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Senior leaders' use of web 2.0 and social media in the Ontario Public Service

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**SENIOR LEADERS' USE OF WEB 2.0 AND SOCIAL MEDIA
IN THE ONTARIO PUBLIC SERVICE**

By

Anne Bermonte, B.A., York University, 1984

A thesis
presented to Ryerson University
in partial fulfillment of the
requirements for the degree of
Master of Arts
in the Program of
Public Policy and Administration

Toronto, Ontario, Canada, 2011

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Senior Leaders' Use of Web 2.0 and Social Media in the Ontario Public Service

Master of Arts, 2011

Anne Bermonte

Program of Public Policy and Administration

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Abstract

The majority of the literature on Web 2.0 and social media describes several public administration benefits: building trust, achieving transparency, recruiting young professionals and realizing efficiencies. The literature argues that leadership is required to bring in cultural changes to support the use of web-based tools and links familiarity with successful adoption. Yet, little research exists exploring how these issues influence senior leaders' use of Web 2.0 and social media in a government bureaucracy.

This study uses a mixed methods approach to look at senior leaders' use and adoption patterns in the Ontario public service, to probe the concept of familiarity by understanding the relationship between home/personal use and work/professional use, and to contribute to an emerging public administration area. An assessment of government of Ontario Internet and intranet sites, an analysis of survey responses from 117 senior leaders in the OPS and information gathered from interviews support the study's findings.

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Chapter 1: Introduction

In the past two decades, governments in many industrial democracies have used information and communications technologies (ICT) to deliver services, develop policy, and support internal operations. The term e-government signals the era of government using ICT to engage with citizens, businesses and key stakeholders. E-government has focused primarily on internal administration services in which automated processes have replaced manual ones. With respect to outward public-facing engagement, ICT has had its greatest impact in the last 10 years with the arrival of the Internet, and most recently with the growing popularity of new web-based tools, commonly referred to as Web 2.0 or social media.

Social networking, blogs and wikis have become ubiquitous and extremely popular tools that allow millions of Canadians to communicate and share information. In 2009, more than 13 million Canadians were on Facebook alone of which 7.2 million were between the ages of 18 and 34 (Zinc Research and Dufferin Research, 2009). Ontarians, especially younger ones, no longer communicate via emails, faxes or the telephone. Many want to use their smart phone or other types of mobile technologies that access the Internet. In addition, they want government services to be as accessible and individualized as the services they receive from their bank or online retailer.

In the private sector, leaders were quick to adapt their processes and culture to accommodate citizen expectations. Corporate chief executives recognized that the benefits of Web 2.0 and social media outweigh the risks (Schwartz, 2005). For example, blogs provide CEOs with a competitive advantage, allow them to address issues on their terms and to engage in reputation management (Jones, 2006). Other benefits include personalizing customer relationships, providing a trusted context when there is news – good or bad, fostering internal communications, bolstering knowledge management, enhancing recruitment and testing ideas or products (Edelman and Intellseek, 2005).

Political leaders have come to recognize that Web 2.0 and social media tools can help governments achieve quality of life and economic benefits for their citizens. The Government of Canada's 2010 consultation paper on a digital economy strategy for Canada, entitled *Improving Canada's Digital Advantage*, acknowledges that digital technologies are transforming how citizens and businesses create, access and share information, products and services. A scan of government of Ontario websites identifies that many politicians, including several ministers and Premier Dalton McGuinty, have their own Facebook site, have posted videos on YouTube and regularly use Twitter.

The public service in Canada and Ontario are piloting a number of Web 2.0 and social media tools. Unlike politicians who are using Twitter and Facebook to engage with external audiences such as constituents or stakeholders, the public service appears to be a slow adopter of Web 2.0 and social media tools for professional purposes. Currently, the majority of activity focuses on supporting internal collaboration. The province of Ontario uses a number of tools to support internal collaboration and networking, such as blogs, SharePoint, webinars, and OPSpedia, which is a virtual space that allows document sharing and editing, professional networking, and offers a variety of web-based tools such as blogs, wikis and online forums. Yet internal collaboration efforts also appear to be constrained by a number of issues including a restrictive institutional culture that limits rather than encourages collaboration and document sharing, and senior leaders' unfamiliarity with a variety of the web-based tools available to staff.

A key driver for the public service's use of Web 2.0 and social media tools is employee attraction and retention. As the majority of civil servants retire over the next five to 10 years, government will be competing with the private sector for skilled, talented young professionals. These young professionals will want to use the web-based tools that have become their technological appendages. These new tools, which require an open, flexible and collaborative culture, are

challenging the cultural paradigm that underpins Ontario's Westminster style of government.

The current operational culture, in both Ontario and Canada, incorporates the adoption of a number of private sector management practices. These practices, which are collectively known as New Public Management (NPM), are primarily focused on creating efficiencies in government. NPM also created an environment in public administration focused on customer-oriented service delivery, private sector partnerships and performance measures. Advocates of NPM identified that, in addition to cutting costs, NPM would also result in a number of public administration benefits including greater transparency, more accountability and building trust with citizens. After 30 years of evaluating NPM's impact, the majority of the literature identifies that these private sector management practices failed to deliver on the higher value public administration goals of trust, transparency and accountability (Pollitt, 2003; Pollitt & Bouckaert, 2004; Roy, 2006; Dunleavy, Margetts, Bastow & Tinker, 2006; Perri 6, 2006).

E-government as an outcome of NPM focuses on the delivery of online services to citizens and businesses as a cost cutting and efficiency tool. E-governance, referred to later in this report as open data and open government, is concerned with transparency and openness in government. In their essay arguing that e-government is adaptive rather than transformational, Baskoy and Bermonte (2010) differentiate between e-government and e-governance. While Web 1.0 was about e-government associated primarily with public service reform in the name of efficiencies; the current crop of literature argues that Web 2.0 and social media is about e-governance.

Pollitt (2003), despite his criticisms of NPM and the failure of large-scale government ICT projects, identifies the commitment of senior management as a necessary ingredient to any technological change management project. Leadership was required to usher in NPM and e-government, and leadership is required in the Ontario public service (OPS) to effect the necessary cultural changes to successfully use Web 2.0 and social media to move from an era of e-government to e-governance. These new interactive, web-based tools provide a

real opportunity for transformation to take root that results in benefits that go beyond e-government and its use of feedback to “re-engineer public services” (Ibid, p. 82).

This study focuses on senior leaders within Ontario’s bureaucracy to understand how well prepared they are to manage the required cultural changes these new tools demand and how their familiarity, as defined by home/personal use, influences their work/professional use of Web 2.0 and social media tools. The study’s research hypothesis is that senior leaders in the government of Ontario’s public service and its agencies, boards and commissions (which this study refers to as OPS) who are using Web 2.0 and social media tools at home for personal reasons are more likely to use them at work for professional purposes.

As Web 2.0 and social media is an emerging area of public administration, there is very little literature currently available on use and adoption (Dixon, 2011), and what exists is primarily dominated by perspectives that advocate the benefits of adoption for government, policies to support adoption and key drivers of adoption such as demographics.

The literature identifies two important but paradoxical issues related to leadership. First, the literature argues leadership is needed to effect cultural changes to support the use and adoption of Web 2.0 and social media tools. And second, it reveals a leadership vacuum in bureaucracies that has contributed to the public service being a slow adopter of these tools. The literature also links regular use and familiarity with successful adoption.

The majority of the literature on Web 2.0 and social media use and adoption is descriptive and atheoretical. Yet this topic touches on four important theories that are found in public administration scholarship and discourse: institutionalism, leadership, culture and demographics. Chapter 2 briefly explores to what extent each theory could advance a different set of hypothesis to explain adoption patterns within a Westminster model of government.

This study focuses specifically on key aspects of change management relating to senior leaders’ use and adoption of Web 2.0 and social media tools

within a government bureaucracy. By assessing government of Ontario Internet and intranet sites, undertaking an online survey and conducting key informant interviews with senior leaders in the government of Ontario's public service and its agencies, boards and commissions, this research study attempts to answer the question: Are senior leaders in the government of Ontario's public service and its agencies, boards and commissions who are familiar with Web 2.0 tools more inclined to use them for work purposes in their branch, division or ministry? The research model is designed to understand if familiarity, which is defined in the methodology chapter as home/personal use measured by frequency of use, tools used, and type of use directly influences senior leaders' use of Web 2.0 and social media tools at work for professional purposes.

Other key concepts discussed throughout this paper include e-government, digital-era government, government 1.0, government 2.0. familiarity, passive and interactive use, and open government. The following section outlines some key definitions and concepts related to this thesis. This is followed by an examination of the evolution of e-government and Web 2.0. Finally, this chapter presents the research objectives, significance of this research and organization of the thesis.

What is Web 2.0 and social media?

There are a myriad of interpretations, descriptions and forms of Web 2.0 and social media. For the purposes of this research study and paper, Web 2.0 and social media are the next generation of e-government that facilitates symmetrical communication in a one to many, and a many to many approach. Where e-government focused on pushing out information through websites, the literature on Web 2.0 and social media describes how these tools create opportunities for users to become active participants in aggregating, applying, sharing and distributing information. These tools can help bring in new ideas, perspectives and knowledge that support decision-making in a highly complex environment (Bommert, 2010; Flumian, 2009; Landsbergen, 2010; Tapscott, 2008; Thornton, 2008)

Wikis, blogs, and mashups are a few examples of popular Web 2.0 tools. Social and professional networking sites such as Facebook, MySpace and LinkedIn are examples of social media sites. Other popular sites that support sharing and collaboration include YouTube, Twitter, Flickr, and Wikipedia. Tapscott (2008) describes the difference between the old Web – Web 1.0 – and the new web – Web 2.0 – in terms of the programming language that supports the tools and sites. The old Web uses HTML, which requires experts such as computer programmers or webmasters to create content. The new Web, which Tapscott describes as the “programmable Web,” uses XML, which allows anybody to create content. “The old Web was something you surfed for content. The new Web is a communications medium that enables people to create their own content, collaborate with others, and build communities. It has become a tool for self-organization” (Tapscott, 2008, p. 18).

These web-based tools have a variety of forms, but largely incorporate several key features. O’Reilly (2005) describes them as: “Services, not packaged software, with cost-effective scalability; control over unique, hard-to-create data sources that get richer as more people use them; trusting users as co-developers; harnessing collective intelligence, leveraging the long tail through customer self-service, software above the level of a single device; and lightweight users interfaces, development models and business models.” Tapscott (2008) identifies the ultimate goal of using these tools as “not to simply provide citizens with more information, but to integrate their insights and perspectives into a more authentic and engaged model of representative democracy” (p. 265).

The literature on Web 2.0 and social media notes these tools come with important considerations and drawbacks that include privacy, the need for a high degree of digital literacy and confidence, the availability of high-speed broadband, buy-in from senior leaders, the overlap between personal and professional online identities and the need to invest time and resources upfront. Despite being an unabashed promoter of the benefits of Web 2.0 and social media, Tapscott (2008) cautions about a dark side in which users, especially

younger users, divulge too much personal information on the web that may return to haunt them. He writes “Lives have been shattered thanks to unsuspecting people flinging open their kimonos in the seeming intimacy of their Web sites. The Internet has a long memory” (Ibid, p. 66).

In addition to losing job opportunities over pictures or information posted on their websites, McDonald Dryburgh (2010) warns Web 2.0 and social media users that their personal and professional identities are one and the same on the web. And it’s not just about the potential of such information embarrassing the actual users, but also about how it might affect the reputation of their employer or boss. She writes that “in 2008, an online news site reported that President Obama’s administration had asked all potential employees to identify any form of electronic communication, including blogs and social networking sites, which could potentially embarrass the President” (Ibid, p. 8).

The literature also notes that a key criterion of successful use and adoption is familiarity and confidence using Web 2.0 and social media tools. A case study of AdvanceMichigan, which used Web 2.0 and social media to collect feedback from residents on the provision of state services, concluded “the site ended up with limited use, and low amounts of interaction “ (Lampe, LaRose, Steinfield and DeMaagd, 2011, p. 2). The researchers attribute the low response rate to several factors including: the need for leadership to encourage staff to use the site; the lack of familiarity and confidence using Web 2.0 and social media tools on the part of the targeted audience; and limited or no access to high-speed broadband.

Despite these important considerations, the momentum to continue using Web 2.0 and social media is growing in Canada. In tracking membership on Facebook, Zinc Research and Dufferin Research (2009) conclude that “While membership rates have stabilized in the under 35 age groups, 35-54 years has grown by almost 50% and 55+ by more than 100% in less than a year” (p. 3).

The next generation of these web-based communication tools has been on the horizon since Tim Berners-Lee coined the term Web 3.0, or the Semantic Web in 2001 (Opsahi, 2011). Morris (2011) identifies that a “semantic search

engine utilizes semantics and knowledge coded into vocabulary sets which are interpreted by “smart agents” which then conduct intelligent searches...” (p. 43). There is no definitive description of Web 3.0 but it is found in a variety of forms including open data, smart phones, 3-D web presence in the physical world, and an interaction that results from machine-to-machine communication. Opsahi (2011) writes “there might come a day when a smartphone user drives over a pothole, the device senses it and an app automatically reports that pothole to the appropriate public works agency” (p. 3). It is therefore fair to conclude that there is no turning back. Web-based collaboration, whether on computers, tablets, pads, and/or smart phones, is here to stay.

Government adoption patterns of information communications technologies

To understand how governments are using Web 2.0 and social media tools, it is important to understand the evolution of e-government. Before the Internet, information communication technology (ICT) was used primarily to support internal services within government (Brown, 2005; Dawes, 2008; Dunleavy et al.; Margetts, 2006). Governments’ use of ICT to achieve service delivery priorities was made possible with the arrival of the Internet. But this transition from inward-facing to outward-facing use of ICT took approximately a decade from conception to execution, and occurred roughly at the same time for government as other sectors.

As the Internet becomes ubiquitous in Canadian homes and businesses and as a technology savvy generation matures into voters and moves into the workforce, governments are required to rethink their approach to e-government. New technological change agents, such as Web 2.0 and social media, have the potential to be disruptive in a way that earlier technologies weren’t. Blogs, social networking and wikis are redefining the relationship between citizen and government, and changing the form and nature of political dialogue.

Scholars, new media experts and practitioners point to the potential of Web 2.0 and social media to deliver a number of public administration goals including building trust, especially with younger Ontarians, achieving greater transparency, attracting young voters, recruiting new professionals and realizing administrative efficiencies. The literature indicates the public sector, however, is a slow adopter of technology in general, and Web 2.0 and social media specifically. If millions of Ontarians are using Web 2.0 and social media to network, share knowledge and collaborate, what's stopping the government of Ontario from doing the same? A 2008 Gartner survey on governments' adoption and use of Web 2.0 concludes that "there is a concrete risk of widening the disconnect between citizens who embrace technology and change their personal and professional behaviour as a consequence, and governments that keep defending their turf, playing with technology at the edges" (Di Maio, p. 11).

E-government

Although numerous definitions of e-government exist (Brown, 2005; Dawes, 2008; Margetts, 2006), this paper defines e-government as the government's use of the Internet, and information and communications technologies (ICT) to interact internally and externally with individuals, businesses and other governments for a variety of informational and transactional purposes.

Many scholars consider e-government a continuation or an evolution of NPM rather than a transformation or revolution (Borins, 2000; Kernaghan et al., 2000; Brown, 2005). NPM and e-government share common objectives: cost reductions, better quality service, partnership arrangements with the private sector, ease of access and on-demand services. It therefore makes sense that e-government requires a public sector that has adopted a commitment to citizen-centred service and NPM's values of service, innovation, quality and cost-efficiency (Borins, 2000).

Others (Dunleavy et al., 2006; Roy, 2006) identify that successful e-government or digital-era government (DEG) requires a reversal of NPM reforms.

Dunleavy et al. (2006) argue that information technology has become central to how government operates, delivers services and interacts with citizens. They write “IT changes are no longer peripheral or routine aspects of contemporary public management and public policy changes, but increasingly important and determinant influences upon what is feasible” (p. 271). The DEG Dunleavy et al. (2006) describe requires a reintegration of public services and functions and a “regovernmentalization” of outsourced services. A certain degree of “disintermediation” is necessary and citizens are a valuable source of information. “The most innovative qualities of disintermediation changes is that civil society actors who know their own situations very well are able to autonomously sift and select what they may receive from government” (Ibid, p. 239).

Their DEG model moves e-government forward, but does not change the underlying paradigm between citizens and government. It does not push it into e-governance, which Baskoy and Bermonte (2010) and Roy (2006 and 2009) argue is more about opening up democratic processes than the efficient delivery of services using the online channel. E-government and DEG are, for the most part, examples of government 1.0 in which government delivers services and citizens receive them.

The new paradigm between government and citizens, which Roy (2009) calls government 2.0, and Baskoy and Bermonte (2010) associate with e-governance goes beyond the concept of disintermediation. In government 2.0, public services are personalized and offered in a manner that is convenient to the citizen and in some cases are not offered by government at all. Web 2.0 and social media tools allow citizens to personalize government services and policies by becoming both producer and consumer. Flumian (2009) describes this new paradigm as the rise of the “prosumer” and states, “Today’s governments are the providers of benefits and services and citizens are the consumers. In the future, the power of the web and the experience that consumers are building in other non-governmental domains will enable those consumers of government services to become prosumers” (p.4).

Table 1: The evolution of government 1.0 to government 2.0 (Roy, 2009)

Dimension	Government 1.0	Government 2.0
Operating model	<ul style="list-style-type: none">• Hierarchical• Rigid	<ul style="list-style-type: none">• Networked• Collaborative• Flexible
New models of service delivery	<ul style="list-style-type: none">• One-size-fits-all• Monopoly• Single Channel	<ul style="list-style-type: none">• Personalized• Choice-based• Multi-channel
Performance-driven	<ul style="list-style-type: none">• Input-oriented• Closed	<ul style="list-style-type: none">• Outcome-driven• Transparent
Decision-making	<ul style="list-style-type: none">• Spectator	<ul style="list-style-type: none">• Participate

Whether it's NPM-inspired e-government, digital-era government or government 2.0, academics agree (Borins, 2002; Dunleavy et al., 2006; Roy, 2009 and 2006) that institutional, cultural and behavioural practices determine the rate at which technological change occurs in a bureaucracy. Without significant internal and external pressures, Canadian governments are unlikely to move quickly to leverage the potential of new technologies especially given current fiscal pressures and the neoliberal mantra to "do more with less" that dominates public administration and public policy discourses.

Tapscott (2008) argues governments have been slow to adopt Web 2.0 tools. "Government agencies are one of the largest sources of public data, and yet most of it goes completely unutilized, when it could provide a platform for countless new public services. Both the private sector and advocacy groups like Greenpeace are much farther ahead in using new technologies to disseminate and leverage information to empower their operations" (Ibid, p. 200). Dunleavy et al. (2006) also note that government tends to lag behind the private sector when it comes to technological change. While Dunleavy et al. attribute this lag to competition from the private sector for skilled IT workers, Di Maio (2008) argues that it is due to governments having a different business incentive.

"Governments have always been – and will always be – conservative adopters of

technology, as they are concerned with inclusion and accountability more than with the bottom line and market share” (Ibid, p. 11).

While the vast majority of the literature focuses on the benefits of Web 2.0 and social media, there is an emergent literature critiquing these claims. Cammaerts (2008) argues the Internet does not guarantee instant democracy and “cannot be treated as a separate entity from the economic, political, and cultural realities of the offline world...” (p. 373). He describes how the Internet, specifically blogs, fosters a hyper-capitalist environment dominated by online advertising, corporate interests, and cultural and/or political elites. The literature identifies a number of barriers associated with use and adoption that include privacy and security breaches, jurisdictional issues, growing requests for information and the potential for increased costs (Cammaerts, 2008; Chadwick, 2003; Markova 2008; McDonald Dryburgh, 2010; Roy, 2006, Sæbo, Rose & Flak, 2007; Tapscott, 2008).

A more critical literature is growing as some of the shortcomings of Web 2.0 are emerging which point to concerns about the promises of web-based tools for improving e-governance and challenging traditional power structures. Despite these very real concerns and critiques, there is a need for research.

The need for research

The literature is scant to non-existent on use and adoption in government. Dixon’s (2011) literature review to find evidence of Web 2.0 and social media adoption in government netted him only 20 articles from more than 7,000 he identified in his initial search. To supplement the peer-reviewed articles, which did not deal specifically with Web 2.0 adoption and best practices in government, Dixon had to use industry publications and online searches. More research is required to understand government’s use and adoption of Web 2.0 and social media.

The adoption of Web 2.0 and social media in the government of Ontario could have a number of service and policy benefits for government employees, and Ontario citizens and businesses. Findings from this research study may lead

to a better understanding of issues associated with government adopting Web 2.0 and social media. At the very least, the research study will develop a profile of senior leaders' use of these tools, which would be breaking new ground in public administration research.

Research findings may also lead to the development of pragmatic solutions to support executive use, contribute to training guides, provide guidance to senior leaders on how to support the diffusion of these tools, and create a culture of digital literacy that moves e-government in Ontario's public service from government 1.0 to government 2.0. Papenhausen (2009) in describing cycles of innovation identifies that besides timing and generational issues there is a need for "necessary learning on the part of consumers and producers to take advantage of the new technologies and the establishment of technical standards" (p. 7). Knowledge building and knowledge deployment are two of six drivers Damsgaard and Scheepers (1999) outline in their taxonomy to support the diffusion process. Their work speaks specifically to implementing intranets, but their institutional taxonomy can just as easily be adapted for Web 2.0 and social media implementation

At a minimum, the research findings may assist senior leaders, in their role as agents of change, understand how to effect the institutional and cultural changes required to support the internal and external use of Web 2.0 and social media tools. This study concludes with eight recommendations on how senior leaders can be supported in their role as change agents to create the new cultural paradigm that encourages and supports strategic and informed use of new web-based tools.

Goal and objectives

The goal of this study is to understand how prepared senior leaders are to effect the necessary cultural changes that support the use and diffusion of web-based tools in a bureaucracy. The literature identifies that senior leaders are ill equipped to lead the changes needed for Web 2.0 and social media adoption. Brown (2005) notes that most of the public sector's top management lack

technological experience. Markova (2008) takes this concept further by positioning it as “fear of the unknown and to take advantage of new technologies” (p. 82).

Research objectives include identifying the opportunities and challenges of adopting these tools in the OPS, and using a mixed methods approach to answer a number of questions related to use, change management, and leadership. As a practitioner working in the Ontario public service, questions of interest include: If Ontarians are increasing their use of web-based communication tools, why is the public service not being given access to these tools? Is the public service’s slow adoption rate due to institutional or cultural barriers? Will leadership from Generation Y, which has grown up on the web, bring in the necessary cultural and organizational changes? Or perhaps, is the public service’s slower adoption rate of Web 2.0 and social media related to operational issues such as availability of the tools and/or familiarity with the technology and its uses.

Organization of the paper

This thesis is organized into five chapters. Chapter 1 provides the introduction, describes Web 2.0 and social media, discusses government technology adoption patterns, provides a definition of e-government, and outlines the goals and objectives, the thesis question, and the contribution of the research to public administration.

Chapter 2 describes the literature review for this study and assesses the relevance of four theories found in the literature (institutionalism, culture, leadership and demographics).

Chapter 3 discusses the mixed methods research methodology, the survey response results, and the informant interviews.

Chapter 4 provides the results of a scan of government of Ontario Internet and intranet sites, shares data from a staff-created wiki tracking external and internal uses of Web 2.0 and summarizes the results of an OPS survey that examines how policy staff use Web 2.0 and social media. The chapter also

reviews the survey results and identifies key findings. Survey results will provide information on the current state of senior leaders' use of Web 2.0 and social media in the OPS, and will look at which variables have influenced use of the tools at work. The chapter includes findings from the survey results.

Chapter 5 reveals the key findings from the study, links the key findings to the four theories, makes recommendations based on key findings, provides the conclusions of the study, identifies limitations of the research and suggests opportunities for future research.

Chapter 2: Literature Review

Web 2.0 and social media: An emerging literature

The literature review helps to validate the relevancy of the research question, to narrow and focus the topic, and to “guide the investigation to a fruitful conclusion” (Johnson et al., 2008, p. 187). This study’s literature review includes articles by the major scholars who have written on public administration, NPM, e-government, institutionalism and public sector leadership. These articles, which cover major public administration themes and theories, provide an essential context for understanding government ICT adoption patterns, the evolution of e-government, the role NPM played setting the stage for e-government and the current public administration discourse examining organizational cultural changes required in moving from e-government to e-governance. All of these themes are discussed in Chapter 1.

The literature review included but did not focus on any specific Web 2.0 and social media tool, such as blogs or wikis, or on any one specific application such as e-participation, e-democracy and e-voting. This study’s interest is on the bureaucracy’s adoption of Web 2.0 and social media. However, given that Web 2.0 and social media is an emerging public administration area, it is not surprising that little scholarly writing exists on this topic.

To supplement the scholarly articles with more recent reports, the literature review included industry papers and books, and government documents. Industry perspectives advocating the benefits of these tools tend to dominate the literature on Web 2.0 and social media. These articles are descriptive rather than theoretical and have limited empirical evidence. A number of them focus on developing policies to support adoption and/or argue that demographics, specifically the push from Millennials, is the primary driver of these tools’ popularity. Where there is criticism, it is aimed at the lack of a business case or tools to guide and measure Web 2.0 and social media adoption practices. For example, research based on interviews with Canadian and

American public servants (Fyfe and Crookall, 2010) identifies the need for a business case that includes direct and tangible measures for success in government's use of Web 2.0 and social media. The respondents agreed "that more work needs to be done to make the business case for government's use of social media including analyzing the costs and benefits (and the benefits that would be foregone if they are not used) to build upon agreed criteria for success" (Ibid, p. 10).

The link between strong leadership and successful adoption of Web 2.0 and social media is a key theme that emerges from the literature, which is particularly relevant to this study. The literature also points to the absence of bureaucratic leadership supporting the adoption of Web 2.0 and social media in government and attributes this to a limited familiarity of technology in general and Web 2.0 and social media specifically (Borins, 2002; Brown, 2005; Dunleavy et al., 2006; Markova, 2008).

As these tools mature and government use and adoption increases, a new literature is emerging to challenge the claims of the earlier literature and/or explore some of the unintended consequences of using these tools such as the emergence of online political or cultural elites or privacy breaches.

Given the subject matter, grey literature was used to supplement the study's literature review. This involved reviewing documents and presentations on government websites and also undertaking a high level scan to assess the degree to which the government of Ontario uses Web 2.0 and social media tools such as Facebook, YouTube, webinars, Twitter, OPSpedia and SharePoint, among others.

An overview of the government of Ontario's institutions/organization structures related to information and communication technologies

This section provides a high level overview of the government of Ontario's organizational structure, and the role of key bodies such as line ministries,

central ministries, the Information and Information Technology (I&IT) Organization and agencies, boards and commissions. Understanding some of the key elements of this structure will be helpful to the discussion that follows assessing the four theories and to the findings from the survey in Chapter 4.

The vast majority of individuals who work in the government of Ontario's public service or its agencies, boards and commissions belong to line ministries, which are created at the discretion of the government and headed by a minister who is supported by a deputy minister. Among their responsibilities, line ministries are most often on the front lines in the delivery of public services to citizens.

Central ministries, such as Government Services, Finance, Energy and Infrastructure, and Cabinet Office, co-ordinate and provide support to Cabinet decision-making and policy development.

The I&IT Organization is located in the Ministry of Government Services and is headed by the Corporate Chief Information and Information Technology Officer (CCIO). It consists of four corporate offices and nine I&IT clusters. An I&IT cluster is defined as a grouping of government programs and services that have common themes, are delivered to clients with similar interests and requirements, and can be supported efficiently with common or similar support services (Ontario, 1998). Each cluster is headed by a Chief Information Officer who reports to the Corporate Chief Information and Information Technology Officer and to deputy ministers for each ministry the cluster supports. CIOs are selected as senior executives based on their sector expertise. As a result, many of the CIOs served in more than one cluster portfolio.

In addition, the government of Ontario has more than 630 agencies, boards and commissions to which the provincial government makes appointments. They vary in size and provide a range of services from arts funding to liquor sales such as the Ontario Arts Council and the Liquor Control Board of Ontario, to small advisory committees like the Small Business Agency of Ontario or the Ontario Geographic Names Board. The smaller bodies

typically do not have their own staff and are supported by staff from the ministry to which they report.

Explaining use and adoption of web 2.0 and social media

Although the majority of the literature on Web 2.0 and social media is descriptive and atheoretical, many of it touched on four public administration theories: institutionalism, culture, leadership and demographics. Institutional theory looks at how institutions influence behaviour and change in bureaucracies and is therefore useful in helping to understand how and which institutional factors influence or inhibit behavioural and attitudinal changes necessary to encourage senior leaders' use of Web 2.0 and social media. Given that senior leaders are the unit of study in this research, it makes sense to understand leadership theory and the role of leaders in change management. The literature discusses the need for a new culture of collaboration. Culture theory provides context for understanding barriers and opportunities to affect the environmental changes necessary to support the integration of these tools in the public service. Finally, there is significant literature which discusses demographics as a key driver of change. It is important to understand why demographics are important and how they influence senior leaders' adoption and use patterns. Finally these theories as part of the literature review will help validate, or perhaps refute, the hypothesis and will contribute to the study's research findings.

Institutional theories

Much of the literature on e-government comes from an institutional perspective. There is general agreement among academics that institutionalism is largely focused on identifying and examining a state's key institutions and the influence of institutions on actors and their behaviour. Essentially, institutionalism helps explain the things people do (Lecours, 2008, p. 19). It is based on the notion of institutional governance within a stable environment underpinned by legal authority and political legitimacy.

Yet, there is also a great deal of debate and inconsistencies among academics in their description and application of institutionalism. Thoenig (2003) identifies four streams of institutionalism: historical, sociological, local order and new institutionalism. Peters (2008) lists seven versions of institutionalism: historical, rational choice, sociological, normative, empirical, interest participation and international branches. Lecours (2008) groups them into three main streams, which he aligns with distinct intellectual traditions: traditional-historical political science, rational choice theory and sociology.

The traditional-historical political science stream includes historical institutionalism, which posits that behaviour in institutions is path dependent. The main reference point for future decisions is the past, specifically policies and business processes. In this respect, Kay (2005) argues that path dependency helps understand institutions from a historic perspective. It is like looking to the future through a rearview mirror. Historical institutionalists believe that change is difficult and rarely happens through the actions of one actor. Instead it occurs through disruptions that historical institutionalists describe as “punctuated equilibrium” (Peters, 2008, p. 4). As it relates to this research study, historical institutionalism is not well suited to explaining how institutions and key actors adopt and adapt to technological innovations. It does, however, explain why the literature on Web 2.0 and social media points to a slow adoption in the public service and government.

The sociological stream includes sociological institutionalism and normative institutionalism, which March and Olsen (1983) coined “new institutionalism” in the 1980s. Sociological institutionalism speaks to how societal cultures and norms shape institutions – the grass roots rather than the elite shape, the nature, role and policies – that become ingrained into the larger social system. This branch of institutionalism is concerned with isomorphism in which institutions imitate each others’ structure, functions and roles. Although sociological institutionalism speaks to the dynamic of external drivers such as citizen expectations for government to adopt technological change, it doesn’t

sufficiently explain the role of senior leaders in affecting change or the relatively slow pace of technological change within the public service.

New institutionalism (March and Olsen, 1983) gives great prominence to the role of institutions in society as action-oriented players. Institutions lead and don't follow, especially public administrations that need to set rules and enforce them. Change is driven by the institutions rather than by exogenous forces. "The new institutionalism, in company with most research on preferences, argues that preferences and meanings develop in politics, as in the rest of life, through a combination of education, indoctrination, and experience" (March and Olsen, 1983, p. 739). Similar to sociological institutionalism, symbols, myths and rituals drive change rather than preferences or "selfish economic or power interests" (Theonig, 2003, p. 131). As a result, normative and new institutionalists see change as difficult because the institutions' norms and values must change. Theonig (2003) identifies that change happens through "organizational forgetfulness" and in non-controversial areas. New institutionalism can help explain the tension between the current risk cautious culture of incremental change and the pressure for change from the Generation Y cohort of new professionals to use Web 2.0 and social media working in government.

Political science's rational choice theory gives rise to at least three variants of institutionalism: Theonig's (2003) local order, and Peter's (2008) rational choice and empirical institutionalism. Local order suggests a version of institutionalism that is akin to the cult of the personality. Local leaders' culture, norms, priorities and policies shape the role, function and stature of local institutions. Theonig (2003) identifies that "cooptation processes give structure to informal and stable relation patterns which link state agencies to specific environments such as local political and economic leaders" (p. 134). In bureaucracies, personality driven change is rare and unsustainable because of a constant shuffling of the senior leadership. Evans, Lum and Shields' (2006) survey of senior leaders in Canada's national and sub-national governments, what they call the public service elite, reveals that the vast majority (80%) had

held their position for less than five years, with 46% holding their current position for two years or less.

Similar to local order, rational choice and empirical institutionalism distinguish between individual and institutional values. These three variants of institutionalism propose that “individual values will not be altered by their involvement with the institutions” (Peters, 2008, p. 5). Rational choice institutionalists see change as quite easy to achieve. It’s simply a matter of changing the rules and the incentives to affect the desired behaviour, or having actors learn new rules and incentives. Normative institutionalists agree that learning can affect institutional change by adjusting values based on the experience and reactions of individual actors.

Despite inconsistencies in the different streams of institutionalism, there are three points that unify institutionalists: structures matter, institutions continue beyond the individuals who inhabit them, and “structures (institutions) create greater regularity of human behaviour than would otherwise exist and therefore enhance the explanatory and predictive capacity of the social sciences” (Peters, 2008, p. 6). Each school of institutionalism is helpful explaining institutions, how they work and how behavioural change is effected. “They all say something important about what institutions are, and they each also have important blind spots” (Peters, 2008, p. 8). As a result, there isn’t one stream of institutionalism that comprehensively explains Web 2.0 and social media adoption in the public service.

The need for institutional change

Theory would argue institutional change is required to change the behaviour of individuals. Organizational openness must be viewed as routine and ongoing. Yet, transparency is a major challenge for federal and provincial governments operating in the Westminster style of governance. Hierarchy, secrecy and central control, which are key features of the Westminster model, are at odds with the key tenets of Web 2.0 and social media. Roy (2007) argues that replacing the Westminster style government with a more open government

facilitates participation in the democratic process, makes politicians and bureaucrats accountable and builds trust.

Managing risk in areas such as privacy and security are also associated with building accountability and trust. These key responsibilities of government are not solely tied to the use of Web 1.0 or Web 2.0 or any other type of technology. Fyfe and Crookall's (2010) interviews with public servants in Canada and the United States on their use of Web 2.0 and social media found that "the lengthiest and most animated conversations were on managing the risks of social media use..." (p. 10). They note that in the Internet era speed is the differentiator in leaking government secrets. "Before email, plain brown envelopes were dropped off to the media or we witnessed the spectacle of an Igor Guzenko stuffing his clothes full of secret documents" (Ibid, p. 9). Governments are constantly working to develop best practices and implement security patches to respond to real or perceived data or technology breaches.

Whether its Web 1.0 or Web 2.0, citizens need to feel secure and confident they won't be exposed to criminal activity such as identity fraud when dealing with the government. Cybersecurity is an underlying precondition to citizens' use of the Internet; it is paramount to the success of e-government. The Canadian Internet Use Survey (Statistics Canada, 2010) identified that 33% of Internet users were very concerned about online privacy. "Of those who reported using the Internet for less than five years, 55% were very concerned about online credit card use and 50% about banking over the Internet. These proportions dropped to 42% and 37% respectively, for those reporting five or more years of Internet use" (Statistics Canada, 2010).

The existing mechanisms in government for providing transparency, such as the Access to Information Act and parliamentary officers like Canada's Auditor General and the Privacy Commissioner, are costly and relatively ineffective at facilitating transparency. Roy puts more stock in technology solutions such as open source software, which he describes as "heightening the pace of innovation," (2006, p. 56) and weblogs in circumventing traditional media and power channels. For example, Canada received 25,000 Freedom of Information

(FOI) requests in 2005, which costs the government approximately \$30 million a year (Holsen, 2007). Yet moving from paper-based processes to paperless electronic records management (ERM) is difficult to do in a highly distributed environment that is characteristic of Westminster governments.

Responding to FOI requests involves different actors and in some cases different institutions; “actors include those providing legal services or consultations with other departments, people at other levels of government, and foreign governments” (Holsen, 2007, p. 3). The ERM technology solution, will help reduce the cost of the discovery process and the government’s response time. But as Medina and Fenner (2005) point out “most organizations have general information management, user behaviour and culture issues that will hamstring any new technology initiative, let alone a rigorous ERM program coupled with a technology rollout” (p. 1).

As governments struggle to balance security and privacy concerns with openness and transparency, the former always trumps the latter. The push towards open government, which is discussed later in this chapter, can help significantly and advance transparency in government. Ann Cavoukian (2010), Ontario’s information and privacy commissioner, released a white paper on “Access by Design” which “consists of fundamental principles that encourage public institutions to take a proactive approach to releasing information, making the disclosure of government-held information an automatic process where possible – access as the default” (p. 1). The technology is in place to support Cavoukian’s “Access by Design” concept, but the culture has not ripened. “For the most part, governments’ approaches to transparency have not kept pace with advances in technology and social media norms” (Deloitte, 2010).

Despite rapid advances in technology and new ways of working at home and in the private sector, technological adoption in government is slow, methodical, and path dependent (Baskoy and Bermonte, 2010). Governments rarely lead the way on new policies, ideas or technologies. Institutionalism helps explain the slow pace of technological adoption in government over the past 30

to 40 years, and institutions – political and Weberian – whose organizational cultures are hierarchical, risk-averse, and process-oriented.

Cultural theory

Culture is an organization's "shared norms, values and assumptions" (Schein, 1996) and "organizational culture has been a popular approach to understanding organizations since the late 1970s" (Robey and Boudreau, 1999, p. 175). "Because the original concept of culture was formulated to explain those aspects of social organization that persist rather than change, cultural theories help to remind researchers of the difficulty of transforming organizations" (Ibid, p.175). Schein identifies that "Concepts for understanding culture in organizations have value only when they derive from observation of real behaviour in organizations..." (p. 229). Culture theory, like the normative stream of institutionalism, provides a lens through which one can study how values and norms affect organizational behaviour.

The vast majority of the literature to date on Web 2.0 and social media in government, which calls for a change in organizational culture, rejects the technological imperative model arguing that ICT is an organizational change agent. Robey and Boudreau (1999) and Orlikowski (1992) agree that technology adoption is influenced by a variety of organizational and institutional factors and actors. Orlikowski (1992) argues that organizational change incorporating technological adoption is influenced by three factors: socio-historical context, the technology itself and human decision-making as influenced by "social interests and motivations" (p. 423). By applying their "logic of opposing forces" to four theories – organizational politics, organizational culture, institutional theory and organizational learning -- Robey and Boudreau (1999) conclude that ICT adoption or technological "change occurs as a result of the interplay between opposing forces" (p. 179).

Peters (2008) discusses measuring organizational culture through a number of tools such as "questionnaires, through more extensive in-depth interviews, or by using organizational artifacts (training manuals, internal communications,

etc.)” (p. 14). Using his approach, we find the government of Ontario’s culture with respect to Web 2.0 and social media is in flux. On the one hand, the McGuinty government in 2007 prohibited staff from using Facebook and YouTube on government computers, unless authorized by assistant deputy ministers. This political decision created a culture of confusion and uncertainty in the public service on the use of social media tools at work for professional purposes. This confusion is compounded by the fact that a number of ministries and politicians are actively using these tools, and staff are using internal collaboration tools to work with their colleagues.

Ontario is not the only jurisdiction to ban Web 2.0 and social media. Manitoba, the City of Regina and the City of Toronto have also banned Facebook. In the United Kingdom, a Socitm report identified that 67% of local councils have a total ban on the use of social media (Nguyen, 2010). Minken (2007) writing for Canadian Employment Law Today identifies that politicians and employers believe Facebook use during office time is unproductive. He writes that “Facebook joins the likes of other forbidden sites dealing with pornography, gambling and dating as well as YouTube, a free video viewing website” (Ibid, p. 1). Tapscott (2008) points out that employers have always greeted with great skepticism new technological changes, especially those that empower employees. He reminds us:

The debate over banning Facebook is a typical case of the boomer employers just not getting it. I remember when employers banned e-mail; they thought it was totally unproductive and that managers shouldn’t be typing. I remember when companies refused to give their employees PCs. Then they banned the Internet; employers were apparently worried that employees would look at porn on the company premises or that they would be wasting their time. (p. 165)

The federal government is at the same cultural juncture as Ontario. Several departments have developed internal Web 2.0 and social media tools. Natural Resources Canada appears to be a leading the federal government in using Web 2.0 and social media for internal collaboration. Department staff have created a platform that supports wikis, discussion forums, SharePoint, blogs, NRTube and

GCPedia (the government of Canada's version of YouTube and Wikipedia respectively) "to improve employee collaboration and knowledge sharing, establish an integrated knowledge base, create an environment of innovation and creativity, and contribute to a greener workplace" (Akerley, 2010, p. 6). Several departments, however, have blocked staff from accessing Web 2.0 and social media tools and sites. David Eaves' blog on banned blogs lists a number of federal departments that have blocked a variety of blogs (his included): Canadian Border Services, Indian and Northern Affairs, Department of Justice, Canadian International Development Agency, and Public Works and Government Services Canada (Pacific Region). This analysis confirms Markova's (2008) conclusion from her case study of federal government departments that use of Web 2.0 and social media is spotty.

Ontario's public service is tepidly testing and experimenting with Web 2.0 and social media. Widespread and systemic use of these tools, which does not yet exist, will require strong leadership to push for a new operational culture driven by values such as openness and transparency. The results from the survey and the informant interviews will provide a useful assessment of senior leaders' level of preparedness to lead a cultural change.

The need for cultural change

For the most part, technology is being used to support a culture in government largely shaped by NPM values focused on driving down costs in government operations, improving service delivery and "doing more with less." The changes that need to take place to support active use and adoption of Web 2.0 and social media in government are less about technology and more about an organizational culture that focuses on hierarchical rather than a collaborative cultural model (Flumian, 2009; Roy, 2006; Tapscott, 2008; Brown, 2006; Roy 2009). Roy (2006) writes that the "vertical structures of separate departments serving individual ministers largely translate into autonomy over interoperability" (p. 113). He suggests there may be a need to reverse NPM reforms in order to achieve interoperability and seamless service delivery. "It is in this respect that

the emergence of e-government as an organizational strategy carries the potential to contradict previous reforms tied to service improvement (Ibid, p. 14). But the vertical structures that Roy describes are not so much about NPM as they are about the design of Westminster governments. This raises an important question about how to effect change and introduce horizontality into a complex organizational culture that operates as individual units with vertical cultural orientations under a command and control structure.

Evans (2008) describes changes to introduce horizontal management practices at the most senior levels in the government of Ontario through various initiatives lead by Secretaries of Cabinet over the past 40 years. Ontario's centralized corporate approach is consistent with the horizontal management trend that has taken place across Canada (Bakvis and Juillet, 2004; Bourgault, 2007). He writes, "Arguably, Dean's most significant contribution to date is the building of 'corporate managerialism' into the public service and, with this, the movement towards a horizontal-management practice and culture...." (Evans, 2008, p. 152). As a result of these organizational changes, especially at the deputy ministers' level, Evans concludes that Ontario has become an "adaptive state" able to "harness the potential of innovation in other sectors in order to re-equip government" (Ibid, p. 154).

Tony Dean during his tenure as Secretary of Cabinet operationalized the horizontality at the senior leader level by making the Deputy Ministers' Council akin to a corporate board of directors taking on responsibility for "business planning budgets, human-resources strategy, and indeed the design of transformation initiatives" (p. 152). The question, however, is how to push down horizontal practices and culture within a Westminster model of government. At the same time, there is a push from below the director's level for a new culture of collaboration that builds on and operationalizes current horizontal practices at the senior levels and uses technology to cut across government silos. Fyfe and Crookall (2010) identify a "clay layer" in government that is resistant to change. They write "Government policies are not the villains; instead, the problem was conceptualized as one of organizational culture and the 'clay layer'" (Ibid, p. 7).

A key driver of cultural change is the move to open up government's data. This movement provides a great opportunity to measure and track organizational culture change in government. Open data has the potential to usher in transformative change by improving and encouraging transparency, collaboration and participation. It is the 21st century's response to overcoming the limits of individual cognitive and intellectual capacity, which Herbert Simon coined "bounded rationality." A Deloitte report entitled *Unlocking government: How data transform democracy* examines the multiple benefits of releasing public sector data to the public and provides examples of how citizens are using Web 2.0 and social media tools to leverage data to deal with local issues or to improve government accountability and transparency.

In January 2009, President Obama issued a memorandum directing the Office of Management and Budget to develop an open data directive. This directive, issued by a new administration, signaled a cultural shift from closed and restricted to open and transparent access to data and information. The United States government created a data.gov website that includes searchable catalogues made available in machine readable language – the very formats that underpin Web 2.0 and social media. Both the British and Australian governments have released public sector data based on open standards and in machine readable format.

Although a number of municipalities and several provinces have released data sets on an ad hoc basis, Canadian governments lag behind other jurisdictions in the open data movement. In Canada the debate on cancelling the 2011 long form Census is a good example of federal politicians restricting and controlling data rather than following the lead set by the United States, Australia or the United Kingdom in releasing it in the public domain.

The success of open data requires governments to proactively share in accessible formats public sector data previously restricted to a privileged few. It requires a cultural change from government. Senior leaders will be called upon to oversee and manage this culture change that has the potential to radically transform the relationship between state and civil society. As discussed earlier,

Flumian (2009) describes this as the rise of the “prosumer” in which the consumer of government services becomes an active agent by “shaping the policy and the structures of programs, benefits and services to meet their needs and deliver better outcomes” (p. 4).

The literature identifies that the cultural and behavioural changes required to support successful use and integration of Web 2.0 and social media in government have not yet happened. This appears to be particularly evident in Canada where the public service operates in an organizational culture that is hierarchical, secretive and controlling.

Demographic theory

Another theoretical approach to understanding the use of Web 2.0 and social media in the public services is looking at the impact and role of demographics. David Foot (1998) argues that demographics, which is the study of human populations, can account for “two-thirds of everything” (p. 8).

Demographics are used widely in the public sector for planning and policy development purposes. Canada’s aging population is a key demographic trend that is dominating policy discussions and shaping government spending in areas such as health, education and employment. Some argue demographics is the main set of factors that explain Web 2.0 and social media use (Hardy and Artiuch, 2008; Landsbergen, 2010; Papenhausen, 2009; Tapscott, 1997; Tapscott, 2008; Tapscott, Williams and Herman, 2007).

Tapscott (2008) applies demographics to help explain the popularity of Web 2.0 and social media with a young cohort of users. Generation Y, also called Millennials – what Tapscott calls the Net Generation – is incredibly comfortable with technology. This cohort includes individuals born between January 1977 and December 1997 (Tapscott, 2008; Hardy and Artiuch, 2008; Singer, 2009). As they become more active users of government services and information, the Millennials will be pushing for government to use technology that allows them to customize, collaborate and innovate. “The Net Generation watches a lot less TV than boomers did at their age – only 17.4 hours a week.

But of course they spend more time on the Internet – anywhere from 8 to 33 hours a week, depending on the survey” (Tapscott, 2008, p. 42). This finding is consistent with findings from the Canadian Internet Use Survey (Statistic Canada; 2010) that 98% of people aged 16 to 24 go online regularly.

Tapscott (2008) describes how Net Geners use the Internet differently than other demographic cohorts by “transforming the Internet from a place where you mainly find information to a place where you share information, collaborate on projects of mutual interest, and create new ways to solve some of our most pressing problems” (p. 40). He uses words like “revolutionary” and a “new paradigm” that will “impact everything it touches – from music, and movies, to political life, business, and education” (Ibid, p. 40). Brown (2005) identifies that “much of the actual leadership and innovation in applying technology in the public sector comes from more junior and front-line civil servants, in particular those dealing with the public” (p. 251). This cohort, wants to use technology to work innovatively, collegially and collaboratively.

The demographic gap in the Ontario public service

Demographics theory is important in the OPS particularly as it applies to human resources planning. The government of Ontario is beginning to use Web 2.0 tools and social media to respond to fundamental demographic changes, specifically demands from the Net Generation of new professionals who are entering the workforce and the potential loss of institutional knowledge resulting from large-scale retirements of the government’s workforce in the next 10 to 15 years. “Predictably, the civil service is aging accordingly. In fact, the civil service in most countries is older than its private counterpart....This will inevitably put a premium on attracting and recruiting the best and brightest Net Geners as this cohort will increasingly be called on to fill important managerial roles sooner than they otherwise would have been scheduled to” (Hardy and Artiuch, 2008, p.7).

The culture of horizontality that exists at the most senior level in the government of Ontario has not been sufficiently pushed down to the front lines or the entry level or junior positions occupied by new professionals. Banning

Facebook and YouTube for government staff underscores the cultural and technological gap between Generation Y and Baby Boomers, but at the same time speaks to government's risk cautious approach to any new technologies, not just Web 2.0 and social media.

Tapscott (2008) argues the Net Generation's values and norms differ from those of earlier generations, and they have a very different attitude toward technology. He lists eight characteristics that distinguish the Net Generation from their Baby Boomer parents: prize freedom and freedom of choice, like to collaborate, prefer conversations to lectures, critical observers, value integrity, want to have fun, speed is normal and innovation is part of life.

The Net Generation has customized Web 2.0 and social media to their needs. They have also learned how to use it as an effective tool to change government policy and legislation. A recent example in Ontario involves young people using Facebook to organize en masse and effectively force the government to ease new driving restrictions on proposed legislation. They called the group "Young Drivers Against New Ontario Laws" and within hours 200 people had signed up on Facebook. "By the group's second day, it had grown to 95,000. The group eventually attained more than 140,000 members. The Ontario government was not expecting the strength and speed on this online movement, and, ultimately, amended the most restrictive provisions in the proposed legislation" (Deloitte, 2010). For the most part, older demographic cohorts continue to use the Internet primarily for information gathering purposes or in a Web 1.0 way.

Demographics provides an important approach to studying how different societal groups are adjusting to new technologies, especially Web 2.0 and social media. Statistics Canada's research on Internet use provides valuable information on who is using the Internet, how it's being used and identifies important usage gaps. There is a need for research on demographics and use of Web 2.0 and social media in the government of Ontario.

Leadership theory

Effective leadership is necessary to any successful endeavour or organization. Public sector leadership is a complex issue that is shaped by numerous institutional and cultural factors. Rowley, Hossain and Barry (2010) explore three types of leadership theory: behavioural theory, charismatic theory, and contingency approaches to leadership.

Behavioural theory speaks to the “one best way” approach which scores leaders high for their people skills and performance results (Rowley, Hossain and Barry, 2010). Behavioural theorists list the following as necessary attributes for an effective leader to possess: excellent communications skills, empathy, sympathy, assertiveness, and organizational skills. Transformational and charismatic leadership “involves a focus on change and on the importance of developing a sense of direction and commitment” (Rowley et al., 2010, p. 83). Contingency approaches to leadership require leaders to respond to the situation at hand and “creating multiple best ways” (p 84). Characteristics of leaders according to contingency theory are: confidence, awareness, adaptability, and determination. Dutil (2008) argues that leadership is a skill rather than a description of authority, and lists six skill categories that are necessary for senior leaders in the public service to be effective: understanding issues, creating visions and setting priorities, managing competency, building networks, relating to people and searching for leadership. There is a huge literature on leadership in business administration. Generally, the theory argues that leadership is a key factor in understanding ICT use in organizations.

Role of senior leaders in advancing technological change

In bureaucracies, transformational and charismatic leadership is most often associated with politicians. Public service leadership aligns more with behavioural theory or the contingency based approach. One of the reasons personality driven change is rare and unsustainable is because of a constant shuffling of the senior leadership. Evans et al. (2006) survey of senior leaders in Canada’s national and sub-national governments, what they call the public

service elite, reveals that the vast majority (80%) had held their position for less than five years, with 46% holding their current position for two years or less.

In Ontario, which follows the Westminster model of government, top-down leadership is the essence of ministerial responsibility. Dutil (2008) writes, “The ability to ‘create a vision’ for the organization and to identify both the opportunities and the threats that await it are critical for leaders. Indeed the literature confirms that this is the *sine qua non* of leadership” (p. 21).

Technological change in the public sector over the past 10 to 15 years has required strong leadership and a clear vision. As a result it’s not surprising to note that public sector leadership scores 80.7 per cent as very important/important as a response to the survey question “How would you rate the factors listed as “drivers” for future development of citizen-centred websites” (Brown, 2007, p. 55).

Although the literature speaks to the need for strong leadership to make the cultural change from government 1.0 and government 2.0 (Brown, 2005; Damsgaard and Scheepers, 1999; Di Maio, 2008; Dunleavy et al., 2008; Flumian, 2009; Landsbergen, 2010; Roy, 2009; Tapscott, 2008), the results to date have been mixed. Senior leaders have traditionally sidelined IT as a support service that is part of the technostructure whose job is “to scrutinize the organization’s production process and evaluate its options for organizational change and improvements” (Dunleavy et al., 2006, p. 16). Markova’s 2008 study links federal departments’ spotty adoption of Web 2.0 with the absence of strong leadership. One of her key findings speaks to the need to engage top management to encourage a more robust approach to the adoption and use of Web 2.0 tools in Canada’s federal government. She identified that senior leaders “are discouraged with negative aspects of adoption and wait for others to deal with these” (Ibid, p. 81).

Markova’s finding is consistent with Brown’s (2005, p. 251) observation that with respect to new technologies “senior management is often less experienced and capable in the skills that it is supervising,…” Borins (2002) identifies that contrary to conventional wisdom, innovation in the public sector

rarely takes place at the senior levels. He concludes, “middle managers and front-line staff tend to initiate innovations that responded proactively to internal problems or took advantage of opportunities created by new technology” (Ibid, p. 469).

The literature identifies that leadership is a critical element to any change management initiative. However, the literature points to an absence of strong leadership when it comes to Web 2.0 and social media adoption in the public service. More research is need to develop a better understanding of factors that influence leaders’ experience of Web 2.0 tools to determine if the government’s slow adoption rate is in part due to top management’s lack of or limited experience with new technologies.

Summary: How the four theories explain Web 2.0 and social media use

There is not one specific stream of institutionalism that fully and comprehensively explains the tension in the public service on the use of Web 2.0 and social media. Historical institutionalism helps explain why technological change is path dependent. Change can occur as a result of a disruptive event. The normative stream of institutionalism provides a framework for examining the different values and attitudes between senior leaders and young professionals. The former is the dominant cohort in position of authority and the latter represents the Net Geners who have integrated these tools into their lives and want to use them at work. According to the rational choice stream, rules and incentives need to change to accommodate the use of these new tools. This raises a number of interesting questions about who changes the rules and which incentives would best facilitate a behavioural change. If senior leaders are not prepared to change the rules, then will the impetus come from exogenous forces such as politicians?

Culture theory explores how values and attitudes influence an environment. The literature identifies that moving from government 1.0 to government 2.0 or from e-government to e-governance or from Web 1.0 and

Web 2.0 requires a culture shift from closed and hierarchical to open and collaborative. By applying Peters' (2008) organizational culture lens, we see the government of Ontario is sending mixed messages by banning staff from using Facebook and YouTube at work while simultaneously using these tools to engage with constituents or specific stakeholders.

Leadership theory speaks to the key competencies of leaders to effect cultural change in a responsible and accountable manner while ensuring they continue to meet their key commitments. What tools do leaders' need to effect cultural change that balances a new style of working with the organization's need to be accountable and risk-averse? The literature review identifies that leadership for Web 2.0 and social media is coming either from politicians – like President Obama who issued a directive to share government data – or from young professionals entering the public service who are pushing their managers to allow them to use Web 2.0 and social media at work.

Demographics, which is the study of populations, has played an enormous role explaining the popularity of Web 2.0 and social media. Various studies point to the younger generation, especially Generation Y, as the main users of these tools. Demographics may help explain perhaps why Web 2.0 and social media adoption hasn't accelerated in the OPS – the majority of whom are Baby Boomers – to the same degree that it has in civil society. This theory is directly related to a variable in the research, which looks at whether age, as a determinant of generational profile, has a causal relationship with senior leaders' use of Web 2.0 and social media tools.

While this chapter identified how institutionalism, culture theory, leadership theory and demographics help explain the drivers and barriers to adopting Web 2.0 and social media use in the public service, the next chapter outlines the methodology that will yield a detailed and comprehensive profile of senior leaders' use of Web 2.0 and social media in Ontario's public service.

Chapter 3: Methodology

This chapter is organized into four our sections. The first section explains the hypothesis underpinning the research study and the research design. The second section discusses the survey design, the third section analyzes the response rate, and the fourth section discusses the informant interviews.

Hypothesis and research design

The study's research hypothesis is that senior leaders in the government of Ontario's public service and its agencies, boards and commissions who are familiar with Web 2.0 tools at home are more likely to use them at work.

To test this hypothesis, the research study design is non-experimental and exploratory given the subject matter. Johnson, Buttolph, Reynolds and Mycoff (2008) write that non-experimental approaches are more practical especially when laboratory and field experiments are not possible for a variety of reasons, one of which is the unit being analyzed. Even though non-experimental research designs are not as strong for making causal inferences, "they allow the exploration of more realistic problems" (Johnson et al., 2008 p. 148). The unit of analysis is senior leaders in the government of Ontario's public service, and its agencies, boards and commissions.

In this case, senior leaders in the government of Ontario are being examined using a mixed method approach of quantitative and qualitative research. These two research methods will help strengthen the research findings' validity despite, perhaps, not proving causality between a senior leader's familiarity and his or her use of Web 2.0 and social media tools at work.

The qualitative research consists of three approaches: the literature review, which is discussed in the previous section; a scan of government Internet and intranet sites and a review of a survey the government of Ontario's Policy Innovation and Leadership Office (PIL) and the Office of the Corporate Chief Strategist (OCCS) conducted on policy staff's use of Web 2.0 and social media

(discussed in Chapter 4); and informant interviews to follow up on some of the key issues raised from the literature, website scan and the survey.

The quantitative research consisted of a random sample survey. The survey was conducted to address an important research need the literature identifies. The variables that inform the survey and the survey design came out of the literature review. Therefore the purpose of the survey is threefold: First, it develops a descriptive profile of OPS senior leaders' use of Web 2.0 and social media at work for professional purposes to gauge how prepared they are to manage the required changes in the bureaucracy to support Web 2.0 and social media use and adoption. Second, the concept of familiarity, as defined by home use for personal purposes, which is the independent variable in the survey design, explains professional use of the tools at work. Finally, additional variables have been incorporated into the survey design to explore alternative explanations to understand key influences that help explain senior leaders' use of Web 2.0 and social media at work for professional purposes.

The survey design

The dependent variable

The dependent variable is what you are trying to explain. Johnson et al. (2008, p. 583) describe the dependent variable as the "phenomenon thought to be influenced, affected or caused by some other phenomenon." The dependent variable in this research design is senior leaders' use of Web 2.0 and social media tools at work for professional purposes. Is a senior leader's personal use of these tools at home a useful indicator of work use? Or, which other variables have the greatest influence on senior leaders using Web 2.0 and social media at work for professional purposes?

The independent variable

The independent variable introduces the concept of familiarity into the equation to determine the relationship between familiarity and senior leaders' use of Web 2.0 and social media at work. For the purposes of this research, home

use for personal purposes will be the indicator by which familiarity will be measured to determine causality with work use. Home use was selected to define familiarity because in a digital world, personal and professional identities are almost seamless (McDonald Dryburgh, 2010; Tapscott, 2008). In addition, Web 2.0 and social media users have to apply similar levels of discretion in their personal as well as in their professional use of web-based tools. Finally, such a comparison provides a pragmatic solution since, with the exception of Facebook and YouTube, many of the tools available for personal use at home are also available for professional use at work.

The concept of familiarity attempts to identify use and use patterns. The research hypothesis which is that senior leaders who are familiar with these tools (because they use them at home for personal reasons regularly and collaboratively) are more likely to use them at work and to lead the cultural change necessary to encourage their staff and peers to adopt them. Familiarity will be measured through three key indicators of home use: Type of tool used, passive or interactive use of the tool, and frequency of use.

Identifying the type of Web 2.0 and social media tools a senior leader uses is helpful in identifying the level of familiarity a senior leader has with one or more tools. For example, popular tools (Facebook, YouTube, Twitter) are less indicative of familiarity than obscure tools such as mashups. The research will attempt to determine if there is one specific tool that most influences familiarity, or that encourages work use.

Passive or interactive use of the tools speaks to a key difference between Web 1.0 and Web 2.0. For the purposes of this paper, passive use is consistent with Web 1.0 uses and interactive use is consistent with Web 2.0 uses. Passive use suggests a lower level of familiarity and comfort with Web 2.0 and social media than interactive use, which involves online collaboration or the synchronistic interaction of a one to many or many to many.

Frequency of use reveals if the senior leader has incorporated the use of the tools into regular practices. Daily use of Web 2.0 tools, especially during personal time, contributes to the concept of familiarity and is a success factor.

Chui, Miller and Roberts (2009) list daily use as a critical success factor in uptake. They describe how use tends to fall off after the initial launch if not incorporated into daily activities, “as normal daily workloads pile up, however, the energy and attention surrounding the rollout decline, as does participation” (p. 4). For the purposes of this research, the concept of familiarity is not binary as degrees of familiarity will be measured and identified, where possible. The assumption being that familiarity is subjective and that offering a yes or no option would skew the results as opposed to a more complex set of answers that would be closer to reality. The survey uses a Likert scale to help respondents identify their degree of familiarity with the tools, frequency of use and intent on increasing use. The degree of familiarity, use, etc. is tracked across five gradients ranging from most to least.

Antecedent variables

Gray and Guppy (1999) identify that antecedent variables come “before the independent and dependent variables” (p. 46). It will be useful to identify which of these variables has the greatest influence the dependent variable, namely senior leaders in the government of Ontario’s public service, and its agencies, boards and commissions who use Web 2.0 and social media at work. There are a number of antecedent variables that may have causal influences on the dependent variable, however, this study examines three: age, education, and gender.

Are senior public leaders in the OPS who use Web 2.0 at work younger than their colleagues? Web 2.0 user demographics identify that the majority of users are between the ages of 16 and 44 (Singer, 2009). According to the Statistics Canada’s 2009 Internet Use Survey 98% of people aged 16 to 24 went online compared to 66% of those aged 45 or older.

Education is another key indicator of online use. Statistics Canada’s Internet Use Survey (2009) identifies that 89% of individuals with at least some post-secondary education used the Internet compared to 66% with no post-secondary education. Digging a little deeper to understand the area of academic

study might also reveal patterns of use at work.

Gender will look at whether a difference exists between men or women senior leaders work use levels, activities and tools. Statistics Canada's Canadian Internet Use Surveys identified that whatever difference existed between level of Internet use between men and women (Statistics Canada, 2005) has been closed (Statistics Canada, 2010). The most recent findings from the 2009 survey note that men and women perform different activities on the Internet (Statistics Canada, 2010).

Intervening variables

Johnson et al. (2008, p. 67) define the intervening variable as "a variable coming between an independent variable and a dependent variable and help explain the process by which one influences the other." Based on the assumptions for the research study, the intervening variables will include the following factors that could influence senior leaders' use of Web 2.0 tools at work: Rank, length of service, key area of responsibility, office location, and type of ministry or agency (e.g., line, central or an ABC).

An individual's rank, e.g., director, assistant deputy minister or deputy minister is a critical criterion in changing organizational culture. The higher up the hierarchy, the more influence leaders have changing organizational culture. At the same time, the literature review has also identified that middle managers, or what Fyfe and Crookall (2010) describe as a "clay layer," are less reluctant to embrace new technologies and specifically Web 2.0 and social media. Analysis of this variable will help identify if familiarity with Web 2.0 and social media is more prevalent at the higher or at the lower echelon. If deputy ministers are more familiar with these tools than their subordinates, it may mean an easier acceptance and cultural adaptation to using these tools. However, if directors are not the "clay layer," then culture change may involve a longer process.

Length of service will help identify if newer recruits to the OPS are more likely to use Web 2.0 and social media than individuals who have a long history of service. This will help answer the question about whether cultural changes

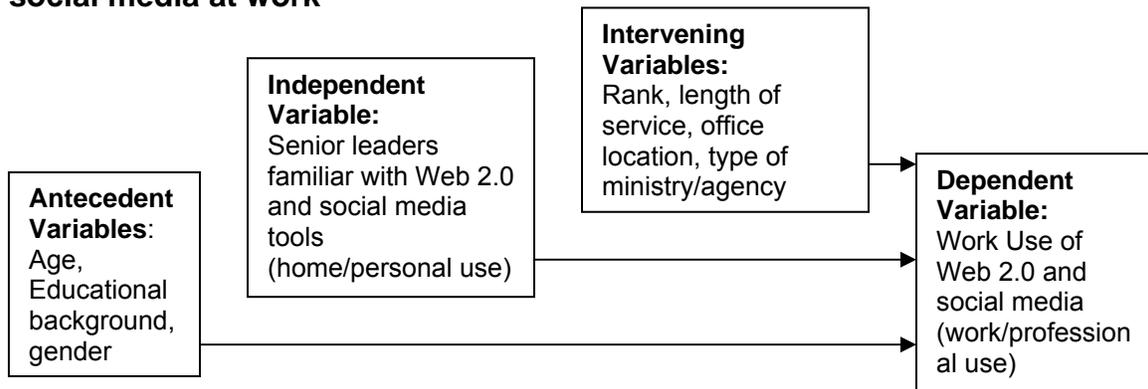
that support Web 2.0 and social media use can be effected by a new crop of senior leaders.

Key area of responsibility (program delivery, information communication technology, policy, corporate, legal, communications, etc.) is an indicator of how much pressure senior leaders are under to adopt the use of these tools. Senior leaders directly involved in the development or management of a technology project will have a better understanding of the potential of Web 2.0. They will be conversant in “IT speak” and understand its value better than senior leaders who have not been directly involved in the development or management of a technology project. Given that Web 2.0 and social media are largely used for communications purposes, communications specialists may have a higher level of familiarity.

Where a senior leader’s office is located may help answer the question about whether senior leaders in smaller communities are less or more likely than their big-city counterparts to use Web 2.0 and social media. A key benefit of Web 2.0 and social media is it makes location somewhat irrelevant, and supports a variety of activities that can be undertaken off-site. However, digital divide issues, such as access to high-speed Internet, may pose a barrier to off-site use. The 2009 Canadian Internet Use Survey points to increased Internet use across the country. Yet, smaller communities, those with a population of 10,000 or less, continue to lag behind larger communities (Statistics Canada, 2010).

Whether or not the branch or division is located in a line ministry, or in the case of deputy ministers, he or she is responsible for a line ministry rather than a central ministry may help explain the anomaly that currently exists in the government of Ontario. Despite a ban on staff using Facebook and YouTube on government computers, there are a number of ministries using these tools to connect with their stakeholders. In addition, a number of internal Web 2.0 and social media tools exist within the government of Ontario. Senior leaders in a line ministry tend to have more contact with the public than those working in a central ministry. If that’s the case, are senior leaders in a line ministry more likely to be familiar with these tools and/or use them more for work purposes?

Figure 1: Variables that may explain senior leaders' use of Web 2.0 and social media at work



As this is an exploratory study, the analysis in Chapter 5 begins by describing the dependent variable, which is senior leaders' use of Web 2.0 and social media at work. The analysis then focuses on the degree to which familiarity, as defined by home use for personal purposes, is a key determinant of senior leaders' professional use of Web 2.0 and social media tools at work. Antecedent and intervening variables, as listed in Figure 1, are also examined to determine if any of them influence work use.

Survey population and disproportionate stratified sample

The population for the purposes of this study is senior leaders in the government of Ontario's public service, and its agencies, boards and commissions. The individuals who comprise the categories of SMG2 (Senior Management Group 2) and higher includes directors, assistant deputy ministers, chief information officers, associate deputy ministers and deputy ministers. For the purpose of this research study, directors are included because recruitment practices in the OPS typically promote from within. Therefore, directors who are part of the human resource pool from which assistant deputy ministers will be drawn will have a direct impact on key decisions over the next three to five years. In addition, they are responsible for developing, overseeing and managing policies and projects, and have a direct reporting relationship to assistant deputy ministers.

Evans et al.'s (2006) findings on PSEs confirm internal promotion practices based on moving up the ladder. Their research did not include directors, but the “stepping stone” descriptor, in which deputy ministers come from the assistant deputy ministers’ ranks, is applicable at the director level. For the most part in the government of Ontario, the post of director serves as a “stepping stone” for ADM.

As approximately 1,400 individuals fit this definition of senior leaders, there were a number of design challenges that had to be addressed. First, it was both impractical and costly to survey all 1,400 in the population. And second, directors make up the vast majority of the study population.

There are three distinct strata: director level (approximately 1,200), assistant deputy minister level (149) and deputy ministers (28). The ratio between these three strata clearly illuminates the hierarchical nature of the government of Ontario’s public service and its agencies, boards and commissions. And in such hierarchies, despite their smaller numbers, assistant deputy ministers (and their equivalents) and deputy ministers wield more power and influence in the decision-making process than directors. The question to address in the study design was how to balance quantity with authority?

To resolve these two challenges, the survey used a disproportionate stratified sample to reflect the significant role assistant deputy ministers and deputy ministers play in decision-making and to help achieve a useful sample size of these two important strata. Johnson et al. (2008) identify that disproportionate stratified samples “allows a researcher to represent more accurately the elements in each stratum and ensure the overall sample is an accurate representation of important strata within the target population” (p. 223). This approach will be biased in that it includes a larger percentage of assistant deputy ministers and deputy ministers than exists in the survey population.

Sample size, confidence interval and confidence level

Gray and Guppy (1999) note that in order to identify an appropriate sample size, two factors are important: “The heterogeneity or variability of the

population in question, and the degree of accuracy required in conclusion” (p. 157). They identify that the larger the random sample, the greater the chance the findings will emulate the actual values of the total population.

The accuracy of a sample improves when the sample size increases up until a maximum where the margin of error becomes insignificant. For example, most national surveys have sample size ranges between 1,500 and 2,000 regardless of the size of the population (Johnson et al., 2008). This produces a margin of error (or confidence interval) of 3% using a 95% confidence level. Anything more than this would not improve the accuracy of the results, but would simply add cost and time to the study.

The margin of error or confidence interval gives the range of “values into which a population parameter is likely to fall for a given level of confidence” (Johnson et al., 2008, p. 582). The confidence level determines the validity of the results or rather “the degree of belief that an estimated range of values – more specifically, a high or low value – includes or covers the population parameters” (Johnson et. al., 2008, p. 582).

As the study will be examining a homogenous group, senior leaders who work for the government of Ontario’s public service or its agencies, boards and commissions, the confidence in the sample is high and the sample pool is definitive. In addition, because of the exploratory nature of this research, the degree of accuracy is important but not essential. To achieve a margin of error of 5% and a 90% confidence level on a total population of 1,384, 230 senior leaders need to respond to the survey. There are complicated mathematical formulae for determining which sample size will yield a certain margin of error and confidence level. But these formulae go beyond the capabilities of this investigator. Therefore, a random sample calculator found at <http://www.custominsight.com/articles/random-sample-calculator.asp> was used to determine the sample size needed to achieve a 5% margin of error and a 90% confidence level.

Response rate

Response rate is an important consideration in any probability survey. Typically, government administered and funded social surveys aim for response rates of 75% to 80% but invariably the actual response rates are much lower (Dale, 2006). Recent research of online surveys identifies that response rates can vary from 6% to 75% depending on a number of factors (Pan, 2010). A low response rate may lead to increased costs and time, and will affect the researcher's ability to make statistical inferences. Pan identifies the following as ways to increase response rates, "more instances of contact, more personalized contact and the use of precontacts" (p. 123).

For the purposes of this research study, the response rate target was set at 50%, which takes into account several factors: the use of an online survey, the homogeneity of the survey population and the potential appeal of the research topic to survey respondents. To help achieve the 50% target, a short explanatory email co-signed by the investigator and her faculty advisor from Ryerson University accompanied the survey providing background information on the study and offering to share an executive summary of the research with interested respondents.

Therefore, to account for a 50% response rate, the sample size was doubled for a total survey population of 460 to maintain the 5% margin of error and 90% confidence level.

Sample

Initially, 1,479 names were downloaded from the government of Ontario's online directory infoGo <http://www.infogo.gov.on.ca/infogo/searchDirectory.do?actionType=changeLocale&locale=en> on the public website using key words like head, director, deputy minister, etc. to randomly select senior public officials of a certain rank for the purposes of the survey. The list was cleaned up to remove duplicate names and individuals who did not meet the definition of senior leader resulting in a survey population of 1,384 comprised of 1,201 or 86.7% Directors or equivalents, 155 or

11.2% assistant deputy ministers or equivalents and 28 or 2.0% deputy ministers. The online survey was emailed to 938 recipients in two separate rounds.

Survey design and questions

Because the study’s hypothesis is that senior leaders in the government of Ontario’s public service, and its agencies, boards and commissions who are familiar with Web 2.0 and social media tools are more likely to use them at work for professional purposes, the survey questions were designed to explore elements of familiarity and non-familiarity with Web 2.0 tools. The questions were primarily close-ended to encourage a high response rate, to assist with coding and to allow for comparisons. Johnson et al. (2008) identify that questionnaires that are too long may cause respondents to lose interest, get distracted or answer inconsistently.

Table 2 provides a description of Web 2.0 and social media and identifies how the tools used in the research survey align with the descriptions.

Table 2: A description of Web 2.0 and social media technologies

*(Chui, Miller and Roberts, 2009)

Web 2.0 and social media technologies	Description*	Name in survey
Wikis	Facilitates co-creation of content/applications across large, distributed set of participants	Wikis, SharePoint, CTS (Plone)
Blogs, podcasts, videocasts, peer to peer, webinars	Offers individuals a way to communicate/share information with a broad set of other individuals	Blogs, Webinars, YouTube, Twitter
Tagging, social bookmarking/filtering, user tracking, ratings Really Simple Syndication (RSS)	Adds additional information to primary content to prioritize information or make it more valuable	Mashups, Google Docs
Social networking	Leverages connections between people to offer new applications	Facebook, OPSpedia

The survey was initially sent out to 462 senior leaders via the Internet using Opinio. There are a number of benefits in using online surveys that impact directly on time and cost. Pan (2010, p. 122) identifies that online surveys

“eliminate postage, mail out efforts, and sometimes data entry costs.” Yet, to avoid loss of interest or respondent fatigue, Internet surveys should keep the questions to a minimum (Johnson et al., 2008). Opinio, which the researcher used to create and distribute the survey, and collect the data, met all the criteria of online surveys Pan identifies.

Initially, the survey was going to be conducted online using SurveyMonkey, which is a popular and accepted online survey tool. Ryerson’s Ethics Board expressed concerns that confidentiality promised to respondents could be compromised under the Patriot Act as SurveyMonkey’s servers are located in the United States. As a result of the feedback from Ryerson’s Ethics Board, the online survey was created and distributed using Opinio, which Ryerson University supports. A copy of the online survey is attached as Appendix 1.

Table 3 identifies that between August 5, 2010 and September 24, 2010, 909 (938 less 29 undeliverable emails) senior leaders in the OPS and the government of Ontario’s agencies, boards and commissions received an email inviting them to participate in the online survey over two rounds.

Table 3: Analysis of Opinio emails and responses

Distribution Round	Emails Sent	Responses Received	Response Rate Percentage
Round One (net 14 undeliverable emails)	462	53	11.5%
Round Two (net 15 undeliverable emails)	447	64	14.3%
Subtotal	909	117	12.8%
Less: Declines	40	n/a	n/a
Total	869	117	13.5%

The first round consisted of 462 randomly selected recipients. The breakdown of the 462 comprised a disproportionate representation between directors (and equivalents), assistant deputy ministers (and equivalents) and deputy ministers. Every fourth director received the survey resulting in the total distribution of 393; every third assistant deputy minister received the survey resulting in a total distribution of 54 and every second deputy minister received the survey resulting in a total distribution of 15.

The timing for the first survey round coincided with peak summer holidays. As a result, more than 100 out-of-office emails were received immediately. In addition, 18 emails bounced back of which 14 were confirmed as no longer valid and replaced with other names from the remaining survey population. There were also a number of emails from recipients with a range of comments, which are summarized below.

A reminder email was sent out to the first batch of recipients on August 20, 2010. As with the first distribution, this date also coincided with summer holidays and 85 out-of-office emails were received immediately.

A total of 53 responses from the total distribution of 462 were received resulting in an 11.47% response rate, which fell far short of the 230 and 50% targeted response rate identified in the design. As a result, the investigator decided to prepare a new sample randomly selected from the same population group to be emailed after Labour Day.

The second batch of surveys totaling 462 was sent out on Friday morning September 10, 2010. The ratio of surveys distributed to directors, assistant deputy ministers and deputy ministers, and their equivalents, mirrored the first round. However, the distribution of the second round of the survey to deputy ministers resulted in all 28 deputy ministers on the survey population being invited to complete the survey to ensure a response rate from this group.

To encourage greater uptake, the invitation email accompanying the second round of survey emails was slightly reworded. It included examples of Web 2.0 and social media, emphasized the confidential nature of the research and the anonymity of responses, clarified that the survey is intended to capture

responses from senior leaders from the government's agencies, boards and commissions, and underscored the research value of receiving responses from non-users of Web 2.0 and social media.

In the first round, a number of respondents from agencies, boards and commissions declined to participate because they do not consider themselves part of the OPS as defined in the legislation. Since the investigator was interested in hearing from senior leaders in agencies, boards and commissions, the wording in the survey email was altered to communicate the researcher's intent and reworded to say "senior leaders in the government of Ontario's public service, and its agencies, boards and commissions." Appendix 2 is a copy of the revised email with the changes bolded.

A total of 75 out-of-office responses were received and 18 undelivered emails were returned. Of these 18, three undeliverable emails had incorrect email addresses while the remaining 15 were confirmed as no longer valid and removed from the distribution list. Unlike the first batch of emails, the investigator did not replace the invalid emails with others names. As a result, 447 surveys were emailed to senior leaders in the second round, which is less than the 462 sent out in the first round. A reminder email was sent out to the second batch of names on September 24, 2010. A total of 51 out-of-office responses were received.

A total of 64 responses were received from the 447 surveys distributed in the second round resulting in a 14.3% response rate, which was higher than the response rate for the first batch, but fell short of the original target.

As with the first batch of emails, a number of recipients responded directly to the investigator. In total, 45 direct comments were received from all survey recipients. The email comments fell into three distinct categories:

1. Declined participation without explanation and requested removal from the survey list.
2. Declined participation with explanation:
 - no time to complete the survey
 - government policies prohibit the use of Web 2.0 and social media

- awaiting permission to respond to the survey
 - doesn't use Web 2.0 – several of these emails directed the investigator to knowledgeable individuals in the government
 - not a senior leader
3. Supportive emails confirming the email recipient had completed the survey with several respondents offering to participate in the informant interviews.

The 117 completed surveys fell short of the 230 target identified in the methodology. Despite not meeting the 90% confidence level and 5% margin of error, the response rate for completed surveys provides a reasonable level of statistical significance of a 95% confidence level and an 8.7% margin of error. The 13.5% response rate is consistent with average online survey response rates (Pan, 2010; Gray and Guppy, 1999).

The slightly higher response rate from the second round of surveys can be attributed to several factors. First, the second round of surveys were sent out after the peak summer holidays. Second, based on feedback from one of the survey respondents, the second round of emails was sent out at the beginning of the workday rather than at the end. And third, Cabinet Office had vetted the survey and given senior leaders, specifically deputy ministers and assistant deputy ministers or their equivalents, the green light to complete the survey. Cabinet Office's involvement vetting the survey is consistent with Evans (2008) description of how decisions and communications have been consolidated at the centre within the OPS.

Key informant interviews

Informant interviews were used to supplement the research study. The responses from the respondents are incorporated into the analysis section of this report and used to validate survey findings. "Interviewing often provides a more comprehensive and complicated understanding of phenomenon than other forms of research designs, and it provides researchers with a rich variety of perspectives" (Johnson et al., 2008, p. 343).

Four individuals from the study population were interviewed to follow up on some of the key issues raised from the survey, to gain a better understanding of any discrepancies that arise from the survey results and to look at challenges and opportunities in pursuing further research or designing a program based on respondents' answers. The four informants were selected based on responses received to the survey. Two of them self-identified themselves as interested in participating in the interview part of the research, and the other two were sent email requests. Two of the individuals are directors and two are at the assistant deputy minister level.

The interviews were conducted using a semi-structured approach that included an interview guide, including topics, questions and the order in which they should be addressed. Because the informants are from an elite group, Johnson et al. (2008) offer several preparatory tips:

- Prepare and study documentary sources and pertinent biographical information; and
- Verify accuracy of information received from other sources.

The issue of confidentiality and anonymity was discussed with each informant who signed a confidentiality agreement similar to the one attached as Appendix 1 to this report.

In terms of length in their current positions, all four informants have been serving for less than five years in their current position. Three informants have been with the government of Ontario for more than 20 years, and one was recruited from another sub-national government four years ago.

All four informants have undergraduate degrees in areas other than information and communications technology or computer science. Two have masters degrees in public administration and political science.

Two of the informants come from central agencies and two from line ministries. Two informants deal directly with the public in terms of the services and programs their ministries offer, while the other two support internal clients and stakeholders. A copy of the informants' interview questions is attached as Appendix 3.

Chapter 4: Internet/Intranet Scan Results and Survey Findings and Analysis

This chapter consists of two major sections. The first section reviews the findings from the scan on Government of Ontario Internets and intranets, and augments them with data from a staff created wiki on OPSpedia that attempts to identify all the Web 2.0 technologies in use in the OPS, both externally and internally. Additionally, this section supplements the results from the scan with data from a 2009 survey Cabinet Office and the I&IT Organization distributed to gauge policy staff's use of Web 2.0 and social media.

The second section reveals the results of the survey findings based on responses from 117 senior leaders in the OPS, provides an analysis of the findings, including a univariate and bivariate analysis, and relates the findings to the study's qualitative research.

Scanning government of Ontario internets and intranets

The scan reveals staff are using Web 2.0 and social media tools for official and unofficial purposes. Blogs and discussion forums are very popular particularly with senior leaders. In October 2010, when the scan was conducted, 12 deputy ministers plus the Secretary of Cabinet had blogs, discussion forums or journals on their respective intranet sites. In addition, two deputy ministers, three chief information officers and one chief administrative office had some sort of online forum for their staff. There is a difference, however, between the various types of blogs and online discussion forums. A scan on senior leaders' blogs on the OPS' intranet reveals that the vast majority of the senior leaders' blogs are not interactive; they push information to staff and don't permit staff to respond. As they are informational rather than collaborative in nature, they are more akin to Web 1.0 than Web 2.0.

Despite the government of Ontario's 2007 ban of Facebook and YouTube, several ministries use these tools to target specific audiences, especially youth or young adults:

- The Ministry of Health and Long-term Care uses Facebook to send out messages on how to avoid getting the Mumps.
- The Ministry of Children and Youth Services has set up a site on Facebook under the brand Youthconnect.ca and posted several videos on YouTube featuring celebrities like Hedley, Justin Bieber, and Nico from Dance Canada.
- The Ministry of Research and Innovation has several videos on YouTube aimed at promoting science and technology to youth, created a presence on Facebook called Ontario Innovation to provide news, information and encourage discussion and spark an interest in the culture of innovation in Ontario.
- Premier McGuinty has a YouTube channel as do several other ministries including the Ministry of Aboriginal Affairs, the Ministry of Economic Development and Trade.

Twitter is popular among politicians and public service staff. A staff wiki created on OPSpedia to track all the Web 2.0 technologies in use in the OPS, identifies that on October 1, 2010 more than 129 staffers had personal Twitter accounts including several political staffers and politicians (OPSpedia, 2010). In addition, seven personal Twitter accounts were created specifically for business purposes including an account for Premier McGuinty and the Premier's communications office (OPSpedia, 2010). Approximately 25 ministries regularly "tweet" to citizens who have signed up to their respective Twitter account. The Ministry of Agriculture, Food and Rural Affairs "tweets" regularly on Foodland Ontario, field crop news, horticulture crop news and Ontario tomato. Other ministries and/or agencies, boards and commissions, which have Twitter accounts include Children and Youth Services, Environmental Commissioner of Ontario, Ontario Financing Authority and the Ontario Arts Council.

Results of the Ontario public service's Web 2.0 and social media survey

Cabinet Office's Policy Innovation and Leadership (PIL) Unit and the Office of the Corporate Chief Strategist (OCCS) in the government of Ontario's I&IT Organization distributed a survey in October 2009 to policy professionals to determine familiarity and comfort level with social media to support policy development. A link to the survey was included in the October issues of the Policy Innovation and Leadership newswire and posted on OPSpedia. The survey opened on October 19 and closed on October 30, 2009. A total of 202 policy staff responded to the survey from 27 ministries and 3 directorates. The majority of respondents came from 8 ministries: Ministry of the Environment, Health and Long-Term Care, Government Services, Community and Social Services, Transportation, Children and Youth Services, Education, and Finance.

A key survey finding is that 40% of respondents are in the 35 to 50 age range (Government Services, 2009). This corresponds to the OPS' demographics which identify that 64% of employees in the OPS are between 35 and 50 years old. The next highest response rate came from a younger cohort of employees aged 20 to 34 followed by those aged 51-64 and 65 years and older.

Respondents overwhelmingly identified (89.2%) that they are not currently using social media to facilitate engagement with the public (e.g. stakeholder engagement and e-consultation). Top reasons listed for not using social media to facilitate engagement with the public include: limited skills, knowledge and awareness, not engaged with public consultations, limited access to social media sites and working in a risk-averse culture (Government Services, 2009).

Of the 11% of respondents who are using social media to engage with the public, the majority of them are using collaboration spaces such as wikis, e-surveys and websites to share information and collect feedback (Government Services, 2009).

With respect to internal collaboration, a larger percentage of respondents (31%) identified that they are using collaborations tools. Ranked on the basis of highest number of responses, the collaboration tool service (also known as

Plone) received 73% of the responses, OPSPedia was next at 65%, followed by webconferencing at 44%, other tools (wikis and Adobe Connects) at 32% and videoconferencing at 31% (Government Services, 2009).

Respondents submitted the following comments on how Web 2.0 and social media provides value for policy development: cost-effective, more inclusive because they help breakdown geographic barriers or provide a comfortable means of consultation for individuals who might not otherwise speak publicly, support horizontal collaboration, encourage stakeholder and intergovernmental dialogue, and provides a virtual library with easy access to information and best practices (Government Services, 2009).

In response to the question on educating staff on how to use social media for policy development, the majority of respondents identified a mixed use approach consisting of workshops, making social media tools available for staff, providing guidelines and giving clear direction on social media use, support from senior staff, records management training, promoting successful pilots and peer mentoring (Government Services, 2009).

As a result of the findings from this survey, Cabinet Office is looking at developing social media guidelines to support staff's use of Web 2.0 and social media tools. In many ways, however, this effort is playing catch-up with staff and politicians who are already using a number of Web 2.0 and social media tools to support internal and external activities.

The responses from this survey point to two findings. The first is that policy staff understand the potential benefits of these tools to support their work. The second identifies that the organizational cultural artifacts – leadership, information, guidance and support – are not in place to encourage policy staff to use these tools for internal or external collaborative purposes. As a result of the responses to this survey, PIL and OCCS developed and held two social media workshops in August 2010 for policy staff. Given that the survey was limited to a very small and specialized segment of the OPS, there appears to be a need for additional research on the benefits of the workshop and on Web 2.0 and social media use across the OPS in general.

Key findings from the scan and in-house survey

The findings from the scan of government of Ontario Internet and intranet sites combined with the results from the PIL/OCCS survey confirm that the government has been a slow and cautious adopter of web 2.0 tools. The McGuinty government's 2007 policy to ban Facebook and YouTube access to all employees is still in place. Staff are only now piloting a few web 2.0 tools for internal use, including a couple of deputy minister blogs. In 2009, OCCS piloted on a very small scale within the I&IT Organization OPSpedia as a professional networking tool to support policy development and internal horizontal collaboration. The creation of OPSpedia, which was a bottom-up initiative, supports Borins (2002) argument that most innovation in the public sector occurs at the lower echelons. Borins (2002) also recognizes that support from senior leaders is required to move innovative initiatives, such as OPSpedia, from a pilot stage to full implementation.

The OPS' incremental and cautious use of Web 2.0 to support internal activities is consistent with the technological adoption and innovation patterns in government. Despite the growth of Web 2.0 over the past three to five years in the private sector and civil society, the vast majority of "Ontario.ca" websites are asymmetrical, static and oriented toward pushing out information. An exception, again piloted by OCCS, is the DigitalOntario website, which is one of the few outward-facing sites incorporating several Web 2.0 tools including a wiki, online surveys and real-time forums.

Survey findings and analysis from senior leaders' responses

The survey findings and analysis section in this chapter examines responses to the survey's 22 questions using both a univariate and bivariate analysis. The univariate analysis of responses, which provides a description of senior leaders' use of Web 2.0 and social media at work for professional purposes, creates the study's dependent variable. The bivariate analysis

examines the influence other key variables, identified in the methodology section, have on senior leaders' use of Web 2.0 and social media at work.

The analysis will identify why the question is important, how it relates to the study's hypothesis and the relevance of the theories discussed in the literature review. There will be a table or a graph summarizing the findings with some high-level analysis to explain the key findings, which will be supplemented, where appropriate, with comments from the informant interviews, and findings from the scan of government Internets/intranets and the PIL/OCCS survey.

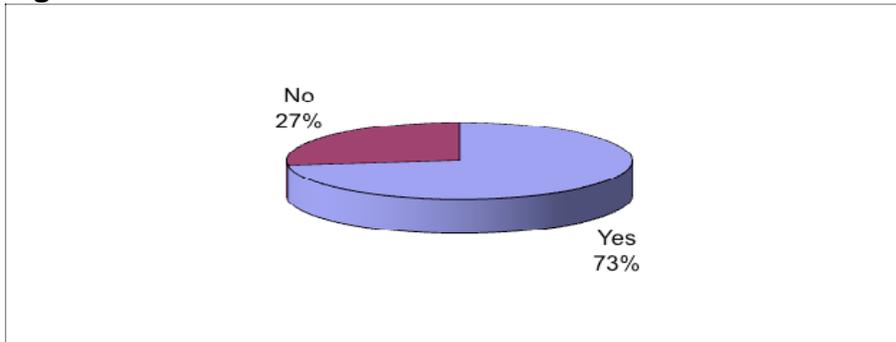
Analyzing the dependent variable: Work use of Web 2.0 and social media

Senior leaders' use of Web 2.0 and social media at work for professional purposes is the crux of this study. The literature identifies the benefits of these web-based tools to realize important public administration goals of achieving transparency, building trust, engaging with citizens and tackling complex policy issues. Yet, the current rate of usage is unknown among senior leaders in Ontario's public service. The literature reveals additional research is required to better understand government use and adoption of Web 2.0 and social media tools and points to government being a slow adopter (Di Maio, 2008; Dixon, 2011; Government Services, 2009; Markova, 2008; Tapscott, 2008). Flumian (2009) identifies a need for strong leadership to make necessary changes to traditional hierarchical processes. "Layers and layers of management approval processes stifle innovation. Good ideas can't get implemented quickly unless senior leadership creates an environment that values ideas at all levels of the organization" (Ibid, p. 9).

Use and application of Web 2.0 and social media tools requires institutional and cultural changes. As discussed earlier, the low level of uptake can be explained in part through institutionalism and path dependency, and cultural theory. Leadership is required to drive both cultural and institutional changes that support wider use and application of these tools. The following section, which focuses on the dependent variable – namely senior leaders' use of

Web 2.0 and social media at work for professional purposes – provides a previously undocumented view of use patterns among senior leaders in Ontario’s public service.

Figure 2: Use of Web 2.0 and social media at work



Of the 111 respondents who answered this question, 73% identified that they use Web 2.0 and social media tools at work and 27% answered they don’t use the tools at work. Of the nine tools listed in the survey for work use, the 73% of respondents using Web 2.0 and social media provided a total of 280 responses indicating regular use of one or more of the tools.

Frequency of work use

Examining how frequently senior leaders use Web 2.0 and social media tools will help identify to what degree they have incorporated the tools in the workplace, and to what degree cultural changes have started to be introduced to support or facilitate the use of these tools. Are these tools still a novelty or are senior leaders using them regularly? The literature review identifies regular use as a contributor to the successful indoctrination of these tools.

Figure 3: Frequency of work use

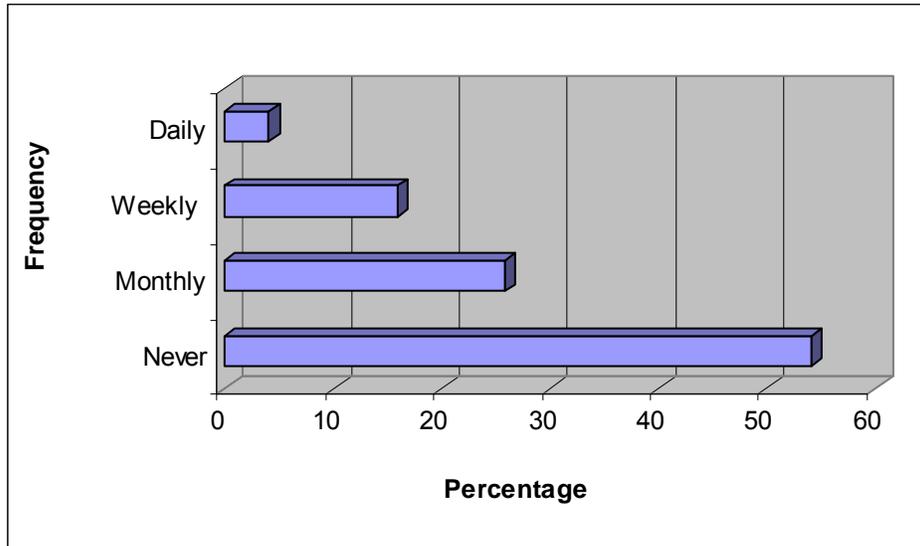


Figure 3 identifies that 46% use at least one tool regularly and 54% never use the tools. Of those who use the tools, 26% use one or more tools on a monthly basis followed by weekly use (16%) and daily (4%). The majority of respondents do not regularly use the tools for work purposes, and when they do use the tools, use is occasional rather than regular. As a result it is fair to conclude that senior leaders have not incorporated use of these tools into their regular work activities, and that cultural changes that support the use of the tools are still required.

The responses to this question add a dimension of complexity to the earlier finding that the majority of respondents (73%) use Web 2.0 and social media for work purposes. One reason for this discrepancy is that senior leaders appear to use only four of the ten tools on a regular basis. A key finding is that the majority of respondents use Web 2.0 and social media at work for a variety of professional purposes, but their use is limited to a handful of tools. Table 4, which confirms this finding, groups daily, weekly, several times per week and monthly use into the one category of work use.

Table 4: Work use of Web 2.0 and social media tools

Web 2.0 and Social Media	Work Use		Never		Total Responses	
	N	%	N	%	N	%
Webinars	61	86	10	14	71	100
Blogs	47	68	22	32	69	100
SharePoint	44	65	24	35	68	100
Wikis	38	60	25	40	63	100
OPSpedia	29	43	38	57	67	100
Google Docs	23	37	39	63	62	100
CTS (Plone)	16	25	49	75	65	100
Twitter	14	23	48	77	62	100
Other	5	20	20	80	25	100
Mashups	3	5	55	95	58	100
Total**	280	46	330	54	610	100

**Total represents multiple responses

Several respondents are using “banned” tools such as Facebook and YouTube to target specific audiences such as youth, which is consistent with the findings from the Internets/intranets environmental scan described earlier in this chapter.

Open source and/or proprietary tools, such as SharePoint, blogs, wikis, webinars and Google Docs received more responses than internally created tools such as OPSpedia and CTS (Plone), which staff use to create internal and external websites for the majority of the government’s ministries. The response from senior leaders with respect to the use of internal tools differed from responses from OPS policy staff to the PIL/OCCS survey. Policy analysts responding to the PIL/OCCS survey are more familiar with the internally created tools than are senior leaders.

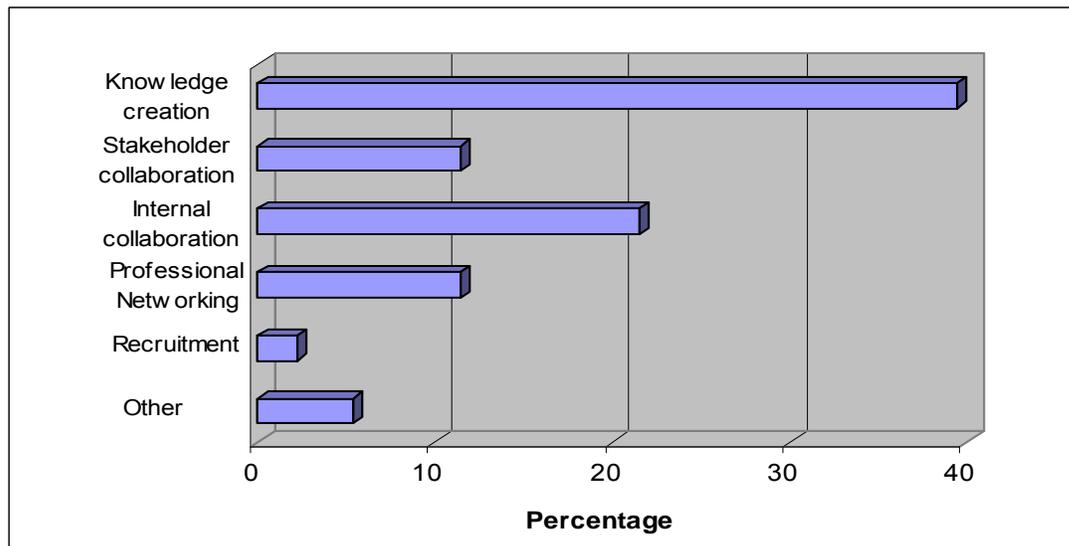
Senior leaders are uncertain about mashups as a collaborative tool. Yet, the open government movement that is being lead in the United States and the United Kingdom to release data sets and to use data analytics to generate value from government data will require a knowledge or familiarity of mashups or similar tools to support data analytics. “Data generated through social media interactions provide a previously untapped source of user feedback for

governments on everything from service quality to programmatic changes, often in real-time...but if unlocking public data is to have a truly transformative effect on how government works, data analytics will need to become a core competency across government” (Deloitte, 2010, p. 4-5).

Type of activity in work use of Web 2.0 and social media

An important distinction between Web 1.0 and Web 2.0 is in the nature of the tools and how they are being used. As discussed earlier, Web 1.0 assumes passive usage of technology to gather information, scan data, and pull information down or to push information out. It also requires a level of expertise or assistance from “webmasters.” Websites and Google are examples of Web 1.0. Alternatively, Web 2.0 is designed to facilitate online interaction involving several individuals. There is no need to have an intermediary to support the online activity. The survey asks respondents to identify how they use Web 2.0 and social media at work to attempt to identify if respondents are using Web 2.0 and social media in an interactive and collaborative way.

Figure 4: Type of activity in the use of Web 2.0 and social media at work



Without breaking out the answers on the basis of specific tools, the most popular work use is knowledge creation and aggregation. Figure 4 shows that responses to this category totaled 43%; almost double the number of responses

received in next highest category of use, internal collaboration (24%). The other three categories received far fewer responses: Stakeholder collaboration and professional networking tied at 13%, followed by other (6%) and recruitment (2%).

Table 5: Work use of Web 2.0 and social media tools

	Knowledge Creation/Aggregation		Stakeholder Collaboration		Internal Collaboration		Prof. Networking		Recruit.		Other		Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Blogs	27	36	10	14	14	19	13	18	3	4	7	9	74	100
Twitter	8	33	5	21	2	8	3	13	2	8	4	17	24	100
Wikis	28	55	4	8	9	18	5	10	1	2	4	8	51	100
Mashups	2	50	0	0	1	25	1	25	0	0	0	0	4	100
Google Docs	18	64	3	11	4	14	2	7	0	0	1	4	28	100
SharePoint	30	38	9	12	35	45	3	4	0	0	1	1	78	100
Webinars	42	49	12	14	14	16	10	12	1	1	6	7	85	100
OPSpedia	16	38	4	10	11	26	10	24	0	0	1	2	42	100
CTS (Plone)	9	39	4	17	9	39	1	4	0	0	0	0	23	100
Other	3	20	2	13	1	7	5	33	3	20	1	7	15	100
Total**	183	43	53	13	100	24	53	13	10	2	25	6	424	100

**Total represents multiple responses

Table 5 shows that knowledge creation and aggregation is the most popular Web 2.0 and social media activity. Since the survey did not include a definition for the five types of activities, it is difficult to determine from the responses if knowledge creation and aggregation means going online to search information on Google or posting policy papers or questions in an effort to generate dialogue and feedback. Comparing these survey results to those from the PIL/OCCS survey, building in feedback from the informants and looking at responses to activities that are less ambiguous about the nature of the activity (e.g. stakeholder collaboration and internal collaboration) will help paint a clearer picture on whether senior leaders are participating in knowledge creation and aggregation in a Web 2.0 or Web 1.0 manner.

The PIL/OCCS survey identified that policy staff are not using the tools in an interactive manner to engage with the public or with colleagues in the public service (Government Services, 2009). This finding is also reflected in the responses from senior leaders. Internal collaboration and stakeholder collaboration are not regular or popular uses of Web 2.0 and social media tools. Interactive knowledge creation and aggregation would involve a higher degree of

internal and external collaboration. Finally, the four informants confirmed in their interviews that they rarely, if ever, use Web 2.0 and social media tool to aggregate or create knowledge in an interactive way. Their interpretation of knowledge creation and aggregation is more in line with the Web 1.0 definition in which information is accessed or searched on the web.

The underutilization of these tools to engage interactively in a one to many or many to many manner is also supported by the fact that webinars received the highest number of responses for the purposes of knowledge creation and aggregation. Given the demand on their time, it is fair to conclude that senior leaders are passive viewers of webinars rather than interactive users of this tool.

Internal interaction is much higher than external interaction, which is consistent with technology adoption patterns in government. Respondents indicated a high degree of interaction using SharePoint to collaborate internally with colleagues. Stakeholder collaboration was a distant third with respondents identifying that webinars are their tool of choice followed by SharePoint for this particular purpose. This finding is consistent with the results from the PIL/OCCS survey in which internal collaboration tools (Plone and OPSpedia) received the highest number of responses.

Very few responses were received to using any of the tools for the purposes of recruitment. Informant interviews confirmed the limited value of Web 2.0 and social media for OPS recruitment. Zeroing in on the quality of candidates versus amassing resumes is a key focus in recruitment practices especially when the OPS regularly receives thousands of unsolicited resumes. Even though recruitment is targeted at young professionals and recent university graduates, tools such as Facebook, which are popular with that particular cohort, are ineffective at narrowing in on specific skills and qualifications. Web 2.0 and social media tools cast too wide a net to be useful for recruitment purposes.

Reasons for not using Web 2.0 and social media at work

Responses to this question help round out the picture of senior leaders' use of Web 2.0 and social media at work. While the first section analyzed use

level and type of use, including tools, this section attempts to paint the picture of senior leaders who aren't using Web 2.0 and social media at work for professional purposes – what this study calls non-work use to distinguish from general non-use of Web 2.0 and social media tools.

Although this question was directed at respondents who are not using Web 2.0 and social media tools at work, 65 respondents answered consisting of 29 respondents who don't use these tools at work and 36 who do. The 65 respondents provided 138 responses, which means respondents chose more than one reason for not using Web 2.0 and social media tools at work.

Table 6 shows that the primary reason cited for not using these tools is their unavailability (26%) followed by never received training (20%), don't have time (17%), don't see their value (15%), concerns about privacy and security (14.1%) and other (8%). The 11 responses to the other category included the following answers: outside OPS policy to use Web 2.0, no knowledge, don't see value in using them, and staff use them.

Table 6: Reasons for not using Web 2.0 and social media at work

Use at Work	Privacy and Security		No Time		No Value		No Training		Tools not available		Other		Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
No (N=29)	6	10	10	17	9	15	15	25	15	25	5	8	60	100
Yes (N=36)	13	17	14	18	11	14	13	17	21	27	6	7	78	100
Total**	19	14	24	17	20	15	28	20	36	26	11	8	138	100

**Total represents multiple responses

The most popular response to this question is that tools are not available. All the nine tools listed on the survey are available within the OPS and are currently used both externally and internally to support a variety of activities. None of the tools listed have been banned or require special permission for use. Hence the survey list of work tools differed from those for home use in that Facebook and YouTube, which require permission from assistant deputy ministers have been excluded.

More respondents using Web 2.0 and social media tools answered this question than those not using them. One interpretation is that some of the tools they would like to access are not currently available. This interpretation is consistent with the detailed comments respondents provided when they checked off “other” category: OPS has security blocks, staff have to get permission and many Web 2.0 and social media tools are not made available to public servants.

Lack of training, which received the second highest number of responses, suggests the need for better communication and for training in what, why and how to use these tools. Research on private sector use of Web 2.0 (Chui, Miller, Roberts, 2009) identifies that many executives have shied away or refrained from using these tools because of frustration or unfamiliarity.

Lack of time, which ranks third suggests senior leaders are more likely to have their staff use these tools than themselves. Time is a valuable commodity for this cohort of public servants. There appears to be an appreciation for the value of these tools or an implicit understanding that there is value to be gained from using these tools since only 15% of responses indicated a concern about the business value or use value of these tools. One respondent wrote that “tools have value, but not able to see for some of the tools what the value would be in the work environment, i.e., twitter.”

Respondents ranked concern for security and privacy lower than the other four reasons. Responses from both work and non-work users mirror responses for home use. In both home and work use, respondents who are currently not using tools listed privacy and security lower on their list of concerns than current users.

Likelihood of using Web 2.0 and social media in the next 6 to 12 months

Although this question was directed at respondents who don't use Web 2.0 and social media tools at work, 62 respondents answered this question consisting of 25 respondents who don't use these tools at work, 32 who do and

five respondents who didn't respond to question 13. The 62 respondents who answered this question provided a total of 514 responses.

Table 7, which breaks down the responses on the basis of likelihood of use reveals the majority of respondents either don't see themselves using the tools or don't know if they will be using them in the next 6 to 12 months.

An analysis of the responses on the basis of the tools listed on the survey identifies that respondents are more likely to use SharePoint, webinars and OPSpedia in the next 6 to 12 months, and least likely to use mashups, Twitter, blogs and CTS (Plone).

Table 7: Likelihood of using Web 2.0 and social media tools at work in the next 6 to 12 months

	Likely to increase use		Unlikely to increase use		Don't Know		Total	
	Use at Work Yes	Use at Work No	Use at Work Yes	Use at Work No	Use at Work Yes	Use at Work No	Use at Work Yes	Use at Work No
SharePoint	16	16	5	9	4	4	25	29
Webinars	18	22	3	8	1	6	22	36
OPSpedia	15	5	4	15	8	8	27	28
Wikis	9	6	10	15	5	8	24	29
Google Docs	12	3	12	13	6	13	30	29
CTS (Plone)	9	5	1	1	10	11	20	17
Blogs	9	5	15	16	5	7	29	28
Twitter	7	3	17	19	7	6	31	28
Mashups	4	2	17	16	9	11	30	29
Other	2	1	2	7	5	6	9	14
Total**	101	68	86	119	60	80	247	267

**Total represents multiple responses

There appears to be a difference between work users and non-work users in the type of tools they are more likely to use in the next 6 to 12 months.

Respondents using Web 2.0 and social media tools at work are more likely to use OPSpedia, CTS (Plone), Google Docs and mashups. Respondents who are not using Web 2.0 and social media tools and those who didn't respond to question 13, are more likely to use SharePoint and webinars.

Webinars received the lowest number of responses to the "don't know" category on the likelihood of using these tools in the next 6 to 12 months. This

finding confirms the popularity and familiarity of webinars with all respondents, and supports the findings from question 8 which ranked webinars in the top tier of familiar Web 2.0 and social media tools, and findings from question 14 in which webinars received the most responses with respect to use at work.

Informants’ comments on Web 2.0 and social media work use

Responses from the four informants on work use of Web 2.0 and social media in the OPS can be grouped into three themes: lack of resources and time, work use is superficial and need clarity on how to incorporate Web 2.0 and social media tools. The table below groups informants’ comments into the three themes listed above.

Table 8: Summary of informants’ comments on work use

	Lack of resources and time	Work use is superficial	Lack of clarity on how to align with work priorities
Informant 1 – line ministry	Sees opportunity for government to use the tools but lack of policy on use and time constraints limit opportunities to be proficient.	Has some familiarity but very little practical experience.	Doesn’t fully understand Web 2.0 and how it’s different from Web 1.0 but is using Facebook, OPSpedia and Plone.
Informant 2 – line ministry	Not encouraging staff to use the tools in the OPS – there are IT challenges to having staff access Facebook.	Has some familiarity with Web 2.0 and social media. Uses Twitter, OPSpedia and wikis.	Having more networks and having the tools acceptable as part of work function would be helpful.
Informant 3 – central ministry	Can’t take our ball off the traditional channels while paying attention to new channels. If we start using there’s an inherent cost tied to education,	Surfs and observes rather than collaborates.	Need to raise awareness about business benefits, alignment with corporate policy and appropriate use definition.

	awareness, security, threats, training and risk management.		
Informant 4 – central ministry	<p>Managing social media sites requires time and costs money.</p> <p>Seen as diverting resources away from priority areas and projects to maintain tools without demonstrating tangible benefits.</p>	<p>Definitely more surfers than users.</p> <p>There is certainly a shyness in responding to a senior leaders blog – also becomes an issue of how much does anybody want to share.</p>	<p>Some people are using Web 2.0 and social media tools the wrong way. There is little direction on how to optimize their use.</p> <p>Need to be disciplined about using OPSpedia and have people think about how to use it.</p>

Key findings on senior leaders’ work use of Web 2.0 and social media

The dependent variable helps paint a picture of the current state of senior leaders’ use of Web 2.0 and social media for work purposes. On the surface, the survey responses reveal the majority of senior leaders in Ontario’s public service use Web 2.0 and social media at work. However, the depth of knowledge is wide and shallow. Senior leaders have limited familiarity of all ten tools listed in the survey, which are available in the government of Ontario’s toolkit, but they are most familiar with only four of the tools. In addition, senior leaders, unlike their policy staff, are least familiar with tools that were created in-house and are used to support internal collaboration.

Their usage patterns, both in terms of frequency and type of use, support the finding that work use is limited – what Di Maio (2008) describes as “conservative adopters.” Senior leaders are using these tools on a monthly basis. Frequency of use indicates that the majority (56%) has not incorporated these tools into daily activities. In addition, senior leaders, when they use these tools, are using them in a Web 1.0 rather than a 2.0 manner. Knowledge creation and aggregation tops the list of activities. Triangulating the survey

responses with the PIL/OCCS survey findings and the informant interviews, confirms that knowledge creation and aggregation, regardless of the tool used, is more about pulling information off the web than using the web to collaborate with others or to aggregate information. Two of the informants confirmed that they and their staff are readers or observers rather than active participants. One of the informants discussed how he doesn't have a comfort level with using these tools and is more likely to self-censor.

Respondents identified that the main reason for not using the tools is their unavailability. A number of respondents not using the tools at work referred to the government's official policy banning Facebook and YouTube. Yet, the reality is that government has not banned all Web 2.0 and social media tools, and that staff and politicians are using Facebook and YouTube despite the ban. Senior leaders who don't use the tools at work are either confused because of the government's mixed messages on using Web 2.0 and social media tools or perception is reality and thus their behaviour is modeled accordingly. This finding is supported by feedback from two of the four informants. One informant identified that many tools available on the Internet, what the industry calls the "cloud" or cyberspace, are locked out to the OPS network. Another informant responded that there hasn't been enough internal promotion of these tools and that marketing needs to happen.

In addition, the majority of senior leaders are unlikely to begin using existing or new tools. Those who are already using Web 2.0 and social media tools don't expect to begin using new tools in the next 6 to 12 months. And those not currently using Web 2.0 and social media for work purposes are unlikely to begin.

Cultural theory and institutionalism help explain to some degree the survey findings that senior leaders are not actively using Web 2.0 and social media in the workplace and why the majority are unlikely to begin using these tools in the next 6 to 12 months. The government's policy blocking Facebook and YouTube has created the perception that all Web 2.0 and social media tools are unavailable to staff. The culture and structure of bureaucracies require staff to

adhere to government decisions and policies. The historical stream of institutionalism would attribute this behaviour to path dependency, and normative institutionalists would look at the values, myths and rituals with a key myth being that Web 2.0 and social media is not available to staff. Rational choice institutionalists would argue that the ban is the rule that guides staff behaviour and that there are no incentives in place to encourage behavioural change.

On the other hand, leadership theory and demographics may help explain why the majority of senior leaders are using, in some capacity, Web 2.0 and social media tools. Senior leaders in ministries communicating or targeting a younger demographic are more likely to risk-manage the use of these tools to achieve government priorities. The Net Generation is not prepared to use government's traditional channels of communication and engagement. All four informants identified a key driver for using these tools is engagement with young professionals and outreach to youth. One informant commented on internal pressure to unblock websites to attract a new demographic who doesn't want to work in a place where the Internet is censored.

Contingency approach leadership theory speaks to the need of leaders to be "aware of situations and use them as the primary determinant in their decision-making" (Rowley et al., 2010, p. 84). Senior leaders who aren't using Web 2.0 and social media either don't feel the pressure from stakeholders, peers or politicians to use them and/or do not have the confidence to use the tools in an "unofficial" capacity. Thus it appears in the OPS there is an official and an unofficial position on Web 2.0 and social media. Regardless, the OPS needs to do a better job communicating with senior leaders the availability of the tools to support engagement with internal and external audiences.

Analyzing the independent variable: Senior leaders' familiarity with Web 2.0 and social media

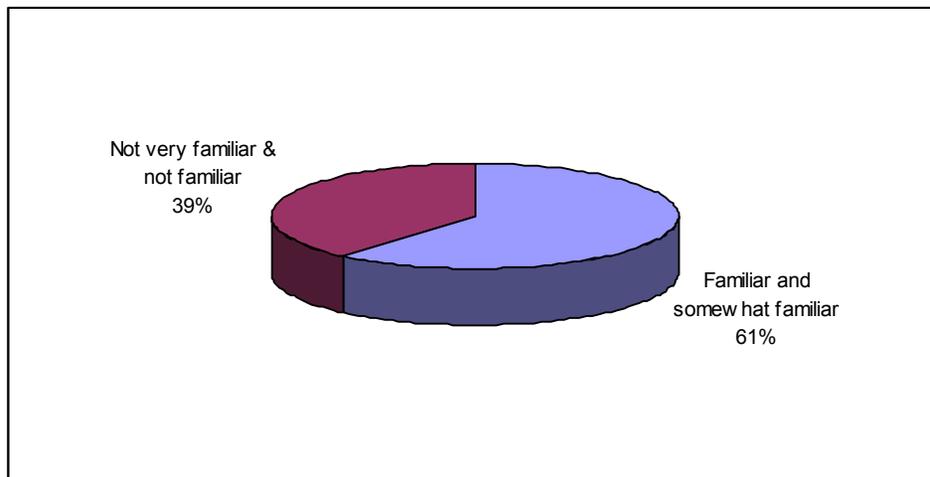
The hypothesis posits that familiarity with Web 2.0 and social media has a direct influence on senior leaders' use of these tools at work. The literature links regular use of these tools with successful uptake and calls for cultural and

organizational changes required to integrate Web 2.0 and social media into the government's policy, communications and technological toolkits.

Findings from the following section should help build an understanding of what influence, if any, familiarity has on senior leaders using Web 2.0 and social media at work, and will determine to what degree, if any, home use for personal reasons supports the study's hypothesis that links familiarity with work use. In the last section, the examination of the dependent variable revealed the current state of work use. This section will examine to what degree, if any, the independent variable helps explain senior leaders' Web 2.0 and social media work practices and patterns.

Measuring familiarity with Web 2.0 and social media tools

Figure 5: Level of familiarity



In response to the question about familiarity with Web 2.0 and social media tools, 114 respondents answered this question (three did not respond). Figure 5 shows that the majority of the respondents (61%) are familiar with Web 2.0 and social media tools.

Most respondents are familiar with four of the 11 tools: YouTube, Facebook, blogs and webinars. Tools with the lowest levels of familiarity are mashups and two of the government of Ontario's Web 2.0 tools used to support internal collaboration, Plone and OPSpedia. This is consistent with the findings on work use of Web 2.0 and social media from the PIL/OCCS survey. Senior

leaders are familiar with a handful of tools and least familiar with internal tools (Plone and OPSpedia).

Despite the government's ban on Facebook and YouTube, most respondents indicated a high level of familiarity with these two tools. This finding appears to confirm the responses received from work and non-work users that the unavailability of tools is an important reason for not using Web 2.0 and social media at work. The familiarity senior leaders have using Facebook and YouTube for personal reasons cannot be transferred to the workplace to support professional use of these tools.

Responses to the question of familiarity confirm some of the key findings on work use, but do not fully explain senior leaders' current adoption patterns of Web 2.0 and social media for work purposes. The following sections will look at home use patterns in greater detail.

Home use of Web 2.0 and social media

The methodology links the concept of familiarity to home use for personal purposes and use of the tools at home by exploring: how frequently respondents use the tools; whether their use is passive (Web 1.0) or interactive (Web 2.0); and the type of tools they use. The following sections will look at responses on home use, as a key aspect of familiarity, to better understand how familiarity influences senior leaders to use Web 2.0 and social media at work.

Figure 6: Use of Web 2.0 and social media at home

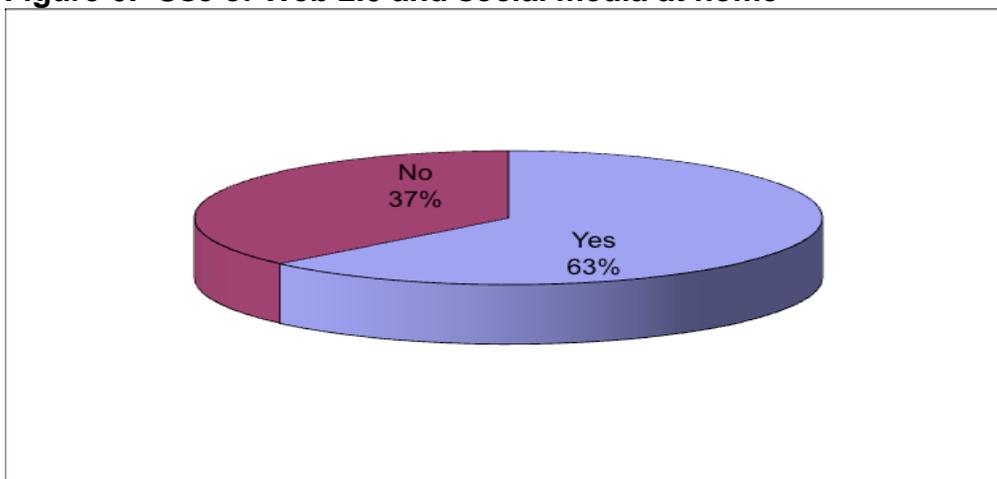
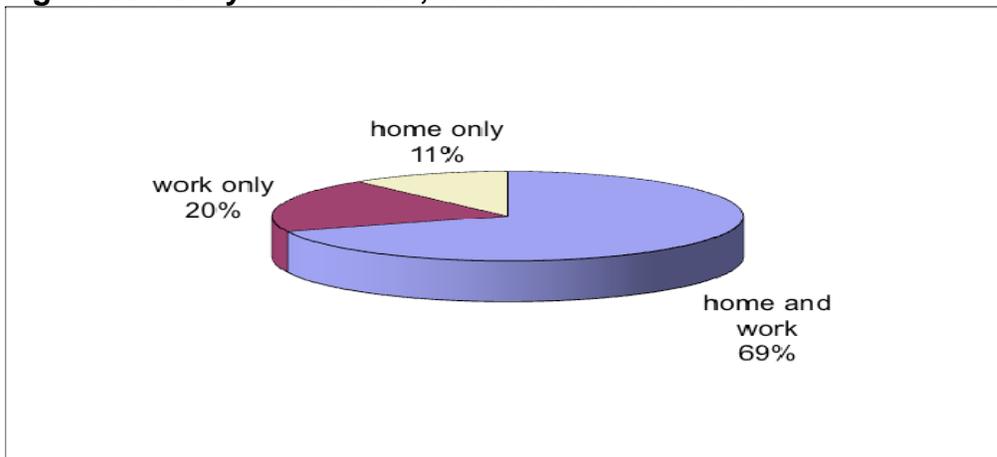


Figure 6 illustrates that of the 116 respondents who answered this question, 63% identified that they use Web 2.0 at home and 37% answered in the negative. Home use responses align closely with responses received to the question of familiarity (63% indicate they use Web 2.0 and social media at home and 61% indicate they are familiar with the tools listed in the survey), which confirms that personal use is a useful indicator with which to measure the concept of familiarity.

Comparing home use to work use of Web 2.0 and social media

Figure 7 identifies that 78% of respondents use Web 2.0 and social media tools either at home, at work or in both places: 11% use the tools solely for home purposes and 69% use the tools for both home and work purposes. However, the data also reveals that 20% of respondents use the tools only at work.

Figure 7: Analysis of home, work and home/work use



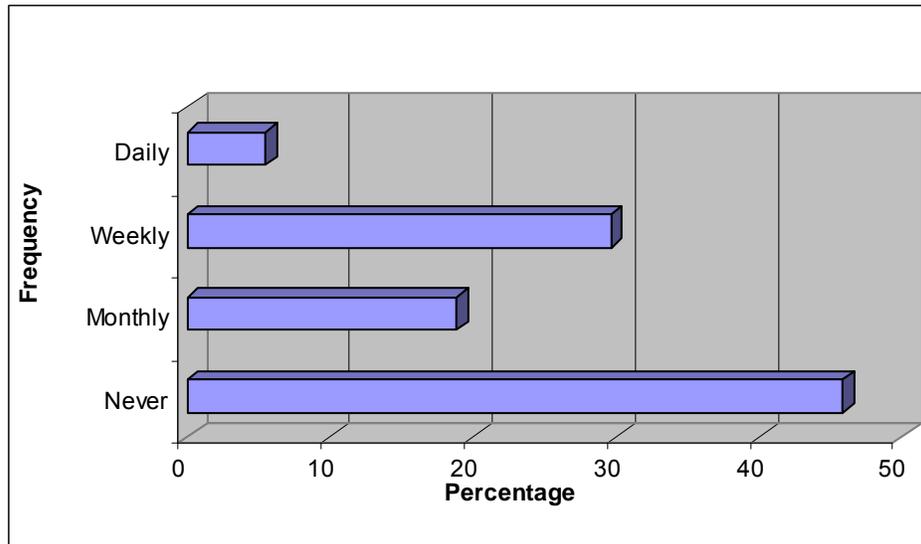
The data shows a great deal of overlap between home and work users. As a result it is fair to state that home use is a strong indicator of work use. But it does not explain the 20% of senior leaders who use Web 2.0 and social media at work but not at home resulting in more senior leaders using Web 2.0 and social media for work purposes than home purposes. The section on intervening and

antecedent variables will explore to what degree other variables influence work use.

Frequency of home use of Web 2.0 and social media

The frequency of home use will be examined and compared to the frequency of work use to determine patterns of use or to explain to what degree, if any, home use influences work use.

Figure 8: Frequency of home use



Of the responses received to this question, 54% indicated regular use of at least one tool and 46% never use the tools. The most frequent home use of Web 2.0 and social media is weekly, followed by monthly and daily use.

If measured on the basis of frequency of use, responses differ from those to the question of home use of these tools, which showed that a greater number of respondents (63%) use Web 2.0 and social media at home. As discussed above, there are two reasons for the discrepancy between these two numbers. First, the question probing levels of frequency asked about specific tools. The question probing home use asked respondents to answer either yes or no to the question. Second, because the responses to frequency are tool-specific, the responses are almost equally divided between frequently used tools and those tools that are rarely, if ever used.

Table 9: Home use of Web 2.0 and social media tools

Web 2.0 and Social Media	Home Use		Never		Total Responses	
	N	%	N	%	N	%
YouTube	64	94	4	6	68	100
Facebook	54	77	16	23	70	100
Wikis	46	70	20	30	66	100
Blogs	44	65	23	35	67	100
Google Docs	25	37	42	63	67	100
Twitter	19	28	47	72	66	100
Mashups	9	13	59	87	68	100
Other	5	25	15	75	20	100
Total**	266	54	226	46	492	100

**Total represents multiple responses

Table 9, which groups daily, weekly, several times per week into one category of home use, identifies that YouTube is the most popular tool in home tool and Facebook is a close second. The least popular Web 2.0 and social media tools for home use are mashups, Twitter and Google Docs. Respondents identified using a number of other tools not listed in the survey including LinkedIn, Google Reader, Flickr, iphone applications, Windows Live, Reverbation, Plaxo and MySpace.

These findings are consistent with the responses to the question of familiarity, which identified that YouTube, Facebook and blogs are the most recognizable Web 2.0 and social media tools, and mashups the least familiar.

Figure 9: Comparing frequency of home and work use

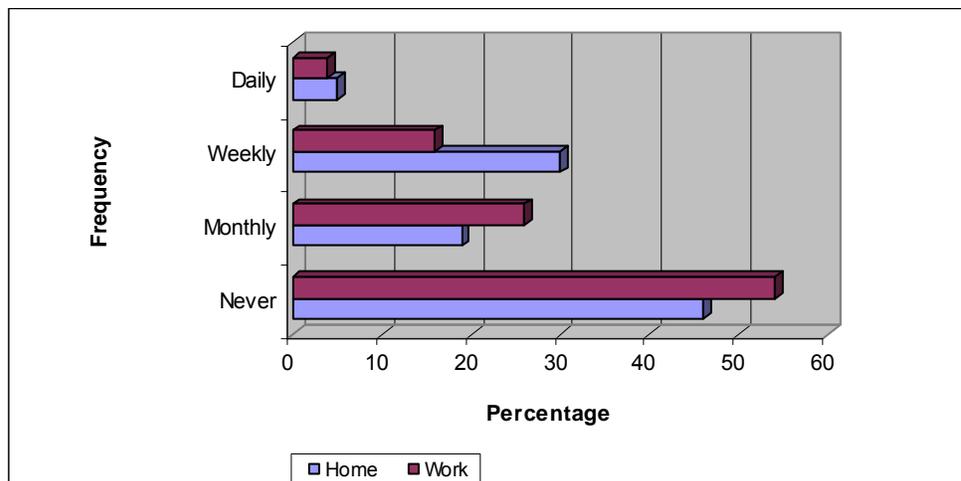
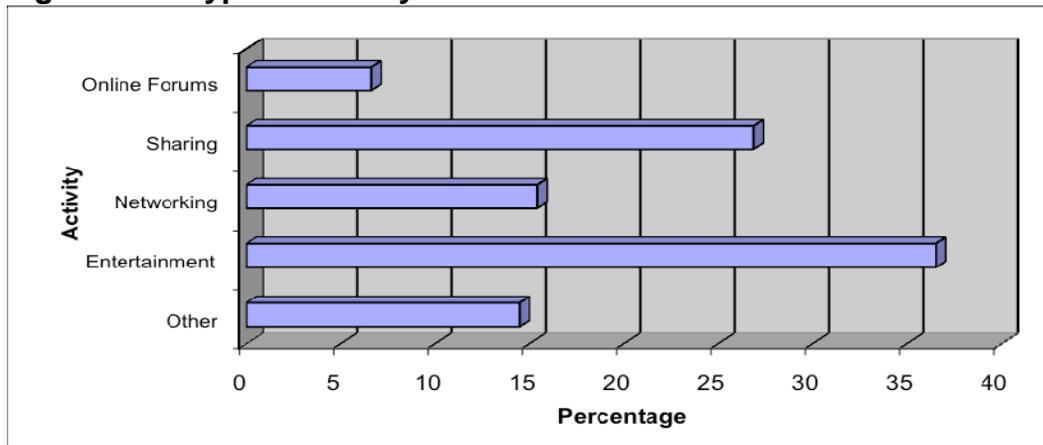


Figure 9, which compares the frequency of home and work use of Web 2.0 and social media, points to more home use frequency in general, and specifically in daily and weekly use. Despite the literature attributing frequency of use to successful adoption, it is difficult to determine from the data the degree to which frequency in home use influences work use. The next sections, which examine type of activity in home use and tools, will attempt to paint a fuller picture of home use and its influence on work use.

Type of activity in home use of Web 2.0 and social media

How and why a senior leader uses Web 2.0 and social media at home for personal purposes helps define the concept of familiarity for the purposes of this study. Question 11 asks respondents to identify what they use Web 2.0 and social media tools to do.

Figure 10 : Type of activity in home use



Without breaking out the answers on the basis of specific tools, Figure 10 identifies the most popular home use of Web 2.0 and social media tools is entertainment, followed by sharing with friends and family, personal networking, “other” and contributing to online forums.

Responses received to “other” uses include research purposes, business purposes, gather information and assist with volunteer commitments. Respondents identified “other” uses as location finder, sharing artistic works,

professional networking through LinkedIn, learning, travel planning and working between Microsoft and Apple operating systems.

Table 10: Home use of Web 2.0 and social media tools

	Contribute to Online Forums		Sharing with family and friends		Personal Networking		Entertainment		Other		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Blogs	11	17	17	27	7	11	22	34	7	11	64	100
Twitter	2	7	6	21	8	29	7	25	5	18	28	100
Wikis	3	8	3	8	5	14	14	38	12	32	37	100
Facebook	2	3	41	51	22	28	11	14	4	5	80	100
YouTube	2	2	15	18	5	6	54	66	6	7	82	100
Mashups	0	0	1	14	0	0	4	57	2	29	7	100
Google Docs	2	9	6	26	2	9	4	17	9	39	23	100
Other	0	0	0	0	2	33	1	17	3	50	6	100
Total**	22	7	89	27	51	16	117	36	48	15	327	100

**Total represents multiple responses

The responses, as presented in Table 10, identify a sound level of knowledge of the specialization of each of these tools. As discussed earlier in this report, Web 2.0 and social media tools are used for specific purposes although there are common uses among several of the tools.

There appears to be less uncertainty among respondents on how to use Google Docs and mashups. This could explain why the responses to these tools are lower than the number of respondents who identified using these tools.

The question about contributing to an online forum attempts to determine whether the respondent is a passive or interactive user of the tools, e.g., viewing, reading, etc. or writing and posting pictures or commentary. All of the seven tools listed on the question measuring home use can be used passively or interactively. The low level of responses to using the tools to contribute to online forum (6.7%) suggests that the vast majority of home use is passive. Home users of Web 2.0 and social media tools are more likely to use the tools to read, watch or obtain information rather than to actively contribute or collaborate

online. This finding is consistent with how senior leaders use Web 2.0 and social media for work purposes.

Facebook use, however, does require a certain degree of active participation as evidenced by responses, which identified using this tool for sharing with family and friends and networking. This tool and respondents' use of it suggest Facebook provides a more comfortable and contained means of using Web 2.0 and social media to actively engage with others online.

Comparing home and work activities

It is difficult to directly compare home and work activities using Web 2.0 and social media tools since the survey distinguished between home and work uses and tools. For the purposes of this analysis, interactive activities for which respondents use blogs, wikis, Twitter and mashups will be compared. These four tools, which can be used passively and interactively, will help to determine if an overlap exists between home and work use by activity type. In addition, interactive home activities will be cross-tabulated with interactive work activities. For the purposes of this comparison, home activities that are predominantly interactive are: contributing to online forums, sharing with family and friends and personal networking. Work activities to be examined are: stakeholder collaboration, internal collaboration and professional networking.

Figure 11: Comparing interactive home and work use

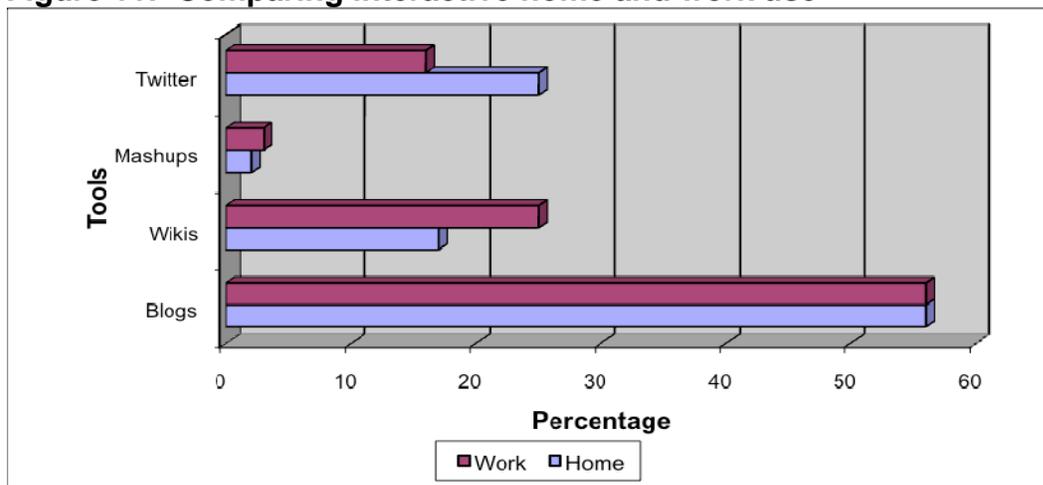


Figure 11 indicates a strong correlation between interactive use of blogs at home and at work. The relationship is not as strong with Twitter, mashups, and wikis. This finding suggests that a senior leader who blogs in an interactive manner is more likely to blog at work. What this doesn't answer is whether home use influences work use, or the other way around.

Comparing tools in home use and work use

YouTube is the most popular home tool and webinars the most popular work tool. By controlling for home and work use and each of the home tools listed down the right side of the Table 11, the analysis identifies a very high correlation with work use of webinars. Of the home and work users, 75% who use YouTube and Facebook use webinars at work, 77% of bloggers use webinars at work and 71% of wiki users use webinars at work. In addition to webinars being a strong indicator of other types of work use tools, it is also a strong indicator of home use.

Table 11: Analysis comparing home and work use of Web 2.0 and social media

Home Use	Blogs		Twitter		Wikis		Mashups		Google Docs		SharePoint		Webinars		Other*		Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
YouTube (56 home and work users)	32	16	8	4	28	14	2	1	17	9	34	17	42	21	34	17	197	100
Facebook (44 home and work users)	28	17	10	6	24	14	3	2	16	9	29	17	33	20	26	15	169	100
Blogs (36 home and users)	24	18	8	6	22	16	1	1	13	9	23	17	28	20	18	13	137	100
Wikis (38 home and work users)	22	16	7	5	27	20	2	1	12	9	21	15	27	20	18	13	136	100
Total**	106	17	33	5	101	16	8	1	58	9	107	17	130	20	96	15	639	100

*Other includes OPSpedia (21), Plone (10) and Other (3) **Total represents multiple responses

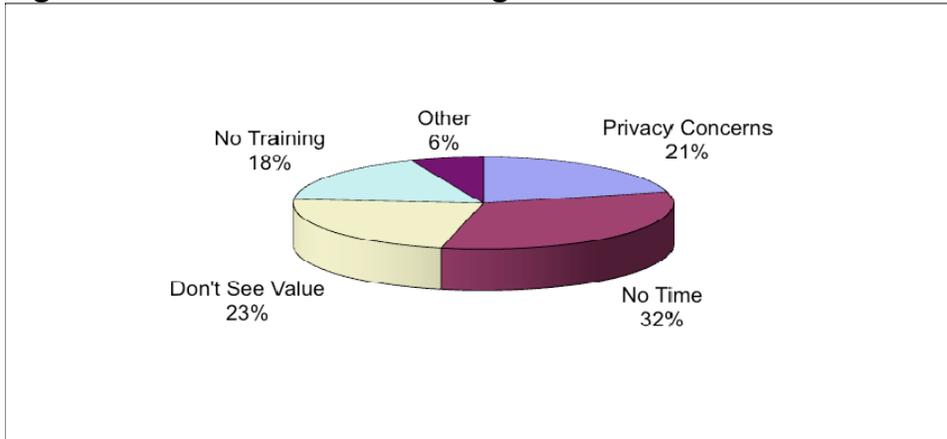
Senior leaders who use YouTube at home are more likely to use SharePoint, blogs and wikis at work. Although Facebook and blogs ranked

second and third in home use respectively, they don't have the same indicator strength as YouTube.

Reasons for not using Web 2.0 and social media at home

Although this question was directed at the respondents who are not using Web 2.0 and social media at home, both home users and non-home users responded to this question. The 59 respondents who answered this question provided more than one reason for not using Web 2.0 and social media tools at home for a total of 114 responses. Of the 59 respondents who answered this question, 69% don't use tools at home and 31% do.

Figure 12: Reasons for not using tools at home



Respondents identified “lack of time” as the primary reason (32%) followed by “don't see the value” (23%), privacy concerns (21%), no training (18%) and other (6%).

The seven responses to the other category include the following answers: never considered it, my government computer doesn't allow access, doesn't go online at home, no need, no computer access or broadband access at home and doesn't know what Web 2.0 and social media is. Table 12 analyzes the responses on the basis of reasons for not using Web 2.0 and social media tools and also distinguishes between those who use the tools at home and those who don't.

Table 12: Analysis of reasons for not using Web 2.0 and social media tools at home

Home Use	Privacy and Security		No Time		No Value		No Training		Other		Total**	
	N	%	N	%	N	%	N	%	N	%	N	%
No (N=41)	14	19	24	33	18	25	15	21	2	3	73	100
Yes (N=18)	10	24	13	32	8	20	5	12	5	12	41	100
Total**	24	21	37	32	26	23	20	18	7	6	114	100

**Total represents multiple responses

It is not surprising that lack of time is the most popular response to the question of home use given that this survey was directed at senior leaders. Web 2.0 and social media tools require a certain level of time commitment to maintain and update information and data. Given that “don’t see the value of the tools” is the next highest response, it is worth exploring whether there is a correlation between these two responses.

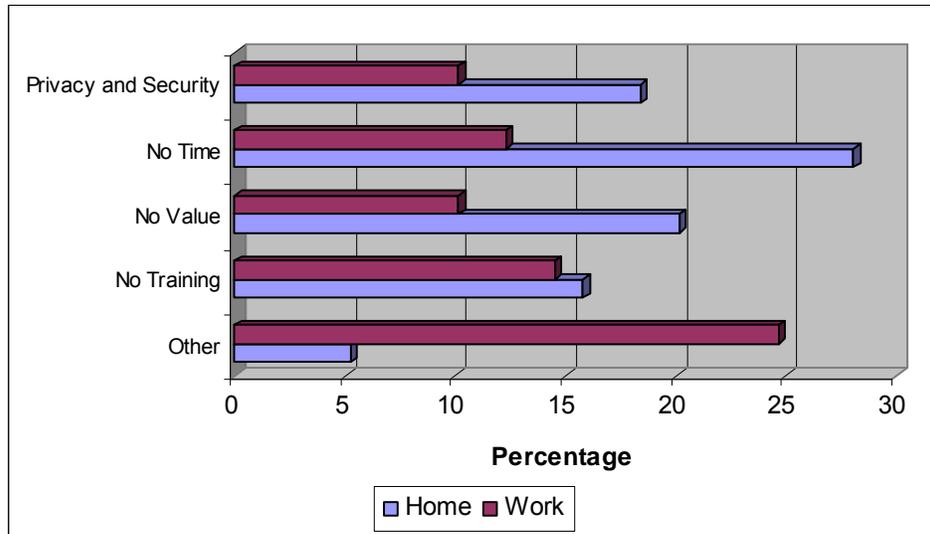
There is a slight difference in responses to this question from the two cohorts of respondents. Both identified lack of time as the main reason for not using Web 2.0 and social media tools, but there are differences in their secondary responses.

Respondents not using Web 2.0 and social media tools at home ranked “don’t see the value of the tools” higher than privacy and security concerns. Whereas respondents who are already using Web 2.0 tools ranked privacy and security concerns higher than “don’t see the value of the tools.” One explanation for the difference between these two groups is that respondents who are already using the tools have a better idea of how these tools create value but may have more concerns about privacy and security issues. Or perhaps because they are using these tools, they’ve experienced first hand security and privacy breaches or are more aware of the potential for such breaches especially if they have children who are using the tools at home.

Comparing reasons for not using the tools at home with not using them at work

This section attempts to determine if there is an overlap in reasons for not using the tools at home and/or at work. The intent is to identify if a reluctance to use the tools at home influences attitudes in using the tools at work.

Figure 13: Comparing Reasons for not using tools at work and home



A key finding is there appears to be little overlap in the reasons senior leaders don't use the tools at home or at work. Figure 13 indicates very distinct reasons between senior leaders who don't use the tools at home and those who don't use the tools at work. The "unavailability of tools" garnered the most responses as the reason senior leaders are not using Web 2.0 and social media tools at work. By comparison, "privacy and security concerns" and "not understanding the value of the tools" received the most responses from those using the tools at home for personal reasons.

Concerns about security and privacy are less of an issue in the workplace. The "unavailability of the tools," which is the key issue for senior leaders not using the tools at work for professional reasons, underscores the institutional culture that perpetuates the myth these tools are generally not allowed. Similarly, "lack of time" is not as compelling a reason for senior leaders who

replied to the work use question on the survey compared to those who replied to the home use question.

Key findings on familiarity as a key indicator of senior leaders' use of Web 2.0 and social media at work

This section summarizes the key findings from the analysis of familiarity, which this study has defined as use of the tools at home for personal reasons, to determine if it provides insight into senior leaders' use of Web 2.0 and social media at work. The data indicates there is a strong but imperfect relationship between home and work use. Despite the large overlap between senior leaders who use Web 2.0 and social media both at home and at work, it does not explain the 20% of senior leaders who only use Web 2.0 and social media at work.

The findings on familiarity have value establishing a baseline on senior leaders' use of Web 2.0 and social media at work. In many respects, home use of Web 2.0 and social media mirrors work use patterns. Frequency of home use, albeit slightly higher than work use, suggests that senior leaders have not incorporated Web 2.0 and social media into their daily activities. One reason identified is lack of time, which is a valid reason considering the demands of holding executive positions in the OPS. Tapscott (2008) describes how the Net Generation live and breathe Web 2.0 and social media every day. The data suggests senior leaders are using Web 2.0 and social media, at home and work, as optional rather than as essential tools.

Similar to work use patterns, senior leaders are predominantly using Web 2.0 and social media tools at home in passive (Web 1.0) rather than in an interactive (Web 2.0) manner. Entertainment is the most popular home activity. Home use activities did indicate a greater degree of interaction sharing with family and friends via Facebook or YouTube, which speaks to a level of comfort with the tools and the audience. Unlike interacting with stakeholders or colleagues, engaging with friends and family is perceived as relatively low-risk. Yet any distinction that individuals may make between personal and professional identities in a digital world is irrelevant. McDonald Dryburgh (2010) argues in her

dissertation that in a digital world professional and personal identities are seamless. "People are able to share vast amounts of information via the Internet using personal computers, cell phones, and laptops. Unfortunately, people often do not stop to consider how the indiscriminate posts they place on the Internet during their off-work hours can have drastic effects on their professional lives" (Ibid, p. 2).

Finally, Facebook and YouTube, which are the most popular home use Web 2.0 and social media tools, are blocked in government offices. The skills, knowledge and confidence senior leaders have with these tools cannot be transferred to the workplace.

Analysis of antecedent and intervening variables on work use

The analysis in this section of the report will compare and contrast responses received from senior leaders to question 13 regarding their use of Web 2.0 and social media at work. By controlling the work use responses, the responses to several survey questions are analyzed to understand if any of these variables help explain senior leaders' use of Web 2.0 and social media at work.

The antecedent variables through which work use will be examined are age and generational profile as defined by year of birth, year appointed to the OPS, gender, and education. These variables, which are important demographic and cultural identifiers, will help fill in the picture of senior leaders' use of Web 2.0 and social media in the OPS. The literature review on the use of Web 2.0 and social media identifies a younger generation that has effortlessly absorbed technology, and lives and breathes it everyday. Tapscott (2008) describes how "Net Gen kids growing up looked at computers in the same way boomers look at TV. Boomers don't marvel at the technology or wonder how television transfers video and audio through thin air, we simply watch the screen... So it has been with Net Geners and computers... young people just breathe it in, like improvements in the atmosphere" (p. 19).

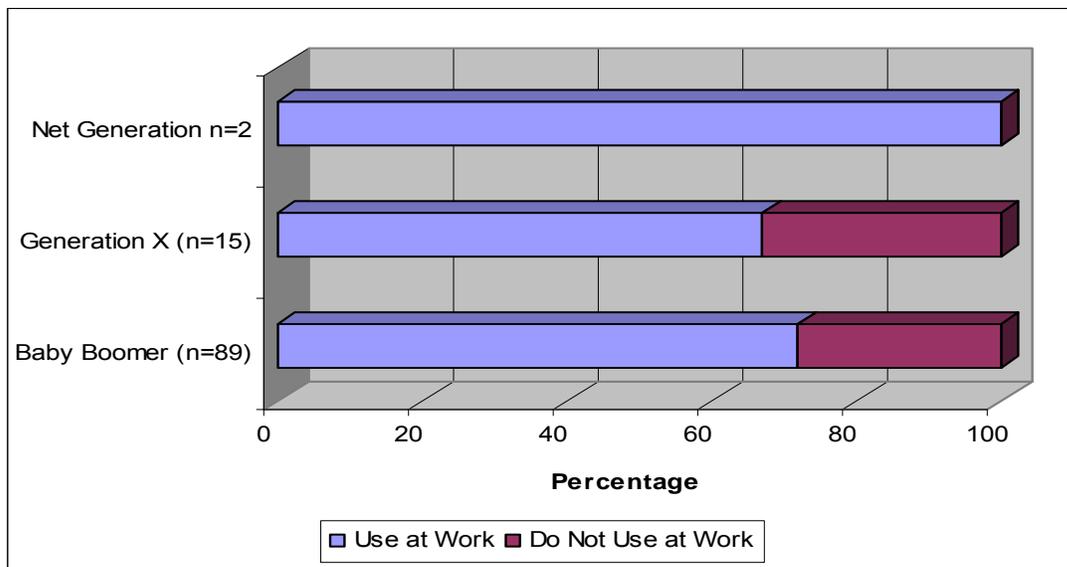
The intervening variables through which work use will be examined are rank, length of service, key area of responsibility, geographical location of the

office, organization type (eg., line ministry, central agency, etc.), and whether the area in the OPS for which the senior leader works provides direct services to the public. An examination of these variables will help identify how leadership, cultural and institutional issues influence senior leaders' use of Web 2.0 and social media at work. It will highlight to what degree senior leaders have effected changes in Ontario's public service institutional culture to accommodate the "openness, transparency, and collaborative approach" Web 2.0 and social media require.

Year of birth and generational profile

When analyzed on the basis of year of birth, Figure 14 shows that the majority of respondents fall into two categories: Baby Boomers born between 1946 and 1964 and Generation X born between 1965 and 1976 (Tapscott, 2008, p. 12).

Figure 14: Work use analysis of Web 2.0 and social media on the basis of age



Although the number is very small for the younger cohort of senior leaders, which Tapscott (2008) calls the Net Generation, the two respondents who fall into this category use Web 2.0 at work. Figure 14 reveals there is no significant difference between the older two cohorts in their use of Web 2.0 and

social media at work. The current leadership in the OPS reflects an ageing bureaucracy, which is common to many western democratic nations (Evans et al., 2006; Tapscott, 2008; Hardy and Artiuch, 2008). Since the vast majority of senior leaders fall into the Baby Boomer or the Generation X cohort, age or generational profile does not influence senior leaders' use of Web 2.0 and social media at work.

Gender

The Canadian Internet Use Surveys (2005, 2007 and 2010) identify that men and women are using the Internet at similar levels. In 2005, 68% of men were using the Internet compared to 67.8% of women. In 2007, the percentage of users rose for both groups as 74.1% of men were using the Internet compared to 72.3% of women. By 2009, 81% of men were using the Internet compared to 79.7% of women.

Figure 15: Work use analysis on the basis of gender

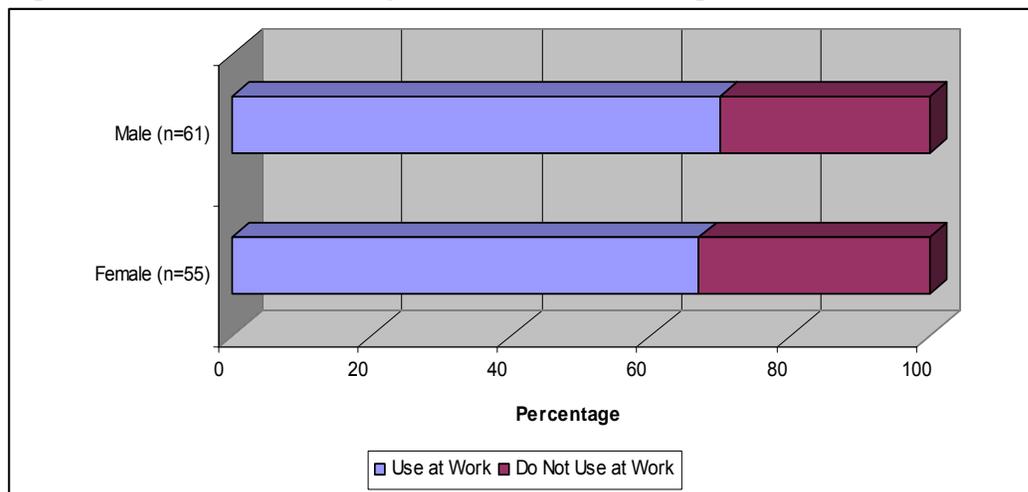


Figure 15 identifies that of the 116 respondents who answered this question, 53% are male and 47% are female. The survey population of 1,384 consists of approximately 615 females or 44% and 769 or 56% males, as determined by assessing first names after culling the survey population. More female senior leaders responded to the survey than exists in the survey population. However, the findings reveal that there is no difference in work use

levels between male and female senior leaders, which is consistent with Statistics Canada's findings.

Analysis of gender, tool and activity

The literature identifies that men and women use the Internet differently. Statistics Canada's 2005 survey results identified that men are online longer and more often than women, and use the Internet differently than women. Women focused more on using the Internet to research lifestyle information or information related to health and medical issues. Men, meanwhile, use the Internet for more interactive purposes including downloading government forms and filing income taxes. The 2009 Canadian Internet Use Survey concludes that patterns of use for men and women stayed relatively similar to those identified in the 2005 and 2007 surveys. Therefore it may be interesting to examine if males and females in the government of Ontario adhere to the Canadian Internet Use Survey patterns.

Table 13: Analysis of responses on the basis of gender, tool and activity

	Knowledge Creation/Aggregation		Stakeholder Collaboration		Internal Collaboration		Prof. Networking		Recruit.		Other		Total**	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Blogs	12	18	6	5	6	9	7	7	1	2	4	4	36	45
Twitter	6	3	5	1	1	1	2	2	1	1	4	1	19	9
Wikis	13	19	3	1	4	5	3	2	1	0	1	3	25	30
Mashups	1	1	0	0	1	0	0	1	0	0	1	0	3	2
Google Docs	10	8	0	3	1	3	0	1	0	0	2	0	13	15
SharePoint	18	15	6	4	21	17	2	1	1	0	0	1	48	38
Webinars	22	24	8	5	8	7	4	6	1	0	3	3	46	45
OPSpedia	6	13	1	3	5	6	6	4	0	0	0	1	18	27
CTS (Plone)	6	5	1	4	4	6	1	0	0	0	0	0	12	15
Other	1	2	1	1	0	1	1	4	1	2	1	0	5	10
Total**	95	108	31	27	51	55	26	28	6	5	16	13	225	236

**Total represents multiple responses

The responses in Table 13 identify differences in how male and female senior leaders use Web 2.0 and social media at work. Female respondents are more likely to use Twitter, mashups and SharePoint. Whereas, male respondents are more likely to use blogs, wikis, OPSpedia, Google Docs, CTS (Plone) and other tools such as LinkedIn, RSS feeds and customized

collaboration tools. Both male and female respondents use webinars in equal numbers.

Figure 16: Comparing male and female Web 2.0 and social media activities

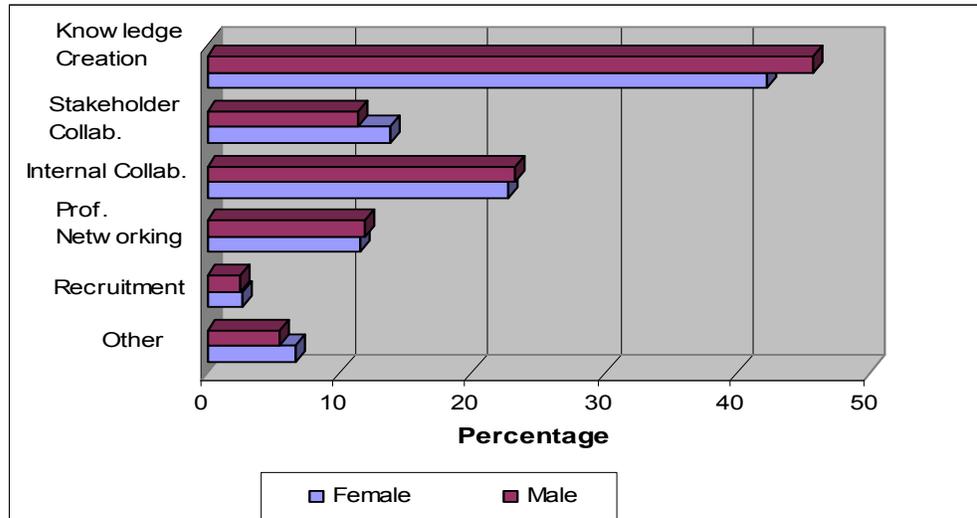


Figure 16 shows that female respondents are more likely to use the tools for stakeholder collaboration, and other purposes such as training. Male respondents are more likely to use the tools for knowledge creation and aggregation, internal collaboration and professional networking. There is no discernable difference in how male and female respondents use the tools for recruitment.

Education level

Just as education is an indicator of Internet use for the general population (Statistics Canada, 2007, 2008 and 2010), it is an indicator of senior leaders' use of Web 2.0 and social media for work purposes. In general, both work users and work non-users have an education profile that is consistent with senior leaders in the public service or public service elite (Evans et al., 2006).

Of the 115 respondents who answered this question, 88% have completed an undergraduate degree. Of these respondents, 61% have a post-graduate education either by completing graduate school (40%) or obtaining a professional degree (21%). Graduate degrees include doctoral degrees (five respondents), engineering certification (two respondents), law degrees (six respondents),

science (four respondents), arts (13 respondents), business administration (four respondents), public administration (five respondents) and social work (two respondents). Responses to this question point to two key findings:

1. Senior leaders in the government of Ontario's public service and its agencies, boards and commissions are very well educated compared to Ontario's general population; and
2. The vast majority of respondents have graduate degrees in areas other than engineering and computer science, areas of study typically associated with information communications technology. Only four respondents identified computer science or information technology as their major area of study.

By comparison, Statistics Canada's 2006 Census identifies that 26% of the adult population in Ontario have a university degree. This finding that the vast majority of senior leaders have a post-graduate degree is consistent with Evans et al.'s (2006) report on public service elites, which concludes that "PSEs are very highly educated and accredited, compared to the general population" (p. 622).

Figure 17: Analysis of level of education and work use

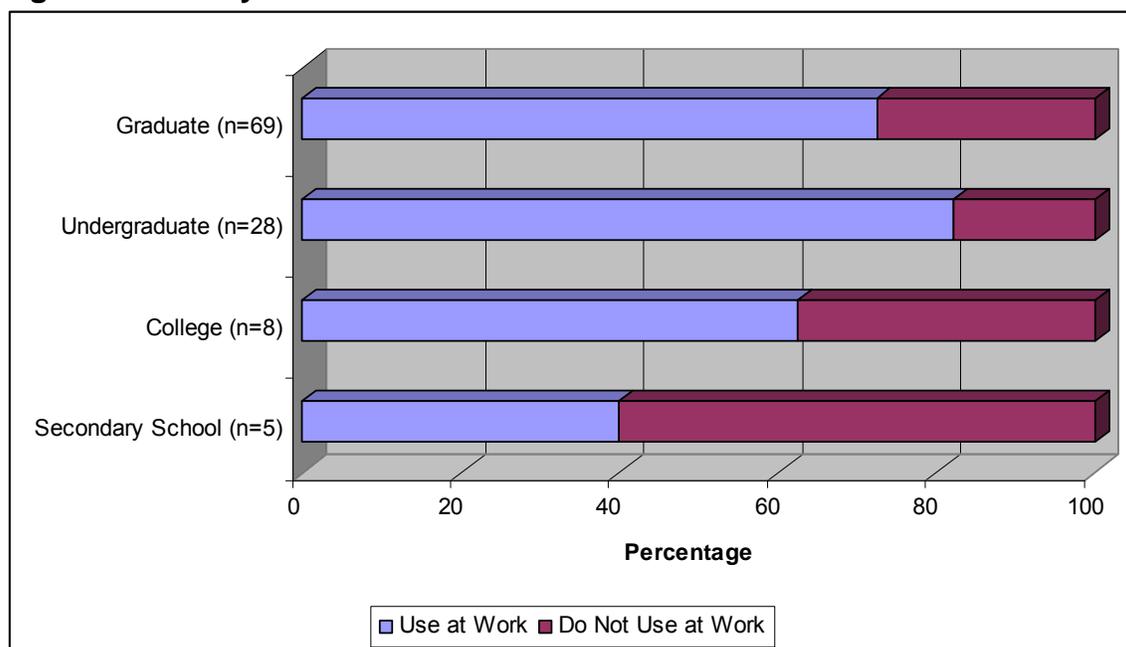
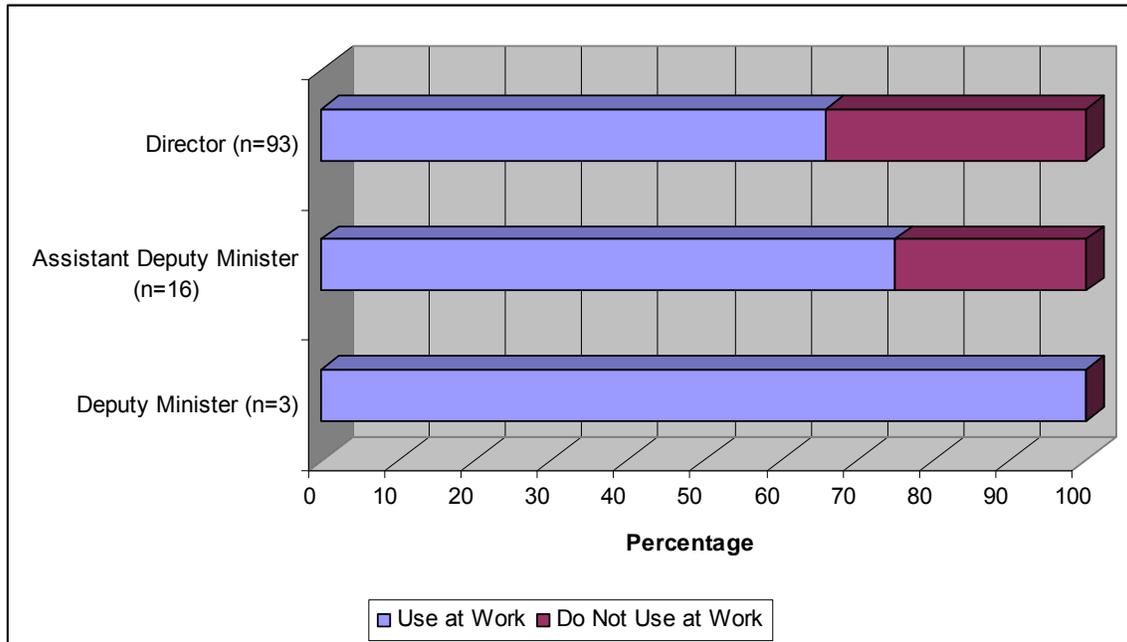


Figure 17 shows that respondents who have completed an undergraduate degree are more likely to use Web 2.0 and social media at work than those who have a graduate degree, completed college or have some college or university. This finding that senior leaders with graduate degrees are less likely to use Web 2.0 and social media tools at work is inconsistent with the results from the Canadian Internet Use Survey linking higher education with Internet use. Since the Canadian Internet Use Survey does not break down post-secondary education into undergraduate or graduate categories, it is difficult to determine if the findings from this survey are consistent with the general population trend. Data from this survey also identifies that respondents with graduate degrees make up the majority of non-work use respondents (63.3%) compared to senior leaders who have attained lower levels of education (36.7%).

Rank

Leadership is a necessary ingredient in changing the culture to accommodate the use and adoption of Web 2.0 and social media. Borins (2002) identifies that “bottom-up innovations require and create leadership” (p. 469). In addition, senior leaders are expected to be innovators and “they must be innovative and forward thinking” (Cote, 2007, p. 4-5). The scan of Web 2.0 and social media tools in the government of Ontario’s public service reveals that senior leaders, including politicians, are using a variety of tools, including several that have been officially banned. However, the survey results paint a less robust picture of use patterns. The examination of the dependent variable identified that approximately 1/3 of respondents are not using these tools at work. This quantitative finding is supported by survey comments – a number of respondents wrote that they don’t even know what these tools are. This is also supported by the key informant interviews.

Figure 18: Analysis of rank and use at work



Total responses received to the question on rank are 112 with 5 respondents declining to answer. Of the 112 responses, 83% of respondents are directors or equivalent, 14% are assistant deputy ministers and 3% are deputy ministers.

The survey results reflect a higher level of participation from assistant deputy ministers and their equivalents (11.2% distributed compared to 14.3% received) and deputy ministers (2% distributed compared to 2.7% received) than currently exists in the population. This result is consistent with the purpose of undertaking a disproportionate stratified survey that was biased toward including a large representation from the two most senior levels to reflect the greater role and authority assistant deputy ministers and their equivalents, and deputy ministers have in a bureaucracy.

Figure 18 shows that rank is a strong indicator of work use of Web 2.0 and social media tools. Although innovation typically burbles from the grassroots, the literature discusses that creating the culture that supports innovation needs to occur at the highest levels. Although their number is small, the survey shows that 100% of the three deputy ministers (from a survey population of 28 deputy ministers) who responded to the survey use Web 2.0 and social media tools at

work, and that 75% of assistant deputy ministers, or an equivalent position, use the tools for professional purposes. The majority of respondents at the director or equivalent level use these tools at work but to a lesser degree than deputy ministers and assistant deputy ministers or an equivalent position. Given the very small number of respondents from the deputy minister and assistant deputy minister level, it is difficult to generalize the findings to the larger population.

An analysis of tools used by the three cohorts of senior leaders reveals that each cohort uses different tools. Blogs are popular with deputy ministers and assistant deputy ministers or senior leaders in an equivalent position. This finding is consistent with the widespread blog use identified in the government of Ontario environmental scan in Chapter 4. All three deputy ministers and the majority of assistant deputy ministers, or respondents in equivalent positions, use blogs. However, blogs aren't the tool of choice at the director level. Senior leaders at this level favour webinars and SharePoint.

Table 14: Bivariate analysis of senior leaders' use of Web 2.0 and social media tools at work

	Blogs		Twitter		Wikis		Mashups		Google Docs		SharePoint		Webinars		Other*		Total**	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Deputy Ministers (n=3)	3	27	0	0	2	18	0	0	0	0	2	18	2	18	2	18	11	100
Assistant Deputy Ministers or equivalent positions (n=12)	7	18	2	5	6	15	0	0	3	8	7	18	9	23	5	13	39	100
Directors or equivalent positions (n=62)	34	15	10	4	29	13	3	1	18	8	34	15	48	21	52	23	228	100
Total**	44	16	12	4	37	13	3	1	21	8	43	15	59	21	59	21	278	100

*Other includes OPSpedia, Plone and Other **Total represents multiple responses

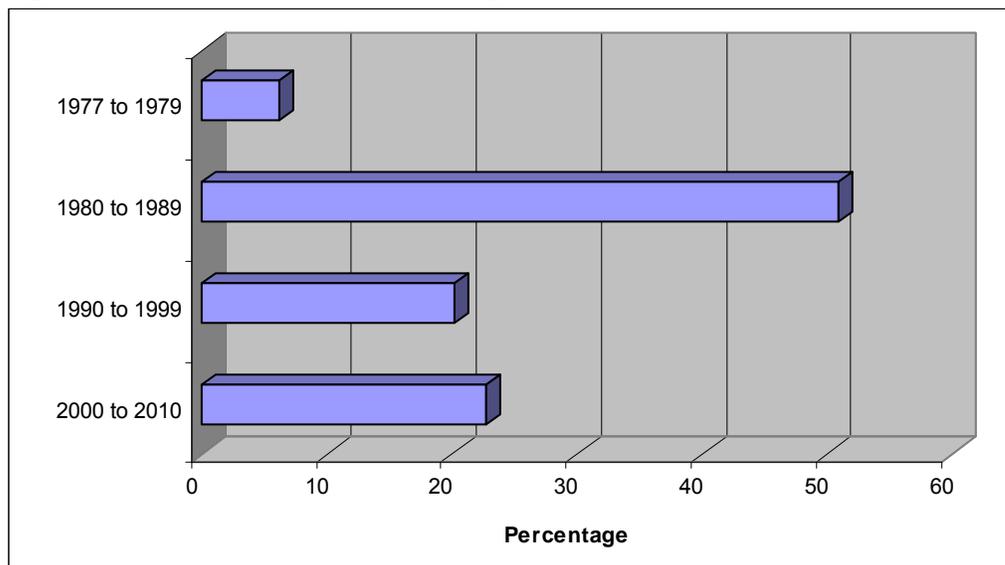
One informant identified that deputy ministers' blogs have helped to breakdown the communication barriers between senior leaders and makes them more accessible to staff. This comment is consistent with the literature which

identifies that blogs are the tools of choice for corporate executives, along with wikis and podcasts, which this study calls webinars (Bughin, Chui, Miller, 2009). A 2008 Gartner survey of 80 client government organizations – “40 from the U.S., four from Canada, 28 from Europe, the Middle East and Africa, 17 from Australia and one from Asia” (Di Maio, 2008, p. 3) – shows that 20% of respondents use blogs and 40% are planning to increase their use of blogs in the next 24 months (Ibid).

Year started work in the Ontario public service or government agency, board or commission

This section, which examines when the senior leaders started working in the OPS, relates to the discussion on institutionalism, organizational culture and demographics in Chapter 2. A key assumption is that senior leaders who have recently joined the OPS are younger than those who have had a long history of service, less likely to be influenced by the organizational culture and more likely to be using Web 2.0 and social media tools.

Figure 19: Year started with the public service



Of the 114 responses to this question, 77% identified they had started working for the Ontario’s public service or one of its agencies, boards or commissions between 1977 and 2000. Of the 77% of respondents who have

been employed for more than 10 years, 8% began between 1977 and 1979, 66% began between 1980 and 1989 and 26% began between 1990 and 1999. The balance, 23% of respondents, began working in the last 10 years, between 2000 and 2010.

Figure 20: Work use as a percentage of total responses

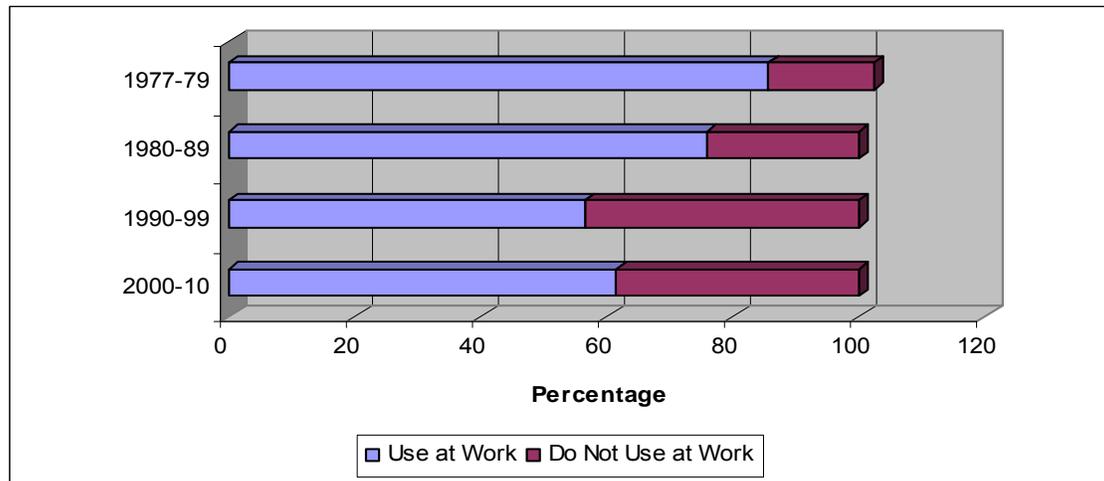


Figure 20 shows senior leaders whose tenure in the OPS is greater than 30 years are using Web 2.0 and social media at work in greater numbers than peers who started later, including those who joined in the last 10 years. The data reveals that 85% of senior leaders who started between 1977 and 1979 are using Web 2.0 and social media at work compared to those who started between 1980 and 1989 (75%), 1990 and 1999 (56%), and 2000 and 2010 (61%). This finding refutes the assumption that senior leaders who recently joined the OPS are more likely to use Web 2.0 and social media tools at work for professional reasons. There are two possible reasons for this outcome. First, senior leaders who joined the OPS in the last 10 years belong to the same age demographic as those who have been employed for longer than 10 years. This finding is supported by results identifying that only two of the respondents belong to the Net Generation (see Figure 14). The second finding, which is consistent with institutionalism and organizational culture, suggests that the newer recruits come from other sub-national governments or the federal government that share cultural characteristics of the Westminster model. One interview informant who

had joined the OPS in the past two years confirmed that he had previously worked for another sub-national government in Canada. Evans et al. (2006) identify that 39% of senior leaders in their study indicated they had worked for another level of government.

Year appointed to current position

Evans et al.'s (2006) survey of public sector elites across Canada identifies a high degree of mobility in the senior ranks. "A 1999 study of provincial assistant deputy and deputy ministers found that 'there was a relatively high level of mobility in the senior provincial civil service,' where approximately 32 per cent of ADMs and DMs moved to a new position each year" (Ibid, p. 628).

The mobility is not only vertical but also horizontal showing that senior leaders move regularly between different portfolios. Such inter-exchangeability confirms that most senior leaders are generalists rather than subject matter experts or technocrats. Evans (2008) describes efforts by Ontario's former Secretary of the Cabinet Robert Carman to strengthen the quality of leadership in the ADM ranks by broadening "their experience and build generalist skills in management. Eventually we would have some bench strength" (p. 135). For the most part, promotions into the ranks of the senior leadership occur from internal candidates, and only rarely is a senior leader recruited from outside government (Evans et al., 2006; Cote, 2007).

Figure 21: Number of years in current position

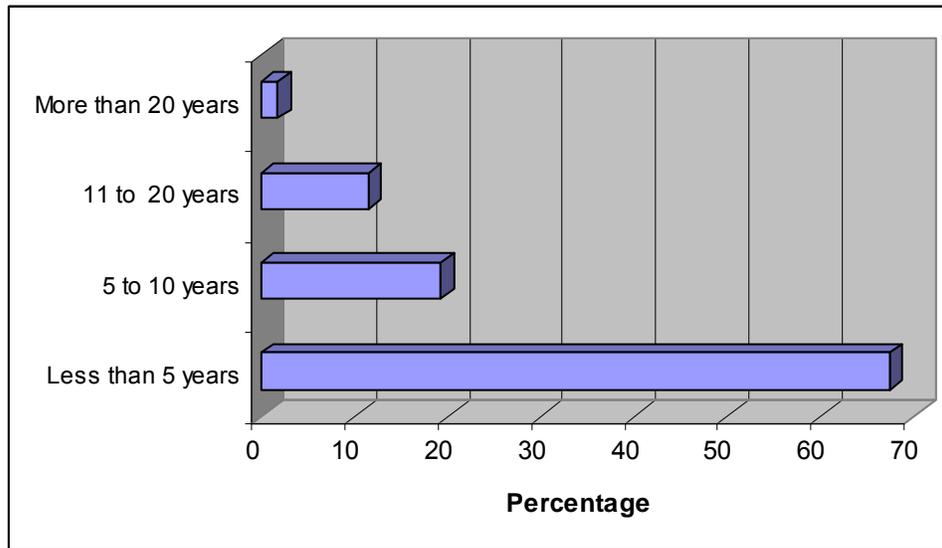


Figure 21 confirms a regular turnover and shuffling among the senior leaders. Survey findings confirm that senior leaders move often and rarely stay in their current positions for longer than five years. This constant shuffling may hinder their ability to effect the cultural changes necessary to support use and adoption of Web 2.0 and social media tools. The finding highlights the generalist approach to management that has been engendered in the OPS at the highest levels. As generalists, senior leaders are less likely to understand how web-based tools can contribute to meeting their key deliverables. The findings are consistent with information from the informant interviews and the literature review. All four informants have been in their current positions for less than five years.

Where do you work in the government of Ontario?

Where a senior leader works within the government of Ontario is an indicator of work use of Web 2.0 and social media tools. Figure 22 identifies that there appears to be a strong correlation between where in the organization a senior leader works and use of Web 2.0 and social media tools.

Figure 22: Analysis of work use and type of organization

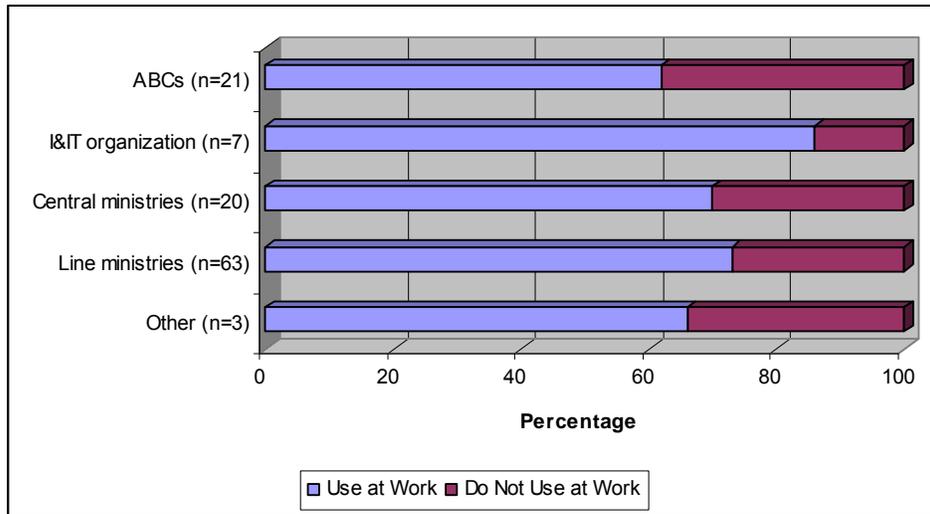


Figure 22 shows that the percentage of work use of Web 2.0 and social media tools at agencies, boards and commissions is lower than in the other areas of the OPS. This is surprising considering that agencies, boards and commissions are not bound by the same rules as ministries and therefore have more flexibility in deploying new technology solutions. For example, they aren't bound by the government of Ontario's ban on the use of Facebook and YouTube. The I&IT Directive, which is the framework governing I&IT in the OPS, specifies that only those agencies that use OPS information technology infrastructure must comply with the directive.

In addition, the percentage of senior leaders in line ministries who use Web 2.0 and social media at work is only slightly higher than in central ministries but lower than the percentage in the I&IT Organization. This could be attributable to two factors. First, line ministry staff are not technology experts and rely on support from their clusters, which are staffed by I&IT experts. And second, line ministry staff working on files that include stakeholders who are ardent users of Web 2.0 and social media, such as youth, are using these tools to connect with their stakeholders.

One informant discussed how his program would like to use Web 2.0 and social media tools to reach out to youth in northern and rural communities. He noted, however, several barriers: lack of high-speed Internet in northern and

remote communities, protracted approvals to use Facebook or YouTube and an emphasis on having a common look and feel to government sites.

A senior leader working in the government of Ontario's I&IT Organization is more likely to use Web 2.0 and social media at work than if they worked in other parts of the government including agencies, boards and commissions. This finding is consistent with the mandate of the I&IT Organization (described in Chapter 2) in terms of leading and piloting new technologies. OPSpedia and CTS (Plone) were both developed within the OCCS in the I&IT Organization. It is also the centre of policy and strategy development to support the use of Web 2.0 and social media tools including creating an open data catalogue to publicly share government data. Respondents belonging to this group are using tools in a more interactive way than the majority of respondents. Whereas webinars are the most used Web 2.0 and social media tools among respondents, SharePoint is the Web 2.0 tool of choice for senior leaders in the I&IT Organization.

Table 15: Comparison of work use between senior leaders in the I&IT Organization and the total group of respondents

	I&IT Organization		Total Responses**	
	N	%	N	%
Blogs	4	17.4	51	16.4
Twitter	1	4.4	16	5.1
Wikis	2	8.7	41	13.1
Mashups	0	0.0	4	1.3
Google Docs	1	4.4	25	8.0
SharePoint	5	21.7	50	16.0
Webinars	3	13.0	69	22.1
OPSpedia	3	13.0	32	10.3
CTS Plone	3	13.0	18	5.8
Other	1	4.4	6	1.9
Total**	23	100.0	312	100.0

**Total represents multiple responses

Providing direct service to the public

The vast majority of individuals who work in the government of Ontario's public service belong to line ministries. Other senior managers are employed in central agencies such as Government Services, Finance, Energy and

Infrastructure, and Cabinet Office. Also included in this study are those who work in a wide range of Agencies, Boards and Commissions (ABCs).

Table 16: Type of ministry or ABC and Service to the public

Type	Service to the Public				Total	
	Yes		No			
	N	%	N	%	N	%
Line Ministry	38	60	25	40	63	100
Central Agency?	8	40	12	60	20	100
I&IT Organization	4	57	3	43	7	100
ABC	16	76	5	24	21	100
Other	2	67	1	33	3	100
Total	68	60	46	40	114	100

Of the 114 respondents who answered this question, 60% identified that they do provide direct service to the public. Table 16 shows that responses to this question seem to align with the type of ministry or body in which the respondent works. Respondents who work in line ministries and agencies, boards and commissions are more likely to work directly with the public than those who work in central ministries.

Direct contact with the public is not a strong indicator of work use of Web 2.0 and social media tools. Table 17 identifies that work use of Web 2.0 and social media tools are evenly split in terms of whether the respondent provides direct service to the public.

Table 17: Analysis of work use and direct service to the public

Direct Service to the Public	Use at Work		Do Not Use at Work		Total Responses	
	N	%	N	%	N	%
Yes	47	69	21	31	68	100
No	32	69	14	31	46	100
No Responses	2	67	1	33	3	100
Total	81	69	36	31	117	100

This finding supports the current reality across the government of Ontario that the majority of Web 2.0 and social media tools are being used internally. It is also consistent with the diffusion patterns of earlier technologies in government, such as the Internet and the intranet. Although the government is using Web 2.0

and social media to target audiences, specifically youth, the vast majority of the uses are aimed at supporting internal audiences.

In this respect, the informant interviews help to add context and content to the survey numbers. Two of the four informants are from line ministries and two are from central ministries. The two senior leaders from line ministries confirmed that they would like to use the tools but are not. One line ministry informant identified that her ministry doesn't use any Web 2.0 and social media tools. She notes that Plone and OPSpedia are used by the government's Centre for Leadership, but that they are not providing staff with the time or training to learn how to use these tools effectively. Her attitude is that staff will learn how to use these tools when it becomes necessary, but in the meantime, she sees that there is a lost opportunity because for the most part staff are not aware of the tools' functionality and benefits.

The respondents from central ministries confirmed that they and their staff are using Web 2.0 and social media tools. Both are using internal and external tools including Plone, OPSpedia, Second Life, LinkedIn, Twitter and Facebook. Uses include issue management, tracking the public response to government announcements, recruitment, and information sharing.

There appears to be a different attitude between informants from line ministries and those from central ministries toward the need to effect the cultural change to support Web 2.0 and social media use in the OPS. The two line ministry informants argue that staff are not being given the tools to do their jobs properly especially when the world is on Facebook. Whereas, an informant from a central ministry identified that there is no policy direction to use these tools in a risk-averse environment. He explained that senior leaders do not see these tools as a priority, and the current attitude will prevail until a request for these tools comes from a deputy minister or a politician.

The fourth informant, who also works in a central ministry, agreed that a culture shift can only occur if senior leaders instigate it. The current risk-averse culture makes staff reluctant to share draft policies, strategies or research with their colleagues on OPSpedia. In addition to senior leaders promoting a culture

shift, she argues that the tools have to be aligned with the government’s priorities; “We tend to jump to the tool without addressing the why and what questions.”

Geographic location of the office in Ontario

One of the potential benefits of the Internet is to use technology to eliminate or reduce the distance barrier by enabling the delivery of online services and transactions, and supporting new work practices such as teleworking and telecommuting. Yet, despite these touted benefits of the Internet, Statistics Canada’s most recent Internet Use Survey identifies a geographic digital divide in which communities outside of major metropolitan areas continue to have limited access to high speed broadband (Statistics Canada, 2010a), which is required to support many Web 2.0 and social media tools. In addition, a drop between 2000 and 2005 in the number of Canadian civil servants who telecommute at the exact same time that technology is improving to support these new work practices suggests that “more work is required to overcome institutional and cultural intransigence to new ways of working” (Baskoy & Bermonte, 2010, p. 294). Several survey respondents commented that Web 2.0 and social media tools should be used to help break down geographic barriers and “flatten” opportunities for staff working outside the GTA.

Table 18: Analysis of work use and office location

	Use at Work		Do Not Use at Work		Total Responses	
	N	%	N	%	N	%
GTA	67	69	30	31	97	100
Outside GTA	10	66	5	34	15	100
No Responses	4	80	1	20	5	100
Total	81	69	36	31	117	100

Table 18 confirms that a similar percentage of senior leaders outside the GTA and in the GTA (66% and 69% respectively) use Web 2.0 and social media at work for professional purposes. As a result, the survey results confirm that office location is not a useful indicator of Web 2.0 and social media work use.

Key findings on antecedent and intervening variables

Analyzing the antecedent and intervening variables helps to give a more fulsome picture of senior leaders in the OPS who use Web 2.0 and social media at work. A key finding is that several antecedent and intervening variables influence Web 2.0 and social media work use: education, rank, and working in the I&IT Organization.

Demographics is a popular way of explaining the difference in Web 2.0 and social media adoption levels between generations (Tapscott, 2008). Yet, with respect to key findings in this study, age or generational profile does not influence senior leaders' use of Web 2.0 and social media at work. The findings from the survey identify no difference in Web 2.0 and social media work use between senior leaders belonging to Baby Boomer and Generation X cohorts. The survey did show that 100% of the individuals who belong to the Net Generation cohort of senior leaders are using Web 2.0 and social media at work. However, for the purpose of this study, the numbers are too small to draw any significant conclusions but may point to a more Web 2.0 savvy leadership coming up the ranks. Results from the PIL/OCCS survey, which include respondents from a younger cohort (20 to 35 year-olds), suggest something other than demographics is influencing how policy staff use these tools. In fact, the PIL/OCCS survey findings mirror key finding in this study related to use levels and patterns. Policy staff are taking their cues from their managers in how, when and if to use Web 2.0 and social media tools at work.

Education, however as a demographic subset, is an indicator of work use. This finding is consistent with findings from Statistics Canada's Canadian Internet Use Survey (2005, 2007 and 2010). Senior leaders with at least an undergraduate education are more likely to use Web 2.0 and social media at work. More work has to be done, however, to understand why graduate degrees are less of an indicator of work use than undergraduate degrees.

Whether the senior leader is a deputy minister, an assistant deputy minister (or an equivalent rank) or a director influences whether or not he or she uses Web 2.0 and social media at work. A hierarchical culture is typical of the

Westminster model of government in Ontario. Nothing gets done without approval from the top. The finding, however, points to senior leaders who are slowly making necessary changes to support adoption of Web 2.0 and social media tools. Like CEOs in the private sector, deputy ministers and assistant deputy ministers are using blogs to communicate with staff, to solicit ideas and are taking the first important steps in “walking the talk.” These findings are consistent with Di Maio’s (2008) findings that “the focus on deploying internal wikis and blogs that are accessible only to government employees reinforces the impression that government organizations are taking a prudent attitude...” (p. 5).

Working in the government of Ontario’s I&IT Organization is also an indicator of work use. These senior leaders are on the front line developing, piloting and socializing these tools for use across the OPS. This speaks to a level of training and knowledge that isn’t widely available across the government of Ontario’s public service. Although working in the I&IT Organization was not included in the definition of familiarity for the purposes of this study, it is fair to say that this particular variable contributes to building familiarity with Web 2.0 and social media tools.

The future of Web 2.0 and social media in the Ontario public service

This section captures responses from senior leaders on whether or not the use of Web 2.0 and social media tools should expand in the OPS. A total of 114 respondents answered the question of “Should the use of Web 2.0 tools in the OPS expand?” Table 19 shows that the vast majority of respondents (77%) indicated they strongly agree or agree that the use of Web 2.0 and social media tools should expand in the OPS.

An earlier finding, however, revealed that 66% of respondents do not see themselves using the tools in the next 6 to 12 months. There appears to be a comfort level with increasing the use of the tools over a longer time horizon, but a level of discomfort appears to exist for making changes in the short-term. This finding is consistent with the Gartner study (Di Maio, 2008) identifying

government wants to stay in its comfort zone. A reluctance to make changes sooner rather than later (or a proclivity to maintain the status quo) is consistent with the framing of change in the normative and historical streams of institutionalism and in culture theory.

The majority of respondents identified that they are very likely or somewhat likely to increase the use of at least one or more than one Web 2.0 and social media tools. Responses to this question examined on a tool specific basis identify that webinars and Sharepoint received the majority of the “very likely” and “somewhat likely” responses, followed by wikis, blogs and OPSpedia. At the other end of the spectrum, respondents are “unlikely” to increase their use of Twitter, mashups, Google Docs and Plone.

Table 19: Expansion of Web 2.0 and social media tools in the government of Ontario

	Respondents Using Web 2.0 and Social Media at Work		Respondents Not Using Web 2.0 and Social Media at Work		No response to question 13 about work use		Total	
	N	%	N	%	N	%	N	%
Strongly agree and agree	70	86	12	42	6	100	88	77
Disagree and Strongly Disagree	2	3	4	16	-	-	6	5
No Opinion	8	11	12	42	-	-	20	18
Total	81	100	28	100	6	100	114	100

Senior leaders overwhelmingly responded that expansion of Web 2.0 and social media in the OPS is inevitable. Comments from survey respondents speak to the benefits of these new tools. Five respondents described expanding the tools as “logical and inevitable,” and using the tools to achieve public administration goals such as efficient service. Others connected the expanded use of the tools with the idea of working horizontally, flattening the OPS, and saving money. One survey respondent answered this way, “Virtual tools allow decentralization of staff and the ability to hold senior roles in the organization outside of the GTA. The province is flat with the boxes and wires connected.

This will create broader recruitment pools, and reduced operating costs (cheaper to hold real estate in Kingston than GTA).”

An important question in this study is how prepared are senior leaders to lead the expansion of Web 2.0 and social media in the OPS? It appears from the analysis of the dependent, independent, antecedent and intervening variables that some senior leaders are more prepared than others, but that the majority continue to use these tools in a passive, Web 1.0 manner.

One survey respondent wrote that he or she did not have enough information to form an opinion about whether or not Web 2.0 and social media tools should expand despite using them at work. Another respondent commented, “If I was more familiar with what they are and how they could be used I'd be in a better position to answer this. My understanding has been that some of these are considered inappropriate use of government resources eg. blogs, twitter.” Comments from respondents who expressed doubt or disagreed with expanding the use of the tools confirm that insufficient information, training and guidance have been provided to senior leaders.

Table 20 combines the responses from the four informants on the future of Web 2.0 and social media in the OPS into three themes: making cultural changes to allow some risk-taking, aligning the use of the tools with achieving government priorities, and distinguishing between technology and business practices.

Table 20: Informants’ comments on future of Web 2.0 and social media

	Cultural Changes	Strategic Alignment with government business and priorities	Distinguishing between the technology and business practices
Informant 1 - line ministry	Senior leaders need to lead by example. Most senior staff will be resistant – the tenure of the court changed when a judge	Reaching out to business and stakeholders. Helps support horizontal collaboration especially when dealing with policy	Social media is about changing the business rather than using new tools to do it the way its been done before. Despite current

	<p>walked in with a laptop.</p> <p>Requires a completely different mindset that is less perspective and more exploratory.</p>	<p>problems that go beyond one ministry.</p>	<p>practices, there are questions related to operationalizing horizontality. For example, how and what to share across ministries and who takes responsibility and what's the process?</p>
<p>Informant 2 – line ministry</p>	<p>Senior leaders need to champion by encouraging use and training and leading by example – walk the talk.</p> <p>Even though there is a willingness, knowledge and comfort, these are running up against barriers.</p>	<p>The use of social media as a strategy should be broader.</p> <p>Although a number of ministries are working on policies to stem the flow of youth-out migration in northern communities, these ministries are not very networked.</p>	<p>Even if we are challenged by technologies, as leaders we inspire teams to see these tools as value-added.</p>
<p>Informant 3 – central ministry</p>	<p>Cultural change needs to happen but it also needs to be supported in terms of tooling, education, awareness, business benefits defined, corporate policy and appropriate use definition.</p>	<p>Citizen engagement is not a question of technology – it's a government decision – are we ready to advise them, are we ready and prepared on how to use it?</p>	<p>Senior leaders should understand how these technologies can be effective business tools. They should understand the privacy and security implications, participate in setting policy on the use of social media in the OPS. Pioneer business solutions that</p>

			leverage the effectiveness of social media tools.
Informant 4 – central ministry	Senior leaders are responsible for creating the culture to support their use and always a challenge for government which is risk cautious on anything that is new, untested and not tied to priorities and approval process is cumbersome and slow.	We tend to jump to the tool without addressing the why and what questions. Need to spend time dealing with why and what—using examples to justify but not relating it to what they do everyday.	Deputy minister blogs engage the employees, build an connection to leadership and help with day to day issues by communicating to staff the direction of leadership. Tools seen as innovative and cutting edge rather than as making a difference. They need to start demonstrating results, however, before there will be a big pickup.

Chapter 5: Conclusions

Key findings

The purpose of this research was threefold: First to understand how prepared senior leaders in the OPS are to manage the required changes in the bureaucracy necessary to support Web 2.0 and social media use and adoption. Second, the research also tests the hypothesis, found in the literature, linking familiarity with successful adoption of Web 2.0 and social media tools. Finally, as the study of Web 2.0 and social media is an emerging area in public administration, this study fills a gap in the public administration literature.

The first finding is that the majority of senior leaders in Ontario's public service are not prepared to manage the required changes that support Web 2.0 and social media use in the bureaucracy. The survey findings indicate a healthy level of familiarity with the tools: 61% are familiar with the tools listed in the survey, 63% use the tools at home for personal reasons and 73% use the tools at work. On the surface these findings suggest a leadership that is poised to lead the cultural change necessary to support the successful integration of Web 2.0 and social media in the OPS. That's the good news in a public service that needs to connect with citizens who are rapidly adopting these tools in their daily activities. Making deputy ministers more accessible to their staff via blogs, especially interactive blogs, is definitely a step in the right direction, and represents a major change in the culture of the OPS. But the general question about use needs to be examined in more detail.

On closer examination survey findings reveal that although senior leaders are using these tools, their use is limited when the type of activity, tools used and frequency of use are examined. Senior leaders have not acclimatized to the age of collaborative technologies and continue to use the tools in a Web 1.0 manner. Ontario is not the only government struggling to adjust to these new tools. A 2008 Gartner study, which surveyed selected government clients from North America, Europe, Australia, Africa and the Middle East concludes there exists "a

low level of maturity in Web 2.0 adoption, with little differences across geographies” (Di Maio, 2008, p. 1). In addition, senior leaders’ monthly use of these tools at work confirms that they have not incorporated the tools into daily activities. All four informants confirmed this finding. They described their own use and their staff’s use as more “surfing” than “collaborating” and more Web 1.0 than Web 2.0. Thus, the tools are a novelty rather than a necessity.

Senior leaders’ use patterns show that they have not created the conditions necessary and are struggling to figure out what, why and how to use the tools. This finding is confirmed in interviews with four senior leaders who identified a need for cultural and business process changes to support the use of these tools, and how these changes must emanate from the top.

Ontario’s public service has not clearly identified the value of Web 2.0 and social media tools in supporting or achieving government priorities despite some important drivers – young professionals and wide-spread adoption in civil society. Di Maio (2008) writes that “There is no overwhelming benefit that government organizations see in adopting Web 2.0, nor can most of them articulate a clear business case” (p. 1). Finally, the government’s ban on staff’s use of Facebook and YouTube for professional purposes is indicative of an organizational culture that doesn’t understand the value of these tools and sends mixed messages to staff about using Web 2.0 and social media in general.

The findings from the survey are consistent with the qualitative research findings: the literature which identifies a leadership vacuum on use and adoption, the results from the PIL/OCCS survey which reveal that the majority of policy staff are not using these tools in a collaborative manner, the scan of government of Ontario Internet and intranet sites identifying that most of the sites are informational, and informant interviews confirming that the culture shift required to support the use of these tools has not yet happened.

Second, the research hypothesis is that familiarity, which this study defines as home use (frequency, tool and activity) for personal purposes, directly influences senior leaders’ use of Web 2.0 and social media tools at work for professional purposes. This study’s bivariate analysis comparing home use and

work use identifies a strong relationship between personal and professional use but also notes that the relationship is an imperfect one since 20% of respondents who use Web 2.0 and social media at work do not use it at home for personal purposes.

The bivariate analysis comparing work use with a number of antecedent and intervening variables reveals that education, rank and working in the I&IT Organization have the greatest influence on senior leaders' use of Web 2.0 and social media at work. In a hierarchical organization such as the OPS, it is not surprising that rank appears to be an indicator of use despite a small number of respondents.

This study, which is one of the first to examine senior leaders' use of Web 2.0 and social media, has created a unique profile of OPS senior leaders' use and adoption patterns of Web 2.0 and social media. This research fills an important gap in public administration research by providing both qualitative and quantitative information on the use and adoption of Web 2.0 and social media, contributing to the e-government/e-governance debate, exploring the role of senior leaders in effecting change in an institutional context, adding to institutional theory building and exploring the role demographics play in influencing, or, in the case of this study, not influencing public administration practices.

Relationship to public administration theories

Since the majority of literature on Web 2.0 and social media is atheoretical, there is not one specific theory that explains use and adoption patterns, and related challenges and opportunities. As a result, the study has referenced four theories – institutionalism, culture, demographics and leadership – to frame and help explain the current state of senior leaders' use of Web 2.0 and social media in the OPS.

Institutionalism helps explain why the current level of senior leaders' use is still very much rooted in the NPM culture of new managerialism. The technological diffusion model governments are using to rollout Web 2.0 and

social media is path dependent. Papenhausen (2009) identifies that “there is a pattern of repeating phases over 50-60 years that are associated with technological revolutions or long waves of development” (p. 4). The rollout of Web 2.0 and social media is no different from how governments rolled out the intranet or the Internet over the past 30 years. In addition, because NPM is still a dominant managerial culture in the government of Ontario (Evans, 2008; Evans et al., 2006), normative institutionalists would argue that the value proposition for using Web 2.0 and social media is similar to Web 1.0; using technology to achieve neoliberal objectives of service efficiencies and driving down the costs of government. Rational choice institutionalists would argue that the rules and incentives are not in place to encourage behavioural change. This perspective was confirmed through the informant interviews who confirmed that there are no incentives in place to encourage senior leaders to take risks and manage the changes required to support using these tools, and the rules supporting use are unclear (i.e., ban on Facebook and YouTube) or obtaining approvals is onerous.

Despite the low response rate, rank appears to be an indicator of Web 2.0 and social media use in the OPS. This finding is consistent with the literature that lists leadership as a necessary condition of successfully using Web 2.0 and social media. Yet, the innovative leader or the forward-thinker, which Cote (2007) identifies as a characteristic of senior public servants, is not evident in the study’s findings on senior leaders’ use of Web 2.0 and social media at work. The leadership uncovered through this research aligns most closely with the behavioural theory or the “one best way” approach (Rowley, Hossain and Barry 2010) that links leadership with strong people skills and performance results. Behavioural theory is also helpful in explaining why there is a leadership vacuum in relation to Web 2.0 and social media. This is in part explained by senior leaders’ low level of knowledge and confidence using or directing their staff to use Web 2.0 and social media as revealed by their superficial usage patterns and confirmed through the informant interviews. There is little evidence of transformational and charismatic leadership, which is not surprising since that is not the role of public servants. Yet the study also identified a handful of risk

takers who are using Facebook and YouTube to engage with their stakeholders. Contingency theory helps explain these outliers who adapt to the needs of the situation and are prepared to manage risks. .

One informant discussed that technology has already ushered in significant cultural changes as evidenced by deputy ministers and assistant deputy ministers doing their own typing. However, the cultural change that needs to take place has less to do with skills and more to do with moving from a controlled environment to a relatively uncontrolled environment as defined by the open government movement. “The opening of the innovation cycle requires government to give up or share its authority to define the public value of innovations” (Bommert, 2010, p. 29). This is where institutionalism is unhelpful in understanding the nature of the change that has to take place. Control and authority are key features of responsible government. Yet, this is exactly what Roy (2006) argues needs to change to usher in a culture of openness in government. Institutional change and behaviour will not take place as a result of organizational forgetfulness (Theonig, 2003), and control is not an inconsequential issue.

One of the questions identified in the introduction asked if a new generation is needed to effect the necessary cultural changes to support the use of Web 2.0 and social media. Or will cultural and institutional practices blunt their eagerness? Even demographic guru David Foot (1998) argues that behaviour is largely influenced by age, which is why age as a key demographic indicator is helpful in making predictions. He writes that a “45-year old in 1995 will behave the same as a 45-year old in 2005.” But Foot’s proposition about behaviour being age-dependent is tempered by Tapscott’s description of Net Geners who have seamlessly integrated technology into their lives. The knowledge they bring as rising leaders won’t disappear, but the path they have to follow to institute change will continue to be the same in 2010 as it was in 1990 and perhaps as it will be in 2020. Damsgaard and Scheepers (1999) argue that technological innovation and diffusion requires a new type of leadership to support a taxonomy that combines “regulatory (power-based) as well as influence-based

interventions” (p. 4). They write that “...the emergence of intranets, extranets and Internet-based applications requires a new and radically different mindset for those seeking to understand and control the implementation and diffusion of these complex, networked and standard based technologies” (p. 2).

Limitations of research and suggestions for future research

A major limitation of this study is the low response rate of 13.5%, which limits the generalization of the survey findings. Although the survey results point to rank, education and working in the I&IT Organization, the low response rate does not allow for any generalizations to the larger population. However, given that this was exploratory research, the key findings help identify other potential areas for research dealing with adoption of Web 2.0 and social media in government. For example, it would be useful to explore if the findings from this research apply to other jurisdictions in Canada, including the federal government, or to international governments. Are senior leaders in other jurisdictions, particularly those with Westminster governments such as the United Kingdom, Australia or New Zealand, more likely than their Ontario counterparts to support the cultural changes necessary to adopt Web 2.0 and social media tools? Comparative research on Westminster governments would help build on the findings from this study, and explore to what degree, if any, this model of government is a barrier to adoption and use.

Another limitation of this research, which is common with most surveys, is that it is very thin in terms of offering a detailed explanation of why the current cohort of senior leaders are or aren't using Web 2.0 and social media. The literature review, and the theories of institutionalism, culture, demographics and leadership provide a generalist perspective of technological innovation in government and the role of senior leaders. Additionally, the four informant interviews helped supplement some of the key findings and provide context. However, this positivist approach to studying senior leaders' use of Web 2.0 and social media could benefit from several case studies, particularly of public service organizations or specific ministries, to provide in-depth analysis to develop the

business case that clearly answers the why, what and when questions. Part of the issue is that these tools, despite being widely adopted in civil society, are still relatively new and unproven to senior leaders in the public sector. As one informant put it, “The how is easy. It’s the other questions that have most senior leaders struggling to understand the value proposition of these tools.”

Case studies can provide senior leaders with ways to measure success, narratives to support the value of these tools and risk mitigation strategies that allow them to adopt these tools in a risk-averse environment. The study reveals at least three possible candidates for a case study on the use of these tools include: Qualitative research based on interviews with a number of the individuals who spearheaded the Facebook initiative, which successfully changed legislation affecting young drivers; examining to what degree, if any, OPSpedia has changed internal work practices, such as professional networking, hiring practices, knowledge sharing and knowledge aggregation in the OPS; and comparing use and adoption at the ministry and agency levels. With respect to this last example, some interesting questions include: Are some ministries more inclined to use these tools than others? If so, which ministries are using them? How are they using them and why are they leading in adoption and use of Web 2.0 and social media?

Although scholars, new media experts and practitioners tout Web 2.0 and social media (Tapscott, 2006 and 2008; Roy, 2006; Flumian, 2009; Di Maio, 2008; Deloitte, 2010) as tools to help breakdown the stovepipe nature of government, the absence of information targeted at a senior leader audience reinforces rather than transcends this characteristic of Westminster government. Information needs to be tailored to senior leaders to communicate what, why, how and when to use Web 2.0 and social media. Work is underway in Cabinet Office in the OPS to develop social media guidelines for staff. But this work needs to be supplemented at the senior level to ensure the leadership has bought into the use of these tools. The diffusion of social media has to occur at both the grassroots and at the most senior levels. Dixon (2011) concludes, in his paper looking for evidence on government best practices of Web 2.0, “Greater

adoption, use and evaluation are necessary to effectively support the path towards e-government 2.0. Financial resources, collaboration, and research are necessary to guide the public sector down this path” (p. 445). This study’s qualitative and quantitative research results, which provide an important snapshot in time of current levels of use and adoption of Web 2.0 and social media tools by senior leaders in the OPS, establish an important baseline for subsequent studies. Studies examining senior executives’ use and adoption patterns in the private sector are regularly measured by research firms like McKinsey and Gartner. Similar studies should be done on a regular basis for senior leaders in government.

Recommendations from findings:

The findings from this study have created a profile of how and which senior leaders are using Web 2.0 and social media tools. A conclusion from this study is that senior leaders are “dabbling” with these tools or using them in a very limited way. This affects not only how senior leaders use these tools, but also the messages they send to staff and the underlying culture they create or perpetuate for using these tools to engage with both internal and external stakeholders. Although Cabinet Office has organized several workshops for staff on how to use these tools, senior staff would also benefit from training sessions. Comstock (2010) argues that “Executive leaders must be willing to actively participate in using the technology” (p. 51). Senior leaders’ engagement and buy-in is a critical success criterion (Di Maio, Chui et al., Flumian, Hardy & Artiuch, Schwartz, Tapscott).

The literature identifies a risk in not using the tools or not using them daily. Landsbergen (2010) writes that “while there is a risk implementing these new communications poorly, there is also a risk in not doing it, or even doing it too slowly” (p. 134). Efforts have been made to understand use at the policy staff level, and Cabinet Office has been working for several years to develop a social media policy and guidelines. However, what appears to be missing is a comprehensive Web 2.0 and social media strategy that clearly links use of the

tools with achieving government priorities. British Columbia's Government 2.0 strategy does just that. It looks at how to "bridge the apparent gap between the complexity of government and the need for more accessible services to citizens by using 21st century tools to do our work in the 21st century" (British Columbia, 2010, p. 3). The literature identifies that incremental and inconsistent use of the tools without a clear connection to policy goals and business needs is a recipe for failure.

The following eight recommendations are intended to build on the work already underway in the OPS and to respond to the key findings from this study.

Recommendation 1: The OPS needs to develop a Web 2.0 and social media strategy that clearly aligns use of the tools with achieving government priorities. The strategy should be developed at the deputy minister level with engagement from Deputy Ministers' Council and leadership from senior leaders familiar with the tools.

Recommendation 2: The strategy should be developed using Web 2.0 and social media tools. This recommendation helps to create a new culture emanating from the top, which gives permission or signals to staff that they may begin incorporating the tools into their work activities. For example, the draft strategy could be posted on OPSpedia as a wiki to raise awareness about the strategy, to build skills and confidence, and to begin building a culture that encourages staff to use Web 2.0 and social media.

Recommendation 3: The Secretary of Cabinet and her deputy ministers should blog regularly about the strategy to their staff and work with their senior management teams to determine how best to use Web 2.0 and social media tools to achieve ministry goals.

Recommendation 4: Implementing key aspects of the strategy, such as using Web 2.0 and social media with internal and external stakeholders to achieve ministry or program objectives, should be tied to performance appraisals for managers. This ensures that managers are committed to training and implementing the tools and to begin to change the culture that supports the use of Web 2.0 and social media tools. One of the four informants identified that the

only way a culture change will take place is to build regular use of Web 2.0 and social media into performance expectations and performance plans. She identified that given senior leaders' time constraints that if a target is not identified in the performance plan then it is not allocated any time or resources.

Recommendation 5: Training sessions should be organized for senior leaders on how to effectively use these tools or on how to direct their staff to use these tools. Role playing has been used effectively in training staff on integrated service delivery (Bharosa, Janssen, Klievink, van Veenstra and Overbeek, 2010). "A role-playing game can possibly be used as a way to mobilize tacit knowledge gained from many years of experience and as a change management instrument" (p. 91). Given the strong, albeit imperfect connection between home and work use, role playing can leverage the tacit knowledge senior leaders have developed from using these tools at home.

Recommendation 6: The McGuinty government should quietly lift the ban preventing staff from using Facebook or YouTube at work. Given the ubiquity of these tools in civil society, there is no need to inform citizens about what many take for granted that the "lights are on." If the concern is that staff will misuse these tools, the policy is not well suited to deal with this issue. The OPS has in place a number of measures to ensure that staff use government resources in an appropriate manner, including an appropriate use policy on government information and information technology assets and services. However, if the concern is a technological one that deals with increased traffic on the government's network, the government should begin addressing these issues as online activity will continue to increase as the Internet will continue to be the tool of choice for politicians, staff, citizens and businesses.

Recommendation 7: Resources should be transferred from "older" and obsolete technologies and business processes to support the training and use of Web 2.0 and social media tools. Tangible benefits for the use of Web 2.0 and social media tools include savings in travel, paper costs (purchase, storage, copying and disposal), mailing costs and communications expenses.

Recommendation 8: Staff in the Office of the Corporate Chief Information and Information Technology Officer should regularly track Web 2.0 and social media use by staff and commission case studies to examine how the tools are being used internally and externally to support government policies and deliver on government priorities.

Senior leaders' implementation of these eight recommendations will result in a culture that is more aligned with the principles of openness, collaboration, innovation, and transparency that underpin the successful use of Web 2.0 and social media tools. The changes would be significant in that staff could use these tools to tap into a virtual pool of policy experts. Most policy issues are not specific to any one ministry and touch on many areas simultaneously. Using the existing platform of OPSpedia, policy staff could post a question to which policy advisors from across the OPS could respond, or could share reports and other useful resources.

An open culture would move away from a technocratic, hierarchical, iterative and paper-based approvals process and would allow staff to seek input from their OPS colleagues at the beginning rather than at the end of the policy process (i.e. just prior to going to Cabinet for approval). It would also be more open to innovation, and appeal to the new crop of technology savvy professionals. Releasing data and posting it to OPSpedia or another enterprise-wide social media platform would allow staff to easily access, share, distribute and contribute to the information. Data can be both structured (program or economic metrics) and unstructured (reports, policy papers, etc.).

With respect to external uses, staff working in an open and agile environment would be allowed and encouraged to engage with stakeholders on Facebook, or to follow trends and discussions on YouTube or Twitter. Currently, staff who attend conferences express frustration at not being able to follow the online conference or conversations on Twitter or Facebook. The mobile devices given to staff have a number of security blocks that indiscriminately block Twitter and other social media sites. Social media policy guidelines would provide staff with direction on appropriate use. However, as with email and previous

technologies, experiential and on the job learning would assist staff pick up appropriate social media protocol and become aware of security issues.

Releasing government data to the public would also signal an important cultural shift in the OPS. A number of municipal governments including Edmonton, Ottawa and Toronto have begun to release data to the public. The British Columbia government has identified that it will start releasing “those categories of information most requested under general FOI requests” (British Columbia, 2010, p. 14). Other open government initiatives in B.C. include: Using a blog as part of the Water Act Modernization process that resulted in more than 1,000 submissions and launching the Apps 4 Climate Action contest in partnership with nine private and non-for-profit partners. As a first step in moving to a more open culture, B.C.’s Government 2.0 strategy identifies it will “move from an online service presence defined by organizational structure to a more citizen and user-centric model” (Ibid, p. 17).

What today is called Web 2.0 and social media may be called something entirely different within several years. Terms like Web 3.0, the Semantic Web or m-government are being bandied about to describe the next generation of web-based tools and technologies. Yet, this current form of web-based tools is like a genie out of its bottle. There is no turning back and a new generation of voters and professionals will have new expectations for how they work both with and within government. Web 2.0 and social media can support new ways of working in government in the right conditions. What this study concludes is that senior leaders in the OPS have not created these conditions. For any change to take place, senior leaders need to take up the challenge to create the right conditions for the successful use of these tools in the OPS to support important public administration goals.

APPENDICES

Appendix 1: Opinio Survey on Web 2.0 in the OPS

Web 2.0 in the OPS

Ryerson University Research Consent Agreement

Q1: You are being asked to participate in a research study. The study is designed to explore the use of Web 2.0 in the Ontario Public Service. Before you give your consent to answer the following survey questions, please read the following information. Feel free to ask any questions using the contact information below. The investigator for this study is: Anne Bermonte, Graduate Student at the Department of Politics and School of Public Administration, Ryerson University, Toronto, Ontario. The Research Supervisor for this study is Professor Carolyn Johns, Department of Politics and Public Administration, Ryerson University. Purpose: The purpose of the research is to explore the use of web 2.0 and social media tools by senior leaders in the Ontario Public Service. The research study consists of two parts. The first part is a random sample survey that is being sent to 460 senior leaders in the Ontario Public Service. The second part, consists of interviews with senior leaders in the OPS to probe some of the key findings from the survey. The anticipated benefits of this study include an enriched and enhanced understanding of the use of web 2.0 tools in the Ontario Public Service (OPS) and the challenges senior leaders face related to new information and communication technologies. Research findings are primarily for the purposes of the Masters Research Paper. An Executive Summary of the findings will be shared with the provinces Office of the Corporate Chief Strategist and any research participant or member of the OPS who has expressed an interest in obtaining a copy of the study. The benefits of the findings are thus for both scholarly and practitioner audiences. Method: The survey consists of 22 questions and should take approximately 15 to 20 minutes to complete. Please note that you may skip any question you do not wish to answer without invalidating your other responses. Risks and Benefits: There are minimal risks associated with participation in this research. Participants can reasonably expect to benefit from sharing knowledge and personal experiences and contributing to academic research. The interviewer recognizes the sensitivity of your professional position and person identification, and the information you may impart. The researcher will make all efforts to minimize these risks through confidentiality and your voluntary participation as detailed below. Anonymity and Confidentiality: Anonymity and confidentiality will be maintained to the full extent allowed by law. Every effort will be made to ensure anonymity and confidentiality are maintained. Your responses will not be attributed to you as an individual and confidentiality will be ensured in all publications. The investigator and her academic advisor are the only individuals who will have access to the collected data. The data from the survey will be stored in a locked filing cabinet in the private office of the researchers academic advisor at Ryerson University and kept in that location and possession for one year after which time all data will be destroyed. Voluntary Participation: Participation in this survey is voluntary. You will not be paid to participate in this study. Your choice of whether or not to participate will not influence your future relations with Ryerson University. If you decide not to participate, you are free to withdraw your consent and to stop your participation at any time without penalty or loss of benefit to which you are allowed. If you have any questions about the study you may contact: Anne Bermonte at 416-406-2333 or abermont@ryerson.ca. You may also contact the research supervisor: Dr. Carolyn Johns, Department of Politics and Public Administration, Ryerson University, 416-979-5000 x 6146 cjohns@ryerson.ca. If you have questions regarding your rights as a human subject and participant in this study, you may contact the Ryerson University Research Ethics Board for information. Research Ethics Board/c/o Office of Research Services Ryerson University 350 Victoria Street Toronto, ON M5B 2K3 Agreement: By checking the consent box prior to completing the survey indicates that you have read the information in this agreement and have had a chance to ask any questions you have about the study.

I consent to the terms identified above

Professional and Public Service Background

Q2: In which year did you begin working in the Ontario Public Service?

Q3: What is your current appointment in the Ontario Public Service?

- Director/Head Chief Information Officer Chief Administrative Officer
 Assistant Deputy Minister Deputy Minister Other

If you have chosen "other", please specify:

Q4: In which year were you first appointed to your current position?

Q5: Where do you work in the Ontario Public Service?

- Line Ministry Central Ministry I&IT Organization
 Agency, Board or Commission Other

If you have chosen "other", please specify:

Q6: In which city is your office located in Ontario?

Q7: Does your ministry, division or branch provide direct service to the public?

Yes No

Q8: How familiar are you with the following web 2.0 tools?

	Very familiar	Familiar	Somewhat familiar	Not very familiar	Not familiar
Blogs	<input type="radio"/>				
Twitter (microblogs)	<input type="radio"/>				
Wikis	<input type="radio"/>				
Facebook	<input type="radio"/>				
YouTube	<input type="radio"/>				
Mashups	<input type="radio"/>				
Google Docs	<input type="radio"/>				
SharePoint	<input type="radio"/>				
Webinars	<input type="radio"/>				
OPSpedia	<input type="radio"/>				
Collaboration Tool Service (Flous)	<input type="radio"/>				
Other: please identify below	<input type="radio"/>				

Web 2.0 Use: At home

Q9: Do you use web 2.0 tools at home?

- Yes
 No (please go to question 12)

Q10: How often do you use web 2.0 tools at home?

	Daily	Several times a week	Weekly	Monthly	Never
Blogs	<input type="radio"/>				
Twitter (Microblogs)	<input type="radio"/>				
Wikis	<input type="radio"/>				
Facebook	<input type="radio"/>				
YouTube	<input type="radio"/>				
Mashups	<input type="radio"/>				
Google Docs	<input type="radio"/>				
Other: please identify below	<input type="radio"/>				

Q11: What do you use web 2.0 tools to do at home? Please check all that apply.

	Contribute to online forums	Sharing with friends and family	Personal networking	Entertainment	Other (please specify below)
Blogs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Twitter (Microblogs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wikis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facebook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

YouTube	<input type="checkbox"/>				
Mockups	<input type="checkbox"/>				
Google Docs	<input type="checkbox"/>				
Other: please identify below	<input type="checkbox"/>				

Q12: If you don't use web 2.0 tools at home, please identify all the reasons why. Please check all that apply.

Concerns about security and privacy	Don't have the time	Don't see the value	Never received training	Other (please specify below)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Web 2.0 Use: At work

Q13: Do you use web 2.0 tools at work?

- Yes
 No (please go to question 17)

Q14: How often do you use web 2.0 tools at work?

	Daily	Several times a week	Weekly	Monthly	never
Blogs	<input type="radio"/>				
Twitter (microblogs)	<input type="radio"/>				
Wikis	<input type="radio"/>				
Mashups	<input type="radio"/>				
Google Docs	<input type="radio"/>				
SharePoint	<input type="radio"/>				
Webinars	<input type="radio"/>				
QPSpedia	<input type="radio"/>				
Collaboration Tool Service (Phone)	<input type="radio"/>				
Other (Please specify below)	<input type="radio"/>				

Q15: What do you use web 2.0 tools to do at work? (Please check all the apply)

	Knowledge Creation & Aggregation	Stakeholder Collaboration	Internal Collaboration	Professional Networking	Recruitment	Other (please specify below)
Blogs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Twitter (microblogs)	<input type="checkbox"/>					
Wikis	<input type="checkbox"/>					
Mashups	<input type="checkbox"/>					
Google Docs	<input type="checkbox"/>					
SharePoint	<input type="checkbox"/>					
Webinars	<input type="checkbox"/>					
OPSpedia	<input type="checkbox"/>					
Collaboration Tool Service (Phone)	<input type="checkbox"/>					
Other: please identify below	<input type="checkbox"/>					

Q16: How likely is it that you will expand your use of web 2.0 tools at work in the next 1 to 3 years?

	Very likely	Somewhat likely	Neutral	Not very likely	Not at all
Blogs	<input type="radio"/>				
Twitter (microblogs)	<input type="radio"/>				
Wikis	<input type="radio"/>				
Mashups	<input type="radio"/>				
Google Docs	<input type="radio"/>				

SharePoint	<input type="radio"/>				
Webinars	<input type="radio"/>				
OPSpedia	<input type="radio"/>				
Collaboration Tool Service (Flous)	<input type="radio"/>				
Other: please identify below	<input type="radio"/>				

Q17: If you are not using web 2.0 tools at work, please identify all the reasons why.

Concerns about security and privacy	Don't have time	Don't see their value	Never received training	Tools not available	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q18: If you are not currently using web 2.0 tools at work, what is the likelihood that you will begin to use web 2.0 tools at work in the next 6 to 12 months?

	Very likely	Likely	Possibly	Not very likely	Don't know
Blogs	<input type="radio"/>				
Twitter (microblogs)	<input type="radio"/>				
Wikis	<input type="radio"/>				
Mashups	<input type="radio"/>				
Google Docs	<input type="radio"/>				

SharePoint	<input type="radio"/>				
Webinars	<input type="radio"/>				
OPSpedia	<input type="radio"/>				
Collaboration Tool Service (Plans)	<input type="radio"/>				
Other: please identify below	<input type="radio"/>				

Q19: Should the use of web 2.0 tools in the OPS expand?

Strongly agree	Agree	Disagree	Strongly disagree	No opinion
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demographic Questions

Q20: What is your gender?

- Male Female

Q21: In what year were you born?

Q22: Please indicate the highest level of educational attainment:

- Completed secondary school
 Some undergraduate university
 Completed undergraduate university
 Some College
 Completed College
 Some graduate school
 Completed Graduate School (Please specify below, i.e., MA, M.Sc, MBA, MPA, etc.)
 Professional degree (Please specify below, i.e., LL.B, MD., C.A., P.Eng, etc.)

Q23: In which discipline did you major in the highest level attained?

Thank you for taking time to complete the survey.

Q24: Please feel free to provide any further comments on your use of web 2.0 tools.

Appendix 2: Revised email invitation

My name is Anne Bermonte and I am a student in the Master of Public Policy and Administration program at Ryerson University. I am currently undertaking a Major Research Paper on the topic of "Senior Leaders and Web 2.0 in the government of Ontario." The purpose of the research is to explore the use of Web 2.0 and social media tools (e.g., online collaboration tools including wikis, blogs, webinars, OPSpedia, etc.) by senior leaders. The study will provide an enhanced understanding of the use of Web 2.0 in the **OPS and the government of Ontario's agencies, boards and commissions**, and insights into the challenges senior leaders face related to new information and communication technologies.

The research study consists of two parts. The first part is a random sample on-line survey, which was sent out to senior leaders working in the **Ontario Public Service and the government of Ontario's agencies, boards and commissions**. This is the part in which you are being asked to participate. The second part consists of interviews with senior leaders to probe some of the key findings from the survey.

This survey is intended to serve as a snapshot of senior leaders' use of Web 2.0 in the OPS and in the government of Ontario's agencies, boards and commissions. It is important to capture information from a wide range of individuals including those who are and are not using Web 2.0.

All responses are anonymous and confidential.

Your contribution to the survey is critical to the success of my research in this area. The on-line survey will take approximately **15** minutes to complete. Upon your agreement to participate you will be prompted with a survey consent agreement. Please read the agreement. If you have any questions about the study prior to participating, you may contact me or my research advisor using the contact information below.

If you would like to participate please click on the following link
[https://survey.ryerson.ca:443/s?s=1180&i=\[ID\]&k=\[KEY\]&ro=\[REOPEN\]](https://survey.ryerson.ca:443/s?s=1180&i=[ID]&k=[KEY]&ro=[REOPEN])
Thank you for taking time to consider my request. I hope you will participate in this research survey.

Sincerely,

Anne Bermonte MA, Public Policy and Administration Candidate
416-406-2333 abermont@ryerson.ca<<mailto:abermont@ryerson.ca>>.

Research Supervisor:
Dr. Carolyn Johns, Department of Politics and Public Administration, Ryerson University,
416-979-5000 x 6146 cjohns@ryerson.ca<<mailto:cjohns@ryerson.ca>>

Appendix 3: A copy of the informants' interview questions

1. Can you briefly describe your employment history in the OPS?
 - Which year did you join the OPS?
 - How long have you served in your current position?
 - Which area did you major in college or university?
2. Information on ministry and responsibilities:
 - What is the mandate of your ministry?
 - What are your primary responsibilities?
 - What are your priority issues and/or deliverables?
3. Familiarity and use of Web 2.0 and social media tools
 - How familiar are you with Web 2.0 and social media tools?
4. Are you familiar with the Web 2.0 and social media tools the government of Ontario uses? If so, which ones?
5. Does your ministry, division or branch use them? If so, which ones? If not, why not?
6. Are you experiencing external or internal pressure to use Web 2.0 and social media tools within your ministry? If so, what type of pressure and from whom?
7. Do you think Web 2.0 and social media tools can help address some of the challenges facing public administration? If so, what are the challenges and how can they help? If not why not?
 - Do you see them as a way of recruiting young professionals?
 - What about improving transparency and trust between citizens and government?
 - Can they support horizontal collaboration, especially on cross-cutting policy issues?
 - In an era of shrinking resources, can these tools help government work more efficiently?
8. I've just undertaken an on-line survey and identified a number of interesting findings. For example, senior leaders in the OPS are very familiar with a variety of Web 2.0 and social media tools, but seem to be less familiar with government of Ontario Web 2.0 and social media tools like Plone and OPSpedia. In addition, a number of respondents identified that they aren't allowed to use Web 2.0 and social media tools in the government of Ontario.

- How would you characterize the current use of Web 2.0 in the OPS?
 - Does the approach need to change? If so, how?
 - What role, if any, should senior leaders play in optimizing the use of Web 2.0 and social media tools in the Ontario government?
 - The online survey had a very poor response rate of just under 12%. Do you think it has to do with the subject matter or with survey fatigue amongst senior leaders?
9. Do you have any other comments you'd like to make or offer concerning the use of Web 2.0 and social media in the government of Ontario?

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