible.¹³²

For Canada, the Citizens' First 6 findings show that in the context of a recent service experience a majority of people with disabilities agreed or strongly agreed that the service could be accessed without difficulty (52.7%); their independence was respected (63.2%); and staff interacted with them in an appropriate manner (65.8%). However, only 35.5% agreed or strongly agreed that the service was available in alternative formats (e.g. simultaneous ASL, TTY, Braille, large print, audio format etc.).

Among recent measures fostering self-service for those living with a disability are

¹³⁰ Pew Internet, *Digital Differences*, April 13, 2012, <http://pewinternet.org/Reports/2012/Digital-differences/Overview.aspx>.

¹³¹ See *Case Study – Toronto's "Web Access to Your Service,"* http://www.iccs-isac.org/en/msd/casestudies/msd_toronto_webaccess.htm.

¹³² Pew Internet, *Digital Differences*.

- A European Union project to make self-service terminals, such as public transport ticket vending machines and public information kiosks, more accessible for disabled and elderly persons¹³³
- The Union Bank of India's customized ATMs for visually impaired and other disabled persons (mentioned earlier)
- A new app to assist blind persons to text using touch screen mobile devices¹³⁴
- Canada's Federal Court of Appeal upholding a lower court ruling that the federal government must make its websites accessible to persons who are blind or partially sighted¹³⁵

In response to the latter concern, **Service Canada** is the first adopter in the federal government of a platform for adaptive technology.

Learning Points

Benefits, Barriers and Building Blocks

The overall objectives of self-service delivery are usually described as service improvement and cost reduction. The extent to which these objectives are achieved varies from one service channel to another and depends significantly on the nature of the service or program being delivered.

Benefits

The reported benefits of the main self-service channels have been addressed throughout this study, with particular attention to benefits flowing from the burgeoning use of mobile devices. However, attention has not yet been paid to the financial benefits of using one self-service channel rather than another. Metrics on cost comparisons of self-service channels are scarce. Data from a few jurisdictions compare the costs of the traditional in-person and telephone channels to those of the online self-service channel.¹³⁶ For

¹³³ "EU funded project aims to make self-service terminals more accessible for all," *Information Policy*, August 31, 2011, <http://www.i-policy.org/2011/08/eu-funded-project-aims-to-make-self-service-terminals-more-accessible-for-all.html>. For a brief case study treatment of this project, see Manuel Ortega, *Accessible Personalized Services in Public Digital Terminals for All*, epractice.eu, April 5, 2012, <http://www.epractice.eu/en/cases/apsis4all>.

¹³⁴ "App helps blind to send text messages," *BBC News*, February 20, 2012, <http://www.bbc.com/news/technology-17105225>.

¹³⁵ The Canadian Press, "Blind advocate wins again in fight over accessibility of federal websites," *Winnipeg Free Press*, May 31, 2012, <http://www.winnipegfreepress.com/canada/blind-advocate-wins-again-in-fight-over-accessibility-of-federal-websites-155996775.html>.

¹³⁶ See, for example, "Socitm: Too many self-service council site visits are failing," *publicTECHNOLOGY.NET*, May 5, 2012, <http://www.publictechnology.net/sector/local-gov/socitm-too-many-self-service->

example, Table 1 from the City of Hamilton case study illustrates the channel cost differential:

Table 1 – Cost per transaction by channel (Service Canada figures quoted at Lac Carling Congress, 2009) and volume of annual channel activity (City of Hamilton).

Service Channel	Cost per Transaction (ServiceCanada)	Annual Channel Activity (City of Hamilton)
In-person	\$6.50	90,000
Phone	\$4.00	1,300,000
Web self-service	\$0.10	4,000,000

A channel shift of 20% of in-person transactions to the online channel is estimated to save more than \$100,000 each year, and a shift from telephone to online would save approximately \$1 million.

A UK report estimated that every contact and transaction with government that moved online could bring savings of £3.30 to £12. Only 20% of the roughly 1.8 billion annual contacts with public services are online. “If all offline adults began using the internet and made just one online contact each month instead of a telephone or face-to-face contact it would save an estimated £900m per annum.”¹³⁷ The US General Services Administration reports costs of 1 cent for the Web, \$2.63 for the telephone, \$4 for regular mail, and \$8.63 for a web chat;¹³⁸ and Forrester Research shows costs of \$1.00 for the Web, \$10.00 for an email and \$33.00 for a telephone call.¹³⁹

While the reported costs for each channel differ from one jurisdiction to another, they are consistent in demonstrating the low cost of

“While the reported costs for each channel differ from one jurisdiction to another, they are consistent in demonstrating the low cost of online service compared to telephone service and the low cost of both of these channels compared to in-person service.”

site-visits-are-failing; Power, *Channel Shift: Realising the Benefits*, pp. 14-19; European Commission, Interchange of Data between Administrations Programme, *Multi-Channel Delivery of eGovernment Services*, 2004, <http://ec.europa.eu/idabc/serviets/oc282e.pdf?ed=16867>; and Treasury Board of Canada Secretariat, *Service Delivery Network Profile Summary Report* (March 2004).

¹³⁷ Race Online 2012, *Manifesto for a Networked Nation*, 2010, <http://www.epractice.eu/files/Race%20Online%202012%20-%20Manifesto%20for%20a%20Networked%20Nation.pdf>.

¹³⁸ Information provided by Service Canada, August 7, 2012.

¹³⁹ Chaitra Vedullapalli, *Customer Self Service Summit: Self Service Framework*, January 6, 2008, Slide #4, <http://www.slideshare.net/cvedulla/customer-self-service-4c-framework>.

online service compared to telephone service and the low cost of both of these channels compared to in-person service. An interviewee emphasized that these reports must be taken “with a grain of salt” because the factors included in calculating the costs per transaction can vary greatly from one jurisdiction to another. Some organizations calculate the “true costs,” including all overhead and investment ones, but many organizations, especially those that didn’t invest in a solid IT platform before launching into self-service delivery, greatly underestimate channel costs.

It is important to keep in mind that the quality of online service must be as good as, or better than, the traditional channels. “The cheapest channel is not necessarily the most cost effective as a single successful high cost contact can be cheaper than several ineffective low cost contacts.”¹⁴⁰ The **City of Hamilton** found that a cumbersome online tool caused citizens to use the more expensive Contact Centre. “Not only does it frustrate citizens to have to look for this information and fail, it costs the city twice; once on the lower cost web channel – where if it had been satisfactory it would have been approximately \$0.10 cents per transaction – but instead, it costs us again this time on the more expensive telephone channel where costs are significantly higher.” The City is also seeking ways to reduce the use of the online channel itself.

Ideally, channel choice for both citizens and governments would be informed by data on the cost per transaction of the channels, including each self-service channel, for delivering each service. **Access Nova Scotia (ANS)** has moved in this direction by developing a methodology to calculate channel costs for delivering its services. The draft Conceptual Cost Model (simplified here) takes the form of a matrix that breaks delivery channels into In Person, On Line, Phone, and Mail. A substantial improvement over the broad channel categories noted above is that ANS provides finer subdivisions for the first three of these channels. For example, the In Person channel is divided into the sub-categories of Information, Transact, Counseling & Mediation, and Drop-off. For each sub-category in each channel, data are provided under the headings of Raw Percent, Raw Count, Average Minutes Per Interaction, Standardized Count, and Standardized Percent. Also included are the budget allocations for each sub-category of the channels and for ANS’s major program areas (e.g. Motor Vehicles, Vital Statistics, Business Registration). The cost per transaction for each sub-category is shown, and the transaction cost for each program area can easily be calculated.

The **City of Toronto**’s Channel Assessment Tool (CAT) assesses the desirability of various service channels - or combinations of channels - for delivering specific services. The channels considered are In-Person Counter, Mail, Web, IVR, Phone, Mobile Counter, and Electronic Kiosk. The factors considered under “the cost of implementing and maintaining the technology required for the channel to be operational” are

- Implementation Costs – The associated cost to implement the channel
- Integration Costs – The associated cost to integrate the channel with other channels already in operation

¹⁴⁰ Power, *Channel Shift: Realising the Benefits*, p. 15.

- Maintenance Costs – Ongoing maintenance costs to ensure that the channel remains operational
- Anticipated Customer Take-up Rate – Anticipated take-up rate by the public in 12 months
- Anticipated Avg. Per Customer Cost – Expected cost per transaction

CAT was used, for example, to assess the possible shift of part of the Provincial Offences Act (POA) fine payment services to other channels and the possible reinstatement of electronic kiosks. The analysis indicated that reinstating the kiosks would neither improve service nor reduce the use of the more expensive channels.

Barriers

The main barriers to achieving self-service delivery are very similar to those for service improvement in general. These barriers can be classified into four main types: political and legal, structural, managerial and operational, and cultural barriers. Since this classification has been elaborated elsewhere,¹⁴¹ only brief illustrative coverage is provided here, with particular reference to those barriers relating to self-service delivery.

Politicians are sensitive to complaints that mandatory migration to digital channels affects adversely access to services for their constituents, especially disadvantaged ones. A well-known example is the political debate surrounding the CRA's decision to abolish in-person service, except service by appointment for persons with special needs or complex issues. Similarly, **Denmark's** move to a paperless system for government-citizen communications is, as explained earlier, accompanied by special arrangements for technologically challenged citizens. Also noted earlier was the legal obstacle to shifting to self-service channels posed by the Federal Court of Canada's decision that the federal government must provide equitable online service for blind and visually impaired persons.

Many public organizations face a common structural barrier in the form of service channels that operate as silos and thereby inhibit cooperation, coordination or collaboration in channel management. Among the organizations working to overcome this barrier is **Service Canada**, with its Integrated Channel Service Experience Model providing for the harmonization of the Service Experience Models for each channel. Another example is **Access Nova Scotia's** Service Delivery Division that is responsible for managing the in-person, mail, online and contact centre channels.

Reference to the managerial and operational barriers posed by citizens' concern about privacy, security and identity management has already been made. A managerial barrier mentioned by several interviewees is the lack of sufficient resources, including people

¹⁴¹ Kenneth Kernaghan, "Beyond bubble gum and goodwill: Integrating service delivery." In Sanford Borins, Kenneth Kernaghan, David Brown, Nick Bontis, Perri 6 and Fred Thompson, *Digital State at the Leading Edge*. Toronto: University of Toronto Press, 2007, pp. 102-36.

resources, to design and implement self-service strategies. However, one interviewee claimed that, at least in his jurisdiction, the lack-of-resources argument was often an excuse for inaction, based on laziness and lack of commitment. Another interviewee observed that “in some cases, barriers exist simply due to inertia and a resistance to abandoning traditional structures or processes. Reengineering business processes to shift to self-serve often includes a requirement for a broad, large-scale, long-term commitment to transformation. Collaboration and commitment must be obtained and sustained at the highest levels of authority in order to successfully shift business processes and address resistance.”

There was general agreement among interviewees that too few resources are devoted to marketing the benefits of self-service channels, not only to the public but also to many senior managers. One interviewee noted that “advertising is costly and difficult for government to procure in a time of fiscal constraint. Low awareness of self-services often results in low customer uptake.” The Accenture international survey found that one third of the respondents were not aware of the various ways they could have digital interaction with government. And the Citizen Compass survey for Canada found that 46% of respondents lacked awareness of digital channels.¹⁴² The **Service Canada** case study notes the need for marketing tactics throughout the MSCA Expansion project development and implementation cycles so that MSCA can “be positioned as offering clients benefits of membership through convenient, easy to use, secure access.”

In many public organizations, technological and financial challenges are a significant operational barrier to digital service delivery since few existing services were designed with digital requirements in mind. Consider the demand for self-service delivery through mobile devices with the advent of mobile government. Governments are beginning to meet this demand for digital channel service by designing new services for digital delivery. The intention is that these new services will “be built with self-service channels and automated service delivery from day one, enabling them to ‘leapfrog’ directly to high quality and low cost outcomes.”¹⁴³

The cultural barriers to improving self-service delivery are often explained in terms of turf tension (e.g. competition for resources between the in-person and online channels) and tunnel vision (a silo perspective on channel delivery). The **City of Hamilton** case study demonstrates the importance of collaboration, leadership and change management in overcoming cultural challenges. The City’s goal of migrating citizens to self-service channels and reducing avoidable contact had “impacts on staff within business units where reductions in usage are targeted. With the motivation to reduce calls to the Contact Centre, leadership and change management were essential in order to support staff in working toward a common goal that eventually will result in reduced demand for certain service channels.”

¹⁴² PricewaterhouseCoopers, *Next Generation of Eservices*, p. 5.

¹⁴³ Deloitte, *Choosing Fewer Channels: Public Service Channel Options in an Age of Austerity*, 2011, p. 4, www.deloitte.com/assets/Dcom.../UK_GPS_Choosingfewchannels.pdf.

Building Blocks

A full examination of the design and implementation of a self-service delivery system is beyond the scope of this paper. However, the broad range of considerations on which this report has touched suggest several building blocks – or requirements - for the construction of a service delivery system, with a focus on self-service channels as opposed to the traditional ones.

The first requirement is knowledge of the kinds of self-service innovations and practices that are available – a requirement that can be satisfied in part by reading this report, together with a selection of the additional readings contained in the bibliography. The value to each reader of the various initiatives examined in this study will vary according to such factors as the reader's order of government (e.g. municipal, provincial); its size (e.g. large municipalities, small provinces); the state of its self-service initiatives (e.g. few or many); and the extent of the reader's knowledge about self-service delivery initiatives. In assessing whether certain innovations can be emulated in their own government, readers must consider, for example, the extent to which an innovation is scalable and, in particular, whether innovations in other countries or other domestic jurisdictions can be effectively transplanted.

A second requirement is a solid foundation of data on each service or program under consideration. Ideally, hard data would be obtained on the clients to be served, the channels through which the service is – or could be – delivered, the clients' channel preferences, and the transaction costs of the various channels for delivering that service. The City of Toronto's CAT is the type of instrument that can inform decisions on such matters.

A third requirement is a channel management strategy that makes specific provision for self-service delivery, including channel migration. Public organizations need to consider the extent to which their channel strategy contains appropriate plans and actions to foster a shift to the self-service channels. Several digital strategies, both for Canadian and other jurisdictions, were mentioned earlier. Note also Access Nova Scotia's Channel Strategy that is a component of its Service Delivery Framework and that includes:

- Understanding the guiding principles for channels and services
- Understanding the barriers to service delivery
- Understanding the delivery requirements for the portfolio of services
- Understanding client expectations
- Understanding tools and technology requirements to enable service delivery across channels.

Among several broad issues to be considered in designing a channel strategy are the provision of a common database enabling the sharing and use of consistent data across all channels, the protection of privacy and security, the assurance of digital inclusion, the

organizational design and performance measurement system for channel management, and the desirable extent of channel shift.

A fourth requirement is consideration of the means and measures to implement the channel strategy. With particular reference to shifting users to self-service channels, it is critical to assess carefully the range of incentives that can be employed, including those listed below:

- Increased marketing initiatives will inform users of the existence and utility of self-service channels.
- Public organizations can redirect users, especially from the traditional in-person and phone channels, to digital ones.
- High-quality websites, in terms of simple and effective access to information and services, can attract and retain users.
- Public organizations can provide financial incentives in the form, for example, of reduced fees or quicker delivery, to foster migration to digital channels.
- For some services, delivery channels, especially the regular mail and in-person ones, can be eliminated.
- Various initiatives can be taken to assist those who are digitally disadvantaged to use self-service channels.

Next Generation Self-Service Delivery

Public organizations that are lagging behind in the movement towards self-service delivery may understand the urgent need to catch up when they contemplate the additional challenges arising from emerging developments in technology and public management.

The current generation of service delivery has seen substantial advances in integrated service and channel delivery across departments and governments. Other significant developments, at varying stages of maturity, include governments' use of collaborative technologies, new approaches to citizen engagement, the open data movement, new organizational arrangements, and more partnerships. On the latter two points, one interviewee predicted that "fiscal realities and customer demands will result in an increase in partnerships that will continue to break down traditional organizational models and require reassessment of organizational roles. Increasingly, governments will work with one another and with the private sector to meet customer needs for service delivery, whether through self-service or otherwise."

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British Columbia's transformation and technology strategy for the public service reflects these developments. It includes a section on self-service showing several measures for moving from "an online service presence defined by an organizational structure to a more citizen and user-centric model." These measures will

- Focus on redesigning the main "doorway" to government services – www.gov.bc.ca – to enhance the look and usability, maximize the service experience for citizens, and break down the organizational structure of government.
- Pilot the use of innovative Web 2.0 tools and platforms to expand access to online services and content.
- Pursue the best practices in search engine optimization, taxonomy, and meta-tagging to assist clients in locating key services, regardless of what doorway they choose.
- Corporately foster excellence in user-centred design and content development through shared web development toolsets across government, including improved approaches to content creation and maintenance.
- Work with ministries to assess their current service environment and collaboratively work towards key service improvements – either through new services, discontinued services or improvements to existing services.
- *Renew emphasis on user, citizen and stakeholder preferences for self-service improvement, feedback and awareness.*
- Improve awareness of government services and incrementally bring together transactional services under a single distinctive brand supported by marketing.¹⁴⁴

Other predicted developments, lying further down the service delivery road, require much more speculative reflection on their likely implications for service delivery in general and self-service in particular.

Big Data is complementing the Open Data movement. Open Data initiatives involve governments making large amounts of data available to members of the public, partly in the hope that they will exploit the data to develop innovative services. The term Big Data is variously defined, but in general it refers to "datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze."¹⁴⁵ It is anticipated that both public and private organizations will be deluged with data from such sources as the Web, contact centres, mobile devices, and social media. For many reasons, including improving service delivery, governments will be pressured to capture and analyze these data and to make them available to the public on a self-service basis. The information and insights gleaned from data analytics can be used for such self-service purposes as understanding clients' channel usage and preferences, calculating

¹⁴⁴ *Citizens @ the Centre*, p. 19.

¹⁴⁵ James Manyika et al., *Big Data: The Next Frontier for Innovation, Competition, and Productivity*, McKinsey Global Institute, May 2011, p. 1, http://www.mckinsey.com/insights/mgi/research/technology_and_innovation/big_data_the_next_frontier_for_innovation.

channel costs, and segmenting and personalizing service delivery. Manyika et al argue that

making big data available as a matter of course could aide innovation and promote radical change in how public services are run, how they deliver and what they set out to do. Civil society organisations, charities and entrepreneurs can use government data to develop innovative services while the public can use it to spot anomalies, to give context to their anxieties and to demand a higher level of service. But transparency is also a moral good. Data that are generated in the name of the public should, on the whole, be available to the public. Big data – formed as they are by the massive machinery of government – must be as available as possible to the public as a matter of course.¹⁴⁶

Another anticipated development, with potentially transformative implications for government service delivery, especially self-service, is the emergence of a period characterized by an explosion of machine-to-machine (M2M) communications. M2M devices are “those that are actively communicating using wired and wireless networks, are not computers in the traditional sense and are using the Internet in some form or another.”¹⁴⁷ On a global basis, the number of M2M devices has been predicted to increase from about 5 billion in 2012 to 50 billion by 2020.¹⁴⁸

A related prediction is the flowering (by 2030) of a broader phenomenon known as “the Internet of Things” that involves “a future in which everyday objects such as phones, cars, household appliances, clothes and even food are wirelessly connected to the Internet through smart chips, and can collect and share data.”¹⁴⁹ Evidence of early government action to assess these developments is the **European Commission’s** launching of a public consultation on the Internet of Things, the appointment of a European Union “Internet of Things Expert Group,” and **South Korea’s** Master Plan on the establishment of an Internet of Things to add or improve government services in such areas as weather monitoring services and intelligent metro bus stop services.

The self-service challenges covered in this report have significant implications for employee recruitment and skills development in public organizations. Fortunately for the effective management of self-service delivery, a large percentage of the workforce, including the public service, will soon be composed of members of what has been termed

¹⁴⁶ Ibid, p. 69.

¹⁴⁷ OECD, Working Party on Communication Infrastructures and Services Policy, 2012, *Machine-to-Machine Communications: Connecting Billions of Devices*, p. 5, DSTI/ICCP/CISP(2011)4/FINAL. [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP\(2011\)4/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP(2011)4/FINAL&docLanguage=En).

¹⁴⁸ European Commission, *Digital Agenda: Commission Consults on Rules for Wirelessly Connected Devices – the “Internet of Things,”* Press Release, April 12, 2011, p. 1, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/360>.

¹⁴⁹ Ibid.

Generation C – those persons born after 1990 who are “connected, communicating, content-centric, computerized, community oriented, always clicking.”¹⁵⁰ Within a decade, this generation will make up 40 percent of the population of the industrialized states and will live in a world where their constant use of mobile devices will make their online and offline lives converge. However, the next generation developments just mentioned will also require an increasing number of public servants with the requisite mathematical and statistical skills to exploit data analytics and the managerial skills to cope with the impact of M2M communications and the Internet of Things.

¹⁵⁰ Booz and Company. 2010. *The Rise of Generation C: Implications for the World of 2020*, p. 2, http://www.booz.com/media/uploads/Rise_Of_Generation_C.pdf.

APPENDIX 1 - CASE STUDIES

Case Study #1 – City of Hamilton

City of Hamilton - Combining Metrics Analysis from Multiple Channels with a User-centred Design Process to Improve the Citizen Experience of the City of Hamilton's Online Garbage and Recycling Calendar

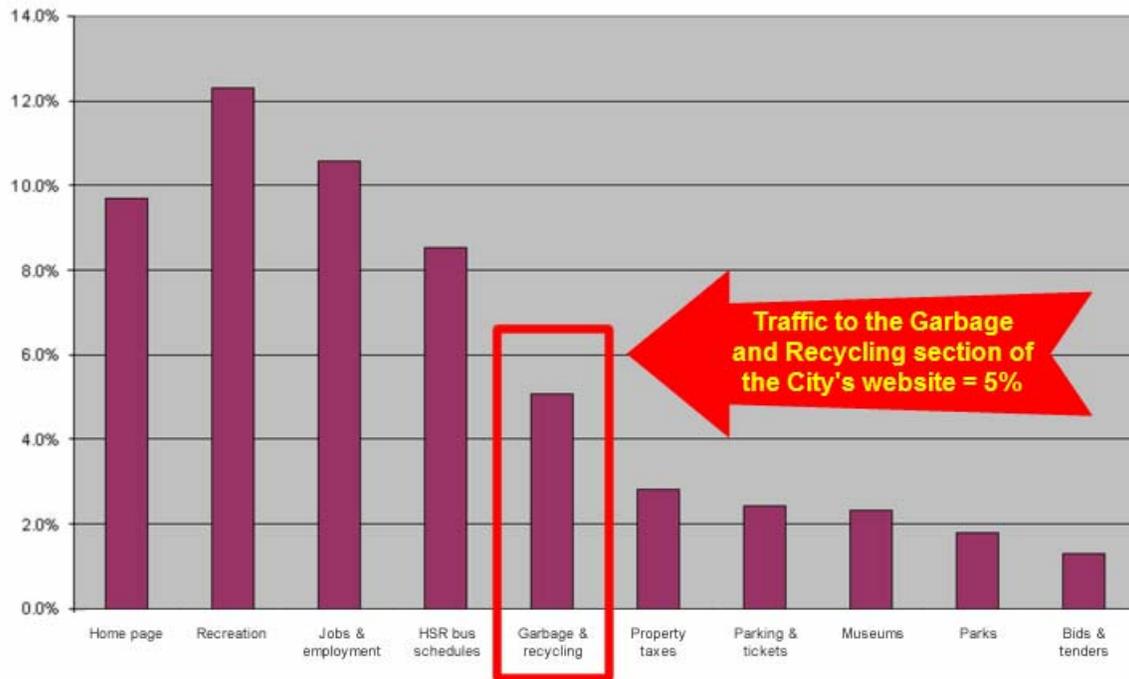
Background

What is the result of a poor citizen experience online? A bad online service experience can frustrate citizens, harm a municipality's brand and lead to lost opportunities for new revenues. It can also impact service delivery costs by driving citizens to more expensive service channels, including the telephone and in-person counters.

One of the most fundamental services that citizens associate with their municipal government is the regular curbside collection of garbage and recycling. Citizens are able to link their local waste collection programs not only to their neighbourhood's livability and their own residential property values, but also to important public health benefits resulting from a comprehensive waste collection program. Citizens' interest and engagement with this service is evident by their adoption of recycling and green bin waste diversion programs, involvement with landfill deliberations, and significant public awareness and discussion related to the cost of providing the service through public and/or privatized delivery models.

Garbage and recycling services are consistently among the top reasons citizens visit the City of Hamilton's website (www.hamilton.ca) and call or email the Contact Centre. The City's waste management services represent approximately 5% of the total traffic to the City's website (see *Figure 1*).

Figure 1 – Percentage of traffic to the City of Hamilton's website by task group (2010).



For large, single-tier municipalities like Hamilton, with hundreds of services, a single service area that generates that much traffic to the website is significant, and therefore it is critical to ensure that online access to this service is performing well for citizens.

Like many other municipalities, the City of Hamilton offers weekly garbage and recycling collection. For most households, Hamilton has a one bag limit for garbage, one green bin limit for organic waste and unlimited collection of blue box recycling, in order to promote landfill waste diversion targets. During certain periods of the year, leaf-and-yard waste collection occurs on alternating weeks, depending on the location of the household. As a result there are five days of collection (Monday-Friday), and two alternating weeks for leaf-and-yard waste collection, resulting in 10 distinct waste collection calendars across 28 zones in the city. A household's regular waste collection will occur on the same day throughout the year, with the exception of *some* holiday periods, when waste collection shifts to the following day for that week. The design of this waste collection process balances many factors including the needs of citizens, the cost of delivering the service, the integration of six former municipal waste collection processes into a single process and the long-term sustainability of landfill sites within the boundaries of the city.

In 2010, a request to redesign the City's Public Works home page to reflect organizational changes within the department prompted a broader discussion resulting in the opportunity for a partnership between the corporate Service Delivery Team and the departmental staff in the Waste Management Division. Together, the group identified strategic

opportunities to improve service to citizens in relation to accessing online information about address-specific garbage and recycling collection services.

Data from multiple channels (web metrics, Contact Centre call volumes, email analysis, search keyword analysis, GIS address-based data systems, an heuristic review and prior usability testing) were used to derive problem areas and opportunities for improvement, and the City undertook a user-centred design (UCD) project to re-develop the online Garbage and Recycling services and information.

The main business goals of the project included the desire to improve the citizen experience and the opportunities to streamline processes to make the online service operate more effectively at a lower cost to citizens, while leveraging new technologies. The project was focused on improvements to highly sought-after information and tasks related to garbage and recycling with an emphasis on improving the online waste collection calendar lookup tool. These improvements support citizens' needs and help them to avoid having to contact the City for routine information. As a result, cost-reduction and return on investment are demonstrated by moving more citizens to self-serve channels and by ensuring that citizens are able to find highly sought-after information on their first attempt.

The Innovation

In this project, the focus was on improving the self-service experience using the website, with the intent to establish the correlation between an improved online experience and a reduction in routine Contact Centre inquiries related to waste collection.

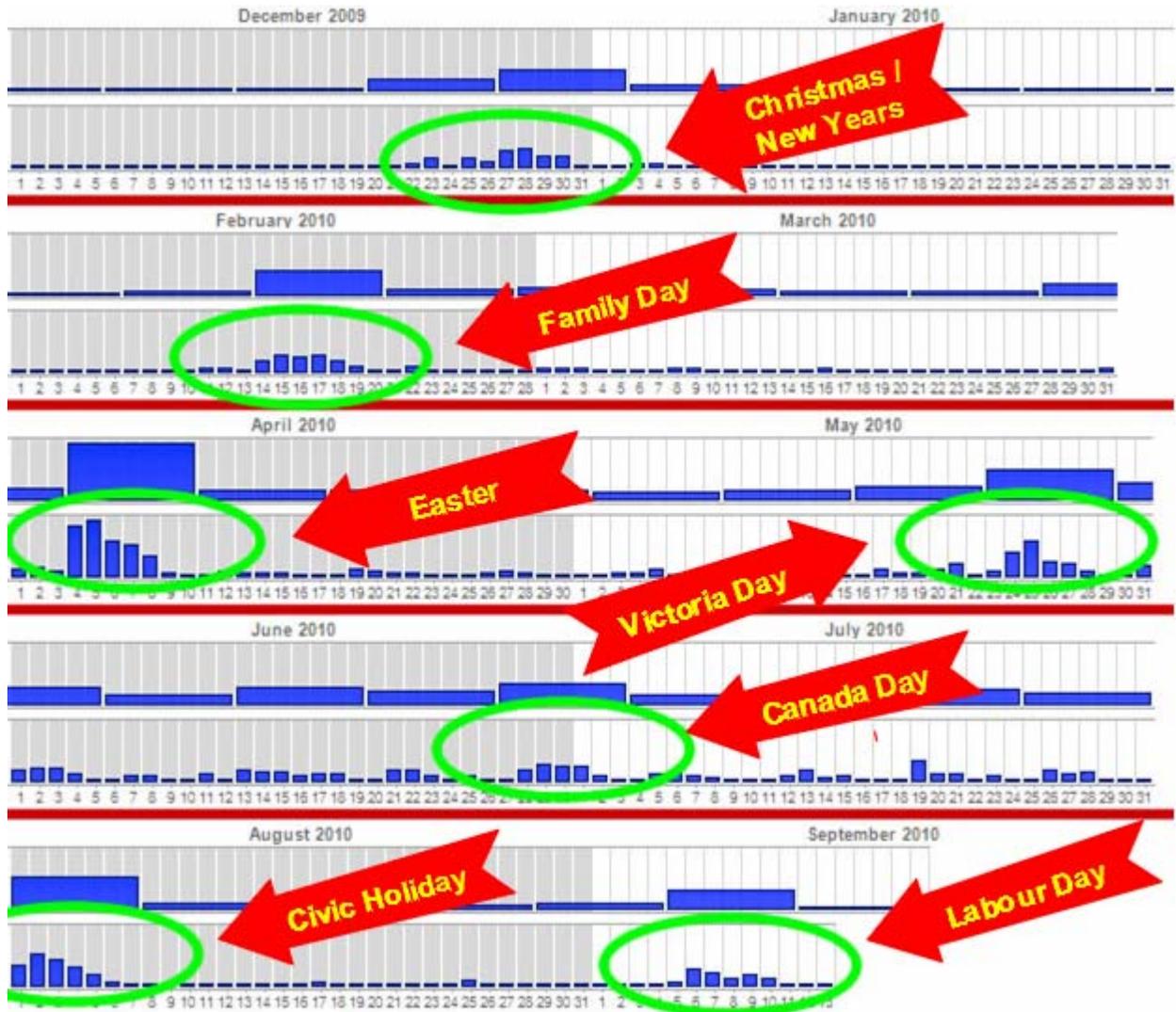
We refer to the activity of a citizen visiting a website or calling the Contact Centre as a *task*. The team undertook an analysis of data from various sources and channels, including website metrics, Contact Centre call volumes, email analysis, search keyword analysis, a heuristic review and prior usability testing. Key tasks citizens are performing online and through the Contact Centre within the garbage and recycling domain include looking for transfer stations (hours, locations); inquiring about obtaining blue boxes and green bins; and finding their collection schedule. By using data from various sources, the team was able to interpret a 360 degree view of citizens' needs across all channels as defined by the tasks they were seeking to perform.

Using this analysis, the City would be able to predict routine inquiries from citizens and ensure that the online channel is redeveloped effectively, in a manner that supports the maximum number of citizens being able to successfully complete their task on the more cost-effective, self-serve channel. Extending the opportunity further, the City would also be able to use this information to target communications to citizens and develop programs in a manner that meets citizens' needs and avoids the need to make contact with the City altogether, in order to access a particular service. Reducing or eliminating

*avoidable contact*¹⁵¹ is the most cost-effective method of delivering services to citizens, as it ensures that all service channels have minimum usage (lowering costs to manage those channels). Moreover, citizens are satisfied because they don't need to inquire about a municipal service in order to access it. As highlighted in this case, avoidable contact will ensure that citizens are proactively informed, and therefore not required to call, email or visit the website to gather the information they need. As an example, for the task of citizens finding their waste collection day, based on an analysis of the usage of the online waste collection calendar in 2009, it became clear that there was significant usage around holiday periods (see *Figure 2*). This data clearly demonstrated that citizens were uncertain about when garbage would be picked up and they looked to the City's website as a source of information to assist them with their task. The Contact Centre also reported similar increased calls related to this task around holidays.

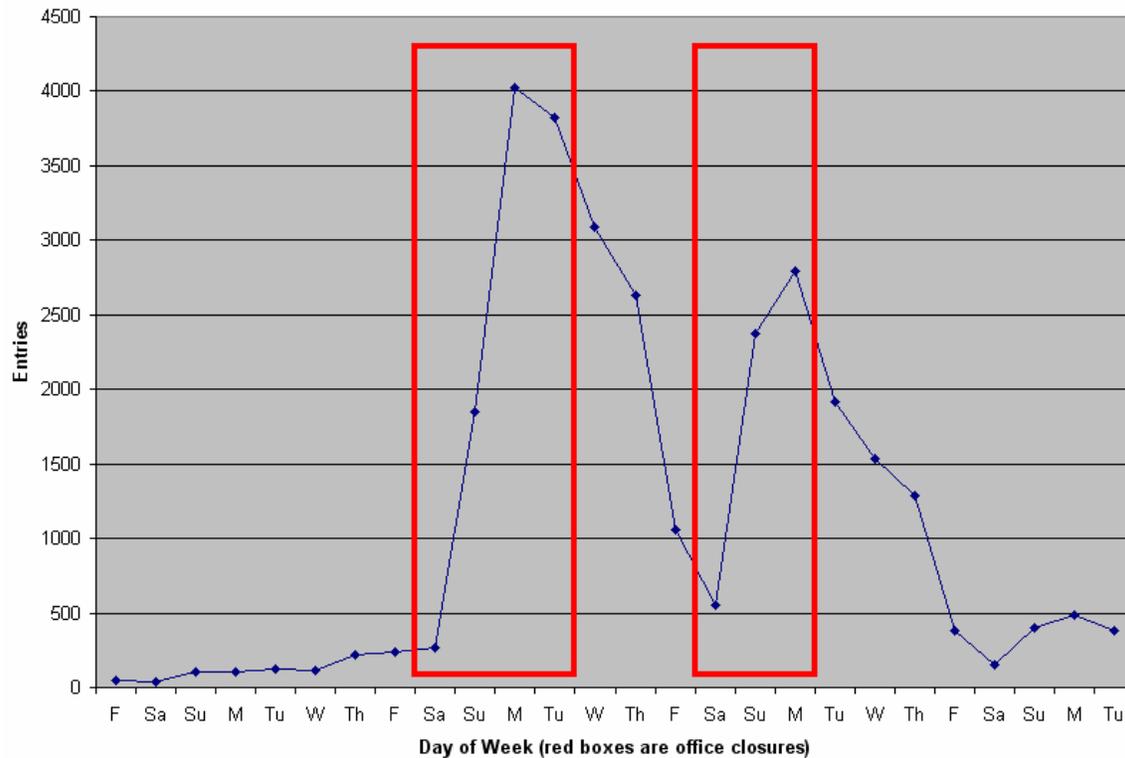
¹⁵¹ I&D^eA Improvement and Development Agency, *Reducing avoidable contact – a guide to NI 14*, <http://www.idea.gov.uk/idk/aio/8621612> (July 2008).

Figure 2 – Usage of the Waste Collection Calendar peaks during holiday periods in 2010 (green circles).



This significant increase in the usage of the waste collection calendar occurs most noticeably during holidays, predominantly at times when the City's Contact Centre is closed, such as on the 4-day closure leading into Christmas Day and the 3-day closure leading into New Years Day (see *Figure 3*). During these holiday periods, citizens who call or email will not receive a response until the Contact Centre re-opens several days later. The website is the *only* service channel available to citizens where they would be able to obtain the information they require to complete their task.

Figure 3 – Usage of the online waste collection calendar during Christmas / New Year's holiday periods. Note the usage in the red squares when the Contact Centre was closed.



However, there was strong evidence that the online services related to garbage and recycling (specifically using the online garbage collection calendar) were not performing well for citizens, thus driving them to call our Contact Centre with these routine questions.

In fact, the online waste collection calendar frequently failed to make matches to the underlying address database prior to redevelopment, and produced an error message directing citizens to call the Contact Centre. An excerpt from an Expert Review conducted to assess the performance of the online collection calendar indicated that citizens would frequently receive an error message after inputting their address into the tool (see *Figure 4*). Not only would this error message frustrate citizens dutifully looking up their waste collection calendar, the message also drove citizens to use the more costly Contact Centre service channel, even during times when the Contact Centre was closed.

Due to a lack of effective system performance monitoring, the City is not exactly certain how many times this error message was occurring for citizens, although based on anecdotal evidence, it was clear the number of failures was significant and that the system was failing to provide a waste collection calendar for citizens more than half of the time, which translated into thousands of unsuccessful attempts over a period of a number of years.

Figure 4 – Excerpt from an Expert Review highlighting the service channel fragmentation and tendency to drive online channel users to call the Contact Centre.

1. Select your community name from the dropdown list

Community: << you must select

2. Key in your street number and / or street name. Street number must be numeric. Street name can be the full street name (e.g. King St W) or partial street name (e.g. King). Street name must be at least 3 characters. Do not use punctuation and do not include your unit number.

Street Number: and/or Street Name:

Waste Collection Calendar
Addresses difficult to find

A number of Hamilton addresses are not easily recognized by the tool.

In this example we used "88 St. Josephs Dr" since it is the street presented in the tips section.

Note: Do not use punctuation in street names. E.g. key St Josephs Dr NOT St. Joseph's Dr.

Someone living on this street would never expect to input their own address any other way if they read the tips section .

Next "88" was removed and only entered "St Josephs Dr". Other homes on the street were listed but not 88.

Note: 88 St Josephs Dr is actually listed as "Saint Josephs Dr".

...ing. Even if one instructions an ...ly missed.

WASTE COLLECTION CALENDAR

Please correct the following errors:

No properties were found matching your search criteria. Check that you have entered the information correctly. For additional information regarding street names see our [Search Tips](#).

If you still have trouble give us a call at (905) 546-CITY (2489).

[Back](#)

Direction to call the Contact Centre.

This frustrating experience was not just limited to holiday periods either – citizens who were new to the city, or who moved from neighbourhood to neighbourhood would also receive the same experience if they looked up their calendar online, as would those seeking information about seasonal waste collection, including the summertime bi-weekly leaf-and-yard waste collection. All of these citizens performing these routine tasks would frequently be frustrated by attempting to use the online collection calendar, and they would be directed to call the Contact Centre, reinforcing their continued reliance on the more costly service channel.

By using data from various sources and channels to make informed improvements to this online service, it was anticipated that routine call volumes would decrease, citizen satisfaction with that portion of the City's website would increase, and most importantly, citizens' would be successful in their task and not experience frustration.

With this data as the foundation, the project followed a user-centred design process which enabled the team to obtain insights into how citizens view relevant waste management services, as well as the best way to support citizens in finding information and

calendar tool was also simplified, by eliminating a complex, multi-part address input form and consolidating the form into a single address input bar (see *Figure 6*).

Figure 6 - Redesigned Garbage and Recycling website. Keyword search analysis allowed the content to be rewritten in the citizen's voice (red arrows). Collection calendar has a performance measure of 95%.

City of Hamilton
Garbage and Recycling

[Print](#)

Find your collection calendar

Address:
Example: 71 Main St. West

[What goes where?](#)
Find out what items go into the blue box, green bin, garbage or yard waste.

[Blue boxes and recycling](#)
What goes in a blue box, tips for recycling, pick-up a re

[Green bins and composting](#)
What goes in a green bin, tips for using a green bin, or for your garden.

[Leaf and yard waste](#)
Tips for bundling leaf and yard waste, grasscycling.

[Garbage and bulk items](#)
What goes in the garbage, one bag limit, schedule a p

[Community Recycling Centres](#) (transfer stati
What goes to the Community Recycling Centres, locati
metal, household hazardous waste.

[Outreach and Departmental Info](#)
Book a school visit, learn more about the solid waste r
other information about our operations.

City of Hamilton
Garbage and Recycling - Waste Collection Calendar

[Print](#)

Here is your collection calendar for: **131 HESS ST S, HAMILTON**

March 2012						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Next pick-up:
Monday, March 5

You can put out the following:

Unlimited 1 bin 1 bag 2 bags

[Print / view full calendar](#)

Performance measures were monitored and the newly developed tool had a success rate of 75% on the first attempt by citizens entering their address in the tool. Although this represented a significant improvement over the previous tool, further performance enhancements were desired. Addresses entered into the online tool were captured and analyzed, in order to make further refinements to the underlying address matching system. This allowed the team to make the tool easier and more forgiving for citizens, thereby increasing its usability and performance. By July of 2011, a final version of the

tool was launched that provides a successful match on the first attempt for 95% of citizens.

Notably, as the adoption of smart-phones continues to increase in Hamilton – currently, 18% of visits to the website are now through a smart-phone device such as an iPhone or Android device – the simplified content and collection calendar are now optimized to perform well on mobile devices.

Benefits of the Innovation

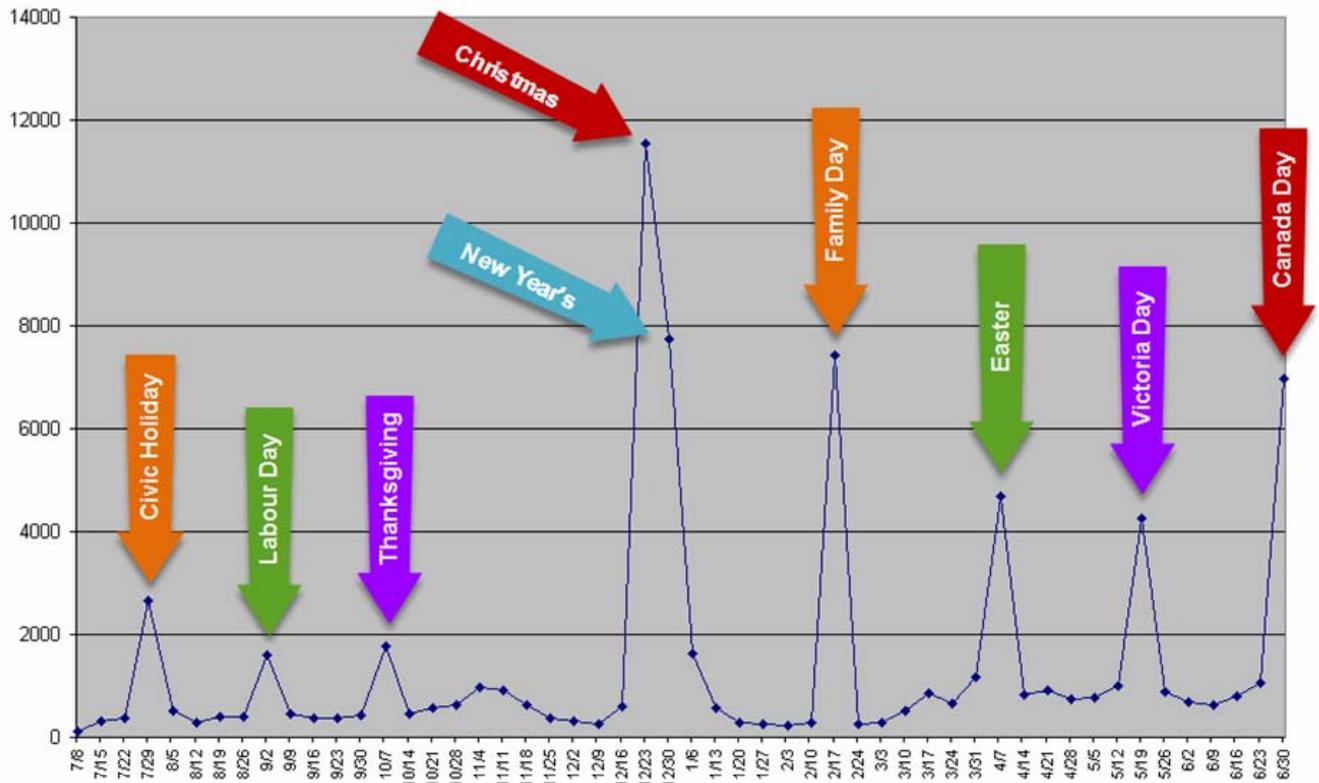
There were several key benefits related to this innovation.

Improvements to the Citizen Experience

The previous failure rates online which drove citizens to call the Contact Centre means that calls related to the failure of the online lookup tool are now avoided. By providing this information online, and ensuring that the tool provides accurate responses nearly 100% of the time, the City is able to avoid costs related to call handling.

Since launch in July 2011, over 35,000 households have used the online lookup tool (out of approximately 160,000 households in Hamilton). Even though a high-quality printed calendar is mailed to homes each spring, it is clear from the number of lookups, particularly in the spring of 2012, (see *Figure 7*) that the print piece is not always retained, therefore costs associated with this print production and mailing could be reviewed in the future to assess for return on investment.

Figure 7 – Usage of the online waste collection calendar continues to peak during holiday periods (2011-2012). Since the new design was implemented, the usage of the redeveloped tool is trending upward.



More importantly, it is clear that usage of the online waste collection calendar is trending upward over time, indicating a growing adoption of and reliance on the more cost-effective online tool. Usage has more than doubled at similar holiday long-weekend periods year-over-year (see *Figure 7*).

Improved Data Collection and Analysis

Accurate measures of call volumes related to routine inquiries for waste collection information were not previously logged in our Contact Centre. Only calls that generated a work order – such as missed garbage pickup – were logged (approximately 25% of all waste-related calls). The remaining routine informational calls (approximately 75%) were not logged. In some call centre environments, the lack of tracking is a result of the associated cost of logging all calls. In this case, however, as a result of this project, we have begun to log all routine informational calls related to garbage and recycling, and we have begun to develop processes to migrate those calls to self-service through the City's website.

Given that calls were not being logged and pre-launch measures of the online calendar's performance were not available, it was difficult to correlate the impact of the improvements to the online calendar using a pre- and post-measure. However,

anecdotally and through ongoing measurement and monitoring of the online tool, it has become clear that a reduction in calls has been realized.

As a result of working collaboratively on this project, the Service Delivery Team, the Contact Centre, the operational business unit in Public Works and the Information Technology division are now working closely to identify relevant data and analytics sources, to ensure the 360 degree view of citizens' needs is integrated into future online enhancements.

Integration of All Service Delivery and Communications Channels

Prior to this project, service and communications channels were managed independently from one another, preventing the realization of opportunities to integrate channels and provide seamless service to citizens. The Contact Centre utilized generalized scripts for overnight and holiday messages, but would not necessarily encourage callers to visit the website where information is available 24/7, nor would callers be alerted to the holiday schedule changes, thereby avoiding the need for further contact. Messages related to holiday closures would be posted on the website that were not aligned to similar print ads that would run in the daily newspaper. Communications staff would coordinate media relations activities and staff in the operational business unit would manage social media channels. As a result, key messages and service offerings were fragmented across the channels, resulting in different experiences for citizens depending on the channel they used.

As a result of this project, relevant teams now collaborate to align key messages and ensure that there is a seamless service experience across all channels and communications vehicles (see *Figure 8*). Holiday closure messages are now developed simultaneously for both print ads and online bulletins. The content of closure messages has been improved by integrating messages from both web and phone channels. The Contact Centre and the Service Delivery Team now work together to script overnight and holiday phone messages that inform callers about holiday schedule changes and drive them to the online waste collection calendar for more information. Using data from web analytics and the integrated messages for closures, the operational business unit now posts social media messages timed according to when users need information in advance of a holiday. And finally, communications staff are now coordinating media relations activities with all three teams to ensure alignment and clarity of key messages to ensure accurate and timely information is disseminated via local media.

Figure 8 – Messages regarding holiday waste collection schedule changes are integrated across service delivery and communications channels (red arrows).



Monitoring and Measuring Performance

Prior to the project, the performance of the online waste collection calendar was not monitored or measured. As a result, management was unaware of the poor performance of the online tool and the frustrations experienced by citizens who were forced to call or email the Contact Centre. Additionally, since routine informational calls were not previously tracked in the Contact Centre, there was a further disconnect between management's awareness of challenges and citizens' difficult experiences online.

As a result of the project, the performance of the online tool is now monitored and reported. Successful matches of address lookups through the online tool went from *unmeasured* to 75% success during the initial launch period in March of 2011. After this initial launch, unsuccessful address lookups were tracked and reviewed regularly to determine cause of system failure. After several iterative enhancements to the underlying

address matching process, the tool is now 95% successful at making a match on the first attempt. Mismatches are now mostly related to spelling errors or as a result of usage from non-residents living in municipalities named Hamilton, but in other countries (e.g. Hamilton, New Zealand).

Using this ongoing analysis, adjustments to the tool (including improvements to the underlying address-based GIS system) have resulted in further improvements in the performance of the online waste collection calendar, ensuring that future visits from citizens generate continually improved results. The monitoring and measurement of the online waste collection calendar continues as part of an ongoing process to ensure the tool is always up-to-date and performing well for citizens. In essence, a focus on data and measurement not only helps the citizen, but also encourages the organization to improve its internal processes and management of data sources.

Other Benefits of this Project

In overhauling this subject area of the website, the number of pages on the website was reduced from 130 to 18, without a loss of any information. This not only improves the experience for citizens trying to find relevant information but also makes the website much easier and less costly to maintain.

Additionally, a review of the web metrics and Contact Centre calls and emails indicated a gap in what was available online. Citizens often call and email the Contact Centre to find out which items belong in which waste collection stream – green bin for organics, blue boxes for recycling and garbage bags for waste, plus other waste streams for bulk, construction material, hazardous waste, electronics and appliances. A ‘what-goes-where’ listing was compiled and made available online and is continually updated based on reviews of the newly collected call metrics gathered in the Contact Centre. Any item that a citizen inquires about in an email or through a call is then added to the online list for continuous improvement of that tool.

Issues/Challenges Encountered

Initially, the team explored the possibility of using an embedded mapping tool to assist users in finding their waste collection calendar online. Mapping tools, such as Google maps, are becoming widespread due to Google providing developers with open and free or low-cost access to programming tools (API's). It was anticipated that the use of a mapping tool would avoid challenges faced by citizens entering addresses that had various formats. For instance, in a city the geographic size of Hamilton, encompassing several rural, urban and suburban areas, many streets have multiple formatting conventions (e.g. highways, concession roads, etc.). In addition, several streets crossing the city have various names in different neighbourhoods – for example, citizens use Queenston Road and Highway 8 interchangeably throughout the city. It was anticipated that a map would overcome these kinds of challenges.

However, based on the results of usability testing with a number of different mapping prototypes, it became clear that while mapping tools may have high adoption in certain demographics, they are not yet ubiquitously easy to use by *all* citizens. A tool such as a waste collection calendar will be used by citizens of all ages, abilities, education levels, English fluency, income strata and so on. Therefore, the tool needed to be usable for the masses. This is particularly important if the ultimate goal is to encourage citizens who have traditionally relied on the phone, in-person or print channels to adopt the online channel – it must be very easy to use. The usability testing and prototypes allowed the City to observe and deliver a product that met various audience segments' needs. As a result of the usability testing of the prototypes, the team determined that a text-based address lookup tool was the best option for meeting the needs of Hamilton's citizens via the online channel.

Critical Success Factors

Leadership was committed to improving the experience for the citizen and redesign of the website based on evidence and metrics, allowing the appropriate human and financial resources to be centred on improving service. Providing quarterly updates to the leadership on the success in achieving the initiative's goals helped to keep the team motivated in moving forward.

As noted above, a cross-functional and multi-disciplinary team composed of the business, strategy and information technology staff was also essential. Modern skill sets were required with specific experience, particularly web analytics and metrics expertise as well as User Experience to lead the strategy for a user-centered design methodology.

The process in this project included the following activities critical to success:

- Analyzing metrics and channel usage;
- Reorganizing and rewriting recycling and garbage content on the City's website;
- Developing an online calendar tool to facilitate citizens finding their garbage day (holidays, tree pick up), testing for ease-of-use and accuracy with citizens, iterating as needed and launching a final solution;
- Gathering of insights related to print communications for future work;
- Through the user-centered design methodology, obtaining insights related to improving the delivery system for recycling, green bin, garbage, yard waste, bulk and other waste collection processes.

Learning Points

Governance, leadership and change management were critical factors in fostering the service improvements in this project. Establishing governance for the project ensured that a team was gathered from cross-corporate functions to work collaboratively toward a common goal, as outlined in a Project Charter that was sponsored by executive leadership. The team was provided with appropriate resources and accountability. As the team turns its attention to other work, it will be critical to maintain and continue to

monitor performance. A consistent focus is required to improve and maintain the quality of this heavily used online service. Therefore, lasting governance models are needed.

Ultimately, the goal of this project is to migrate citizens to self-service channels and reduce avoidable contact. This in turn can have impacts on staff within business units where reductions in usage are targeted. With the motivation to reduce calls to the Contact Centre, leadership and change management were essential in order to support staff in working toward a common goal that eventually will result in reduced demand for certain service channels. In this project, the gathering and use of metrics from the Contact Centre was a critical success factor leading to the improvements to the online channel, therefore it was important for leadership to be visible and engaged in the project, and for all staff to be acknowledged and rewarded for contributing to the project. Without the buy-in and support of the Contact Centre, this project would not have been as successful.

The City is currently exploring a Call Handling Review to further consolidate and standardize Contact Centre operations. By reducing calls to the Contact Centre around routine waste management inquiries, it is anticipated that the increased capacity will enable opportunities to support the Call Handling Review by providing capacity for more calls to come into the Contact Centre from other areas of the organization. This will not only improve the citizen experience for these well-managed calls, but also alleviate pressures in parts of the organization where taking large volumes of calls from citizens is an operational challenge. Moreover, it will also facilitate improved data collection in the Contact Centre which will further provide opportunities for improvements to self-service channels in the future.

Next Steps

The City will continue to monitor the adoption of the online tool via assessing the number of unique households that have used the tool, as well as the measure of performance or success in results. Additionally, the City will continue to measure call and email volumes with respect to inquiries related to waste collection. Further, the level of engagement via social media will continue to be monitored to assess the value of the use of social media relative to the cost and resources required to monitor and respond over this emerging new channel.

More importantly to the initiative, the City will endeavour to develop programs and policies to minimize the required contact with citizens, by determining the best schedule for collecting waste and disseminating information to the citizen via the channel and frequency of their choice. Wherever possible, the preferred method of delivering service will include effective *proactive* communications to citizens that avoid the need for the citizen to make contact with the City.

Higher goals can now also be considered for the use of self-serve channels by looking at other process changes identified through web, call and email analysis. This could include enhancing electronic communication to cross-promote multiple City services.

Based on the many insights gathered from this project, additional next steps are indicated below.

Tracking All Calls/Emails to the Contact Centre

Based on the success of this project, the Contact Centre is exploring the feasibility and resource implications of tracking all routine, informational calls and emails. As this data begins to be collected, further improvements to all channels will be possible by integrating this data with website metrics and business data. The call and email tracking information can help to identify and fill in gaps in online services and information that would not otherwise be caught by reviewing website metrics alone.

Predicting Timing of Citizens' Information Needs

Using analytics in real time, the City is able to identify anomalous increases in calls or visits to the website, which can often indicate an unexpected source of confusion or an emerging issue. For instance, during the Christmas closure, a local media outlet erroneously reported the waste collection schedule to their viewers. This in turn generated a significant amount of confusion for citizens, who turned to the online calendar for verification. This anomalous spike in the usage of the online calendar indicated that redoubled efforts were required to ensure that citizens were accurately informed.

In this way, the use of website and call metrics in real time can be fed back into business units, allowing them to respond to urgent or emerging issues, and thus minimizing the impacts (and costs) of unexpected incidences. For example, the cost of responding to missed garbage pickup or illegal dumping is significant compared to the relatively low cost of proactive communications to citizens. This potential for predicting citizens' needs in real time could have a wide range of potential benefits across many areas of municipal service delivery. Through a comprehensive system of reviewing analytics, the City will be able to anticipate and respond to urgent or emerging issues.

Striving to Eliminate Avoidable Contact

Use of the online tool is increasing, particularly at holiday weekends. Holiday usage has more than doubled since 2011 (see *Figure 7* above). From this insight, we can derive that citizens are using the online calendar around holidays to look up their garbage collection schedule, as the schedule shifts one day forward for most holidays. By monitoring and harnessing this insight, we can now strive for avoidable contact by communicating the change in advance of the holiday, thereby not requiring citizens to have to call or go online.

We are thus paradoxically, actually targeting an eventual *reduction* in the usage of the online waste collection calendar over time. By providing the information proactively – in a timely manner and through the preferred channel of choice for the citizen – the City can

eventually eliminate the requirement for citizens to seek out this information, resulting in the eventual lower usage of the online tool.

Additionally, by feeding this kind of insight back into the business unit, important business decisions can be made that would seek to eliminate avoidable contact in the future. For example, the City is approaching the end of existing contracts for waste management services and seeking to establish new long-term contracts for the years ahead. This provides an opportunity, before the contract is established, to redesign certain aspects of the waste management system to meet future needs and priorities. One option that the business unit may consider would be to *not* have schedule changes during holiday periods, thereby providing a consistent collection day for citizens which does not change throughout the year. The City would obviously need to determine the financial and contractual impacts of this design change to ensure it was cost-effective and did not impact other aspects of the operation. However, by considering this type of design change, there are further opportunities to improve the citizen experience and eliminate avoidable contact.

Striving to Eliminate Avoidable Costs

Based on recent figures from Service Canada, the cost per transaction varies across service channels (see *Table 1*). Using the Service Canada figures as a guide, combined with the annual volumes of transactions over the City of Hamilton's service channels, it becomes apparent that the City could realize significant cost savings based on the number of annual transactions occurring via the telephone and in-person channels.

Table 2 – Cost per transaction by channel (Service Canada figures quoted at Lac Carling Congress, 2009) and volume of annual channel activity (City of Hamilton).

Service Channel	Cost per Transaction (ServiceCanada)	Annual Channel Activity (City of Hamilton)
In-person	\$6.50	90,000
Phone	\$4.00	1,300,000
Web self-service	\$0.10	4,000,000

For example, if the City were to move 20% of its in-person transactions to online self service, not only might this provide better and more convenient service to the citizen, but the City could also potentially save more than \$100,000 annually. Due to higher volumes, even greater savings could be realized if the City were to move 20% of our telephone calls to online self-service – the savings could be as much as \$1 million annually using the Service Canada figures as a guide.

The pre-existing process to find a garbage pick up day was cumbersome as demonstrated. This in turn drove citizens who were using the online tool to resort to calling the Contact Centre, thus duplicating channel usage costs and causing frustration by delaying response times if the citizen was using the online tool outside of regular business hours. Not only does it frustrate citizens to have to look for this information and fail, it costs the city twice; once on the lower cost web channel – where if it had been satisfactory it would have been approximately \$0.10 cent per transaction – but instead, it costs us again this time on the more expensive telephone channel where costs are significantly higher.

In addition to the potential cost savings of migrating services to the online channel, opportunities also exist to review the cost-benefits of print collateral including the waste collection calendar that is delivered to all households annually. This print material is costly to develop, design, publish and deliver to all households but there is strong evidence that this print piece is either not being retained and used by citizens, or the material does not provide the information that citizens need to determine their waste collection schedule. A single generic version of the print calendar is delivered to all households, however this means that the information is not customized for the individual household, requiring some interpretation to determine an individual household's schedule. Through the online waste collection calendar however, information is customized specific to the address, allowing for easier comprehension and interpretation of the online information and for printing at home if desired.

Email Reminders, Social Media and Mobile

The City is investigating opportunities to provide helpful email reminders to citizens, with increased messaging around holiday periods. Email reminders are one method of reducing avoidable contact by alerting citizens to important information before they need to go looking for it.

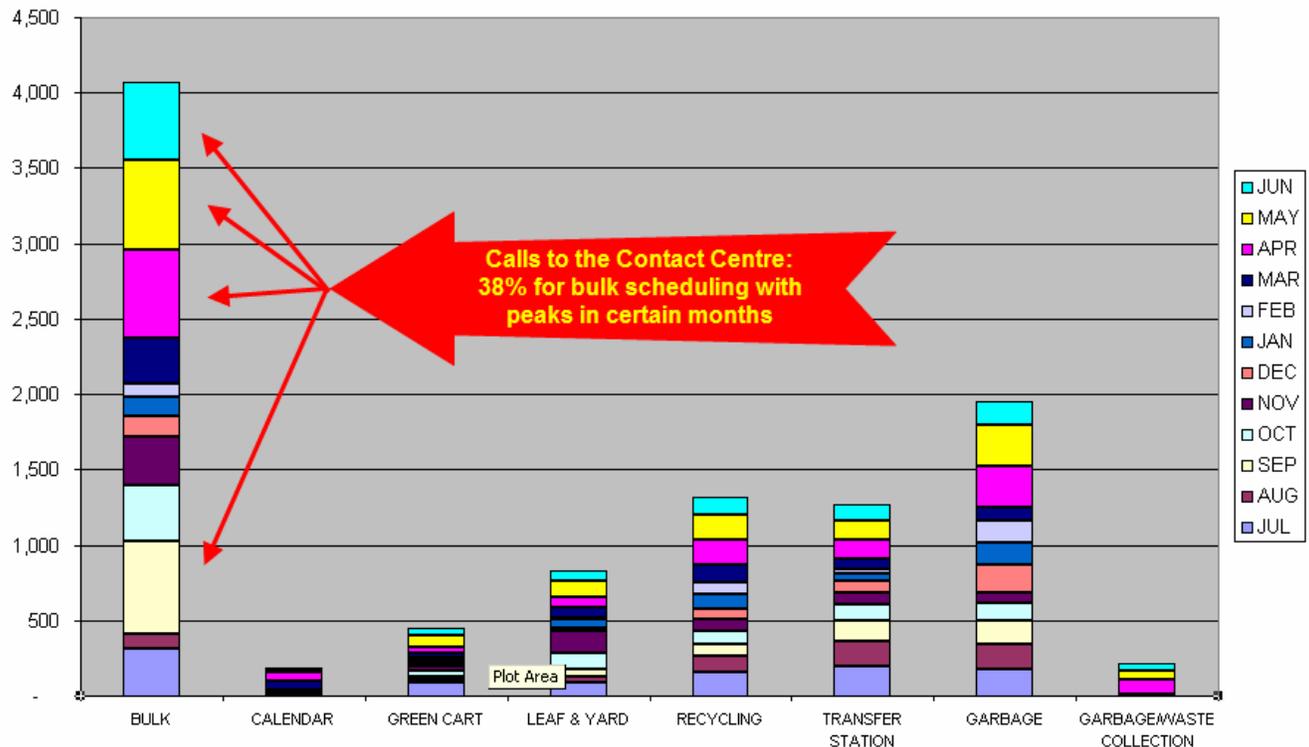
Additionally, as with most municipalities, the City is exploring the costs, benefits, opportunities and challenges of using social media to broadcast messages in a timely manner to citizens. Social media not only allows the City to communicate directly with citizens who opt-in to receive alerts, but it also encourages citizens to alert each other about changes in municipal services, through for example the activities of *sharing* Facebook postings and *re-tweeting* Twitter messages.

Another important emerging platform the City is exploring is mobile smart-phone usage. Mobile usage of the City's website has increased from only 4% in March 2011 to over 18% in June 2012. Clearly, mobile is of growing importance to the future of the City's online service delivery, as it is quickly becoming the channel of choice for many citizens. As part of a Web Redevelopment project about to get underway, the City will be making a mobile-enabled version of the website, including integrating some online services such as the waste collection calendar.

Further Self-serve Opportunities – Contact Centre

One of the insights gathered from the analysis of call volumes, is that there is a significant number of calls coming into the Contact Centre around the service of collecting bulk goods – bulk goods include furniture and other items that are too large for regular curbside waste collection. In particular, there is a noticeable increase in this type of inquiry during certain months of the year (see *Figure 9*).

Figure 9 – Call Volumes by Call Type to the Contact Centre



Using this insight, one of the areas that the City will explore for future enhancement and self-serve opportunities is bulk scheduling. By focusing on migrating the next-largest segment of calls to the self-serve web channel, the City is utilizing data to drive decision-making aligned to citizens' needs, as well as maximizing the opportunity to reduce costs of service delivery by focusing on high-ROI targets for migration to self-service.

Further Self-serve Opportunities – Website

As part of a recently adopted Web Redevelopment Strategy, the City of Hamilton will embark on a project to repeat the process used for the online waste collection calendar to other citizen tasks areas – notably transit, taxation, animal licensing and business services. In each of these important task areas, data analysis and a user-centred design methodology will ensure that the City is able to successfully meet citizens' needs while delivering high-quality municipal services. When online services are easy to use and work smoothly, citizens will be much more inclined to use them and be satisfied doing so.

Examine Alternatives for Print Collateral and Advertising

Based on insights gathered from this project, there is an opportunity for the City to consider investing in online self-service as an alternative to publishing and distributing costly print materials, and incurring costs related to print advertising that may reach fewer households compared to online media. At minimum, collateral may be redesigned

to encourage citizens to adopt more cost-effective self-serve channels in the future, rather than continuing to rely on more expensive print and advertising. This may involve more than simply including a website address on print material. As this emerging trend toward preferences for online information and services continues, the City has an opportunity to examine roles and skills, along with change management practices to reinforce an internal shift toward promoting online self-service.

Contact

Cathy Kealey (Service Delivery Experience Advisor, City of Hamilton) has an extensive background in both the public and private sector where she has focused on developing strategies, architectures and designs for products and services online, creating a useful and positive experience for the intended audience. She is passionate about understanding audience needs to deliver true citizen-centred government services in a cost-effective manner.

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Jay Adams (Service Delivery Analyst, City of Hamilton) has a diverse set of skills involving using metrics and analytics to get at the DNA of the customer experience, usage and citizen behaviour online. He has experience building and designing web sites and systems which focus on solving user goals based on evidence with measurable results.

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Case Study #2 – Canada Revenue Agency and the Province of British Columbia

Integrated Online Business Registration

Background

In 1997, in response to the increasing use of the Internet by Canadians, the Canada Revenue Agency implemented the Business Registration Online (BRO) application as an online service to business. BRO allows business clients to securely register for one or more CRA Business Number (BN) program accounts such as: the Goods and Services Tax/Harmonized Sales Tax, payroll deductions, corporate income tax¹⁵² and import/export accounts¹⁵³ (see Annex A for additional information on the BN).

In 1999, British Columbia released their online BC OneStop Service. This application allowed business clients to register with multiple public sector provincial agencies and municipal governments in one step; it enabled a business to notify multiple public sector agencies and local government of an address change, and allowed a business to renew a liquor license online or to apply for a Food Primary (Restaurant) Liquor license.

In April 2004, BC adopted the BN as its common business identifier for its corporate registry and their hotel and retail sales tax accounts (referred to as BN participating accounts). At that time, BRO and BC OneStop were modified to interact with each other. This initial modification allowed BC clients to commence the registration process for non-participating BC programs using OneStop. Afterwards, OneStop would transfer the user to BRO and would pre-populate some BRO data input fields with common information passed from OneStop. The user then provided additional program account information to complete the registration for CRA accounts. The BN and CRA BN accounts were generated and issued to the client at the end of the session. The client was then returned to OneStop to continue the registration process for BC participating BN program accounts. However, it was soon realized that alternating between systems during the same Internet session was confusing to the client. In many cases it caused the client to terminate the session or lose the Internet connection without completing all three processes. It quickly became obvious that the integration between the two systems had to be modified to allow for more effective online registration for both levels of government.

In October 2011, the CRA and BC released a modification to the integrated process to improve service and eliminate the disconnections or terminations of registration sessions. The change allowed the client to commence registration for participating BC program accounts at OneStop and then was transferred to BRO at which time the user was requested to provide client level information that was not collected by OneStop. Once the client completed the update, he/she was then permitted to continue the registration for CRA BN accounts. This modification was considered a first for the CRA as it permitted the client to make an online update to the client information. The CRA is committed to

¹⁵² Registration of a corporate income tax account is permitted for corporations incorporated by non-participating BN provincial incorporation authorities.

¹⁵³ Import / export accounts are now administered by the Canada Borders Services Agency.

improving online services to Canadian businesses. The Agency's Vision 2020 describes how it will meet its future needs. Vision 2020 is available at:
http://publications.gc.ca/collections/collection_2012/arc-cra/Rv1-12-2012-eng.pdf.

The key motivating factors for this innovation, consistent with Vision 2020, follow:

- Meet Canadian's expectation of providing additional online services
- Streamline existing registration processes between governments
- Create better partnerships with other governments
- Improve the take up rate of e-service delivery and reduce internal processing costs
- Reduce red tape by allowing the business client to provide the information once to multiple levels of government ("Tell me once")
- Leverage existing and new technologies to offer the same solution to other governments
- Better data, used better (client entered data has proven to have more integrity than the information entered by employees where data integrity is impacted by typing errors).

The Innovation

The service delivery channel used by the CRA and BC is an integrated internet application that allows business clients to register for CRA and BC BN program accounts.

This modification of the service is innovative as it provides the business client with the opportunity to commence a BN registration with a provincial or CRA application and to receive BN accounts from both levels of government. It now allows the client to add information to an existing BN record; considered to be an on-line maintenance event that is otherwise permitted only through CRA's secure portal My Business Account application.

This example of integrated registration is delivered in partnership with the CRA and the province of British Columbia. It is governed by a memorandum of understanding that describes the relationship, protocols for BN usage and the information exchange process that is permitted through legislation. Governance is provided through a committee of representatives from all BN participating partners that are required to meet twice each year. Discussions include operational items and future e-service delivery strategies.

Benefits of the Innovation

The integrated registration process has improved service delivery to our common business clients by allowing them to register for multiple levels of government accounts

in one Internet session and to receive those accounts immediately after registration. This reduced the waiting time for a paper registration application to be processed. It also reduced the amount of time Canadian businesses needed to register for multiple accounts, thereby allowing them to spend less time dealing with government.

Integration of the two registration processes provides an excellent demonstration of how well two levels of government can work together in improving e-service delivery to business clients. It also represents a re-usable solution for other interested BN partners.

In addition to improved service to business, there is a reduction in the resources required by government employees to process paper transactions.

Lastly, the data integrity of business information has been improved by removing the potential for data input errors.

Issues/Challenges Encountered

Many CRA stakeholders were uncomfortable with the perceived risk of allowing an Internet user to update information on an existing BN record without verifying the authenticity of the user. This challenge was resolved through a better understanding of the new process, wherein the opportunity to update user information was available only during the same registration session between the CRA and BC for a new BN client. If the Internet session was terminated prematurely, the client lost the opportunity to register online for additional accounts at a later date.

Critical Success Factors

The critical success factors that are used in measuring the success of this innovation are as follows:

- Increased take up rate; within the first week of the release of the innovation, BC and the CRA identified more than 100 new successful registrations for both levels of government when before the majority had failed. A sustained increase in the number of online registrations continues to date.
- Less direct client contact with the CRA; the number of calls directly related to the failure of the BRO registration related to BC businesses registering for CRA accounts has dropped from more than 60 calls per week to zero.
- Opportunity to allow future on-line registrations: This successful modification of the registration service can be expanded to other interested BN partners.

Learning Points

Business clients view all government as one regardless of the various levels: federal, provincial, or municipal; and expect more joint multi-government e-service delivery. They want to reduce the amount of time needed to deal with government, and

government wants to reduce the red tape that businesses deal with when transacting with government.

Many jurisdictions that are also BN partners are establishing web portals that bundle information and services for business. Therefore, the CRA's service to business strategy needs to continue to include integration beyond the CRA programs.

Next Steps

CRA's service to business strategy will seek to develop new and modify old online service solutions using BN as a common business identifier, all with the goal of reducing red tape for businesses in their transactions with government.

Contact for additional information:

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Position: Director, Business Number Division
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8022, Ottawa, Ontario K1A 0L5

Annex A

The Business Number (BN)

The Business Number (BN) is a unique nine digit common business identifier generated by the CRA. It assigned to all business entities who are obligated to register for one or more participating BN programs. A business entity is any proprietorship, partnership, corporation or other definable entity (government, charitable organization, non-profit, etc.).

The BN account is a 15 alpha-numeric identifier assigned by the CRA. It is composed of the BN followed by two alpha characters to identify the program type and four numeric characters to identify the specific program account. A business client can have any number of program accounts attached to its BN as follows:

89999 9999	= BN (the business entity)
89999 9999 RC0001	= corporation income tax program
89999 9999 RP0001	= payroll program
89999 9999 RT0001	= Goods and Services / Harmonized Sales tax program
89999 9999 RM0001	= Canada Border Services Agency import/export program
89999 9999 BC0001	= British Columbia Business Registry account
89999 9999 NB0001	= New Brunswick business registry account
89999 9999 NS0001	= Nova Scotia business registry account
89999 9999 NW0001	= Nova Scotia Workers Compensation
89999 9999 MB0001	= Manitoba business registry account
89999 9999 TE0001	= Ontario Employer Health Tax account
89999 9999 SK0001	= Saskatchewan business registry account
89999 9999 PB0001	= PWGSC vendor/supplier account

Case Study #3 – Régie des rentes du Québec

Self Service at the Régie des rentes du Québec (translated from the French)

(Note: While this document was provided for information purposes rather than as a case study, it is included here for its helpful insights into self-service delivery.)

The mission of the Régie is to contribute to the financial security of all Quebecers. More specifically, its role is to:

- pay them a retirement pension;
- provide them with an indemnity in the event of disability or death;
- provide them with financial aid when they have a dependent child;
- promote financial planning for retirement and makes you aware of the need to provide yourself with sufficient income for that stage of life;
- provide a framework for supplemental pension plans and closely monitor them;
- contribute to the progression of the retirement system.

Clientele

The Régie's clientele is composed of:

- 4 million contributors to the Québec pension plan;
- 1.7 million retirement, survivor's, disability, orphan's, disabled contributor's child pension beneficiaries;
- 866 000 families who receive child assistance payments, 33 000 of whom also receive a supplement for handicapped children;
- 1 248 pension plans overseen by the Régie
- 7 pension plans administered by the Régie

Service Delivery Context

For the past several years, Québec has been facing an aging population. For the Régie des rentes, this trend means an increase in citizen requests and a scarcity of human and financial resources. In the 2000s, to ensure the quality of its client services, the Régie focused on developing new service delivery methods to encourage client autonomy and organizational efficiency. So, online and interactive vocal response (IVR) self services came to be added to the existing services available through traditional delivery methods—telephone, mail and in-person service.

These new delivery methods had a big impact on the entire organization. To serve its clientele well and meets its objectives, the Régie had to integrate the management of its service delivery regardless of the clients' chosen method. Today, all the methods are managed globally and each method has its rightful place in the Régie's service delivery. That place depends on the service to be provided, the needs of the clients and the

strengths and weaknesses of each delivery method. Moreover, in all Régie communications (website, letters, brochures, forms, telephone, etc.), clients are directed to the most suitable delivery methods, while respecting their choice and the quality of service.

Online

- The Régie's website is arranged by life event (living as a couple, children, retirement, death, etc.).
- Online services (also called self services) are available on the Régie's website. Among those is the *My Account* online service which enables clients to:
 - access all services relevant to their situation in one place;
 - settle transactions with the Régie without having to identify themselves each time;
 - consult or update their files with the Régie;
 - see changes as they are made;
 - track the progress of applications submitted online or via another method;
 - and all this with the assurance that no one else can access their files thanks to the clicSÉQR government authentication service.

My Account is an important part of the Régie's service delivery. Even though it is fairly new (online since November 2010), it has already proven that it meets the needs of clients and has a lot of potential for development in the future.

- Some online services do not display any personal information on the screen. In that case, clicSÉQR is unnecessary.
- Part of the online services is processed automatically and part of it requires manual intervention by an employee or both parties.
- The site is accessible at all times, although there will be interruptions as needed for maintenance or updates. The Régie is committed to applying accessibility standards for people with disabilities. Work is already underway and will be completed over the next two years.
- Clients are regularly consulted and the website is adapted to apply best practices, facilitate client processes and improve organization performance.

Interactive vocal response (IVR)

- This delivery method is intended for clients who use the telephone but particularly for simple subjects and frequently asked questions.
- When calling the Régie, clients are invited to use self services. Some of these services help answer general questions while others allow clients to manage their own files. As needed, clients are asked to validate their identities by responding vocally to recorded questions. If an employee has to intervene, the file is immediately displayed onscreen upon reception of the call to ensure continuity of service.
- Part of the self services is processed automatically and part of it requires manual intervention by an employee or both parties.

- Several years ago, the IVR was reworked to improve the services offered while applying best practices. Analyses are conducted regularly to determine the reasons clients call and their assessment of the service. Adjustments are made as needed.

Other non self-service delivery methods offered by the Régie (telephone, mail, email, in person)

Future Prospects

To ensure service quality in a context of increased demand and a scarcity of resources, the Régie developed a client service vision in 2011. In its vision, the following actions will be favoured:



- Automate everything with potential to foster the efficient operation of the Régie and make it easier for clients to use its services. Eventually, the Régie will be able to provide services without necessarily requiring clients to fill out a form each time.
- Call on organizations best suited to facilitate client processes with the Régie. This search for partners could lead to several different outcomes. For the purposes of this document, remember that some of the Régie's services may be initiated by other organizations without the need for clients to fill out a form.
- Encourage client autonomy by offering a wide variety of services online and through IVR, through a *My Account* online service full of potential, but also through all the initiatives undertaken to simplify client processes.
- Focus our interventions where it counts, specifically on services we cannot automate, cannot entrust to a partner or that the client cannot do themselves.

Conclusion

In the future, self services will be a significant part of the Régie des rentes du Québec's service delivery, especially the *My Account* online service, which has a promising future. By increasing the automatization of processes, taking advantage of the most effective partnerships and encouraging the use of self services, Régie staff will be available to ensure the quality of services despite the increase in demand and scarcity of human and financial resources.

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Case Study #4 – Service Canada

My Service Canada Account

Name of Organization

Service Canada, Citizen Service Branch, Integrated Channel Management Directorate

Background

Work began to align My Account with the Service Canada vision in May 2005. My Service Canada Account (MSCA) was launched in November 2006, providing single-sign on (through ePass) to a portal where clients had seamless access to Employment Insurance (EI), Canada Pension Plan (CPP) and Old Age Security (OAS) transactional services within the same session. MSCA currently provides access to the following applications:

- VUPI: (View and Update Personal Information). Allows citizens to view and update their CPP and OAS information.
- TISO: (Tax Information Slip Online). Allows citizens to view and print copies of their CPP, OAS and EI tax information slips.
- MEIIO: (My Employment Insurance Information Online). Allows citizens to access their EI information and view/change their personal information.
- SOCV: (Statement Of Contributions View) Allows citizens to view and print their CPP Statement of Contributions.
- Change of Address.
- Self Employed Registration: New feature allowing self-employed citizens to register for EI benefits, available January 31, 2010.

“Access My Service Canada Account” is the most popular link on the Service Canada homepage. In July 2012, the MSCA landing page was viewed on 1,975,549 visits to the Service Canada site (29% of all visits). Monthly and Annual Logins were

- 23.4 Million logins for 12 months ending in March 2012. (4.6 million in the first quarter of 2012-2013 fiscal year).
- Over 1.9 Million /month in 2011-2012. Peaked at 3.6 Million in January 2012 and 2.5 Million in February 2012 (tax season).

The Innovation

The MSCA Expansion project described here is a work in progress that is motivated by several considerations – the desire to improve client satisfaction, the need to achieve cost savings, the opportunity to streamline processes in order to make the service operate more effectively, the opportunity to leverage new technologies, the need to deliver service with fewer staff, and legislative change.

To ensure that the project enhances the Government of Canada's ability to deliver programs and services that meet the needs of Canadians, six features will be added to the MSCA site:

1. MSCA Rapid Registration
2. MSCA Layout and User Experience Redesign
3. Check Application Status
4. Message Centre
5. eQuestionnaire
6. Alert Me

MSCA Rapid Registration

Rapid Registration provides an opportunity for clients visiting a Service Canada Centre to obtain a Personal Access Code in person instead of receiving one by mail. This allows them to register with MSCA quickly and efficiently.

MSCA Layout and User Experience Redesign

This Redesign will ensure that usability and user experience are modern, increasing the likelihood that users will find information quickly and easily and continuously return and depend on eServices for their program and service needs.

Check Application Status

This is a secure, convenient online tool that lets users track the progress of their application and related processes from initial submission to final decision. Status pages are accessible directly from the MSCA homepage. Other information may include when a request was submitted, the length of time it should take to complete the request and an estimate of the completion date.

Message Centre

The online Message Centre will be a confidential and secure mailbox within the MSCA environment. Programs will be able to send general as well as client specific notifications and updates of application information and other key messages to individual clients.

eQuestionnaire

An eQuestionnaire will be posted in MSCA for a client to fill out. When a program area (such as EI) requires additional clientele information, the eQuestionnaire feature will generate a client-specific questionnaire to be completed.

Alert Me

Alert Me is an opt in/opt out feature that will notify users immediately of updates to their applications. Generic emails will be sent to clients' personal email accounts (and eventually mobile phones), directing them to log-on to MSCA and check their message centre, in order to complete requests and to view account updates as well as to obtain clearer explanations of decisions affecting their transactions.

MSCA is not directly delivered through a partnership with other government departments and/or agencies. However, it is anticipated that the new features resulting from the MSCA Expansion Project will foster service delivery partnership within the federal government in the near future.

The MSCA Rapid Registration component of the MSCA Expansion project brings together in-person and the Web to improve the overall registration and authentication process. Also, the business intelligence gathered from all channels (phone, in-person and web) is used to determine new features and enhancements as well as to identify areas requiring work.

Rapid Registration provides an opportunity for clients visiting a Service Canada Center to obtain a Personal Access Code in person instead of receiving one by mail. This allows them to register with MSCA quickly and efficiently. MSCA RR supports the migration from in-person channel to online channel. At this time, this is a pilot only.

The profile of MSCA will be raised in correspondence, in-person and in call centre exchanges with clients to speed up the rate of use. This will require the involvement of marketing tactics throughout the project development and implementation cycles. MSCA will be positioned as offering clients benefits of membership through convenient, easy to use, secure access.

Benefits of the Innovation

EI clients provide information that in turn triggers Revised Decisions. This innovation will serve to inform the implementation of new structured electronic questionnaires so clients can provide this information directly via the web portal (MSCA). As e-services increase, we will offer clients the option to receive communication of decision (letters) and other key messages or notifications electronically. Once clients and employers provide their email address or SMS phone number, communication currently sent through regular mail will be sent electronically. This will require an internal automatic "Notification" service that will generate a generic email to clients directing them to log-on to MSCA, to view and print letters of decision as well as obtain clearer explanations of decisions affecting their benefits.

In addition to letters, clients and/or employers will need to be notified they are required to provide additional information electronically that is required to finalize decisions regarding an event. Consider, for example, a client who does not know the pension amount at time of filing application. Instead of creating a work item for an agent to contact the client, the request can be posted to MSCA and a notification request directed to the client's email account or SMS phone. This begins to create more of a two-way conversation with clients that allows for posting of electronic questions and response as the system matures. As well, processing staff will be able to direct clients to provide information electronically as an alternative to the phone or regular mail.

MSCA Expansion is part of the bigger Employment Insurance (EI) Automation and Service Improvement (EIASI) Program. Cumulative net savings of \$38M are expected to

be realized over a three year period commencing with 2011-2012, for the overall EIASI Program.

MSCA Expansion is also part of the Transformation Agenda's Channel Integration stream which will be consolidating and enhancing online transactional services in the MSCA portal, and revamping Service Canada's flagship website, serviceCanada.gc.ca. MSCA Expansion's objectives are to:

- Improve service to citizens by expanding program agnostic, transactional, secure services to citizens via the Internet;
- Support internal savings from EI Automation;
- Provide modern services for modern citizens.

Issues/Challenges Encountered

Canadian citizens and organizations expect to access the wealth of government programs and services online using up-to-date technology. However, the current health of our infrastructure and technology (aging equipment and software) is not optimal. The Department is adopting a portfolio-wide approach for the management of IT, integrated into our Information Management (IM)/IT five-year plan. As part of this plan, the Department will prioritize the elements that need to be addressed first in modernizing our IT infrastructure, so that we can continue to provide employees with the systems and tools they need to provide the highest quality of service to Canadians.

Critical Success Factors

The major factor in the success of the MSCA Expansion project is support of Service Canada Business Transformation, including:

- Employment Insurance Automation
- Canada Pension Plan/Old Age Security Modernization
- Enabling greater levels of self-service and online transactions
- Expansion of service delivery on behalf of other federal departments

Learning Points

The involvement of senior management is key to the success of the project.

At the departmental level, we have the Investment Management Process that supports the Major Projects and Investments Board (MPIB), which has a mandate to review and oversee all large projects and procurements in the Department. Governance is based on the Stage-Gate™ model. The goal of this department-wide process is to:

- give visibility to all of our strategic projects,
- review projects at specific gates throughout their lifecycle,
- ensure high quality business cases to allow for informed decisions,
- to measure performance and outcomes, and

- to support all key stakeholders – both project owners and sponsors as well as the enabling functions (e.g. procurement, finance, etc.)

We also have a Major Projects and Investment Board (MPIB) with the mandate to support rigorous and transparent project planning, project management, and investment decisions by:

- Providing timely, objective oversight of all major projects being conducted across the portfolio as they pass through the third, fourth, and fifth gates of the Stage-Gate™ process;
- Playing a key role, with the Business Planning tables in the context of the annual Departmental priority and business planning process, in the development of a multi-year portfolio Investment Plan and the establishment of annual investment priorities;
- Approving procurement strategies for projects and asset plans; and
- Supporting capacity-building across the portfolio with respect to project planning and management.

Next Steps

The focus will be on implementing the planned MSCA enhancements and being prepared to address or adjust plans to ongoing GC reviews aimed to improve the efficiency, effectiveness and affordability of Tier 1 service delivery to citizens.

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