Digital Strategies in Local Government:
Private Sector and Early Adopters Lessons Learned

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Abstract

Digital Strategies represent an integration of business and technology plans in an organization. The private sector has been using these strategies to gain efficiencies and competitive advantage in their operations. The Public sector can study private sector digital strategy development and implementation and apply aspects of these fusion strategies to improve service delivery, increase operational efficiencies and stimulate cultural change. The academic literature is light on content for public sector digital strategies, however, anecdotal and industry publications provide a value source of practitioner-based information.

Examining private sector digital strategies uncovers success criteria that are equally applicable in the public sector. Strong and supportive leadership, comprehensive understanding, inclusive communication and collaboration, buy-in from the business areas, greater organizational connectivity and a technology infrastructure that creates value for the organization are essential components in digital strategy success.

Case studies for southern Ontario local government early adopters support the private sector lessons and further indicate there is little consistency in approach, methodology or stage of digital strategy implementation within the public sector. Research also indicates that Canada has been slow to move forward on digital transformation in general.

Digital Strategies will require cultural change in the public sector. This will be a positive experience that better positions local governments to meet changing public service demands and to recruit and retain talent to support the evolving digital landscape now and in the future.

Table of Contents

Table of Figures

Table of Tables

**Digital Strategies in Local Government:
Private Sector and Early Adopters Lessons Learned**

Introduction

   Demand for public self-service is increasing for input to decision making, engagement, transparency, accountability, and continuous access to both information and raw data. As a result, local government environments are changing to keep pace. Processes are being streamlined and becoming more technology-based. More options are being provided for services giving customers easier access and creating more efficient operations within organizations.

   This push for change represents a fundamental progression in service provision from government-centric (governments telling citizens what they need), through citizen-centric (government determining what citizens want) to public-driven, whereby the public is making demands on what services they want and how they want them provided (OECD 2016). Much of the demand is driven by advances in technology and changes in how technology is used by the public to consume services from private sector companies. Citizens expect no less from governments than from industry or the community at large when it comes to services, information and ease of access. Citizens expect more from governments as related to transparency, responsiveness and accountability.

   The paradigm shift towards digital services requires governments at all levels to rethink how they are operating and how they can change to meet the demands of their citizens, while maintaining privacy, security and fiscal responsibility.

   Local governments apply the strategic planning process to determine directions and priorities for delivering services to their communities. The majority of services under

municipal jurisdiction are impacted, improved or facilitated by technology, yet few municipalities incorporate technology considerations directly into the development of their strategic plans.

Digital Strategies integrate technology considerations with organization wide business strategies providing a starting point for organizations to fuse business needs and technology direction.

Research Focus

While digital strategies are actively being developed and applied in the private sector, municipalities have been much slower in embracing this fused strategic planning option. Deloitte found that a small percentage of government organizations are digitally maturing, while most are still in the early development stages of any digital transformation (Eggers & Bellman 2015). The Deloitte study also determined that 78% of Canadian government practitioners feel they are significantly behind the private sector in adopting digital capabilities and strategies. By adopting digital strategies, local governments could enhance both service delivery and the work environment, leveraging technology in all aspects of public sector modernization.

The hypothesis of this paper states that by adopting digital strategies local government organizations will experience benefits beyond the simple technological enhancements of tactical operations, realizing efficiencies (cost reductions), increased effectiveness (improved services), and organization wide cultural changes.

In order to address this hypothesis and draw conclusions several questions need to be answered based on existing academic research and current local government practices.

1. Are there lessons to be learned from the longer history of digital strategy adoption in the private sector, and how applicable are these given the inherent differences between private and public sector institutions?

2. Are there generational issues that could inhibit or enhance adoption of digital strategies?

3. What have early digital strategy adopters accomplished in the local government sector and are benefits measurable and meaningful?

E-government, Open Government, & Digital Strategy Defined

Several terms are often used synonymously with digital strategy. E-government, open government, digital government and digital strategies are defined below to clarify their meaning and outline how they are in fact inter-related.

E-government is narrowly defined as the production and delivery of government services through technology applications (e-services).[1] It has been defined more broadly as any way information technology (IT) is used to simplify and improve transactions between governments and other actors, such as constituents, businesses, and other governmental agencies (Moon 2002).

Open government is a movement focussed on making government more transparent and accessible for information, engagement and data. Open government has been defined by various government institutions around the world including Canada. The Federal governments Open Canada website explains that

“Open Government is about making government more accessible to everyone. This means giving greater access to government data and

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[1] https://en.wikipedia.org/wiki/E-government

information to the Canadian public and the businesses community."

(Government of Canada 2016)

E-government is a functional tool of open government, providing the services and access components through *electronic* (technology) means. Open government is bigger than e-government as it speaks to the concepts of transparency and accountability across all aspects of the government, not just providing e-services. The chart below provides a consolidated view of this continuum as defined by the OECD (2016).

Digital government represents the use of modern information technology to exchange information and process transactions across networks. Digital government consists of the strategic and systematic use of technology to improve the efficiency of transaction and information processing by a government and its citizens and suppliers. As such, digital government encompasses both e-commerce and e-government initiatives (Miranda 2000).

Some areas suggest moving local government services on-line (e-services) is the same as having a digital strategy (Welsh Government 2015). These actions may be part of the implementation of a digital strategy or executing e-government or open government plans, but do not provide the framework necessary to define and meet business area mandates by leveraging all knowledge, resources and tools available.

Digital Strategies are the frameworks and governance tools by which open government concepts, digital government actions and e-government services can be solidified and operationalized. Digital government can be an outcome of properly executed digital strategies. Digital strategies are not just about technology, they are

influencers to the modernization of the public sector, to be a more responsive and inclusive body of governance.

Figure 1: Digital Transformation Continuum

	Information and Communication Technologies		
Change path	**Digitisation** (greater use of **digital technologies** to improve cross government activities and data /information management)	**E-Government** (use by governments of **digital technologies**, particularly the Internet, to achieve better government)	**Digital Government** (**Digital technologies** and user preferences integrated in the design and receipt of services and broad public sector reform – integral part of governments' modernisation strategies to create **public value**)
	Predominant focus of many governments		
		Focus required for digital transformations	
	From a focus on: efficiency and productivity	**Through a focus on:** efficiency and productivity in delivering tailored services to individuals	**To a focus on:** governance, (openness, transparency, engagement with and trust in government), as well as efficiency and productivity
	From Government-centred – users passive recipients of services	**Through User / Citizen-centred** –users participate in service delivery processes	**To People-driven** – users voice their demands and needs, contribute to shaping the agenda and services' content and delivery
			Digital Transformation

Modified from OECD 2016. p57

Bharadwaj et al. (2013) define a digital business strategy as an "organizational strategy formulated and executed by leveraging digital resources to create differential value" (Bharadwaj et al. 2013, 472). They suggest this definition 1) redefines IT as digital resources over and above systems and technologies, 2) acknowledges the prevalence of digital resources throughout an organization, and 3) links a digital business strategy to creating business value, thereby identifying it as a driver for "competitive advantage and strategic differentiation" (Bharadwaj et al. 2013).

Mithas et al. (2013) describe a digital business strategy as "the extent to which a firm engages in any category of IT activity" (Mithas et al. 2012, 512). This definition appears to be too broad and generic to serve a true purpose. One interpretation of this definition

is that whatever a company is doing with IT constitutes their "digital strategy", minimizing digital strategies to the level of a simple technology plan.

Some organizations equate an IT strategy with a digital strategy. Aron (2013) refutes this by stating that an IT strategy is a technical answer to a business question: How will IT help the business win? The IT strategy is developed to identify how the business goals can be met through the application of technology. An IT strategy is often departmentally based and defines how information technology will advance in the department – tactically or operationally – as a support function to the organization over a specified period of time.

Aron (2013) defines a digital (business) strategy as a business answer to a digital question: How should the business evolve to survive and thrive in an increasingly digital world? He suggests that the two strategies are not separate but rather a digital business strategy is the business strategy from a different vantage point, where all elements are informed by digital considerations.

Aron concludes that every business and public sector agency needs both an IT strategy and a digital business strategy. They must be highly aligned with each other, but they are not the same thing. (Aron 2013)

A similar point of view was voiced by McDonald (2012). His reasoning was that most IT strategies treat technology in isolation, and often only consider transactional processes (automating physical actions). A digital strategy brings together both digital and physical resources producing innovation for business rather than disruption.

McDonald (2015) suggests that the definition of digital has changed over the years and has become very complex. He distills this complexity to convey that digital is more

than a set of technologies you buy; it is the abilities those technologies create. McDonald redefines digital as the "application of information and technology to raise human performance" (McDonald 2015). Where human performance is essential to digital transformation to create the type of value that leads to revenue growth.

Strategy is defined as "setting a direction, sequencing resources and making commitments" (McDonald 2015). When combined, a digital strategy needs to become the essence of a business strategy, where a digitally informed business strategy becomes an answer to a simple question: "How can a business win using information and technology to raise human performance?" (McDonald 2015)

The former chief digital and chief data officer for the UK government Mike Bracken was quoted as saying:

> "transformation means more than fixing websites. It goes deeper than that, right into the organizations behind the websites. There's a logic to it: Digital service design means designing the whole service, not just the digital bits. If you're redesigning a service, you need to think about the organization that runs it" (Bracken 2014).

The Organization for Economic Cooperation and Development (OECD 2014) stated that:

> "the challenge is not to introduce digital technologies into public administrations; it is to integrate their use into public sector modernisation efforts. Public sector capacities, workflows, business processes, operations, methodologies and frameworks need to be adapted to the rapidly evolving dynamics and relations between the stakeholders that are

already enabled – and in many instances empowered – by the digital

environment. To this end, digital government strategies need to become

firmly embedded in mainstream modernisation policies and service design

so that the relevant stakeholders outside of government are included and

feel ownership for the final outcomes of major policy reforms" (OECD

2014, 2).

All of these definitions of digital strategy have the common theme of identifying how

an organization's digital elements (technology, resources and capacities) can integrate

with the business to reach stated goals, objectives and value propositions.

Study Methodology

The review and analysis of digital strategies in Ontario local governments will focus

on existing academic and practice-based literature, along with documented government

adoptions of digital strategies to identify trends and issues in an effort to inform

discussions.

Research was carried out identifying those local governments in southern Ontario

with readily available strategic plans, open data, open government and digital

strategies. Each of these elements is a step along the digital transformation continuum

and may represent an indicator of a local governments readiness to adopt a digital

strategy. Municipal websites were the primary vehicle for the research. Each was visited

and standard searches were conducted to discover each of the four elements. e-

services were also noted in the absence of open government for some jurisdictions (see

Appendix 1).

Following the literature review, documented digital strategies are identified and outlined for various governments to provide a baseline of where and when implementations have previously been noted, along with any specific high-level indicators of success. These include national and local governments identified as early adopters. Canadian context is provided at this point as well. Southern Ontario local government adopters in in the process of developing digital strategies are also highlighted to indicate the current level of uptake of the concept in the target sample population.

Case studies provide a more detailed review of specific digital strategy implementations within local governments in southern Ontario. The sample set selected examines one local government at each of single, upper and lower tier administrative levels. The reasoning behind this sample population selections is two-fold. First, to determine if there are any discernable differences based on the administrative level of the local government institution. Second, the number of local governments that have progressed along the digital strategy path is limited, therefore the sample population was similarly limited.

The three local governments selected represent the most progressive to date in southern Ontario. The City of Vancouver is reviewed as a comparator outside of southern Ontario as it has been considered an early adopter of digital strategies in Canada. Case studies are summarized and conclusions drawn to address study questions. Organizations reviewed include:

- City of Toronto (single tier)
- Peel Region (upper tier)

- Town of Oakville (lower tier)

- City of Vancouver (comparator)

Discussions examine specific aspects of digital strategies including:

- private vs. public sector and the applicability and potential impact of digital strategies in the public sector environment; and

- the concept of a generational shift within public sector employees and consumers, positioned as a change in technology-focus, and the overall effect on digital strategy implementation at the local level.

The analyses portion of this study will be an evaluation and comparative examination of local government digital strategy implementations. The analyses will review available information related to organization wide strategic planning, digital strategy business drivers, corporate implementation process and senior-level buy-in, metrics, outcomes, and reported overall success of adoption and implementation.

Literature Review

The majority of academic literature related to digital strategies concentrates on private companies adopting digital strategies as a way to develop a competitive edge through technology and innovation. Several journals have recently compiled special editions concentrating on digital strategies in the private sector (Peppard et al. 2014; Bharadwaj et al. 2013).

Many publications provide articles discussing private sector digital strategies and the importance of adopting these strategies to remain relevant and competitive in the rapidly changing technology space (McDonald 2012; Mithas et al. 2012; Plant 2008; Swabey 2013). These tend to provide "How To" articles identifying what skills, policies

or support systems are required to implement a digital strategy, or they catalogue what strategy themes have been defined.

Few academics have published on digital strategy activities in the local government sector (Carrizales 2008; Moon 2002; Alizadeh & Sipe 2015). Most are still reviewing and analysing strategic planning and IT governance (Kanungo et al. 2001; Fitzsimmons 2006; Kabir & Humayun 2007; Poister 2010; Elbanna et al. 2015; Yang & Melitski 2007). This could in part be due to the relatively recent adoption of the digital strategy concept in municipal environments.

Articles dealing with local government digital strategies found in IT and strategic planning publications are often authored by public sector practitioners, both active employees and consultants. These provide insight directly from local government sources into the processes and practices applied in municipal organizations. This information is a critical part of the digital strategy knowledge base: It speaks to practice versus academic study, as local government practitioners rarely apply academic theories at work. Peppard et al. (2014), in referring to existing scholarly research in IT, go so far as to state "that much research draws on methods that are inappropriate to the applied nature of the discipline" Peppard et al. 2014, 1). The authors indicate that academics tend to look at macro-scale analysis for establishing theories, while practitioners deal with micro-scale actions that are more relevant to their practice (Nicolai & Seidl 2010).

A scan of local government websites in Ontario identified many with available organization-wide strategy documents (see Appendix 1), some with published

departmental IT strategies [2], and few with what may be considered digital strategies. Several larger municipal governments outside of Ontario have well known digital strategies including Vancouver, Calgary, New York, and Boston.

Guidelines and reports addressing digital strategies in the public sector have been released by both private and public organizations providing insights to purpose, development and implementation. The published concepts and protocols are gaining popular acceptance as more local governments embrace the idea of digital strategies (Eggers & Bellman 2015; Presidential Memorandum 2012).

Private Sector

Early in the literature of merging IT and business strategies Broadbent & Kitzis (2005) surmised that the primary challenges to integration were based on how businesses represent what they do and the complexities of quickly, realistically and cost effectively incorporating technology into this ever changing environment. They define four factors to establish the necessary foundation for IT-business linkages that centre around senior executive support and comprehension, IT governance and solid IT portfolio management. These factors align closely with the characteristics of a digitally maturing organization as outlined by Valdés et al. (2011) and documented within the Deloitte survey of digital strategies in public sector organizations (Eggers & Bellman 2015, p5).

In looking at how to align business strategy with IT strategy, Beveridge (undated) outlines a ten-point plan based on four strategic cornerstones: gaining a thorough

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[2] IT strategies or work plans are most often accessible through annual departmental budget presentations to council rather than as separate discrete documents online.

understanding of current business operations (including culture), knowing the IT resources available (including value chains), being aware of where the business is going & what influences it, and having an understanding of where you want the business to go and how you plan to get there. He further states that the alignment of IT and business strategy can only be successful if there is "effective understanding, communication and collaboration throughout the value chain" (Beveridge Undated, 16).

Mithas & Lucas (2010) suggest that there are three pillars to developing the competencies required to deploy a digital strategy successfully in business. First there has to be a comprehensive understanding of how a firm should integrate business strategies and IT strategies. Next, a detailed framework needs to be developed for governing IT, and third there has to be the knowledge & competency to manage infrastructure and implement projects effectively and efficiently. They stress that technology leaders must be proactive in collaborating with their business counterparts to shape technology decisions and to generate buy-in from the business areas for the IT efforts (Mithas & Lucas 2010, 4). This also aligns with the characteristics of a digitally maturing organization (Eggers & Bellman 2015).

Many executives regard technology infrastructure as a commodity, thereby reducing it to something that is bought and used at a cost. Yet, an effective infrastructure operation creates value for the organization making it an essential component in defining direction and efficiencies, reinforcing the concept of integrated business and technology planning (Hughes & Kaplan 2009).

Bharadwaj et al. (2013) observed there is a need to account for inter-functional dependencies within digital environments (Bharadwaj et al. 2013, 476). This leads to

more interdependency between departments, generating greater connectivity throughout an organization at multiple levels.

As the Internet of Things (IoT) grows the availability of data will be overwhelming (OECD 2012). The ability to collect data automatically and remotely through connected "things" such as water meters, road sensors and street lights, opens the possibilities to a wide variety of data types and volumes. OECD (2012) states that strategies need to be in place to control and take advantage of this data to filter out pertinent information to support decision making. Companies need to be ready for these changes or quickly fall behind competitors: it requires coordinated technology and business directions.

Public Sector

Carrizales (2008) defines e-government and observes that regardless of municipal size, e-government practices require strong leadership advocacy and organizational resources, and the role of the CAO is a critical part of e-government (Carrizales 2008, 12).

Plant (2009) identifies eight elements that need to be identified to prevent failure and ensure strategic plan execution in the public sector. This includes the incorporation of technology considerations (digital elements) that he suggests should be a requirement within the standard strategic development process (Plant 2009, 40). The adoption of such a process would further move the yardstick towards the full integration of digital and business strategies within the public sector.

Lips (2012) provided an insightful account of the operational and conceptual challenges between e-government and public administration. Specifically, the author states that many e-government initiatives are undertaken in a space separate from

public administration governance, operating strictly as technology based topics (Lips 2012, 239). Lips (2012) suggests that e-government should be integrated within a new paradigm of public administration, *Public Administration 2.0*: acknowledging not only the unique environment of government but also the complex nature of e-government. Public Administration 2.0 would provide the operational aspect of digital strategies, recognizing the need to integrate elements of digital service provision with the business side of managing a public sector body: moving from techno-centric to the more progressive citizen-centric model (Lips 2012, 241).

Providing services in new ways has been identified as a business driver for digital strategy creation (GovLoop 2013). It could be argued that the drivers are actually factors such as public demand, the need for generating cost-savings, increasing efficiencies and greater public sector transparency: Providing services in new ways is a result or action generated from these drivers.

GovLoop (2013) defines five benefits associated with digital strategies paralleling the above stated drivers. These include cost savings and operational efficiency, improved services, workforce efficiencies, scalable infrastructure and transparency (GovLoop 2013, 17). These benefits are difficult to measure as they are primarily qualitative versus quantitative characteristics. For example, cost savings are often not realized as direct dollar amount savings, but rather observed as decreases in level-of-effort and increased efficiency through streamlined processes. Quantitatively assessing efficiencies can be accomplished by measuring elements such as quotas, throughput and response time. However, this data is seldom collected through local government service provision. More often efficiencies are reported qualitatively through commentary.

Deloitte (2016) completed a survey of over 1500 public sector leaders worldwide between January and March 2015. The purpose of this research was to explore the extent of the public sector's digital evolution (Eggers & Bellman 2015; Deloitte 2016). The research identified four key findings: citizens are central to leadership thinking but not considered in design; public sector needs digital confidence, engaged leadership and appropriate skills; funding pressures, competing priorities, workforce and culture are common challenges; and commercial approaches (procurement) need to get in step with digital transformation. Once again, leadership, citizens and culture are dominant themes.

The Deloitte (2016) research defined a series of ways to accelerate the digital evolution in the public sector. Five questions were established for public sector managers to ask to facilitate digital transformations.

1. Do we have a digital strategy that is clear, coherent and central to our leadership narrative?

2. Is our strategy genuinely digital – or are we too focused on online engagement, bolted on to our existing business?

3. How are citizens and service users going to be part of our digital transformation?

4. Have we looked at our talent pool and planned where our skills are coming from?

5. Do we have a coherent business case that monetizes our digital transformation?

The Deloitte study published separately the status and understanding of digital transformation in Canada, the United Kingdom (UK) and the United States (US) (Deloitte 2015a;b;c). Only 36% of Canadian respondents indicated they had a clear digital strategy, this compares to 46% globally, 47% in the United Kingdom and 40% in

the United States. When responding to an organizations readiness to respond to digital

trends, Canada and the UK were both at 33% confidence, while the US claimed on

29%. Both the US and the UK indicated that cost and budget pressures were the top

business driver for digital transformation, while Canada identified citizen demand as the

top driver. This is in keeping with the recognition that Canadian citizens are leaders as

adopters of technology, with only Australia and South Korea having higher total

percentages of internet usage (Poushter 2016).

Schick (2015) quotes that "even as they use available technology, the public sector

often needs to pay better attention to private sector best practices".

As noted previously there are some local government organizations in Ontario that

have or are in the process of creating digital strategies. The City of Toronto and the

Region of Peel are arguably the furthest along the path of implementation for digital

strategies. Other notable southern Ontario local governments in the process of creating

digital strategies include City of Kitchener, City of Vaughan, the Town of Markham and

the City of Ottawa. (see Appendix 1)

Literature Summary

The literature review provides abundant support for digital strategies in the private

sector, with relatively little from the public sector, especially at the local level of

government.

The collected works reviewed leads one to infer that the private sector is placing a

great deal of value on the development and execution of digital strategies to remain

competitive and relevant in today's technology dominated business climate. Digital

strategies allow organizations to develop a technology infused roadmap and in doing so

become more competitive, more efficient and more profitable (Bhardwaj et al. 2013, 472).

The available literature indicates there is a lack of data on any evidence that a digital strategy either compliments or conflicts with an organization's overall strategy. Nor are there studies detailing any specific benefits that could be realized by a local government with a more integrated approach to strategy development. Additionally, there are few documented metrics showing how the integration of digital and organizational strategies influence direction or goals of local governments, or improves service provision through their implementation.

There do appear to be prevalent themes throughout most implementations of digital strategies centering on communications, accessibility, leadership, citizens and engagement.

The majority of studies related to developing and implementing digital strategies agree that the integration of technology (digital) strategies and business strategies leads to enhanced outcomes for an organization. What these outcomes are is often not specifically defined, is dependent on the market sector or influenced by the local context.

Despite the high percentage of technology users, it government organizations at all levels within Canada have been slow to adopt digital transformations and digital strategies.

Government Implementations

The following section provides a snapshot of digital strategy implementations in some major government bodies, at national and local levels, to illustrate progression through time and the styles of implementations being undertaken.

Most government organizations do not define what a digital strategy is. Rather they identify what a digital strategy will do or what the goals are. The lack of a standard definition for government makes it difficult to succinctly put a box around the term and expect specific outcomes.

The Australian government recognized in 2009 that the practice of segregating technology and business strategies should stop and integration should occur. As a result, Australian IT policies have become less sector-specific and more a part of the mainstream policies that concern the economy and society as a whole (DBCDE 2009, 59).

In 2010 the City of Boston initiated a Digital Strategic Plan. The three pillars of their plan included empowered constituents, engaged city and efficient government (City of Boston 2016a). Interestingly, the digital strategy webpage is archived and no longer actively part of the Department of Innovation & Technology (DoIT) page. Instead, the main DoIT page for the city lists specific directions such as tools, infrastructure, digital engagement and service delivery, data and analytics, and broadband and digital equity. This may suggest that the corporate business strategy process has matured to the point where technology considerations are fully integrated, such that a separate digital strategy is no longer necessary (City of Boston 2016b).

New York City (NYC) measured success for their 2011 Digital Road Map, based on indices of internet access, open government, citizen engagement, and digital industry growth (NYC 2011, 1). The goals and metrics are techno-centric, measured qualitatively as numbers of systems deployed, datasets provided, citizens engaged, and year-over-year percentage growth of industry. They do not measure against the corporate strategy with citizen-based metrics such as what access was required or wanted, what elements of open government were needed, how did citizens want to be engaged, or what is the health and success of the digital industry. In 2013, the mayor of NYC stated that 100% of the 2011 targets had been met (NYC 2013).

In 2015 NYC's council initiated A Roadmap to Digital Inclusion and Open Government. This initiative extended the digital roadmap to council interactions with citizens stating that "rather than seek innovation for its own sake, we focused on people before products" (NYC 2015). NYC Council recognized the need to move digital progress in the direction of citizen and service needs rather than raw numbers of technology-based systems and services.

In 2012 the UK government created a Digital Strategy Policy (Cabinet Office 2012). Their mandate was to improve departmental digital leadership, develop digital capability throughout the civil service and redesign transactional services to meet a new Digital by Default Service Standard (Swain 2014).[3] This policy identified actions aimed at increasing the use and availability of technology or digital services offered by the government. It does not speak to the integration of a digital strategy with the overall

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[3] *Digital by Default* states that when new services or policies are put in place they automatically consider digital implementation as the standard for service delivery. Defined by the UK governments as digital services *that are so straightforward and convenient that all those who can use them will choose to do so whilst those who can't are not excluded* (Cabinet Office 2013).

business strategy of the government but is mainly e-services focused. The Government

Digital Service (GDS) is now being reviewed to be extended to the local government

level, using GDS as a model to develop a Local Government Digital Service (Gov.UK

2016).

The US federal government released a strategy in 2012 that was identified as the

Digital Government Strategy (Executive Office of the President of the United States

2012; Presidential Memorandum 2012). Unfortunately, within this document they have

interchangeably used the terms Digital Government Strategy and Digital Strategy. A

digital government strategy is establishing a strategy and roadmap for defining a Digital

Government identifying how the government will move forward specifically with

technology (Miranda 2000). A digital strategy is developing a true alignment with the

business strategies of an organization and defining how business needs (not just digital

government needs) can be accomplished with all the tools available to them (finance,

HR, legal, technology, resources, etc.). As indicated by the OECD (2014) a digital

government represent only one possible outcome of a digital strategy. Other authors

have also continued along this path adding confusion to the term digital strategy

(Fiorenza 2013; GovLoop 2013; Luna et al. 2015).

In the United States large municipal governments are more advanced than the

federal government in acting on digital strategy adoption and implementation. Similarly

in Canada, several municipal government (e.g., Vancouver and Toronto) had

established a way forward for digital transformation before the federal or provincial

governments.

In the Canadian federal government, Digital Canada 150 2.0 builds off the original DC150 program launched in 2012. 2.0 is designed to develop and implement a comprehensive approach to ensuring Canada can take full advantage of the opportunities of the digital age. It envisions a country of connected citizens armed with the skills they need to succeed (Canada 2015). The DC150 program is very operational, specifying actions under the headings of connecting Canadians, protecting Canadians, economic opportunities, digital government and Canadian content. It is more focussed on external services than on changing internal processes and procedures: digital government versus digital strategy.

The Ontario provincial government has not specifically developed a digital strategy. Open government (2012) and more recently Digital Government have been adopted to improve services and to implement digital-by-default as a guideline across the public sector (Ontario 2016). The province has affirmed a commitment to digital government by appointing the first Minister Responsible for Digital Government and recruiting a Chief Digital Officer for Ontario: A senior executive position tasked with making Ontario the most modern and digital government in Canada (Ontario 2016).

Local Governments – In Progress

Digital Kitchener is the City of Kitchener's initiative to update the Corporate Technology Strategic Plan. The stated purpose is to "seek out opportunities that will use information, technology and digital resource to improve the way we live our lives" (Kitchener 2016). The city is undertaking public consultations to support the strategy development and has committed to ensure balance between community, corporate and IT divisional needs. The strategy has the themes of Access to Information, Digital

Leadership & Inclusion, Infrastructure, and Service Delivery (City of Kitchener 2015).

Open government is one of the five strategic priorities identified in Kitchener's Strategic

Plan, and Effective and Efficient City Services, a second strategic priority, specifically

identifies technology, innovation and employee engagement as drivers.

The City of Vaughan is developing a digital strategy focussed on defining how the

city will interact with citizens digitally. The business driver behind the development of

the strategy is that citizens are increasingly using digital and mobile technology to

enhance their day-to-day lives (City of Vaughan 2016, 4).

The Town of Markham is in the early stages of developing a digital strategy. The

goal is to produce a roadmap for the town on how citizens will interact with the city, how

employees collaborate and communicate, how digital infrastructure will create a smarter

city and how the digital economy will be supported (Town of Markham 2016).

Case Studies

The following presents the City of Toronto,. Region of Peel and the Town of Oakville

as local government organizations in southern Ontario, reviewed for their efforts at

establishing digital strategies.

City of Toronto

The City of Toronto is a single tier municipality representing not only the largest

population in Ontario but also the largest population in Canada at 2,615,060, according

to the 2011 census (Statistics Canada 2016).

Toronto has been at the forefront of technology strategies in Ontario since the early

2000's. In 2002 the city adopted an eCity strategy aimed at creating an enabled city. In

2010 the eCity strategy was revitalized to state "Your local government anytime, anywhere" (Griffiths 2012).

This initiative continued in a fragmented format until 2012 when the city's Auditor General released a report claiming the program required improvements to governance, management and accountability. Although specific successes were measured the program as a whole was never fully adopted or accepted by the administration.

The 2013-2018 Strategic Plan was developed to connect Council's goals to strategic actions, the City's Official Plan, service planning and multi-year budgeting. Open Government by Design, Strategic Action #13 in the Strategic Plan, has a primary tenet of "incorporating information management policies, and best practices into the planning and implementing of business process, technology and front line customer service delivery" (City of Toronto 2013).

Although stated as open government, there are many components of digital strategies that have been included in this Action Plan. One indicator is the statement "Open Government is a cultural change" (City of Toronto 2013).

Toronto is embracing the open government movement, and through this some of the digital strategy concepts are being captured such as the need for cultural change. Much of what is discussed in the strategic action is operational making digital-by-design a clear theme, highlighting data, privacy and accessibility of information. What is missing from a digital strategy view point is adopting technology at the organizational level rather than at the operational level. Toronto is on the path to digital transformation, somewhere between e-government and Digital Government (OECD 2016, 57).

The city has moved through a number of attempts to create a digital government environment in several different formats. Each iteration has been supported and implemented with initial senior management buy-in. Implementation has however never been fully executed, often because senior management support has waned or disappeared when on-the-ground execution was required. The "owner" of the current open government program is not identified in any available documentation. It is assumed the CIO is the senior level responsible, however, there is no specific management position directly accountable for the ongoing implementation of the program.

Toronto has documented success through the years. These wins are always tactical actions that have been completed with the addition of physical technology components. True success is difficult to measure as there are no predefined indicators to measure against.

Peel Region

The Region of Peel is an upper tier municipality located immediately west of the City of Toronto along Lake Ontario. The region consists of the City of Mississauga, the City of Brampton and the Town of Caledon. The 2011 census reported the population of Peel at 1,296,814 (Statistics Canada 2016).

The 2011-2014 strategic plan developed by the Region outlined seven themes for implementation: environment, social development, community health, public safety and service excellence. Each of these was sufficiently broad that accomplishments were fairly easily achieved. The achievements identified at the completion of the strategic

planning cycle were functional or operational successes marked by awards or recognition from peer groups (Region of Peel 2016a).

The Region of Peel defined five themes associated with its digital strategy, operationalized in 2015, focusing on the need to deliver the services that residents and businesses require, how and when they want them. The five themes include excellent customer service, improved & secure technology, managing & using the information, agile & responsive systems, and cost-effective implementation.

With each of these five themes, the Region of Peel is defining tools that can be applied to enhance the business of government. Several key statements in the digital strategy document identify this as a citizen-centric or government-centric strategy. First is the indication that "there is now a need to have all of the regional services offered on multiple channels including digital" (Region of Peel 2014, 5). This conveys that "digital" is only one method of delivery and that the nature of the services and the desires of the end-users will guide how the services are consumed, not technology. Second, the document stresses the need for continuous business process evaluation in order to improve the organization through change, while still being able to manage that change (Region of Peel 2014, 8). This suggests that the region values not only business process and business needs but also the technology used to deliver the service. It reinforces the concept that the application and use of technology has to be sensible in the context of delivering the required service. There is a recognition that the business and technology components need to be complementary rather than separate.

The latest cycle of strategic planning in the Region of Peel (2016b) is currently defining a new 20 year (2015 to 2035) vision and plan. Despite the availability of the

digital strategy, the new strategic plan appears to be vague on any references to technology. There is also no indication of an understanding of the cultural change needed to meet future service provision, skills and capacity requirements to meet the changing demands of the public.

The Region has a Manager of Digital Strategy overseeing the initiatives responsible for focusing on high priority digital tasks for citizens, ensuring they are measured, accessible and easy to use. There have been no metrics, achievements or results yet published for the digital strategy program in the Region.

Conversations with Peel staff indicate that even with the initial support of senior management for the development of a digital strategy, strong top-down implementation support has not yet been achieved in the Region. It is also evident that the new strategic planning process, despite appearing more in-line with the open government concepts of public engagement and involvement, has not fully embraced the Region's digital strategy as an integrated part of the business strategy.[4]

Town of Oakville

The Town of Oakville is a lower tier municipality located in Halton Region between the City of Mississauga (Peel Region) to the east, and Halton Region neighbours in the City of Burlington to the west and Town of Milton to the north. The Town's population was recorded at 182,520 in the 2011 census (Statistics Canada 2016).

The Town is in the process of enhancing digital government services through the formulation, implementation and management of a digital strategy within a digital government program. Oakville is:

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[4] Personal Communications. Region of Peel staff. 2016.

"embracing digital solutions to enhance citizen services, drive operational

excellence and meet the challenges of a mobile-first world, making online

services simpler, easier and faster to use" (Town of Oakville 2015a).

The organizational focus is transitioning from the current mode of simply putting

processes and services online through the internet, to a more robust digital government

environment, leveraging technology to manage and deliver services that can "engage

the public, solve real problems, enrich lives, save taxpayer money and improve

government" (Oakville 2016).

The purpose of the digital strategy program is to establish, implement and sustain a

digital government strategy and framework for operations and service provision. The

program goal is two-fold: to ensure tools are available for stakeholders to allow them to

take advantage of changes to service delivery, and, to evolve the Town's culture and

service delivery processes by applying technology and embedding the concept of

digital-by-default.

The Town has hired a Director of Digital Strategy to develop and implement the

program. Recruiting for this position illustrates a commitment on the part of the Town to

move towards a digital government environment and dedicate a senior management

champion to the initiative.

The Town's Strategic Plan 2015-2018 has been developed independent of a digital

strategy (Town of Oakville 2015b). However, under the focus area of Outstanding

Service to Residents in the strategic plan, there is an action item for the creation of a

new digital strategy. This could be identified, equally well, as an action under the Good

Governance focus area, where it would better represent an organization-wide strategy

to enhance overall business processes rather than just external services.

City of Vancouver

The City of Vancouver has been identified as an early adopter of digital strategies

within the municipal sector in Canada. It is reviewed here as a comparator for those

municipalities in Ontario that have been presented as case studies.

Vancouver is located on the lower mainland in British Columbia and is the largest

population in B.C. at 603,502 according to the 2011 census (Statistics Canada 2016).

The City of Vancouver created a digital strategy in 2012 and has provided annual

reporting on progress towards increasing the City's digital maturity. The Vancouver

digital strategy is a separate initiative from the corporate business strategy, along with

no less than 17 separate targeted functional strategies in the city ranging from care and

homelessness to emergency preparedness, green initiatives, culture and transportation.

The Vancouver digital strategy identified that citizen expectations have changed in

part due to innovation outside of the government. This is stated as one important reason

for the development of the strategy. The primary focus of the digital strategy is to

improve the overall digital maturity of the City under the stated Vision of "enhance

multidirectional digital connections amongst citizens, employees, business and

government" (City of Vancouver 2013, 4).

Digital initiatives are separated from the IT Department. They are measured as

successes within the Digital Working Group and are not linked to progress towards the

overall strategic goals of the city as a single organization (City of Vancouver 2013;

2016). The metrics used to measure success point to specific external tactical wins on

project implementations and strategy developments. There are no indications of progress on organizational or cultural change targets, meeting expectations from staff on technology, or integration with business strategies.

Vancouver's Strategic Business Plan developed for 2016 specifically refers to the integration of the city's digital strategy and identifies digital service delivery actions completed through the previous year as successes used to measure progress. This is a function of the hierarchy of strategies in the City. The digital strategy fails to identify successes against the business strategy, while the business strategy claims successes through the subordinate digital strategy.

The fact that the City has 17 separate strategies indicates there may still exist some compartmentalization of initiatives, rather than creating a cohesive organizational statement.

Analysis & Discussion

Local government information related to digital strategy development and implementation has been gathered through information packets, council reports and documents available through websites for southern Ontario municipalities larger than 25,000 population. Research has found that many municipal organizations do not have extensive or detailed information available online (Appendix 1). Most do not have comprehensive open government policies that would enable open data or promote transparency and data accessibility. Although they attempt to periodically update information it is difficult to find consistently available information.

Appendix 1 provides a listing of local governments in southern Ontario with a population of greater than 25,000 as of the 2011 census. The list identifies for each

local government the most recent strategic plan and whether the organization has

started along the digital transformation continuum with open data, open government or

digital strategies. Each municipal entity is also categorized as upper, lower or single tier

for comparison purposes.

Table 1: Southern Ontario Local Governments and Digital Strategies:
Population greater than 25,000 (based on data provided in Appendix 1)

Level of Government	Total	Strategic Plan		Open Data		Open Gov /e-services		Digital Strategy	
Single Tier	22	19*	86%	9	41%	5	23%	3[+]	14%
Upper Tier	28	23**	82%	6	21%	3	11%	1	4%
Lower Tier	37	30	81%	15	41%	7	19%	5[++]	14%

* 1 single tier strategic plan in Economic Development only
** 3 upper tier strategic plans in Economic Development only
[+] 1 single tier digital strategy in progress
[++] 4 lower tier digital strategies in progress and 1 in Planning & Development only

Table 1 shows is a high percentage of local governments with strategic planning

programs in southern Ontario. This reflects a number of influencing factors including

best practices, policy diffusion from other jurisdictions, the public sector trend for

strategic planning and the recommendations provided by the Ontario Ministry of

Municipal Affairs and Housing (Bryson 2011; MMAH 2016).

The review of all local governments in southern Ontario indicates that single and

lower tier governments appear to be more likely to adopt open data and open

government. This likely reflects the frontline services being offered by these levels of

government, what data is being provided relative to those services and the more direct

connection to local populations. Upper tier municipalities are often one level removed

from many front line services and do not provide as many direct interactive services with

the public.

Many of the upper tier municipal organizations have large rural areas with low

density populations. Open data, open government and digital strategies may not be

priorities in these areas as they may not experience the same development and growth pressures as highly urbanized areas.

Urban versus rural does not explain all of the missing open government programs in Ontario. The lack of adoption also reflects a general low level of digital maturity and early adoption stages along the digital transformation continuum.

There is a noticeable lack of digital strategy development within all local government communities in southern Ontario.

Case Study Comparisons

In the three local government cases that were reviewed, the upper and single tier municipalities (City of Toronto and Region of Peel) are further advanced than the lower tier (Town of Oakville) in addressing the demand for digital government, having created a digital strategy or similar governance tool. There is no established differentiator to indicate why these larger urban centres are more advanced. Several thoughts include greater diversity within the work force and more exposure to larger global issues prompting a need to compete on the global economic stage. These centres tend to have larger industry base, larger population base and larger overall budgets, which may enable them to address some of these issues more readily. Alternatively, larger local governments may be more motivated to find innovative ways to become more efficient (reduce costs).

There is no indication of any interjurisdictional collaboration or influence between the various municipalities. All governments appear to be addressing digital strategies, digital government, open government and e-government independently, at different speeds and with different methods.

Early adopters have indicated that support from senior management is key to a successful adoption and implementation program. In those cases where digital strategies have been established, incomplete implementation has occurred when senior management fails to continue with support throughout the entire process.

Of the three municipalities reviewed only the lower tier Town of Oakville had dedicated a senior management (Director) level position to lead the initiative. Within Toronto there was no identified individual, indicating this had become part of someone's regular job, while Peel Region had designated a mid-level management position. These differences illustrate the level of true support for the digital strategy process from senior management in each organization. The smallest entity appears to have established the highest level of support, and may have the largest potential for success.

One unknown influencing factor is the role that local administrative and political culture plays in influencing senior management commitment. Are their strong existing cultural barriers in the larger organizations limiting support, or does Oakville have a culture where it is easier to generate support for innovation?

The reviewed local governments do not have strongly aligned business and digital strategies. In general business strategies (corporate strategic plan) are created independently of the digital strategies. Occasionally there are links from one to the other, most often the digital strategy is linked to the corporate strategy, with little or no reciprocal linkage.

The digital strategies reviewed are more focussed on creating digital government environments with a high importance placed on external services and engagement, and less emphasis on any organizational changes or governance. This is partially revealed

in how they measure and report success. In Toronto, Peel and Vancouver success is measured through successful projects being executed or functional technology implementations. These are the easiest to report on as they are initiatives that can be pointed to with an indication that something was achieved against the stated goal.

Successes reported or projects executed were not defined as part of the digital strategies themselves. Rather the projects were "aligned" with strategy goals once they were defined. If the goals are broad enough almost any project can be aligned with a goal. The challenge would be to set targets and identify initiatives when the planning is undertaken for strategy implementation during the initial strategic planning exercise.

All of the reviewed cases identified business drivers in-line with the open government concepts of accessibility to data and information, transparency and accountability. These in turn appear to be influenced to some degree by citizen demands. It is difficult to determine from the available documents if the digital transformations are taking place because the individual local governments were already far enough along the digital maturity path that this was the next logical step, or if something bigger (i.e., public demand) was influencing the move.

All cases identified the need for cultural changes within their organizations. This is in keeping with the tenets of establishing a digital strategy and the need to modify behaviour to be able to fully realize the benefits across the entire organization. No measures were identified to mark any successes in cultural change.

There was no recognition within any of the cases studied that the adoption or implementation of a digital strategy realized benefits within the organization such as efficiencies or more robust recruitment exercises. It may be that it is too early in the

evolution of this new paradigm for the trickle-down effect to be felt. It may also be that these municipalities have not looked at the non-tangible benefits of adopting a digital strategy as they are harder to distinguish, identify and measure.

The Town of Oakville, although still in it's infancy along the digital strategy roadmap may be developing the most robust framework. As a more recent adopter, this organization has the benefit of adopting updated practices and applying lessons learned from other jurisdictions, allowing them to incorporate more proven concepts.

Public versus Private Sector

The development and adoption of digital strategies within the private sector has been at a much more rapid rate than in the public sector. This can be attributed to some of the fundamental differences between the two sectors. These differentiators include profit versus non-profit, creating personal value versus public value and inward focussed versus externally focussed.

Private sector firms have primary goals of making a profit and increasing the value of the organization or the people running it – ultimately creating personal wealth. Private firms are focussed inwardly on elements such as production and products, and sales and services in order to maximize profitability and minimize costs.

Public sector organizations on the other hand concentrate on fiscal responsibility over profitability and creating public value in the services they provide. The focus is outward looking to respond to client service needs and providing those services efficiently and cost effectively.

The question then is if the goals and mandates are so different between the private and public sectors are digital strategies as adopted in the private sector applicable in the public sector, and if so in what format?

In reviewing the adaptability of the IT strategic planning processes from private to public sectors Dufner et al. (2002) found some striking differences. Among them was the overall perceived value of IT, where private sector firms tend to value IT greater than public sector. The private sector tends to involve senior executives in IT strategies while the public sector often utilizes middle managers or lower to define IT strategies: leading to direct input and support to IT strategies at higher levels in the private organizations. One factor for consideration in being able to effectively adapt concepts from the private sector and adopting digital strategies in public sector organizations is the level of support from senior management.

The Dufner et al. (2002) study showed that most public sector IT strategies were tactical in nature, developed at distinct departmental or program levels rather than for the entire organization. Whereas private sector IT strategies were more often organization-wide and more strategic in character. As noted previously there is a distinct difference between IT strategies and digital strategies (McDonald 2012). Dufner et al. (2002) suggest that digital strategies in the public sector may be closer to IT strategies in the private sector where they are developed and implemented at a higher level and across a broader platform of the organization.

The level of digital maturity within an organization is often cited as an indicator of success of a digital strategy (Valdés et al. 2011; Eggers & Bellman 2015). Digital maturity applies equally well in both the private and public sectors.

Drnevich & Croson (2013) looked at four established factors of profitability and attempted to determine the performance-level influences of technology on these factors. Their research showed that in Business Strategy research, IT is undervalued as a contributor to performance and value creation in each of their four factors. Technology however has been shown to directly improve both efficiency (reducing costs) and effectiveness (creating and capturing value). The study concluded that the integration of business-level and technology-level strategies would not only better account for the direct contributions of technology but would also better enable the identification of some of the indirect benefits of the integrated strategies (Drnevich & Croson 2013, 485).

The tendency to undervalue technology has been studied in the private sector and there is no reason to believe that it is limited to the profit-centric private sector. The improvements in efficiency and effectiveness as demonstrated by Drnevich & Croson (2013) are also key strategic goals in most local government organizations. The potential to increase these performance indicators would be a driver within the public sector.

Technology is often viewed as malleable as it is applied differently by different users depending on context. Users often adapt tools to their own purposes in ways that were not originally anticipated by the designers of the systems (Anderson et al. 2002). The use of the system is what creates social, economic and business disruption and defines the true value of a system (Cosier & Hughes 2001, 4).

Whittington (2014) observed that the development of IT strategies is changing from external observations of IT practice to include more strategy-as-practice direct observations. This supports Crosier & Hughes (2001) and further indicates that how

technology is used by the end-user is more important than the notion of what it was designed to do. Extending this to the delivery of services within a municipal environment suggests that development of strategies based on user-centric or citizen-driven requirements is key to gaining buy-in and ultimately service use by citizens. In knowing how the recipients of the service will use it, a better service delivery model can be designed and implemented.

Private and public sector digital strategies have some business drivers in common despite different end goals. Ultimately, digital strategies in both entities are aimed at creating efficiencies and providing lower cost services by better assimilating business needs and technology

Information technology supports the pursuit of both revenue growth and cost reduction, or higher quality and lower costs in industry (Mithas et al. 2012). Although revenue growth is not a consistent driver for the public sector, government bodies are always seeking the benefits of higher quality and lower costs. Mithas et al. (2012) noted that in understanding the integration of digital and business strategies, management was better able to maximize how technology can influence these benefits. Similar logic can be extended to the public sector. Developing an understanding of the integrated strategies could result in the ability to maximize higher quality services and lower costs.

Some concepts are directly adaptable from industry to government. Broadbent & Kitzis (2005) identified four key factors that contribute to the integration of business strategy and IT strategy and the execution of the integration within the private sector. Having a collaborative CIO willing to work with and include all business areas, an executive informed as to the value of technology in the organization, strong IT

governance and engaged technology management at levels higher than simply projects and operations.

These factors are consistent with the drivers stated by Mithas & Lucas (2010) and Broadbent & Kitzis (2005) and are not isolated to the private sector as indicated by Carrizales (2008) and Deloitte (2016). Each can be reflected in the governance and organizational characteristics of public sector organizations and are as applicable to the public sector as they are to private firms. Broadbent & Kitzis (2005) also identified the need to have business and IT working together in strategic terms.

Mithas et al. (2013) suggest that private firms develop digital business strategies not simply to optimize internal operations or as a response to local competitors, but are also prompted by a general awareness and responsiveness to what others are doing with technology in a specific industry space. The study found that competition was one of the key factors influencing private sector digital strategies and how they were modified (Mithas et al. 2013, 530).

The public sector rarely identifies competition as a driver for services. It is more often the fact that a service is needed and is not being provided, is mandated, or is being provided elsewhere so public demand increases. In the public sector, competition could be substituted with influence from other jurisdictions and pressure from the public to provide similar levels of service.

The private sector is developing and executing on digital strategies. Generally, the business sector does not embark on change unless it of value to the company. The private sector has shown increases in the capability to get product to-market and the

ability to dynamically and adaptively change to both market pressures and technology advances with the adoption and integration of business and digital strategies.

Although public entities do not operate as businesses per se – not strictly guided by making a profit – the public sector is still focussed on the bottom line, in this case for fiscal responsibility. Lessons learned from how private sector organizations operate, can be adapted and applied within the service provision environment of local government.

Private sector organizations are service providers for profit. Local governments, by definition service providers, should take note of the applicability of digital strategies, not for the profitability outcomes but for efficiencies, and not for a competitive edge but for a technology edge to offer improved, more innovative services to their clients.

Generational Shift

There is extensive literature documenting the generational effects on workforce engagement detailing the Boomers (1940's to mid-1960's), Generation X (mid-1960's to early 1980's), and Generation Y or Millennials (early 1980's to around 2000).

According to a Forrester study Millennials identify technology as an essential component of their life and work. Their continuous exposure to technology means they are always "on," and connected. The study further states that Millennials tend to adapt quickly and accept new technologies for socializing and working (Savitz 2012).

Piatz (2015) writes "that Millennials are driven to make an impactful difference with their work, and there is untapped potential for your organization in their technical ingenuity." She goes on to say that in order to create a balanced work culture, retain young talent, and open the door for creative problem solving and innovative solutions, it

is necessary to engage the millennials through frequent communication and technology acceptance across the organization.

The current generation of youths and young citizens are the future of tomorrow – as was similarly said of each previous generation. They are being raised in a technology filled society. As they grow older the ever-increasing levels of demand will be for services accessible where, when and how they want them.

One of the more recent references to the Millennials and beyond is being discussed as the *Net Generation*; not so much defined by the date of their birth but rather by the ubiquitous access and exposure to technology since they were born (PWC 2012).

The Net Generation already comprise over a quarter of the US workforce, according to Bureau of Labor Statistics (PWC 2012). As the fastest-growing employee group, they will play a greater role in an organization and leave a lasting impact on the way human resources attracts, engages, and retains talent. The changing attitudes and aptitudes of generations is nothing new, the big shift is in the uptake and reliance on technology in this latest generation (PWC 2012).

Onboarding the right talent and maintaining the best talent is becoming more of an issue as many organizations are still operating in the post-industrial era mode of work hard, pay your dues and get rewarded (Tapscott. undated). In the US, 52% of companies indicate they are having problems recruiting and keeping the right resources (PWC 2012).

Four strategies designed to attract and prepare for the Net Generation workforce include (PWC 2012, p3):

- Conducting recruitment and engagement through social, collaborative and continuous systems.

- Creating a workplace environment that is flexible, collaborative and entertaining leveraging technology to engage resources and promote interaction,

- Establishing training and development programs through interactive and digital formats

- Identifying and fostering better technology skills to raise the effective digital IQ of the workforce

So how is this different from any other new cohort of workers and what does it have to do with digital strategies? The Net Generation represents the need for a fundamental cultural shift to capture and retain talented and engaged workers. Digital strategies can have the effect of driving innovation internally and creating a more dynamic work place. This entices staff to be more engaged, positions the organization to attract and maintain higher quality resources and become an employer of choice in the broader community.

This also illustrates a "service" that would be affected by a digital strategy. The ability to recruit and retain talent based on digital innovations and application: people would want to work for these organizations.

As the use of information technology increases and the demand for digital environments expands, the pressures on the technology groups within local governments increases. Resources are "freed-up" in business areas through digital transformation, while the burden for support and maintenance is shifted into the technology environment. The development of digital strategies enables an organization

to better visualize and understand the end-to-end impacts of a service implementation at all structural levels. This improves the ability to plan resource requirements and identify the skill sets needed to fulfill service requests.

Further, as more of the Net Generation become part of the voting public, government service demands will increase and the need for transparency, accountability and engagement will reach new heights. Governments need to be prepared for this and not trying to play catch-up. This is particularly true for local governments as they are closest to the people and provide the most frontline services. By establishing digital strategies local government can put in place the framework that will be necessary to start to meet the demands for both now and in the future.

Summary

Digital initiatives have been identified in a wide range of formats and offerings from local governments. Most of the early adopters were focussed on e-government and e-services moving existing manual services to the internet. These action-based constructs were visible to the public and demonstrated progress in service provision. The next step was to migrate to broader operational concepts of open government and digital government, incorporating accessibility and transparency in addition to transactional service provision. Each successive progression have been built on top of the lessons-learned of previous iterations and furthered both digital maturity of organizations and movement along the digital transformation continuum.

Early adopters move forward for a variety of reason, often out of necessity. In reality the pioneers in any endeavour have successes and make mistakes that better position other organizations to succeed in their wake. Lessons learned are valuable to modify

processes and adapt methodologies to create results more aligned with goals. Best practices evolve through time facilitating the development of continuums: laying out a path for organizations to follow. Concepts such as digital maturity and the OECD continuum of digital transformation could not be created if organizations had not completed at least some of the steps and proved them to be both viable and progressive.

In the United States large municipal local governments are further ahead of the federal government in acting on digital strategy adoption and implementation. Similarly in Canada, a number of municipalities (e.g., Vancouver and Toronto) established a way forward for digital transformation before the federal or provincial governments.

Few organizations have openly announced digital strategies as these are more foundational concepts and not so much operational. Tangible outcomes need to be portrayed for public acceptance. The public wants to see the results; they do not necessarily want to see the details.

Governments have consistently quoted visions and goals of engagement, access, leadership, digital-by-default and digital service provision when describing citizen interactions and the emerging digital landscapes. Results and successes are generally portrayed operationally through transactional service improvements, tangible actions and quantifiable success stories.

There are certain digital strategy themes that frequently appear in the private sector literature. These speak to organizational and support factors shown to facilitate the development, implementation and long-term viability of digital strategies. The public sector is no-less influenced or dependant on these same circumstances, therefore the

identified private sector factors should be no less applicable to the public sector. These include:

- The need for strong and continued leadership and senior management support.

- The development and maintenance of effective understanding, communication and collaboration throughout the value chain.

- Establishing interdependencies between organizational units (e.g., departments or divisions) and creating greater organizational connectivity at multiple levels.

- Securing genuine buy-in from the business areas for the IT efforts

- Putting in place and sustaining an effective operational IT infrastructure identified for creating value for the organization and embedding IT as an essential component in defining direction and efficiencies

Detecting an organizations digital maturity allows for a more structured approach and defined processes to progress through the digital transformation continuum. Both of these tool better position a local government to track progress and success of a digital strategy.

Local governments need to understand that integrated business and technology strategies can benefit organizational efficiencies, innovation and cultural transformation.

Involving the end users is key to defining strategies and services that will be used and identifying a better service delivery model. This requires cultural changes for engagement and participation rather than just data gathering and informing users about what will be provided to them.

The cultural change necessary for digital strategy implementations extends to internal systems enhancing processes and standards and increasing the level of organizational technology use and understanding. As stated by Bracken (2014) "Digital service design means designing the whole service, not just the digital bits. If you're redesigning a service, you need to think about the organization that runs it." Transforming the organizations culture embrace technology at all levels can result in a more engaged staff complement, making the local government a destination of choice for employment and establishing an environment more inviting to both the next generation of employees and voters.

Conclusions

The literature review, discussions and analysis have shown that although there may be some fundamental differences between private and public sector organizations, digital strategies are equally applicable within each environment. The common goal is to define a strategic governance framework that enables an organization to meet or exceed expectations and goals by leveraging all available resources, both business and technological.

In answering the original questions posed in this study:

1. There are lessons to be learned from the private sector that are substantively or partially applicable in the public sector.

2. Generational issues have always existed in the work place and in society, with many of the current issues driven by the rate of technology change and adoption, providing a driver for change to be able to more fully embrace the future

3. The early adopters provided support to the lessons learned from the private sector and enabled subsequent adopters to be more prepared and thoughtful in their own implementations.

There is no definitive pattern of adoption and there is no obvious policy diffusion in relation to digital strategy implementation in local governments. Although those governments that are adopting digital strategies seem to be aligned with similar goals there seems to be little in the way of coordinated approaches: some are open government, others digital government; some concentrating on e-services, others on governance and culture. Citizen demand was identified as a primary driver, however, few are actually operationalizing any type of coordinated digital transformation in response to this demand. Those local governments that are moving forward are primarily urban centres with smaller industrial bases and higher commercial/ technology bases (Oakville, Kitchener, Vaughan, Markham and Ottawa).

Digital strategies are not technology or IT Department initiatives. Rather these strategies are organization wide, driven by and inclusive of all business areas. In conjunction with business strategies for a local government, the digital strategy lays a framework to support the achievement of business goals through digital transformation.

Digital strategies mark a shift to use technology to shape public governance outcomes, and not simply to support government processes. As suggested by the OECD (2014), this change requires coherent and strategic planning of policies for use of digital technologies in all areas and at all levels of the administration.

The ongoing ability to both strategize and provide efficient services to consumers would be challenging today if the digital components of the local government

environment did not exist. Just as services cannot operate without due consideration of the people, the budget and legal ramifications, neither can they exist today without the assimilated support of digital elements.

In the same way that other corporate and administrative services (human resources, finance, legal) have become embedded in the strategic planning process, so too should the technology (digital) aspects of municipal services be integrated. Technology can often frame the service and better differentiate the potential opportunities to provide a service, leading to the realization of value for both the consumers and providers.

Leadership and culture are two influencing factors related to digital strategies. Leadership is a requisite for success. Without strong and continued leadership efforts to establish and sustain initiatives, digital strategies and digital transformations have failed.

An organizations culture is often a barrier, at least initially. The development, implementation and success of digital strategies often relies heavily on a cultural shift within an organization, embracing technology at a fundamental level within governance, decision making and process design. If the culture for change and innovation already exists, the transition will be easier, but strong leadership must still exist. Leadership has to be in place and effective: Culture will be changed.

More research is required to better quantify the benefits of digital strategies within local governments and demonstrate the value gained by integrating business and technology strategies.

Local governments need to be able to meet the changing demands for service provision. Demands not only for accessibility, accountability and transparency, but also for efficiency and participation, externally with the public and internally with staff. This

means in some cases adjusting how we produce public value, through services, efficiencies and fiscal responsibility.

The adoption of digital strategies in local governments provides one method to streamline processes, engage resources and increase the pace of public sector modernization. By establishing digital strategies local governments can put in place the framework that will be necessary to start to meet the demands for both now and in the future.

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Appendix 1
Southern Ontario Municipalities greater than 25,000 population: Strategic Planning and Digital Strategies

The following table provides southern Ontario municipalities greater than 25,000 population as of the 2011 Canadian census (Statistics Canada. 2016). Data collected for each municipalities is taken from website searches and available or published documents. Each local government website was searched for availability of the most recent corporate strategic plan, evidence of open data, open government, e-services and digital strategy initiatives.

This does not identify an exhaustive search of records. Lack of access to documentation on a website does not preclude the existence of non-published reports that may satisfy the requirements for strategic plans.

The availability of open data, e-services, open government and digital services however is directly related to the access of the information on the respective websites. If these initiatives exist then they would be published and available through the website. Non-availability is conclusive evidence that the initiatives do not exist in a specific local government.

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Ajax, Town of	109,600	Lower Tier	Durham	Strategic Plan 2007-2010			
Aurora, Town of	53,203	Lower Tier	York	Town of Auroa Strategic plan 2011-2031			
Bradford West Gwillimbury, Town of	28,077	Lower Tier	Simcoe	Council's Strategic Plan 2015-2018			
Brampton, City of	523,911	Lower Tier	Peel	City of Brampton Strategic Plan 2016-2018	open data	open government	
Burlington, City of	175,779	Lower Tier	Halton	Burlington's Strategic Plan 2015-2040	open data	e-government	
Caledon, Town of	59,460	Lower Tier	Peel	Community based strategic plan 2010			

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Cambridge, City of	126,748	Lower Tier	Waterloo	Cambridge Connected Strategic Plan 2016-2019			
Centre Wellington, Township of	26,693	Lower Tier	Wellington				
Clarington, Municipality of	84,548	Lower Tier	Durham	Clarington strategic plan 2015-2018			
Fort Erie, Town of	29,960	Lower Tier	Niagara	Corporate Strategic Plan 2015-2018			
Georgina, Town of	43,517	Lower Tier	York				
Grimsby, Town of	25,325	Lower Tier	Niagara				
Halton Hills, Town of	59,008	Lower Tier	Halton	Strategic Action Plan 2014-2018	open data		
Innisfil, Town of	32,727	Lower Tier	Simcoe				
Kitchener, City of	219,153	Lower Tier	Waterloo	Kitchener's Strategic Plan 2015-2018	open data	open government	digital strategy in progress
Lakeshore, Town of	34,546	Lower Tier	Essex				
LaSalle, Town of	28,643	Lower Tier	Essex	Town of LaSalle Strategic Plan 2015-2018			
Leamington, Municipality of	28,403	Lower Tier	Essex	Strategic Plan 2011-2014		e-services	
Markham, City of	301,709	Lower Tier	York	Building Markham's Future Together: 2015-2019 Strategic Plan	open data		digital strategy in progress
Milton, Town of	84,362	Lower Tier	Halton	Destiny Milton 3: Strategic Action Plan 2015-2018	open data	IT strategic plan 2013-2015	
Mississauga, City of	713,443	Lower Tier	Peel	Strategic Plan 2009-2050	open data		Planning and Building digital strategy
New Tecumseth, Town of	30,234	Lower Tier	Simcoe	Strategic Plan 2013-2018			
Newmarket, Town of	79,978	Lower Tier	York	Newmarket's Strategic Plan 2014-2018	open data		
Niagara Falls, City of	82,997	Lower Tier	Niagara	2015-2018 Strategic Priorities	open data		
Oakville, Town of	182,520	Lower Tier	Halton	2015-2018 Councils Strategic Plan	open data		digital strategy in progress

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Orangeville, Town of	27,975	Lower Tier	Dufferin				
Oshawa, City of	149,607	Lower Tier	Durham	Oshawa Strategic Plan - Our Focus, Our future, 2015-2019	open data/open gov		
Pickering, City of	88,721	Lower Tier	Durham			e-services	
Richmond Hill, Town of	185,541	Lower Tier	York	Richmond Hill strategic plan 2016-2019	open data in progress		
Sarnia, City of	72,366	Lower Tier	Lambton	Draft Strategic Plan 2016			
St. Catharines, City of	131,400	Lower Tier	Niagara	2015-2018 Strategic Plan	open data	e-services	
Vaughan, City of	288,301	Lower Tier	York	Vaughan Vision 2020 Strategic Plan	open data		digital strategy in progress
Waterloo, City of	98,780	Lower Tier	Waterloo	Strategic Plan 2015-2018	open data		
Welland, City of	50,631	Lower Tier	Niagara	Strategic Plan 2011-2016			
Whitby, Town of	122,022	Lower Tier	Durham	Whitby Community Strategic Plan - 2002			
Whitchurch-Stouffville, Town of	37,628	Lower Tier	York	Corporate Strategic Plan 2011-2014			
Woodstock, City of	37,754	Lower Tier	Oxford	Community Strategic Plan and Integrated Community Sustainability Plan			
Barrie, City of	136,063	Single Tier	Simcoe	2014-2018 Strategic Plan			
Belleville, City of	49,454	Single Tier	Hastings	Strategic Plan 2012-2032			
Brant, County of	35,638	Single Tier	Brant	*Economic development strategic plan			
Brantford, City of	93,650	Single Tier	Brant	City of Branford Community Strategic Plan 2014-2018	open data		
Chatham-Kent, Municipality of	103,671	Single Tier	Chatham-Kent	CK Plan 2035	open data	open and transparent government	
Cornwall, City of	46,340	Single Tier	Stormont, Dundas and Glengarry	2016-2018 Strategic Plan			
Guelph, City of	121,688	Single Tier	Wellington	2012-2016 Corporate Strategic Plan	open data	open government	

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Haldimand County	44,876	Single Tier	Haldimand				
Hamilton, City of	519,949	Single Tier	Hamilton	2016-2025 Strategic Plan	open data		
Kawartha Lakes, City of	73,214	Single Tier	Kawartha Lakes	2016-2019 Strategic Plan			
Kingston, City of	123,363	Single Tier	Frontenac	Strategic Plan 2015-2018	open data	open government	digital strategy for marketing and communications
London, City of	366,151	Single Tier	Middlesex	2015-19 Strategic Plan	open data		
Norfolk County	63,175	Single Tier	Norfolk				
Orillia, City of	30,586	Single Tier	Simcoe	Corporate Plan 2014-2018			
Ottawa, City of	883,391	Single Tier	Ottawa	City of Ottawa 2015-2018 Strategic Plan	open data	open government	digital strategy in progress
Peterborough, City of	78,698	Single Tier	Peterborough	in progress			
Prince Edward, County of	25,258	Single Tier	Prince Edward				
Quinte West, City of	43,086	Single Tier	Hastings	Strategic Plan 2010			
St. Thomas, City of	37,905	Single Tier	Elgin	Our Community Our Future Out St. Thomas community Strategic Plan 2013			
Stratford, City of	30,886	Single Tier	Perth	Strategic Priority Framework 2013-2018			
Toronto, City of	2,615,060	Single Tier	Toronto	2015-2018 Strategic Plan	open data	open government	Equivalent
Windsor, City of	210,891	Single Tier	Essex	20 Year Strategic Vision/ Corporate Strategic Action Plan 2011-2014	open data		
Bruce, County of	64,709	Upper Tier	Bruce	Corporate Strategic Plan 2013-2023			
Dufferin, County of	56,881	Upper Tier	Dufferin	corporate strategic plan 2015-2018	open data		
Durham, Regional Municipality of	608,124	Upper Tier	Durham	Durham Regions Strategic Plan 2015-2019	open data		
Elgin, County of	49,556	Upper Tier	Elgin	Strategic Vison 2015-2018			

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Essex, County of	177,720	Upper Tier	Essex	Essex Vision and Priorities 2013-2017		e-services	
Frontenac, County of	26,375	Upper Tier	Frontenac				
Grey, County of	92,568	Upper Tier	Grey	County of Grey Corporate Strategic Plan 2012-2015			
Halton, Regional Municipality of	501,669	Upper Tier	Halton	Strategic Action Plan 2015-2018 - Halton Region			
Hastings, County of	39,888	Upper Tier	Hastings	Strategic Plan 2016			
Huron, County of	59,100	Upper Tier	Huron	*Economic Development Strategic Plan		e-services	
Lambton, County of	124,623	Upper Tier	Lambton	Amended 2012			
Lanark, County of	56,689	Upper Tier	Lanark				
Leeds and Grenville, United Counties of	67,958	Upper Tier	Leeds and Grenville				
Lennox and Addington, County of	41,824	Upper Tier	Lennox and Addington				
Middlesex, County of	70,796	Upper Tier	Middlesex	*Economic Development Strategic Plan			
Muskoka, District Municipality of	58,047	Upper Tier	Muskoka	Strategic Priorities 2014			
Niagara, Regional Municipality of	431,346	Upper Tier	Niagara	Council Strategic Priorities 2015-2018	open data		
Northumberland, County of	81,657	Upper Tier	Northumberland	2015-2019 Strategic Plan			
Oxford, County of	105,719	Upper Tier	Oxford	Oxford County 2015-2018 Strategic Plan			
Peel, Regional Municipality of	1,296,814	Upper Tier	Peel	Region of Peels 2015-2035 Strategic Plan	open data		digital strategy
Perth, County of	37,571	Upper Tier	Perth	Strategic Plan 2012-2017			
Peterborough, County of	54,870	Upper Tier	Peterborough	Strategic Plan 2012-2015			
Prescott and Russell, United Counties of	85,381	Upper Tier	Prescott and Russell				

Municipality Name	Population 2011	Level	Upper Tier	Strategic Plan	Open Data	Open Government/ e-services	Digital Strategy
Renfrew, County of	107,169	Upper Tier	Renfrew	Strategic Plan & council Priorities 2013-2018			
Simcoe, County of	446,063	Upper Tier	Simcoe	2015-2025 Strategic Plan			
Waterloo, Regional Municipality of	507,096	Upper Tier	Waterloo	2015-2018 Strategic Plan	open data	e-services	
Wellington, County of	86,672	Upper Tier	Wellington	*Economic Development Strategic Plan			
York, Regional Municipality of	1,032,524	Upper Tier	York	2015-2019 Strategic Plan	open data		