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UMI
IMPLEMENTING E-GOVERNMENT:
POTENTIAL IMPACT ON ORGANIZATION STRUCTURE,
BUSINESS PROCESSES, AND COSTS

by
Mehrzad (Matt) Poostchi, B.C.S., B.COMM.(Hon.)

A thesis submitted to
the Faculty of Graduate Studies
in partial fulfillment of
the requirements for the degree of

Master of Business Administration
Eric Sprott School of Business
Carleton University
Ottawa, Ontario
2002
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Implementing E-government: Potential Impact on Organization Structure, Business Processes, and Costs

Mehrzad (Matt) Poostchi

2002
The undersigned recommend
to the Faculty of Graduate Studies
acceptance of the thesis

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Submitted by Mehrzad (Matt) Poostchi, B.C.S., B.Comm.(Hon.)
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the degree of Master of Business Administration

Thesis Supervisor

Director, Eric Sprott School of Business

Carleton University
November 2002
Implications of this study for the Canadian federal government

This study was carried out with the express purpose of helping Canadian federal government organizations en route to E-government. It was designed to act as a stimulus for reflection, discussion, decision, and action on E-government. Backed by an extensive literature survey, the research highlights that

- E-government is a major effort in transformational change
- That there is progress being made, but that the results are mixed – there is a need for ways to measure progress and return on investment, and articulate E-government objectives at the organization and program level
- That policy makers need to be aware of the possible mind set of organizations and activities required to make better preparations for E-government
- That if cost savings are not expected, GOL/E-government should be positioned as a means of improving services and providing a new channel of service

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Abstract

This thesis examines E-government in the Canadian federal government context. An exploratory study asked respondents for their views on the potential impact of E-Government in three areas - organization structure, business processes, and costs. On the potential impact of E-Government on organization structure, specifically, leading to a flatter organization, approximately 40% of respondents agreed with the hypothesis. On the potential impact of E-Government on business processes, specifically, HR processes (such as Recruitment), respondent support was between 28% and 53% for each of the processes. There was stronger support for processes such as Finance, Program Delivery, Procurement and Ministerial Mail. On the potential impact of E-government on costs, specifically, on HR, Finance, IT, and Program Delivery processes, respondents overwhelmingly concurred (between 74% and 96% per process) that there would be little to no cost savings in the short term (less than 5 years). A surprising finding was that a majority of respondents (53%) did not think that E-Government would lead to long term cost savings. The findings are in line with Gartner's (2001) study outlining the challenges of turning e-government into reality, namely, difficulty in effecting change in the public sector, lack of funding, complex, expensive initiatives, and rigid governance structures. E-government is new territory. Organizations will need time to learn, adopt, and harvest its benefits.
Acknowledgements

Many people have helped make this thesis possible. I would like to thank my thesis supervisor, Dr. Gerald Grant, for his constant encouragement and guidance. Thank you for making the light at the end of the tunnel visible and the goal achievable. Dr. George Haines Jr., thank you for your valuable feedback and direction in the early stages of this thesis even though on sabbatical leave. To Dr. Uma Kumar and Dr. Vijay Jog, thank you for accepting to be on the thesis committee despite your tremendous workloads. Your encouragement and timely feedback is greatly appreciated.

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To my dear friend and colleague, Watson Seto, who was kind enough to review a full draft of my thesis and provide valuable feedback, I thank you. My sincere thanks also goes out to my classmates for their valuable feedback on draft documents and questionnaires.

The acknowledgements are not complete without a note of thanks and appreciation to my extended family for their support and constant encouragement and to my parents, but for
whose sacrifices, this thesis would not have seen the light of day. I dedicate this thesis to you.
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Chapter 1 - Introduction

With the advent of the Internet and the World Wide Web, new models of doing business have emerged. Companies have experimented with these various models with varying degrees of success. Governments are not immune to these changes and are under increasing pressure to change their traditional business model to what is commonly referred to as “E-government – Electronic Government”, with ready access to information, increased self-service options for citizens and businesses, and increased accountability and democracy. E-government is a relatively new arena for sponsors and participants, and as such there are bound to be successes and failures.

In studying the impact of e-government, what is really being looked at is the impact on an organization’s internal processes, organization structure and costs when faced with strategic information technology implementations. In the E-Government context, this would apply to government organizational business processes and organization structures that would need to be modified to better serve citizens, businesses and partners.

In 1999, the Canadian federal government announced that it would become a model user of information technology and the Internet, and become known around the world as the government most connected to its citizens. Certain targets were set in a phased approach to be completed by 2004 and others beyond that (Treasury Board of Canada, 2000a). This date has now been moved to 2005. Most of these targets, however, were transactional in nature and did not address improvements in the democratic process or increasing input
into the decision making and policy setting of the government or increasing the accountability of government.

The Canadian government has been praised for being one of the first nations to address the transition to electronic government with the release of the paper entitled “Blueprint for Renewing Government Services Using Information Technology” (Tapscott, 1996). The document proposes a "government-wide electronic information infrastructure to simplify service delivery, reduce duplication, and improve the level and speed of service to [the public] at a lower cost to the taxpayers". Some elements of this proposal have been implemented, such as Revenue Canada’s single business number that allows the government to treat a business as a single entity.

The Canadian government realizes that to achieve its stated goals there is going to be a great impact on business practices, human resources, information resources, and technology infrastructure (Treasury Board of Canada, 2000b). It is these potential impacts and changes that this thesis is going to concentrate on. Information gathered for this thesis will not only concentrate on data to test the hypotheses, but also data to assess the progress made towards E-government (more specifically the Government Online Program).

The rest of the chapters will flow as follows. Chapter 2 will provide an overview of relevant literature, Chapter 3 will develop the research methodology, Chapter 4 presents the findings of the research, Chapter 5 is a discussion of the findings and Chapter 6
concludes with the limitations and benefits of the study and suggestions for further study.
Chapter 2 - Relevant Information from the literature

2.1 Defining E-Government

Gartner (2001) defines E-government as “the transformation of public sector internal and external relationships through net-enabled operations, IT and communications, in order to improve: government service delivery, constituency participation, and internal government operations.” E-government covers a broad spectrum of automation: A web page or portal put up by a government for information purposes or hiring new employees, the networks and infrastructure that allow e-government to take place, supply chain management – electronic government procurement, filling a government form or paying a fee online, taking part in live debates of the House of Commons or interactive participation in a Tribunal, voting electronically or providing input into policy issues, doing tax returns online or receiving benefits electronically, and employment kiosks; Essentially, any aspect of government-to-citizens, citizens-to-government, government-to-business, business-to-government, and government-to-government interactions that can be improved through the use of Information and Communication Technologies (ICTs) should be included in the definition of e-government. The definition of e-government includes electronic transactions or information involving three players (governments, citizens and businesses) carried out over open networks or those that are carried out internally but with a connection to open networks. It also includes the activities carried out and the infrastructure used to make those transactions or information
possible. To this definition we will also add intermediaries, such as ISPs (Internet Service Providers) and financial institutions. The reason for adding intermediaries is the important role that they play in making e-government possible. For example, financial institutions such as banks are an important financial intermediary between the government, the individual and business. Using electronic funds transfer (EFT), the government deposits monies directly into an individual or business's bank account. ISPs provide services that allow individuals and businesses to access the open networks such as the Internet. For example, the Canadian government uses private intermediaries to provide Customs kiosks at airports to facilitate customs clearance in congested airports.

Content and rules will be provided by government, while maintenance and costs of the kiosks is born by the intermediary. In return the intermediary gets to put other non-government services on the kiosk and sell those services to other parties such as airlines, hotels, car rental and credit card companies to recover its costs and make a profit. Therefore, e-government cannot be defined without consideration for the important roles played by intermediaries to make E-government possible. We can also look at the definition from what E-government is not. E-government is not any one single technology or network (OECD, 1997a). Next we'll consider why governments are pursuing E-government.

2.2 Why E-government?

There are many reasons why governments are pursuing e-government. Some of these are
listed below:

- **Provision of general information about government activities.** This is usually the first step towards a net presence. With its wide reach it is easy to see why governments would choose this channel for disseminating information. (OECD, 1997b).

- **Electronic benefits transfer (EBT).** This is a way to improve the integrated delivery of payments for several social service benefits through electronic exchange of funds, usually through a financial intermediary. EBT substantially reduces costs to government agencies, recipients, and intermediaries such as participating retailers and financial institutions and is likely to decrease fraud (OECD, 1997b).

- **Cost Reduction.** Electronic procurement processes can be used to reduce the transaction costs and inefficiencies associated with government's economic activity as a large consumer. More sophisticated applications include electronic invitations to tender, distribution of catalogues, dispatch of orders and confirmation, delivery, invoicing, accounting, and the registration of payments (OECD, 1997b). Downloadable and interactive forms also have the potential of reducing the need for pre-printed paper inventories and the associated storage, handling and postage costs.

- **Transportation.** Governments are deploying information systems to ease congestion, and make travelling safer and more convenient. (OECD, 1997b). Canada carried out a rapid customs clearance pilot for routine goods. A truck mounted device would transmit the details of the driver and contents to a customs officer with enough time to be cleared before the truck reached the border.
• **Health.** A Danish analysis found that about 30 per cent of total work time in hospitals is devoted to registration and administration, while direct patient treatment and care accounts for only 16 per cent. (Danish Ministry of Research and IT, 1995). Similar statistics exist for the United States, and it is thought that potential savings from e-government could range from $5 billion to $36 billion annually. The main uses of information systems for health care are to store patient records, to automate financial records and billing procedures, and to provide medical services to remote areas through tele-medicine (OECD, 1997b).

• **Education.** Governments have used electronic information systems in the field of education to provide distance learning, disseminate lesson plans and curriculum materials, and use IT in the classroom as a teaching tool. To this end, they have launched initiatives to digitize libraries, acquire equipment, train teachers, and develop electronic educational materials (OECD, 1997b).

• **Democracy.** Two essential elements of democracy are freedom of speech and association. By giving individuals and groups a relatively inexpensive and fast way of communicating, the new information and communication technologies can add new voices and strengthen points of view in democratic debate (OECD, 1998a).

• **Government as catalyst, user and sponsor.** Government adoption and use of electronic information systems is an important way to support the development of information infrastructures, stimulate demand, and provide incentives to invest in broad-band infrastructures (Mansell and Tang, 1994) (OECD, 1998a). Shapiro and Varian (1999) state that the government does more than just impose regulatory rules
as a way of promoting competition and innovation. The government can affirmatively finance, endorse, and adopt technologies to speed their widespread use.

- **External Pressures.** Citizens and businesses are expecting to do business with government the same way they are able to do business with private businesses over open networks. Governments also want to be known as progressive. More than one government has announced its intention of wanting to be the government most connected to its citizens.

We next look at E-government constructs.

### 2.3 E-government Constructs

Figure 2.1 presents a model developed at Keio University, and presents a diagram connecting the three basic participant groups – business, government, and individuals (OECD, 1997a).

![Participant Groups in Electronic Commerce](image)

*Source: Diagram developed by J. Kokuryo, Graduate School of Business Administration, Keio University, Yokohama.*

**Figure 2.1 - Participant Groups in Electronic Commerce**
This diagram allows for interactions between government-government, government-business, business-business, business-individual, individual-individual, and individual-government. To this diagram we have added a circle in the middle indicating intermediaries between Government and Business, Business and Consumer and Consumer and Government (see Figure 2.2). Direct links to government without intermediaries is also possible, as in the case of a large company such as General Motors exchanging import information with Canada Customs or an individual using a government-provided kiosk to access services. Intermediaries have been added to indicate the key role that they currently play in making e-government possible and the role that they will play as governments try to stream-line operations and move non-core functions to the private sector. By concentrating on core functions, intermediaries will have to be introduced to assume the non-core functions and hence the proliferation and importance of such intermediaries.

**Figure 2.2 - Modified E-Government Participants and Flows**
Although there has been some loss of traditional intermediaries with the advent of the Internet, there is also evidence that new intermediaries have been created to take advantage of, link and provide services over the Internet. Indeed, many forms of Electronic Commerce may not be sustainable unless new forms of intermediation develop to support the customer/supplier relationship. In some circumstances, intermediation can reduce transaction costs by adding value to product information and coordinating transaction support structures such as contract negotiation, credit, insurance, funds transfer and logistics (OECD, 1997a). One of the growth business areas in an electronic marketplace could well be in the field of intermediation – setting up businesses that co-ordinate all of the support mechanisms necessary to preserve buyer and seller confidence in the market. An example of such an intermediary is eBay (OECD, 1997a).

The existence and proliferation of these new intermediaries is what Carr (2000) calls “hypermediation”, because not only has the Internet not eliminated the middle man, it has, in some instances, introduced many more than were originally present. Kalakota and Robinson (1999) talk about value chain disaggregation (separating the means from the end by identifying, valuing and nurturing the true core of the business, in this case government) and Reaggregation (finding a configuration that streamlines the business model, in this case, the channels that would most benefit the participants in e-government). In discussing disaggregation and reaggregation of value in the book “Creating Value in the Network Economy”, Tapscott (1999) states that every business or industry is based on a value proposition—value that is proposed and consumed by customers. He states that the value proposition contains a number of elements that are
aggregated from suppliers and employees and delivered to customers. However, in the
digital economy, these elements can be disaggregated into their sub-components,
changing the network and the business model. Tapscott calls these new intermediaries
"reintermediaries".

Channel intermediaries provide value by interposing between buyers and sellers as they
lower the costs of transactions and make most goods and services cheaper. While new
technology does not remove channel functions, Westland and Clark (1999) point out that
the intermediaries may be moved forward or backward within the channel. The functions
these intermediaries perform are likely to change significantly. Individual intermediaries
may be hurting, but, in general, intermediaries are doing well and increasing according to
Tapscott, Ticoll and Lowy (2000). They propose a new term to describe this phenomenon
“polymediation”. The table below (Putnam, 2000) provides examples of some
intermediaries that have been created as a result of the Internet.

Table 2.1 - Types of Intermediaries

<table>
<thead>
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<th>Type of Intermediary</th>
<th>Market inefficiency addressed</th>
<th>Market Role</th>
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<tbody>
<tr>
<td>Aggregators:</td>
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<tr>
<td>Definition: A one-stop shopping venue. Examples: Chemdex, SciQuest</td>
<td>Fragmented buyer and seller community</td>
<td>Consolidate buyer demand and seller supply</td>
</tr>
<tr>
<td>Auctions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition: A mechanism for liquidating surplus at best possible prices Examples: FastParts, Industry-to-Industry</td>
<td>Imperfect forecasting</td>
<td>Liquidate excess inventory</td>
</tr>
<tr>
<td>Exchanges:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition: An industry spot market for commodity-like products</td>
<td>No last-minute market</td>
<td>Match buyers with sellers</td>
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<tr>
<td>---------------------------------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Examples: Altra Energy, ACE Market</td>
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</tbody>
</table>

Is government a candidate for disintermediation? Tapscott (1996) explains the tedious process endured by customers of government in accessing services from government agencies, each with an office, staff, subcontractors, and related costs, and each delivering various degrees of service effectiveness. Tapscott proposes a single window on government through the information highway that would be accessible from the home (computer, television, or telephone), place of work, information kiosks, or other information appliances. Taxpayers could interact with computer-based services as appropriate or contact a human being (by audio or video) if necessary. Tapscott envisions that if managed effectively, disintermediation could not only save billions of tax dollars but bring government closer to its constituents and improve customer service.

The business and individual loops have been researched and written about extensively. The government loop and its connections with business and individuals are not as well researched. A lot of what is written is speculative. This thesis allows for the development of empirical evidence through exploratory research.

2.4 The Configuration of E-government

This section discusses a number of different models of organization structure and
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an “e-federal organization community”, defined as an online network of customers, suppliers and value-added processes (Ticoll, Lowy and Kalakota, 1998). They state that it is the network of businesses that will increase the value of the individual business. In the case of government, a network of federal government organizations increases the value of single organization. Tapscott, Ticoll and Lowy (2000) define five web-based business models, what they call “b-webs”, to create this “e-business community”. (1) An Agora b-web, which facilitates exchange between buyers and sellers, who jointly "discover" a price through on-the-spot negotiations. An example would be eBay. This could apply to government procurement. (2) An Aggregation b-web, one company—like Wal-Mart—leads in hierarchical fashion, positioning itself as a value-adding intermediary between producers and customers. The lead aggregator takes responsibility for selecting products and services, targeting market segments, setting prices, and ensuring fulfillment. The department of Public Works and Government Services fulfills this task to a certain degree for other departments. (3) A Value Chain b-web, where the context provider structures and directs a b-web network to produce a highly integrated value proposition. The output meets a customer order or market opportunity, example, an individual buying of a car with custom trim. The government is beginning to address this through its citizen-centered initiatives. (4) An Alliance b-web strives for high value integration without hierarchical control. Its participants design goods or services, create knowledge, or simply produce dynamic, shared experiences. Alliances include online communities, research initiatives, games, and development communities. Similar alliances exist between federal government organizations and provincial organizations. (5) The Distributive Network b-webs include roads, postal services, telephone companies, and
electrical power grid of the industrial economy. Distributive Networks include data
network operators like Telus and Bell.

Moore (1998) compares traditional organizations (the M-Form organization) to his
proposed organization of the future (the E-Form organization) and states that the E-form
organization differs mainly in its orientation to the future, rather than the present, and in
its attention to resources and opportunities. While any single difference might not be
significant, together they result in an organization that operates with profoundly different
priorities and with a dramatically broader and deeper worldview than the M-form. He
recommends electronic “ecosystems” very similar to “b-webs” and “e-business
communities”. Jeremy and Tony Hope (1997) describe some of the differences and
requirements between second wave organizations (built around the availability and use of
land, labor, and money), and third wave organizations (based on the deployment of
knowledge and the imaginative use of technology). They point to the fact that in most
large American manufacturing companies the intangible assets are now worth twice the
tangible assets - a reversal of the position only ten years ago. In service and high-tech
companies this multiple is five- to fifteen-fold. These intangible or intellectual assets are
based primarily on the skills and capabilities of the organization’s knowledge workers.
Similarly, those facets of governments that provide services to citizens and businesses are
mostly made up of knowledge workers backed by massive information systems.

Governments are industrial-age organizations, based on the same command-and-control
model of the enterprise that was created for the industrial economy with many
“stovepipe” bureaucracies - with information flowing only vertically within and rarely between federal organizations (Tapscott, 1996). Government-wide information infrastructures enable new forms of disintermediation as middle layers of duplication across federal organizations are eliminated and facilitate what Tapscott calls “molecularization”, the moving of certain government functions into smaller, more dynamic units or even non-governmental forms.

There is a move for private businesses to take over what Schiller (1999), calls functions of “social reproduction”, such as hospitals, schools, and jails normally in the realm of governments. Activities long exempt from the direct workings of the for-profit market economy are being placed on a true business basis. For example, background checks on would-be U.S. federal employees are performed by a for-profit, privatized government agency. Canadian federal government organizations have already experienced the privatization of activities such as grounds and building maintenance. The organizations of the knowledge age will not be asking employees “to do it this way”, rather to "do it the best way you know how." (Haeckel and Nolan, 1999). In order to achieve this, organizations have to get rid of the old chain of command that was designed for a relatively stable environment. However, without coordination, accountability, and shared objectives, Haeckel and Nolan feel that this approach can often lead to paralysis rather than coherent company-wide behavior.

Thomas Malone and Robert Laubacher (1999) propose a model, similar to the one used to build the Linux operating system, for a new kind of business organization that could form
the basis for a new kind of economy. The model is based on a temporary, self-managed
gathering of individuals engaged in a common task. The fundamental unit of such an
economy would not be the corporation but the individual. Tasks aren't assigned and
controlled through a stable chain of management but rather are carried out autonomously
by independent “contractors”. These electronically connected freelancers - e-lancers as
the authors call them - join together into fluid and temporary networks to produce and sell
goods and services. When the job is done—after a day, a month, a year—the network
dissolves, and its members become independent agents again. In the e-government
context, projects can be speeded up if expert teams are brought together from various
federal organizations to carry out a project and dissolve once the project is completed.
The literature presented in this section would indicate that the old hierarchical
organization structure of federal organizations and old business processes may not work
well in an e-government setting.

2.5 E-government in Canada

Canada has a population of 30 million spread across more than nine million square
kilometers and spanning six time zones. Some 77% of the population are located in towns
and cities; the other 23% live in rural and remote areas. There are two official languages,
English and French. Canada has a well-developed Internet infrastructure with all major
cities connected to a high-speed backbone, the cost of access is relatively low and an
increasing proportion of the population has access (OECD, 2000a).
The Canadian federal government has developed a “Connecting Canadians” agenda. There are three key primary drivers behind Canada’s connecting agenda. Firstly, information and communication technologies are not only changing the nature of work but also the nature of relationships and of expectations, including the expectations that Canadian citizens and businesses have of their government. Secondly, the impact of globalization on the economic and social structure means countries cannot make public policy in isolation of the global context. The third driver is the push towards citizen-centered service delivery. Technology provides the opportunity to offer services in a timely and affordable manner, based on the needs of citizens. (OECD, 2000a).

Below is a list of some of the strategies and initiatives in support of the Connecting Canadians agenda (www.connect.gc.ca). They include:

1) The Government On-Line (GOL) initiative (www.gol-ged.gc.ca), the government’s plan to deliver electronic access to government information and services by December 31, 2005. Government On-Line or GOL combines electronic technologies with a citizen-centered delivery model to deliver integrated services. It will give clients seamless entry to the full range of government institutions, enhance the delivery of service to the public, increase the productivity of the Public Service, and improve Canada’s competitiveness in a global economy. The principles guiding government on-line are: Client-Driven Service (Information and services will be grouped according to citizen and business needs; Information and services will be intuitive, easy-to-use, relevant, current, and reliable), Convenient and Accessible (Information and services will
be accessible from home, work, or public access site, in ways that accommodate the needs of all Canadians in both official languages; Access to information and services will be available 24 hours a day, seven days a week with live support available during designated business hours), Consistent (Information about programs and services will be consistent for all service delivery channels (i.e., telephone, mail, in-person, and electronic), Responsive (Services will have predictable turnaround times based on pre-determined and published program service standards), Private and Secure (Privacy will be respected and protected; Security safeguards will be in place commensurate with client requirements).


(2) Strategic Directions for Information Management and Information Technology:

enabling 21st Century Service to Canadians

(www.tbs-sct.gc.ca/Pubs_pol/ciopubs/TB_OIMP/sdimit_e.html), a strategy outlining broad-based visions and plans for a more citizen-centered government. It outlines a series of priorities to lever the government’s significant investments in information management and technology and move towards a more integrated, collaborative model of government;

(3) Electronic Commerce Strategy (www.e-com.ic.gc.ca), the policy framework to engender trust in electronic transactions. This includes legislation to protect personal information in private sector transactions, and to provide legal certainty for the use of
electronic signatures and records, as well as a policy encouraging the use of cryptography for electronic commerce.

(4) Canada On-line (www.gc.ca), a variety of programs to increase public access to the Internet. Canada was the first country in the world to connect all its schools and libraries, and is now in the final stages of setting up 10,000 access points in communities across Canada through the Community Access Program; 5,000 rural and remote communities and 5,000 in urban neighbourhoods.

(5) Cultural Content On-line, a plan to bring Canadian culture into the digital age. Through consultations three areas were identified as key: digitizing significant collections and setting up the virtual museum of Canada; assisting new media producers to create innovative cultural content; and improving access to Canadian cultural content through better visibility, branding and distribution.

The Statistics Canada’s Household Internet Users Survey revealed that 42% of Canadian households contain at least one regular Internet user in 1999. This figure continues to grow. Three separate surveys conducted in 2000 have shown the percentage of Canadians using the Internet has climbed to around 60%. At the start of 2000, EKOS Research predicted that 80% of Canadians would be on-line by 2002. While Canadians continue to favour telephone and in-person methods of communication with the federal government, there is an increased percentage that would like to access government programs and services over the Internet (OECD, 2000a).
This concludes the discussion of why governments are pursuing E-government, and the initiatives being carried out by the Canadian government. The next section will discuss the impacts that the introduction of major IT projects have on organizations.

2.6 Impact of IT on Organizations

The introduction of information technologies in an organization has a profound effect on organization structure, work processes and employees (Hammer, Champy, 1993). E-government requires the introduction and use of numerous information and communication technologies to succeed and this in turn will most likely influence federal organization structures, work processes and employees. Drucker (1988) predicted that when an organization focuses its data processing capacity in producing information, its organization structure would change. The government is a major collector and producer of information. According to Drucker, both the number and levels of management can be cut. Westland and Clark (1999) reinforce this idea of IT impacts by stating that computer and communication networks have nurtured two significant phenomena: the flattening of hierarchy and demise of many traditional jobs via downsizing and the development of efficient market alternatives to many internal corporate activities. Organizational hierarchy can be reduced and firms downsized because of the speed and volume of information that can be automatically processed and passed around the firm.

A growing body of research has identified the link between the adoption of information
technologies and corresponding changes in the structure of organizations. These changes range from shifts in human capital requirements (Griliches, 1969; Berndt et al., 1992) to changes in decisions about whether to "make" or "buy", as information technology lowers the transaction costs of outsourcing what was previously produced internally (Brynjolfsson et al, 1994). Some have even suggested that a complete re-engineering of the business process is required to fully take advantage of IT innovations (Hammer, Champy, 1993). The OCED (1997a, 1997b, 1997e, 1999c, 2000d) predicted that the effects of Electronic Commerce on the workplace would be profound as it would induce significant changes in the way work was defined and managed, but comprehensive structural and organizational change would be required to reap its full benefits.

One study (OECD, 1997b), identified the following organizational changes associated with the adoption of information technology networks: increases in the percentage of persons engaged in business planning, research and development, information processing, sales and distribution, and decreases in persons engaged in production ("blue-collar"). In general, the use of information networks complements white-collar jobs and substitutes for blue-collar jobs. The data suggest an upward skill bias. The data also suggest that the adoption of IT causes broad job reallocations, rather than simply the creation of IT-related jobs. Those firms that adopt a network for both business support functions (accounting system, labour management) and management planning had a significant reduction in their blue-collar work force.

The new economy is a knowledge-based economy, raising the potential for quality of
work life (QWL) (Tapscott, 1996, 1999). It means a shift to white-collar jobs, up from 20% of the workforce in 1900 to almost 60% in 1996. Blue-collar work has declined from almost 40% of the workforce to just over 20% in 1996. Knowledge-based jobs tend to require greater skills and have greater variety and potential for good QWL.

Throughout most of the nineties, managers worked hard to flatten their organizations, both to control costs and because network structures perform better than hierarchies under most conditions. OECD’s (2000b) findings regarding a firm’s effective use of information and communication technologies (ICT) indicate that it typically requires organizational change, restructuring and investment in human capital. Given below is a table showing the result of various studies on the impact of IT.

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Issue addressed</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lichtenberg (1995)</td>
<td>US firms 1988-1991</td>
<td>Output contribution of capital and labour deployed in information systems</td>
<td>One information systems employee can be substituted for 6 non-information system employees without affecting output</td>
</tr>
<tr>
<td>Hitt and Brynjolfsson (1997)</td>
<td>More than 600 large US firms, 87-94</td>
<td>The impact of the adoption of IT and organizational decentralization on productivity</td>
<td>Firms that adopt both IT and organizational decentralization are on average 5% more productive than those that adopt only one of these</td>
</tr>
<tr>
<td>Black and Lynch (97 and 2000)</td>
<td>US firms 87-93, 1993, 1996</td>
<td>The impact of workplace practices, IT and human capital on productivity</td>
<td>The adoption of certain newer work practices, higher educational levels, and the use of computers by production workers have a positive impact on plant productivity</td>
</tr>
<tr>
<td>Brynjolfsson and Yang (1998)</td>
<td>Fortune 1000 US firms 1987-94</td>
<td>The impact of IT and intangible assets on firm performance</td>
<td>The market value of USD 1 of IT capital is the same as that of USD 10 of capital stock. This may reflect the value of intangible investment</td>
</tr>
<tr>
<td>Name, Author (Year)</td>
<td>Impact of the adoption of IT and organizational decentralization on productivity</td>
<td>The market value of USD 1 of IT capital is higher by USD 2-5 in decentralized firms</td>
<td></td>
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<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Brynjolfsson, Hitt and Yang (1998)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bresnahan, Brynjolfsson, Hitt (1999)</td>
<td>Complementarity between IT investment, human capital and decentralized organizational structure</td>
<td>IT combined with work practices such as higher skills, greater educational attainment, greater use of delegated decision making lead to a higher value of IT investment</td>
<td></td>
</tr>
</tbody>
</table>

Hammer (1990) advocates obliterating old processes and starting with new ones. He asks organizations to use the power of information technology to radically redesign business processes in order to achieve dramatic improvements in performance. According to Lopez-Bassols and Vickery (2001), many of the established rules of business still apply, although in updated and adapted form. E-business involves what Martin (1999) calls the “Netting” of the entire value chain. Martin claims that the intranet will put more information in employees’ hands and create virtual work communities, irrevocably altering the dynamics of the workplace for both individuals and companies.

Organizations are increasingly using enterprise systems (such as SAP and PeopleSoft) to tie their information islands together and to bring their organization into the network age. Such enterprise systems form the backbone for service delivery for many organizations.
However, as Davenport (1999b) points out, an enterprise system, by its very nature, imposes its own logic on a company’s strategy, organization, and culture. The business often must be modified to fit the system because an enterprise system is a generic solution. Most companies installing enterprise systems will need to adapt or even completely rework their processes to fit the requirements of the system. Governments spend a major portion of their budget collecting, processing, and disseminating information—whether tax records, weather data, research results, or economic statistics (Nelson, 1998). Just as information technology is profoundly changing the structure of business, it can be expected that new computing and communication technologies will dramatically change the structure and function of government at all levels.

The literature presented in this section highlighted the impact of IT on organizations. Impacts include organization structure change, business process change, a reduction of blue-collar workers, an increase in white-collar workers and an upward skill bias. We can expect the introduction of various initiatives to implement E-government to have similar impacts.

### 2.7 Impact of Organizational change

E-government is expected to require major organizational change, planned or unplanned. Planned change provides for change in an orderly, incremental, and less painful manner. Unplanned change generally results in painful, back-to-the-wall transitions, high cost, low morale and often with unintended side effects.
2.7.1 Planned Change vs. Unplanned Change

Cummings and Worley (1997) discuss various models of planned change ranging from Lewin's (1947, 1951) early model which has a top down dictatorial approach to change, to later models which have more of a bottom up group approach to change. The common theme with all planned change is that there is a planning stage, an implementation stage and an evaluation and feedback stage. Research (Eden, D. 1986,1988) indicates that if employees are involved in creating the vision, they will be committed to achieving the changes required.

Nadler, Tushman(1995) point out that “Discontinuous Change” requires radical change within organizations, where the organization is trying to build a whole new configuration, with a new strategy, and new formal organizational arrangements. Organizations don’t normally plan for discontinuous change. Nadler and Tushman contrast this approach to what they call “Incremental Change”, where the organization is constantly improving and adapting its policies, procedures and organization structure to fit the changing environment. Nadler and Tushman describe discontinuous change as more traumatic, painful and demanding on the organization. Changes are more sudden and severe and involve destruction of elements in the existing system. In this type of change, senior managers are the key drivers of change, but many senior managers may not be able to cope and may involve the replacement of a significant number of senior executives to allow for the implementation of change. Unplanned change is what Beer and Nohria (2000) call “Theory E”, which is a “hard” approach to change, involving heavy use of
economic incentives, drastic layoffs, downsizing and restructuring. A planned change, on the other hand is what they call “Theory O”, promoting a “soft” approach to change. The goal in Theory O is to develop corporate culture and human capability through individual and organizational learning. Beer and Nohria recommend a mixed approach for organizations where the situation warrants it, but warn that it is extremely difficult to practice both theories.

Existing organizational structure can act as an enabler or hurdle to change (Greiner, 1972). Greiner mentions two points that are applicable within a government setting. The passage of time, which contributes to the institutionalization of managerial attitudes, and the size of the organization which leads to complex problems and requires complex solutions. In describing the reaction of government to change, Tapscott (1996) states that many governments seem slow to comprehend the shift that is taking place. Bureaucracies, he says, resist change.

2.7.2 Impact of change on an organization

The impact of change on an organization depends on whether the change pressures are internal or external. Peter Cohan (2000) provides the following table (2.4) to illustrate this point.
Table 2.4 - "Nature of change management process by source of e-commerce strategy and extent of business model change." (Cohan, Peter S. 2000, p.145)

Cohan defines "Incremental" (Low-Internal Pressure) as organization investments in e-commerce applications that are likely to lead to increased efficiency of an internal activity with no impact on customers. The pace of the implementation process would be set by an internal timetable. "Controlled" change (High-Internal Pressure) is interpreted as investments that are likely to have a significant impact on the organization's relationship to its customers. Because the organization directs this change process at its own initiative, the company is in control of the design of the e-commerce application and the pace of its implementation. The difference between the controlled and the incremental change process is that the controlled process is more complex, and involves the resolution of very strategic business issues before the implementation process begins. "Imitative" change (Low-External Pressure) is described as investments in e-commerce applications that are likely to lead to increased efficiency in the performance of an internal activity that does not have too much of an effect on customers. Since the source of the idea is external, it is likely that a competitor is already further along in the implementation of the e-commerce application. Cohen explains "Reactive" change (High-External Pressure) as investments
in e-commerce applications that are likely to change substantially the performance of an activity that has a significant impact on the organization’s customers. It is likely that the process of implementing the e-commerce application will be reactive. The key qualitative differences between the reactive and the imitative change process are that the reactive process is much more intense, and the reactive process involves the resolution of very strategic business issues about which there may be serious internal disagreement.

Canadian federal organizations are facing these internal and external pressures in varying degrees and responding to them according to their mandate and available resources.

2.7.3 The Learning Organization

The knowledge economy, of which E-government is a part, requires changes at three levels, the individual, the team and the enterprise (Paul Woolner, 1998). Woolner proposes the following for designing the new digital organic enterprise, in our case E-government and its constituent parts.

<table>
<thead>
<tr>
<th>INDIVIDUAL</th>
<th>TEAM</th>
<th>ENTERPRISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning needs linked to strategic business issues</td>
<td>Teams recognized as primary means of continuous improvement</td>
<td>Continuous and open monitoring of external environment</td>
</tr>
<tr>
<td>Individual competencies linked to key capabilities</td>
<td>Teams also focus on their own performance and development</td>
<td>Opportunity for many people to contribute to business strategy, especially regarding implementation</td>
</tr>
<tr>
<td>Learning integrated with day-to-day activities</td>
<td>Team's collective learning generates new business understandings</td>
<td>Business strategy development as part of continuous organizational learning</td>
</tr>
<tr>
<td>Individual responsibility taken for learning</td>
<td>Teams surface and reframe underlying assumptions of business</td>
<td>Experimentation and risk taking at all levels</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
</tbody>
</table>

In knowledge economies, the rapid pace of technological change means that learning must be constant and that education must be updated throughout one's working life (Davis, Botkin, 1999). This has ramifications for the training philosophies and HR processes of federal organizations.

2.7.4 Approaches to Change

According to Jeanie Duck (1998), organizations are using a mechanistic model to change, first applied to managing physical work, and superimposing it onto the new mental model of today's knowledge organization. Robert Schaffer and Harvey Thomson (1998) recommend results-driven improvement programs that focus on achieving specific, measurable operational improvements within a few months by relying on an incremental approach to change, building on what works and discarding what doesn't. As a result, successes can come quickly, and managers build their skills and gain the support of their employees for future changes.

If the change is “unplanned”, then Mitroff, Mason, Pearson (1994) highlight six key competencies that today’s organizations must have to achieve the desired change. These include crisis management, issues management, total quality management, environmentalism, globalism, and ethics. The core activities of each function are continuous assessment and design. Kotter (1998) provides the following steps to
transforming an organization: Establish a sense of urgency, form a powerful guiding coalition (assembling a group with enough power to enable the change), create a vision, communicate the vision, empower others to act on the vision, plan for and create short term wins, consolidate improvements and create more change, and institutionalize new approaches (it should now be part of the culture).

Kotter warns that change involves numerous phases that, together, usually take a long time. Skipping steps creates only an illusion of speed and rarely produces satisfying results. Despite the very best effort of senior executives, major change initiatives often fail (Paul Strebel, 1998). These failures have at least one common root: Executives and employees see change differently. For senior managers, change means opportunity - both for the business and for themselves. But for many employees, change is seen as disruptive and intrusive. To close this gap, says Paul Strebel, managers must reconsider their employees' "personal compacts" - the mutual obligations and commitments that exist between employees and the organization. Personal compacts have three dimensions: formal, psychological, and social. Employees determine their responsibilities, their level of commitment to their work, and the organization's values by asking questions along these dimensions. How a company answers them is the key to successful change. Hall, Rosenthal, and Wade (1993) studied the results of haphazard business reengineering, and concluded that the breadth and depth of change is critical in translating short-term, narrow-focus process improvements into long term benefits. They argue that, for a change to be effective, it must penetrate to the organization's core, changing six organizational elements: roles and responsibilities, measurements and incentives,
organizational structure, information technology, shared values, and skills.

Martin (1999) lays out what he describes as impediments to change: lack of speed, inflexibility, corporate will, old business models, internal focus, skills and habits, the desire for perfection. Tapscott (1996) expands on the idea of resistance to change and states that it is rational. He says that although theorists expound the end result of business re-engineering as being improved customer service, the real goal of most re-engineering projects is to streamline processes and reduce costs through staff reductions. Employees naturally resist such change, passively and actively.

The Treasury Board of the federal government recently announced (Ottawa Citizen, 2001) a “comprehensive” overhaul of the federal public service within 18 months, with the goal of “modernizing the entire framework of policy and legislation” that affects everything from labour relations and collective bargaining to promotions, pay, training, learning and workload. How can the government bring about this “comprehensive” overhaul without massive changes to business process and organization structure? Will this massive change increase short-term costs?

This section presented issues and approaches to change. It is expected that E-government will result in major organizational change. If change is unplanned, it is painful and traumatic to the organization. If change is planned, the organization and employees don’t suffer as much and changes are done in incremental steps. Resistance to change is to be expected and implementing change can take a long time, especially in bureaucracies.
2.8 Adoption and Use of E-government

E-government adoption by the general public, businesses and government organizations will most likely take the form of the "S" curve as presented by Rogers' Diffusion of Innovation model (Rogers, 1983, 1995) (Watson, 1999). This theory has been used to explain many types of adoptions of innovations. Types of adopters include innovators, early adopters and later adopters. Figure 2.4 is a graph showing the expected type of acceptance and use adapted from a Forrester Research (Putnam, 2000) presentation.

![Graph showing the S curve]

Figure 2.4 - Adapted from: Putnam, Michael Analyst (2000) "Business-to-Business: The U.S. Experience", Business eCommerce, Forrester Research, pp. 5

In his books Crossing the Chasm (1991) and Inside the Tornado (1995), Geoffrey Moore presents a bell-shaped curve to illustrate what he calls the technology adoption life cycle. His curve organizes the cycle into stages. Each stage requires specific kinds of leading edge work as players confront the particular issues related to change at that stage (Stefik
We can view e-government adoption by citizens and businesses as a "network effect", a dynamic process by which a solution becomes useful or useless depending on whether it is adopted: "The circumstance in which the net value of an action (consuming a good, subscribing to telephone service...) is affected by the number of agents taking equivalent action will be called a 'network effect'" (Liebowitz, Margolis, 1994). This process depends on the existence of increasing returns from the solution adopted, with six sources in all.

1. Learning by using (Rosenberg, 1982): the more widely a given technology is adopted, the more frequently it is used and the more productive that technology becomes (up to a certain saturation point).

2. Positive network externalities (Katz, Shapiro, 1985, 1986a, 1986b): the usefulness of a product for its user increases the more it is adopted, directly through the widening of the community of users (e.g. the telephone) and/or indirectly through the improvement in the supply of related products. Incentives can lead to greater adoption and use.

3. Economies of scale: the extensive adoption of a product yields economies of scale for the production of its component parts.

4. Reduced risk (Cowan, 1991): the more widespread a technology, the lower the risk from adopting it.

5. Expansion of the compatible environment: the greater the volume of production, the greater the number and range of compatible products (Chou, Shy, 1990). E-
government applications will multiply to include services that do not exist today.

6. The "Bandwagon effect" (Leibenstein, 1950): the more widely distributed a product, the easier and cheaper it is to obtain information about it.

Source: (Faverie, 1996)(OECD, 1998b)

Shapiro and Varian (1999) discuss the notion of "Positive Feedback". They state that positive feedback is crucial to understanding the economics of information technology. In explaining the effect of externalities, the authors explain that externalities arise when one market participant affects others without compensation being paid. Like feedback, externalities come in two flavors: negative and positive. The classic example of a negative externality is pollution: one person's sewage ruins another's drinking water. Normally, network externalities are normally positive, not negative (although junk mail and information overload are common complaints). When one joins a network, the network is bigger and better, to everyone's benefit. Positive network externalities give rise to positive feedback: when one buys a fax machine, the value of other purchased fax machines is enhanced since others can now send and receive faxes to a wider audience. Even if one does not own a fax machine one may feel more comfortable in purchasing one since others have already purchased one. This extends to the adoption of E-government as more and more citizens and businesses get connected to the networks.

Martin (1999) highlights an important trend. He states that new ways of buying and selling on the Net will create informed consumers with high expectations born of the Net. He calls these "E-consumers." This new E-consumer will demand faster delivery, easier
transactions, and more factual information. E-Consumers will be well informed and have
higher demands. Roughly half of E-consumers report that lower prices and convenience
are the two most important reasons they shop online. Chat rooms, bulletin boards,
newsgroups, and personal web pages all offer the opportunity to factor word of mouth
into a decision. When automated teller machines were introduced, people said they
wouldn’t use it, preferring instead to deal with “real people.” Consumers now pay to use
those same machines. But it took time and a change in habit. Once people realized the
benefit, the habit of using an ATM was integrated into the routines of their lives.
Hopefully e-government will be no different.

2.8.1 Factors that may inhibit adoption of E-government

Although the majority of US citizens surveyed (Teeter, Hart, 2000) would like to see e-
government implemented and believe it to be beneficial, a greater majority are unwilling
to use e-government because of fears of security and privacy (Teeter, Hart, 2000).

Perhaps the French Minitel project, a major information and communication technology
project of the French government launched in 1983, can point out some of the realities
awaiting e-government. The Minitel project called for services which would “contribute
to improving democracy and citizenship”. It was to be accessible to the entire population,
and provide as much public and commercial information as possible and be profitable. By
1989, 38.2 per cent of all residents of France had a Minitel at work or at home, giving
them access to more than 12,000 services. The objectives that aimed to make the Minitel
accessible to the whole population were not actually achieved. In spite of the extensive
distribution of Minitels to households, free of charge, people with a higher socio-
professional status, income and level of education were far more likely to own terminals
and use the services (France Télécom, 1990; INSEE, 1994) (OECD, 1998b).

“Like any new technological application, e-government will not work if people find the
technology confusing, threatening, cumbersome, generally unfriendly, or too costly to
use. E-government runs the risk of losing the human element if it focuses excessively on
cost savings, automation, or the technology as an end in itself – rather than on
applications that are accessible, user-friendly, private, secure and cost effective” (US
Congress, 1993).

This section provided insight into the possible adoption trends of E-government by
citizens and businesses and possible barriers to adoption. The next section covers the
research methodology, the theoretical model and the development of hypothesis.
Chapter 3 - Research Methodology

This chapter presents the approach taken to carry out the E-government study, the theoretical model for the study, and the development of the hypotheses.

3.1 Problem Statement

E-government is uncharted territory. The government of Canada has set a course for achieving some aspects of E-government, mainly in the electronic service delivery area. Looking at related literature, we can anticipate some of the issues and outcomes of implementing E-government and investigate the following questions: Do Canadian federal government organizations realize the potential impacts of E-government? Are they ready and planning for this potential impact? And, how far have they come in achieving some of the goals of Government Online Program (this is a program that fits into the E-government agenda)?

3.2 Theoretical Framework

The theoretical framework given in Figure 2.5 presents one view of implementing e-government. Wigand, Picot, and Reichwald (1997) propose four perspectives of technology. Technology as an independent, dependent, dependently-influencing and independently-influencing variable, all relevant for the comprehensive understanding of the relationship between technology and organization. They claim that organizational change is, to a certain measure, technically induced. In this study we look at technology
only from an independently-influencing variable, i.e. the impact that the implementation of e-government has on business processes and organization structure.

Figure 3.1 does not show all the variables (changes) that would be required to implement e-government since they are outside the scope of this thesis, such as enhanced IT infrastructure, enhanced network security, employee training, etc. etc. The only two variables that we will concentrate on in this thesis are Business Process Change and Organization Structure Change. We propose that changes in both will lead to an increase in short-term costs (less than 5 years) and a decrease in long-term costs (greater than 5 years).

Figure 3.1 - Theoretical Model
3.3 Hypotheses

In developing the hypotheses, it is important to consider some of the differences between public and private sector organizations. Public organizations are generally not-for profit organizations with the aim of service and protection for citizens and businesses. In the Canadian federal government context, they are also highly unionized. The Canadian federal government has a set of policies for fair and open processes both in fact and appearance. These policies and processes, combined with a unionized environment, create a unique environment that is quite different than that of for-profit private organizations. Therefore, what applies in a private organization setting, may not necessarily apply in a government setting. The hypotheses given below try to answer this question.

Impact on Organization Structures

In reviewing the literature on the impact of IT on organizational structures, we saw that there is strong evidence that the introduction of major IT systems and networks results in flatter organizations. (OECD 1997a, 1997b, 1997e, 1999c, 2000d); (Haeckel and Nolan, 1999); (Drucker 1988); (Westland and Clark 1999). The question we would like to answer is whether Canadian government organizations believe that flatter organizations would apply in a Canadian government setting. Since E-government implementation has only begun, the study will rely on respondent’s understanding and vision of E-government. This leads us to propose the first hypothesis for investigation:
H1: Respondents are most likely to report that implementing E-government will have an impact on Canadian federal government organization structure, specifically, leading to flatter organizations.

Process Change

The literature reviewed also suggests that business processes should be reengineered to take full advantage of IT innovations (OCED 1997a, 1997b, 1997e, 1999c, 2000d); (Hammer, Champy, 1993); (Westland and Clark 1999); (Haeckel and Nolan, 1999). The question that we would like to investigate with the second hypothesis is whether Canadian government organizations believe that re-engineering of business processes would apply in a Canadian government setting. Again, the study will rely on respondent’s understanding and vision of E-government. This leads us to propose the second hypothesis for investigation:

H2: Respondents are most likely to report that implementing E-government requires significant business process changes within Canadian federal government organizations, specifically HR processes

Costs

Cost reduction is one of the drivers of E-government, however, easier access to e-
government may increase demand for services, and this, in turn, may increase the cost of delivering further services. Most analysts argue that, in the long term, government dissemination of information through electronic means should result in savings rather than costs (OECD, 1998a), (Tapscott, 1996). The question that we would like to investigate is whether Canadian government organizations believe that there will be short term or long term cost savings as a result of implementing E-government. We define short term costs as all costs (initial investment and incremental costs) in the first 5 years of starting an initiative. The reason for this is that governments are under increasing pressure to show a return on investment. Again, since E-government implementation has only begun, the study will rely on respondent’s understanding and vision of E-government. This leads us to propose the third hypothesis for investigation:

H3: Respondents are most likely to report that cost savings arising from the implementation of e-government will be little to non-existent in the short term (less than 5 years)

3.4 Research Design

A pen and paper survey was chosen for this study. It allowed organizations that didn’t have access to the Internet or had restricted access, to fully participate in the study. Given the subject matter, one might question why not use an electronic method of data collection. There is some evidence to indicate that technological media may not yield
acceptable consistency in results when measuring technological subject matter (Watson, 1999). Therefore, a more traditional process of data collection was chosen.

3.5 Questionnaire Development

The questions were developed taking into consideration the hypotheses that were being tested, background information that would be needed on each organization and questions of interest to the respondents that was meant to increase the response rate and enhance the willingness of respondents to fill out the questionnaire.

In addition to the collection of data to support the hypotheses, we will be collecting additional information to better understand the progress of E-government. For example, although information on progress made towards GOL targets will not directly relate to the hypotheses, it provides a baseline against which an organization can gauge its progress relative to others. Factual information about departments, such as number of IT employees and centralization of IT activities will enable us to see if there are particular advantages in achieving GOL targets with these approaches. This additional information is useful for practising managers and policy makers.

3.6 Instrument Design

The questionnaire was designed taking into account the Total Design Method (TDM) as proposed by Don Dillman (1978). The questionnaire consisted of 12 letter sized pages
(three folded 11x17 sheets with questions on all sides). This was the maximum number of pages recommended by TDM. The questionnaire was printed on canary 20lb paper for visual effect. The Ethics Consent Form, a mandatory requirement of the University Ethics Committee, was printed on aqua 20lb paper to distinguish it from the questionnaire and make it easy for the respondent to follow instructions for mailing it back. The cover letter was printed on white 24lb paper. The envelope used for mailing was high quality (9x12) brown paper envelope with addresses printed on address labels. All three carried a very prominent logo of Carleton University at the top for visual effect and to establish a trusted and reputable source for the questionnaire.

The questionnaire was split into four sections to better group the questions. Within each section, the questions were numbered starting from 1. It gave the impression of a much smaller and more manageable questionnaire than if all the questions had been numbered sequentially. For the most part the questions required the respondent to check off one or more boxes as a response, reducing the time required for filling out the questionnaire. Four questions were designed in a table format where the respondent had to check off or circle appropriate choices. Five Likert questions were also included. Each of the five had sub-Likert questions dealing with the area being investigated. All questions also had free form “comment lines”.

Section I (Information about the federal organization’s “IT” shop and IT practices ) consisted of 7 questions, Section II (Government On-Line Initiative activities) consisted of 8 questions, Section III (Potential Impact on Processes and Organization Structure)
consisted of 7 questions and Section IV (Cost Savings) consisted of 3 questions.

Some of the questions, such as question 7 in Section II was a multi-part question with seven sub-questions in a table format each dealing with a different aspect of GOL. Question 1 of Section III had 23 sub-questions in a table format that gauged impact on business processes on two dimensions. One dimension measured automation, re-engineering and transformation, while the second measured the extent of change within each.

3.7 Instrument Distribution

The questionnaire, cover letter and Ethics Consent Form (see Appendices) were mailed to selected Canadian federal government organizations. They were addressed to Deputy Heads of Canadian federal government organizations, Heads of Agencies and Crown Corporations.

There were two mailings. The first mailing consisted of 89 mailed questionnaires. The respondents were given 5 weeks within which to return the questionnaire. In the second mailing, 38 questionnaires were mailed to organizations that hadn’t yet responded.

3.8 Sampling Frame

The population for the study was Canadian Federal Government Federal organizations,
Agencies and Crown Corporations that fell under the following criteria:

1) The federal organization, agency, or crown corporation is not a temporary entity (such as a temporary commission, board or tribunal), and functions to provide services based on one or more specific Acts of the government.

AND ( 

2) Budgets are set by Treasury Board OR

3) Policy is controlled by the government )

89 organizations (out of a total of 158) were selected. Those that were not selected did not meet the criteria established above or were part of another federal organization reporting to the same Deputy Minister, such as the Patents and Trademarks Office under Industry Canada. Therefore, the sample was not random, but based on select criteria.

3.9 Sampling Size

The list of all Canadian federal government organizations, Agencies and Crown Corporations were obtained off the government of Canada web site as was the mailing address and appropriate titles for the heads of each federal organization. Sample size was 56.3% of all Canadian federal government organizations as listed on the federal web site.

3.10 Pre-Testing

One medium sized federal organization was picked for pre-testing. Very valuable
feedback was received from the initial testing. In addition, the Government of Canada CIO Office, a branch of Treasury Board, was approached to form a partnership for the study. Due to other commitments the partnership was not possible, but they provided excellent feedback on the questionnaire, especially in the area of GOL.

3.11 Response Rate

51 questionnaires were returned as a result of the first mailing, giving a 57.3% rate of return. The second mailing went to 38 non respondents. An additional 6 questionnaires were returned, for a total of 57 questionnaires or a 64.04% rate of return overall.
Chapter 4 - Findings

We set out to investigate three hypotheses: that E-government will have an impact on organization structure, specifically lead to flatter organizations, that E-government requires significant business process changes within federal organizations, specifically HR processes, and that Cost savings arising from the implementation of e-government will be little to non-existent in the short term (less than 5 years), as reported by respondents. A total of 57 responses were received from a total of 89 mailed questionnaires. A 64% response rate for mailed questionnaires was beyond what we had hoped for and represents an extremely high response rate. The success can be attributed to a number of factors. A big factor was the design of the questionnaire that presented a very professional instrument. Another factor was the inclusion of questions of interest to the respondents, although not directly linked to the support of the hypotheses being tested. The target audience (heads of departments, agencies and crown corporations) was also a good choice. The instrument was usually passed to an Assistant Deputy Minister, Director General or Director responsible for GOL or IT for response.

The percentages of various Canadian federal government organization types that were chosen for the study is given in Figure 4.1. Departments represented 31%, Agencies 42%, Crown Corporations represented 25% and Other types represented 2%. Please note that rounding of percentages is done for ease of reading and presentation. A draw back is that Totals are sometimes off by plus or minus one percent.
Figure 4.1 - Organization categories of chosen sample (Percentage Rounded)

Goodness-of-Fit Test

A Goodness-of-Fit Chi-Square test was carried out (as given in the table 4.1) to determine whether the response sample (the 57 organizations that responded) was a good representation of the 89 organizations chosen. This is important because we can then extrapolate results to the rest of the organizations and the government as a whole.

Table 4.1 - Goodness-of-Fit Test

<table>
<thead>
<tr>
<th></th>
<th>Department</th>
<th>Agency</th>
<th>Crown Corporation</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chosen Sample Percentages</td>
<td>31%</td>
<td>42%</td>
<td>25%</td>
<td>2%</td>
<td>100% (89)</td>
</tr>
<tr>
<td>Observed Responses</td>
<td>24</td>
<td>18</td>
<td>13</td>
<td>2</td>
<td>57 Responses</td>
</tr>
<tr>
<td>Expected Responses</td>
<td>17.67</td>
<td>23.94</td>
<td>14.25</td>
<td>1.14</td>
<td>57</td>
</tr>
</tbody>
</table>

The calculated value of the Chi-Square is 4.499879 and the table value of Chi-Square with 3 degrees of freedom at the 5% level of significance is 7.81473. Since the calculated value is less than the table value, the sample responses of 57 is a very good representation
of the 89 chosen organizations at the 5% level of significance. This means that we can extrapolate the results from this survey to the rest of the Canadian federal government with a high degree of confidence.

Size of responding organizations

Below are cross-tabulation tables providing factual information about responding organizations. As indicated by Table 4.2, the largest response (40%) was from organizations with less than 500 employees. This is a good sample of the population as the majority of federal organizations are small in size. Of interest is the number of responses received from medium sized and large federal organizations (33%). The responses indicate a very good sample selection. To determine if there is any relationship between organizations and their size, the Chi-Square test of a contingency table at a 5% level of significance was carried out. The Chi-Square test indicates that there is no relationship between organization category and size. (16.466, df =15, p-value=.352). The p-value is also very high indicating no relationship between the two variables. This means that departments, agencies and crown corporations come in all sizes.

<table>
<thead>
<tr>
<th>Organization Category</th>
<th>Total Number of Employees</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 500</td>
<td>501-2000</td>
</tr>
<tr>
<td>Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agency</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Crown Corporation</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>26</td>
</tr>
</tbody>
</table>
Size of IT shops

Table 4.3 provides percentages for the size of the IT shop. Sixty one percent of responding organizations had an IT shop that had less than 100 IT workers. Four percent did not have an IT shop, while 2% had IT shops with more than 2000 IT workers. To determine if there is any relationship between organizations and the size of their IT shop, the Chi-Square test of a contingency table at a 5% level of significance was carried out. The Chi-Square test indicates that there is no relationship between organization category and size of IT shop. (22.646, df=18, p-value = .205). P-value is also very high indicating no relationship between two variables. This means that the size of the IT shop is not dependent on the type of organization. All categories have both small and large IT shops.

Table 4.3 - Size of IT shops (Percentage Rounded)

<table>
<thead>
<tr>
<th>Organization Category</th>
<th>Number of IT Workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 100</td>
<td>101-300</td>
</tr>
<tr>
<td>Department</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Agency</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>Crown Corporation</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>18</td>
</tr>
</tbody>
</table>

Centralization of IT activities

Centralization of IT activities can provide greater control over how hierarchies are set up and projects and budgets managed. Fifty six percent of responding organizations have
centralized IT shops, while 35% have a mix of centralized and de-centralized IT activities. (Table 4.4). To determine if there is any relationship between organization category and centralization of IT activities, the Chi- Square test of a contingency table at a 5% level of significance was carried out. The Chi-Square test indicates that there is strong evidence that Organization Category and Centralization of IT are related. (19.376, df =9, p-value = .022). P-value is between 1 and 5%, indicating that the test results are deemed significant. This means that there is a tendency for certain organization categories to have centralized IT. Table 4.4 indicates that crown corporations tend to have centralized IT shops.

Table 4.4 - Centralization of IT activities (Percentage Rounded)

<table>
<thead>
<tr>
<th>Organization Category</th>
<th>IT Activities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Agency</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Crown Corporation</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>35</td>
</tr>
</tbody>
</table>

Internet Access from work

Table 4.5 provides percentages for access to the Internet from work. Eighty eight percent of organizations provide 75-100% of their employees with access to the Internet from work. This could be an indicator of E-Government readiness. To determine if there is any relationship between organization category and access to the Internet from work, the Chi- Square test of a contingency table at a 5% level of significance was carried out. The Chi-Square test indicates that there is no relationship between organization category and
access to the Internet from work. (8.915, df = 9, p-value = .445). P-value is also very high indicating no relationship between the two variables. This means that Internet access from work is provided equally well by all organization categories.

Table 4.5 - Internet Access from work (Percentage Rounded)

<table>
<thead>
<tr>
<th>Organization Category</th>
<th>Internet Access</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 25%</td>
<td>25-50%</td>
</tr>
<tr>
<td>Department</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Agency</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Crown Corporation</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Intranet at work

Having an intranet (Table 4.6) within the workplace allows organizations to mimic the external Internet and develop competencies in readiness for E-Government. Eighty six percent of organizations have an intranet, while 12% do not. Two percent did not feel it was applicable to their organization. We must keep in mind that some of the responding organizations are extremely small with only a handful of employees. To determine if there is any relationship between organization category and intranet within the work place, the Chi-Square test of a contingency table at a 5% level of significance was carried out. The Chi-Square test indicates that there is no relationship between organization category and intranet within the work place. (3.380, df = 6, p-value = .760). P-value is also very high indicating no relationship between the two variables. This means that intranets are well represented in all organization categories.
Table 4.6 – Intranet at work (Percentage Rounded)

<table>
<thead>
<tr>
<th>Organization Category</th>
<th>Intranet?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Department</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>Agency</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>Crown Corporation</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>12</td>
</tr>
</tbody>
</table>

The question of whether respondents truly represented their organization must be addressed. All questionnaires were addressed to Deputy Ministers, Heads of Agencies and Crown Corporations, individuals who have responsibility for the operations and success of their organizations. These questionnaires were often passed on to CIOs, ADMs or Directors with specific responsibility for GOL or E-government activities and responses were often vetted through a number of individuals (we have clearly established that this activity took place). Therefore, responses can be assumed to be coming from individuals that represent the organization.

This section has provided insight into the characteristics of the responding organizations.

In the following sections we will cover questions that investigate each hypothesis.
4.1 H1: Respondents are most likely to report that implementing E-government will have an impact on organization structure, specifically, leading to flatter organizations

In this section we present questions related to the first hypothesis. Some of these questions were direct questions (such as the question dealing directly with flatter organizations) while others were indirect questions that point towards a flatter organization through inference.

How to read the figures:

For ease of reference we have combined the percentages for “Agree” and “Strongly Agree” to present one figure, and similarly combined “Disagree” and “Strongly Disagree” percentages. This suits the study because we are more interested in determining overall agreement or disagreement with a particular aspect of E-government.

E-Government will lead to a flatter organization

Respondents were asked to indicate their agreement with the statement that E-government will lead to a flatter organization. As indicated by Figure 4.2, only 39% agreed with the statement, 13% disagreed, while 42% were uncertain. Seven percent did not respond to the question. This was a direct question related to the first hypothesis and did not provide enough evidence in support of the first hypothesis, the majority (61%) did not agree with the statement, were uncertain or did not respond to this question.
Figure 4.2 – E-Government will lead to a flatter organization

Network Structures

Respondents were asked about network structures as a result of E-Government. Network organizational structures generally tend towards flatter organizations. Five percent believe that their organization will move towards one big network as a result of E-Government (Figure 4.3), 33% believe it will be a connection of networks, while 40% believe their organization will be a mix of structures (networks and hierarchies). Twenty percent did not feel that there would be any change as a result and 16% did not think it was applicable to their organization. This was an indirect question related to the first hypothesis. No clear conclusion can be derived from the responses.
Figure 4.3 – Network Structures

Increase in Tele-Workers

Figure 4.4 shows that 58% of respondents believe that there will be an increase in the number of Tele-Workers as a result of E-Government. An increase in tele-workers could be an indication of a more autonomous/networked organization. This indirect question, related to the first hypothesis, is the only question with a high response in agreement, but it cannot be looked at in isolation as the other indirect questions provide a different picture.

Other indirect questions

When asked about autonomous and self-directing teams, Figure 4.5 shows 41% agreeing,
14% disagreeing, and 39% uncertain (a very large percentage). When asked whether the hierarchical structure would move towards a network structure, 50% agreed, 15% disagreed, while 32% were uncertain (Figure 4.6). Networked structures tend to be flatter organizations. Although 50% agreed, the support for the hypothesis is not overwhelmingly strong.

When decision making and authority moves to the outer edge of the organization, the need for a vertical hierarchical structure is reduced. Figure 4.7 indicates 41% agreement, 15% disagreement and 40% uncertainty. Outsourcing of work or whole branches can reduce the need for complex hierarchical structures. Figure 4.8 indicates that 20% of respondents didn’t believe that outsourcing will become common. Thirty one percent agreed and a very large percentage (44%), were uncertain. Outsourcing of back office functions is a common practice in private industry as they try to focus on their core businesses. Thirty five percent of respondents (Figure 4.9) didn’t think that back office functions would be outsourced, while 21% agreed. Thirty nine percent were uncertain. The figures for the indirect questions are given below.

**Figure 4.4 – Increase in Tele-Workers**
Figure 4.5 – Teams Autonomous and Self-Directing

Figure 4.6 – Network Structure

Figure 4.7 – Decision Making and Authority to the Outer Edge
Summated Totals

Using a ranking of 1 for Strongly Disagree and a ranking of 5 for Strongly Agree, we can summate responses to 14 questions related to the first hypothesis. Figure 4.10 provides the summated percentage responses. It is interesting to note that the frequency of percentages is very similar to the frequency of percentages for the direct question. Support for the hypothesis is 39% (summation of agree and strongly agree percentages).
Figure 4.10 – Summated Totals questions related to first hypothesis

The 38% of respondents that were uncertain raises a concern. Was their response a “safe” response or a true indication of uncertainty within the government environment? When asked about requirement for increased leadership from central agencies responsible for the GOL/E-Government agenda, 38% agreed, 30% disagreed and 26% were uncertain. (Figure 4.11)

Figure 4.11 – Increased need for Central Agency leadership

When respondents were asked (Figure 4.12) whether enough resources were being assigned to achieve GOL/E-Government, the majority (56%) disagreed, only 20% agreed and 18% were uncertain.
We presented certain findings in our literature survey suggesting that organizations must change their old chain of command and control style (Haeckel and Nolan, 1999), which was designed for a relatively stable environment in order to prepare themselves for the knowledge economy. Drucker (1988) predicted that both the number and levels of management can be cut. Westland and Clark (1999) highlighted the impact of computer and communication networks – the flattening of hierarchies and the demise of many traditional jobs. Tapscott (1996, 1999) points out that managers worked hard to flatten their hierarchies both to control costs and because network structures perform better than hierarchies under most conditions.

Martin (1999) predicts the creation of virtual work communities in organizations because of intranets, changing the dynamics for the individual and the organization.

Looking at the responses to the questions related to the first hypothesis “E-Government will lead to flatter organizations”, we see that there is no majority support for the
hypothesis from the respondents, and therefore cannot accept the first hypothesis as being supported by federal organizations. The next section reviews the second hypothesis.
4.2 H2: Respondents are most likely to report that implementing E-government requires significant business process changes within Canadian federal government organizations, specifically HR processes

This hypothesis focuses on the impact of implementing E-Government on internal business processes. In this instance we have chosen to focus on HR processes in particular to reduce the scope of the hypothesis.

GOL targets that were set by the federal government were measured to gauge progress towards E-government. These targets were to be achieved by December 2004. Recently this date was moved to December 2005 (See Table 4.7 for a list of GOL Targets). Completion of these GOL targets introduces new channels of service to citizens and businesses and can have dramatic impacts on current channels and hence HR processes. For example, with Revenue Canada putting most of the tax forms online and making them downloadable, a big burden is removed from printing, storage, shipping and handling. A new set of skills is required to maintain and upkeep the online forms. With 53% of organizations having completed putting current information about their organization online (Table 4.7), the number of calls to their inquiries help desk can be expected to drop. When we look at the “Implementation Completed” line of Table 4.7, we see that 47% of organizations have downloadable forms, 53% have email capability, 65% have search capability, 19% have secure online transactions, 14% have interactive forms and 47% provide technical support through multiple channels (online, phone, fax etc).
Table 4.7 – GOL Targets Achieved (Percentage rounded)

<table>
<thead>
<tr>
<th>Stage of Completion</th>
<th>Current Information</th>
<th>Forms Downloadable</th>
<th>Email Capability</th>
<th>Search Capability</th>
<th>Secure Online Transactions</th>
<th>Interactive Forms</th>
<th>Technical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td>14</td>
<td>21</td>
<td>16</td>
<td>16</td>
<td>22</td>
<td>28</td>
<td>21</td>
</tr>
<tr>
<td>Planning-NS</td>
<td>4</td>
<td>5</td>
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</table>

Legend: NS-Not Started  IP-In Progress  CD-Completed

Respondents were asked to rate the potential impact of E-Government on various processes. These processes were broken down into sub-processes:

- **Human Resources**
  - (Recruitment, Leave Requests, Training Requests, Performance Reviews, Benefit Entitlements, HR Reports)

- **Finance**
  - (Regular Payroll, Expense Reimbursement, Overtime, Organizational Budgeting, Finance Reports, Cost Recovery)

- **Program Delivery – Exchanges with**
  - (Citizens, Businesses, Other federal organizations, Municipal governments, Provincial Governments, International Governments), and
• Other Areas
  
  • (Procurement Process, Ministerial Mail, Client Queries, Client Requests, Asset Management).

For each sub-process, respondents were asked to indicate the potential level of impact (Automation, Re-engineering, or Transformation) that they thought would be felt by their organization as a result of E-government. Automation was defined as replacing a manual process with an electronic process. Re-engineering was defined as increasing the efficiency of a process, such as reducing the number of steps in a particular process. Transformation required the complete reinvention of a process. The responses to each of the above processes are provided below.

With each process presented, we will provide one example of how the process could be improved, keeping in mind possible process integration with other processes (for example, one of the outputs of the Training Requests Process can be one of the inputs into the Performance Review Process). The approach that will be presented can touch Automation, Re-engineering or Transformation depending on the state of processes within each organization. The approaches suggested are only meant to stimulate discussion within organizations, as each organization is best suited in determining its needs and capabilities. In many cases organizations may have already implemented the suggested examples or starting to work on them.
How to read the figures that follow:

Percentage ranges that are given refer to “Low” and “Medium-High” responses for Automation, Re-engineering and Transformation. For example, 16-35% for “Medium-High” means that Automation, Re-engineering and Transformation received between 16% and 35% of responses in the Medium-High columns.

**Impact of E-Government on HR Recruitment**

Between 16 and 35% of respondents (Figure 4.13) felt that the impact on HR Recruitment would be medium to high. Between 16 and 33% felt that the impact would be low. Nineteen percent felt that the impact was not applicable. Respondents favoured automation of this process over other changes. A possible approach to HR Recruitment would be to allow potential employees to submit their CVs electronically, preformatted by categories to allow for automated analysis and comparison based on a number of competencies. With the permission of candidates, education backgrounds may be automatically checked with education institutions, work history with tax returns and social benefits programs and perhaps even with other employer personnel databases and credit bureau databases. A pool of qualified candidates can be created and made available to all organizations.
Figure 4.13 – Impact of E-Government on HR Recruitment

Impact of E-Government on HR Leave Requests

Between 16 to 49% of respondents believe that Leave Requests is a good candidate for change, (Figure 4.14), while 11 to 33% believe that there will be low impact. Sixteen percent believe it to be not applicable. Automation, again, has the greatest support from respondents. For this process nearly 50% support medium to high automation.

Automated leave requests tied to the HR database and appropriate calendars can reduce workloads and entry errors by HR clerks and others and provide work unit vacation plans, consolidated for management decisions. The system can warn the supervisor that by approving a particular leave request no one will be left to look after the shop during a particular period. Tied to the back-end finance systems, the department’s leave liability can quickly be updated and passed to the decision support system.
Impact of E-Government on HR Leave Requests

Nineteen to 46% of respondents believe Training Requests will have medium to high impact, while 12 to 32% feel the impact will be low. Sixteen percent believe it to be not applicable. (Figure 4.15). Respondents favoured automation (46%) over re-engineering (40%) for this process. The suggested approach provided for Leave Requests applies here as well. Except in this case the training database compares planned training with requested training, the training budget for the work unit and the individual, and provides this information to the supervisor for approval (or automatically approves it based on certain criteria already entered by the supervisor). Tied to external databases, it could also suggest similar training at lower costs or closer to the place of work to reduce travel related to training. It may also analyze previous courses taken, and if applicable, compare against academic educational certificate/degree requirements, and suggest an appropriate
degree (perhaps through distance learning) based on various profile identifiers of the individual.

**Figure 4.15 – Impact of E-Government on HR Training Requests**

![Impact of E-Government on HR Training Requests](image)

**Impact of E-Government on HR Performance Reviews**

Figure 4.16 provides the responses for HR Performance Reviews. Eleven to 28% believe that the impact will be medium to high, while 32 to 39% believe the impact to be low. The Performance Review process seems to have received low support for change from respondents. This could be an indication of the level of performance measurement carried out within government (See responses to performance measurement presented in Figures 5.1 and 5.2). For example, goals and measurement criteria can be set up at the beginning of the year for each employee. Regular status reports, preformatted for automated analysis, can be electronically produced/entered into the Performance Review database. Progress can be compared against goals and the status produced based on measurement criteria. When tied to the training database, there is little left to do when it
comes time to create the accomplishments for the period and produce a performance review. The HR database can provide various leave statistics, automatically analyzing trends and limits and either automatically producing the bonus cheque (or letter of appreciation), and/or sending the info to the supervisor for further review and signature.

**Figure 4.16 – Impact of E-Government on HR Performance Reviews**

**Impact of E-Government on HR Benefits Entitlements**

Medium to high impact responses for HR Benefits Entitlements was 26 to 49% (Figure 4.17). Twelve to 28% was low and 14% not applicable. Almost half the respondents supported automation. Government employees are highly unionized and union contracts call for all sorts of benefits entitlement changes with changes in employee status. Manual processes are lengthy, prone to error, and can be inconsistently applied. With the appropriate rules engines these changes can be automated as the status of the employee changes. A change in status can trigger numerous other checks and actions. If it is a promotion, a letter from senior management would be appreciated, better still an
automatic appointment made in the calendars of key managers in the unit to welcome the new employee or new promatee. Does the status change call for a new subscription to a particular magazine for the employee? Is there a need to order new office furniture? Is a physical move involved with its associated actions and notifications automated? Are the tax deductions adjusted automatically?

**Figure 4.17 – Impact of E-Government on HR Benefits Entitlements**

**HR Reports**

HR Reports was given the highest impact at between 23 to 53%. (Figure 4.18). Twelve to 30% were low and 11% not applicable. This is the only HR process that the majority of the respondents felt would have a medium to high impact. HR reports need to go beyond the past (what happened) and provide proactive advice to managers. For example, a report that indicates that it is time to hire a replacement worker for Mary who is eligible to retire in the coming year, and ties into the recruitment/employee/succession
database to suggest three suitable candidates would be of great benefit to managers. An employee report with a red flag (tied to the performance database tracking performance against goals, the training database, the HR database) can warn of potential problems long before employee performance becomes an issue and allows managers and employees to take necessary corrective actions. Available pools of staff for special projects can quickly be identified through similar reports and tracking databases.

Figure 4.18 – Impact of E-Government on HR Reports

The preceding charts provided insight into respondent’s perception of the impact of implementing E-Government on HR processes. Respondents supported automation consistently over Re-engineering and Transformation. Except for HR Reports (53%), all the other responses were below the 50% mark. Although there was not overwhelming support for any of the HR processes, there was good indication that organizations are thinking about the impacts of E-government on HR processes. One area of concern is the low support for transformational change of HR processes. Based on the literature review,
one would expect that HR transformation would be contemplated. Many organizations have installed or are in the process of installing enterprise systems (such as SAP and PeopleSoft) in their organizations to tie islands of information together, streamline their processes and reduce costs. Davenport (1999b) points out that organizations installing enterprise systems will need to adapt or even completely rework their processes to fit the requirements of such enterprise systems. OECD studies (1997a, 1997b, 1997e, 1999c, 2000d) indicate that electronic commerce will trigger significant changes in the way work is defined and managed, and Hammer and Champy (1993) suggest a complete re-engineering of business processes to fully take advantage of IT innovations. Therefore, it would seem reasonable to expect similar impacts on business processes within a government setting.

In analyzing the responses for Automation, Re-engineering and Transformation separately, we can create a table for each process as shown below to develop an overall indication of respondent’s support for these processes. An F (Favourable) means that the percentage of responses is higher in the Medium-High column than in the Low column. A U (Unfavourable) means that the percentage of responses is lower in the Medium-High column than in the Low column. An N (Neutral) means that the percentage of responses is the same or very close in the Medium-High and Low columns.
Table 4.8 - Analysis of HR Processes

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</table>

Legend: F-Favourable  U-Unfavourable  N-Neutral

As can be seen, Automation and Re-engineering receive Favourable scores except for one item (Performance Reviews) and Transformation receives Unfavourable scores except for one item (Benefit Entitlements). The above table would indicate that respondents felt that the impact on HR processes would be more due to Automation and Re-engineering than Transformation.

We will now consider responses to other processes that were asked in the survey. The next section will provide the responses to Finance processes (Regular Payroll, Expense Reimbursement, Overtime, Organizational Budgeting, Finance Reports, Cost Recovery).

Impact of E-Government on Finance Regular Payroll

Finance - Regular Payroll was allocated between 9 and 46% for medium to high, between 11 and 39% for low and 16% not applicable. Automation (46%) and Re-engineering (42%) receive good support indicating a potential candidate for change. (Figure 4.19). The government currently provides automated paycheck deposits for its employees.
However, when an employee transfers from one organization to another, the employee is treated as a new employee and a whole new record is created within the new organization and the old record deleted from the old organization, possibly leading to a loss of organization memory. One approach could be to treat the employee as one entity from hire to termination, but this would require integration between each organization’s finance/HR systems or one mega finance/HR system for the whole government, a very large undertaking. Other areas that can be looked at is the tie-in of the finance database to other databases such as the HR database, so calculations can be automated and intermediate data entry steps eliminated.

Figure 4.19 – Impact of E-Government on Finance - Regular Payroll

Impact of E-Government on Finance - Expense Reimbursement

Medium to High percentages for Finance - Expense Reimbursement (Figure 4.20) range between 19 and 49%, 11 to 30% for low and 12% not applicable. Expense reimbursement is a good candidate for automation or even total transformation. With the
authorization and use of debit and credit cards, the government can analyze and track
expenditures, provide forecasts, negotiate discounts and provide rapid reimbursement of
expenses through extranets that tie individual expense reports to internal payment
systems and employee bank account for payment.

Figure 4.20 – Impact of E-Government on Finance - Expense Reimbursement

Impact of E-Government Finance Expense Reimbursement

Impact of E-Government on Finance - Overtime

Response for Overtime (Figure 4.21), was 14-44% for medium to high impact, 9-30% for
low and 21% not applicable. Respondents have again picked automation as the change of
choice over re-engineering or transformation. A possible enhancement would be to tie
time reporting systems to payment systems and again automate payment via a financial
institution. A major enhancement would be the introduction of an expert system that
could derive the correct overtime amount based on the numerous rules and regulations
governing each position type and union contract.

**Figure 4.21 – Impact of E-Government on Finance - Overtime**

![Graph showing the impact of E-Government on Finance - Overtime](image)

**Impact of E-Government on Finance - Organizational Budgeting**

Budgeting within government is an area of concern for organizations. Twenty-eight to 56% feel that the impact will be medium to high, 4 to 23% feel that it will be low and 12% feel that it is not applicable to their organization. (Figure 4.22). Budgeting, as a process, can be greatly improved with the proper tracking and measurement systems in place. If a management report indicates that a work unit’s goals are all in the “green” with 93% utilization of resources, it would be difficult to reject a request for a budget increase.
Figure 4.22 – Impact of E-Government on Finance - Organizational Budgeting

Impact of E-Government Finance Budgeting

Impact of E-Government on Finance Reports

Finance - Reports (Figure 4.23) indicates 35 to 60% medium to high impact, 4 to 16% low impact and 11% not applicable. So far, the highest impact of all the processes reviewed. Paper-based invoices are a big source of data entry error in Finance systems. Payment authorizations can be electronically approved, allocated against the right project (if the original order had been coded with the project code) and payment made electronically to the vendor. Finance reports can also take a proactive role, raising the necessary flags when a particular project is over budget or not spending allocated budget as planned. Finance reports could be automatically sent to the appropriate manager when certain limits or events occur. It will be much easier to identify, track and transfer funds around the organization and between organizations long before the fiscal year-end arrives. The current process encourages managers to spend money left over at year-end, whether or not it is part of their overall plan. An organization level list of items for year-
end spending would enable pooling of resources instead of each manager spending a small amount of left-over money. The appropriate finance reports, drawing from information from a number of sources (we won’t touch upon data warehousing, data marts and decision support in detail here), can provide a good picture of the amount of money available at year-end.

Figure 4.23 – Impact of E-Government on Finance Reports

Impact of E-Government on Finance Reports

Impact of E-Government on Finance - Cost Recovery

Based on the responses reported in Figure 4.24, Cost Recovery is not carried out by 39% of organizations. Eighteen to 28% felt that cost recovery impact would be medium to high and 12 to 16% felt it would be low. Whether cost recovery is something worthwhile to pursue by government organizations is a debatable issue. Some organizations have cost recovery in some fashion, others don’t (nearly 40%). Organizations that have cost recovery fall, generally, into two categories: Those that do cost recovery from other federal/non-federal organizations, and those that have cost recovery between their own
branches for services. If cost recovery is strictly within the organization, it would be worthwhile to ensure that it is consistent and agreed to by all parties involved.

**Figure 4.24 – Impact of E-Government on Finance - Cost Recovery**

![Impact of E-Government on Finance Cost Recovery](image)

In analyzing the responses for Automation, Re-engineering and Transformation separately, we can create a table for each process as shown below to develop an overall indication of the respondent’s support for these processes. An F (Favourable) means that the percentage of responses is higher in the Medium-High columns than in the Low column. A U (Unfavourable) means that the percentage of responses is lower in the Medium-High columns than in the Low column. An N (Neutral) means that the percentage of responses is the same or very close in the Medium-High and Low columns.
Table 4.9 - Analysis of Finance Processes

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</tbody>
</table>

Legend: F-Favourable  U-Unfavourable  N-Neutral

As can be seen Automation and Re-engineering receive Favourable scores.
Transformation receives Favourable scores for two items. Based on the above table, it would seem that respondents felt that the impact on Finance processes would be more due to Automation and Re-engineering than Transformation. Between 28 and 60% of respondents supported Medium-High Automation for the Finance processes and between 26 and 47% of respondents supported Medium-High Re-engineering for the Finance processes. There is definitely better support for Finance processes than for HR processes.

The next set of questions deals with the exchange of information between federal organizations and citizens, businesses, other federal organizations, municipalities, provinces, and international governments.

Impact of E-Government on Program Delivery - Exchanges with Citizens

Exchanges with citizens are an important facet of E-Government. Thirty five to 46% of respondents feel that there will be medium to high impact, while 12 to 18% feel that there will be low impact and 18% feel that it is not applicable to their organization. (Figure
4.25. Exchanges with citizens can take many forms and allow citizens to view information, download forms, fill out forms online, apply for government programs, take part in democratic debates, vote electronically and provide feedback to the government. The GOL targets were designed to address some of the above mentioned areas. It is important to take note of the citizens that do not have access to computers and open networks or choose not to use them. They will continue to rely on traditional channels for service.

**Figure 4.25 – Impact of E-Government on Program Delivery – Exchanges with Citizens**

![Impact of E-Government on Program Delivery - Exchange with Citizens](image)

**Impact of E-Government on Program Delivery – Exchanges with Businesses**

Exchanges with businesses, (Figure 4.26), was rated between 35 and 44% for medium to high impact and between 14 and 16% for low. Exchanges with businesses did not apply to 19% of organizations. Activities are very similar to Citizens, with the addition of
being connected to and allowing connection of databases and processes with the
government for the exchange of information, such as procurement.

**Figure 4.26 – Impact of E-Government on Program Delivery – Exchanges with Businesses**

| Impact of E-Government on Program Delivery - Exchanges with Businesses |
|-----------------------------|-----------------------------|
|                            | Frequency | Percentage |
| Automation Low             | 9          | 16%         |
| Automation M/H             | 14         | 25%         |
| Re-engineering Low         | 25         | 44%         |
| Re-engineering M/H         | 44         | 82%         |
| Transformation Low         | 16         | 32%         |
| Transformation M/H         | 20         | 40%         |
| Not Applicable             | 19         | 38%         |

**Impact of E-Government on Program Delivery – Exchanges with Other Federal Organizations**

Exchanges with other federal organizations, (Figure 4.27), was rated between 37 to 42% for medium to high and between 12 to 14% for low. 21% of responding organizations didn’t feel this applied to their organization. This is one area where a lot of progress can be made. We have only touched very lightly upon processes between organizations, but it warrants a detailed look as there is potential for savings and increased service levels to businesses and citizens. There are privacy concerns and regulations that need to be kept in mind and addressed during the exchange of information between organizations.
Impact of E-Government on Program Delivery – Exchanges with Provinces

Exchanges with provinces (Figure 4.28), was rated at between 30 and 37% for medium to high and between 9 and 18% for low and 32% not applicable. The federal government can pursue further hosting and other service opportunities with provinces. The intention would not be to increase control or power, but to enhance services for citizens and businesses. It is hard to argue against filing one return to one address in one format instead of filing multiple returns and forms in different formats to different addresses. This would also be a competitive edge for Canada in trying to attract new investments and businesses.
Impact of E-Government on Program Delivery – Exchanges with Municipalities

Exchanges with municipalities, (Figure 4.29), was rated between 23 and 26% for medium to high impact and between 12 and 14% for low impact. 37% of organizations do not carry out exchanges with municipalities or don’t see any change. The federal government provides many services on behalf of provinces, such as collecting provincial tax at the border on goods being imported. Similar services and agreements between the federal government and municipalities can result in significant savings for municipalities, large and small. For example, the collection of property taxes on behalf of municipalities would be a win-win service. The revenue department would get up to date property value assessments for capital gains calculations and the municipalities would get a portion of tax refunds to offset unpaid property taxes.
Impact of E-Government on Program Delivery – Exchanges International Governments

Exchanges with International Governments was rated between 19 and 23% for medium to high, 21 to 25% for low and 30% as not applicable. This is the first process where percentages for the “low” category are higher than percentages for the medium to high category. Canada has very close ties to a number of the OECD countries. Are they connected for video conferencing? Are the right political protocols and procedures in place to facilitate the exchange of information, sharing of databases and discussion of issues ranging from apple exports to zebra mussel infestations? Is the proper governance structure and mechanisms in place to resolve disputes?
In analyzing the responses for Automation, Re-engineering and Transformation separately, we can create a table for each process as shown below to develop an overall indication of the respondent’s support for these processes. An F (Favourable) means that the percentage of responses is higher in the Medium-High columns than in the Low column. A U (Unfavourable) means that the percentage of responses is lower in the Medium-High columns than in the Low column. An N (Neutral) means that the percentage of responses is the same or very close in the Medium-High and Low columns.

**Table 4.10 - Analysis of Program Delivery Processes**

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<th>Automation</th>
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</tr>
</thead>
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<tr>
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<tr>
<td>Businesses</td>
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<tr>
<td>International Governments</td>
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</tr>
</tbody>
</table>

Legend: F-Favourable  U-Unfavourable  N-Neutral
The scores for Program Delivery are quite different than scores for HR and Finance Processes. Municipalities receive a Neutral for Automation, but Favourable for Re-engineering and Transformation. One interpretation is that this is an error or more likely the fact that Federal organizations have little or no interaction with municipalities. International Governments received Neutral for all three impacts, possibly indicating that respondents don’t see other governments being ready for these types of changes. Four items, Citizens, Businesses, Other Federal Organizations and Provinces received Favourable responses in all three categories of impact. Based on the table, there seems to be better support for Program Delivery Processes than for Finance or HR.

We next look at some other processes such as Procurement, Ministerial Mail, Client Queries, Client Requests, and Asset Management.

**Impact of E-Government on Procurement Process**

The Procurement Process (Figure 4.31), was rated between 33 and 51% for medium to high, between 4 and 14% for low and 18% not applicable. Obviously procurement is an area where the majority feel will see a lot of change. Procurement transformation has the potential of tremendous cost savings for the government through negotiated discounts, proper tracking and allocation of funds, quicker ordering and delivery of goods and services, and fair and open bidding processes. For example, an asset management software scans a PC and finds that the video card is defective. It can automatically create a Help Desk problem ticket (which triggers other incident and problem management activities such as paging the on-call LAN administrator), checks the inventory for spares
that match the video card required and if none are found, places an order through the procurement system with the appropriate vendor. The part is shipped, received and signed electronically which updates both the government and vendor’s systems and initiates payment if necessary.

**Figure 4.31 – Impact of E-Government on Procurement Process**

**Impact of E-Government on the Procurement Process**

**Impact of E-Government on Ministerial Mail**

Ministerial Mail is mail that is addressed to the head of a federal organization. It receives special attention and has multiple processes associated with its receipt, acknowledgement, storage, retrieval and response. Response rates for Ministerial Mail (Figure 4.32) was between 16 and 35% for medium to high, between 16 and 26% for low and 28% not applicable. The improvement of Ministerial Mail has more to do with process re-engineering than automation. Of course, having a system to track correspondence and scanning capabilities is crucial in document management and speeding response. Because of the sensitive nature and potential impact and consequences of a wrong
response, Ministerial Mail has, of necessity, an extensive manual review phase. The document management and correspondence tracking system, tied to appropriate databases, can provide quicker and better responses. For example, a letter requesting information on the hot topic of the day could be matched with appropriate news clippings and ministerial/cabinet briefings before a response is drafted or a draft response is generated for review.

Figure 4.32 – Impact of E-Government on Ministerial Mail

Impact of E-Government on Ministerial Mail Processing

Impact of E-Government on Client Queries

Many federal organizations have special help desks to deal with client queries from internal and external clients. The response rate for Client Queries (Figure 4.33) was between 30 and 40% for medium to high, between 11 and 19% for low and 16% not applicable. These call centers and help desks, with the appropriate computer-telephony integration technology and tied to appropriate expert systems can make the task of responding to queries a much more pleasant experience both for front line staff and
clients. Sometimes the wrong response or advice can be provided to a client with financial consequences for the taxpayer. These occurrences can be reduced through proper funding, development and maintenance of expert systems and the proper training of staff in the use of these systems.

Figure 4.33 – Impact of E-Government on Client Queries

<table>
<thead>
<tr>
<th>Impact of E-Government on Client Queries Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation Low</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

Impact of E-Government on Client Requests

Client Requests come in the form of information, forms and publications. The response rate for Client Requests (Figure 4.34) was between 37 and 51% for medium to high, between 7 and 14% for low and 16% not applicable. This process is closely tied to Client Queries, Ministerial Mail and Procurement and the suggested approaches apply here as well. In addition, GOL targets of ability to download forms and fill forms online will go a long way in meeting this requirement. As security concerns are addressed, a large portion of client request activities can be automated and done online. Proactive processes can also be instituted. For example, sending an email with the required forms attached or
a link to a web site or portal based on profiles just when the client has a need for them, such as tax returns currently sent by National Revenue. The cost to the organization could be minimal or neutral (the cost of creating the expert system can be offset by reduced phone calls and a reduced need for call centers and help desks).

**Figure 4.34 – Impact of E-Government on Client Requests**

![Impact of E-Government on Client Requests Processing](image)

**Impact of E-Government on Asset Management**

Assets come in all forms and sizes. Software licenses are assets that need to be tracked, paid for and consolidated for volume and vendor discounts. The response rate for asset management (Figure 4.35) was between 25 and 42% for medium to high impact, between 9 and 18% for low and 25% not applicable. The proper labeling and input of assets into an asset management system as goods come through the door is essential for management of this function. When asset management systems are tied to the finance database, the
cost of these assets can be tracked automatically instead of being entered manually a second time. Vendor databases can also update organization databases when delivery of goods has been signed for.

Figure 4.35 – Impact of E-Government on Asset Management

![Impact of E-Government on Asset Management](image)

In analyzing the responses for Automation, Re-engineering and Transformation separately, we can create a table for each process as shown below to develop an overall indication of the respondent’s support for these processes. An F (Favourable) means that the percentage of responses is higher in the Medium-High columns than in the Low column. A U (Unfavourable) means that the percentage of responses is lower in the Medium-High columns than in the Low column. An N (Neutral) means that the percentage of responses is the same or very close in the Medium-High and Low columns.
Table 4.11 - Analysis of Other Processes

<table>
<thead>
<tr>
<th></th>
<th>Automation</th>
<th>Re-engineering</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Ministerial Mail</td>
<td>F</td>
<td>F</td>
<td>U</td>
</tr>
<tr>
<td>Client Queries</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Client Requests</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Asset Management</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

Legend: F-Favourable  U-Unfavourable  N-Neutral

Respondents definitely supported the Other Processes and felt that Automation, Re-engineering and Transformation were equally applicable to these processes. Except for Ministerial Mail, all the other cells are Favourable. Based on the table, there seems to be better support for the Other Processes than for Program Delivery, Finance or HR.

We have presented a number of responses to various processes and find that there is no overwhelming support for any one process (although some processes did have support between 50-60%) to have significant changes as a result of E-Government and must therefore, reject the hypothesis.
4.3 H3: Respondents are most likely to report that cost savings arising from the implementation of e-government will be little to non-existent in the short term (less than 5 years)

As indicated in the literature survey, one incentive for undertaking E-Government is the reduction of costs. In this thesis we set out a third hypothesis that focused on short-term cost savings (less than 5 years) arising from the implementation of E-Government. Respondents were presented with a set of processes and asked to rate short term and long term cost savings and cost increases. The processes were Human Resources, Finance, Program Delivery, IT Purchases, IT Support, IT Development, Procurement, Ministerial Mail, Client Queries, Client Requests, and Asset Management.

For Human Resources, only 26% of respondents felt that there would be short term cost savings. That is, 74% didn’t think there would be short term cost savings. This supports our hypothesis that short term cost savings will be little to non-existent for that process. (Figure 4.36). In the short term, we believe that short term costs could actually go up as organizations ramp up to build the infrastructure and systems necessary for e-government, redesign their processes and maintain multiple channels of service. Literature presented also indicates that carrying out the required changes in bureaucracy can take a long time, which can further increase costs.

For Finance, only 25% of respondents felt that there would be short term cost savings. This also supports our hypothesis that short term cost savings will be little to non-existent. (Figure 4.37). As discussed in the prior section, there are numerous areas where
services could be improved, but they all require cost outlays to start. For Program Delivery, 14% of respondents felt that there would be short term cost savings. This also supports our hypothesis that short term cost savings will be little to non-existent. GOL requires that organizations invest in infrastructure and new systems and integration of systems to enable better program delivery. With rising expectations of citizens and businesses short term costs can only increase.

IT Purchases (Figure 4.39), 7% of respondents felt that there would be short term cost savings. This is to be expected as organizations ramp up for GOL delivery. In many organizations this cost can be substantial as they move from legacy systems and networks to those that can handle the applications and data traffic required by E-government. IT Support (Figure 4.40), only 7% of respondents felt that there would be short term cost savings. Another expected outcome based on GOL targets and delivery dates. With increased purchases come increased support and in many cases an upgrade in skill sets is required. IT Development (Figure 4.41), only 7% of respondents felt that there would be short term cost savings. This also supports our hypothesis and does not come as a surprise.

For Procurement (Figure 4.42), 19% of respondents felt that there would be short term cost savings, although this is an area where quick hits and immediate savings can be realized. Ministerial Mail (Figure 4.43), 18% of respondents felt that there would be short term cost savings. The implementation of electronic document management systems and changing of processes and procedures surrounding this function will take time to
complete and will require up front funding.

Client Queries (Figure 4.44), 23% of respondents felt that there would be short-term cost savings. This also supports our hypothesis, although there are activities that could be undertaken in the short term to realize savings, such as consolidation of isolated help desks and call centers to improve efficiencies. Client Requests (Figure 4.45), 23% of respondents felt that there would be short-term cost savings. There can be cost savings for organizations that can reduce their dependence on paper inventories and move that function on to the web. For Asset Management (Figure 4.46), 18% of respondents felt that there would be short term cost savings. Even simple changes in procedures can provide cost savings or cost avoidance in this area. How often has one area disposed of a furniture item that another area has a need for? A simple site updatable by individual areas can provide immediate returns. Of course, for the really big savings to be realized, many of the asset management processes would have to be automated (manual processes are too error prone), and tied to the appropriate databases such as finance for cost tracking and accounting. The charts for each process mentioned above are given below.

Figure 4.36 – Cost Savings – Human Resources
Figure 4.37 – Cost Savings – Finance

Figure 4.38 – Cost Savings – Program Delivery

Figure 4.39 – Cost Savings – IT Purchases
Figure 4.40 – Cost Savings – IT Support

Figure 4.41 – Cost Savings – IT Development

Figure 4.42 – Cost Savings – Procurement
Figure 4.43 – Cost Savings – Ministerial Mail

Figure 4.44 – Cost Savings – Client Queries

Figure 4.45 – Cost Savings – Client Requests
Figure 4.46 – Cost Savings – Asset Management

Based on the overwhelming support of the questions (all over 75% support), we can accept the hypothesis that short term costs will be little or non-existent (in the first 5 years).

It is interesting to note that initial results from HRDC (Human Resources Canada) indicate that costs have gone up due to the initial expense of infrastructure and expertise required to set up various services and to maintain traditional channels in addition to the new channels (OECD, 2000a). Most analysts argue, however, that, in the long term, government dissemination of information through electronic means should result in savings rather than costs (OECD, 1998a), (Tapscott, 1996). We will discuss this further in the Discussions section.
4.4 Other findings

This section covers some of the questions that were not directly related to the hypotheses, but provide a better picture of the organizations in relation to GOL and E-government progress and preparedness.

GOL Objectives articulated at the Organization Level

Organizations were asked if GOL objectives had been articulated at the organization level. Figure 5.4 indicates that 53% had articulated GOL objectives at the organization level, and 23% were in progress. Articulating objectives at the organization level allows the organization to focus its energies towards a common goal. Projects and programs that are started will be better aligned towards E-Government if there is an organization-wide vision for GOL/E-Government.

Figure 4.47 – GOL Objectives articulated at the Organization Level
GOL Champion

It is widely accepted that major undertakings within an organization require a champion at a high enough level to ensure adequate funding, resources and support for the initiatives. Having a GOL champion is an important step towards achieving not only the GOL targets, but also those of E-Government. Figure 5.5 indicates that 72% of organizations have a GOL champion.

Figure 4.48 – Does the organization have a GOL Champion?

[Bar chart showing frequency and percentage for Yes, No, and Not Applicable responses]

Division of GOL responsibilities

Many organizations seem to have started out addressing GOL by creating a team responsible for GOL. As knowledge about the impact of GOL/E-Government has increased, responsibility and accountability has been moved to other areas and to the project level. It is imperative that GOL goals and objectives be very clear for all projects
and programs undertaken. To achieve this consistency, it requires articulation of GOL objectives at the organization level and responsibility for achieving them at the program and project level. GOL objectives cannot be achieved by one group. It is an organization-wide effort. Therefore, for those organizations that have one group responsible for GOL (21% as per Figure 5.6) and those in the process of defining responsibility (16%), may want to articulate their GOL objectives at the organization level and responsibility at the program and project level. A project office can be responsible for the oversight of GOL targets to be met, reporting, and overall metrics.

Figure 4.49 – Division of GOL responsibilities within organizations

Adequate Resources for Achievement of E-Government

There are concerns about the ability of organizations to meet the deadlines for GOL. As indicated in Figure 4.50, 56% of respondents did not think adequate resources were being
assigned to achieve GOL.

**Figure 4.50 – Adequate Resources for Achievement of E-Government**

![Bar chart showing distribution of responses to question about adequate resources for achieving GOL/E-Government.]

**Analysis of Relationships**

To determine whether there was a relationship between size of organizations and completion of GOL targets, a cross tabulation table was created and the Chi-Square statistic applied against the table at the 5% level of significance. It was determined that no relationship existed between size of the organization and completion of any of the GOL targets. This means that achievement of GOL targets in both small and large organizations is progressing at a similar pace.

Another relationship that was analyzed was the relationship between size of IT shop and achievement of GOL targets. Based on the Chi-Square test it was determined that there was a very strong relationship between size of IT shop and the GOL target “Search
Capability” at the 5% level of significance. No relationship was established for the other GOL targets. This implies that organizations with large IT shops are ahead of organizations with small IT shops in providing a Search Capability online.

The Chi-Square test to determine relationship between centralization of IT and completion of GOL targets reveals a strong relationship for the GOL targets Current Information and Search Capability at the 5% level of significance. No relationship was established for the other GOL targets. Organizations with centralized IT are more likely to have placed current information about their organization and a search capability online than organizations that do not have centralized IT.

There doesn’t seem to be a clear winner of attributes in terms of size and completion of GOL targets. Obviously other factors other than size are responsible.

An analysis of relationship between GOL articulation at the organization level and GOL target completion at the 5% level of significance indicated no relationship. A similar analysis between having a GOL champion and GOL target completion showed that no relationship exists at the 5% level of significance. The method of assigning GOL responsibility also did not indicate any relationship with completing GOL targets. We can only surmise that these attributes (articulation, GOL champion, and assigning of responsibility) are necessary, but do not by themselves lead to the achievement of GOL objectives.
Metrics

When respondents were asked about metrics for GOL targets (Figures 4.51 and 4.52), only 23% had metrics defined and only 12% were acting on those metrics and although 40% had plans for measurement tools, only 11% were actually using them. If organizations don't have measurement tools and metrics, it will be difficult to know when they have achieved their targets, what stage they are at and whether their costs are increasing or decreasing or even how much they are spending on E-government. We already covered the importance of tracking metrics and performance measurement and its impact on almost all the processes under the second hypothesis.

Figure 4.51 – Percentage of Organizations with GOL Metrics

![Bar chart showing percentages of organizations with GOL metrics]

Figure 4.52 – Percentage of Organizations with GOL Measurement tools

![Bar chart showing percentages of organizations with measurement tools]
Provision and Purchase of Services

As indicated by Figure 4.53, 63% of organizations do not provide services to other organizations and 44% do not purchase services. One way of increasing cost savings in the short term would be to pursue the idea of shared systems and services more vigorously between federal organizations.

Figure 4.53 – Organizations that Purchase or Provide IT Services

[Diagram showing percentages of organizations that purchase or provide IT services for different categories such as Not Applicable, Consulting, Project Management, LAN Administration, Network Management, Programming, Website Development, Website Management, Database Management, Help Desk, and Other.]

In the literature survey we discussed an organization’s approach to change (whether it is planned or unplanned), the impact of change on an organization, and the issues surrounding change. In terms of impact, if we were to pick a box from Cohan’s table (Table 2.5) to situate the Canadian federal government in relation to E-government, it would fall between the Reactive (High Business Model change – External Pressure) and
the Controlled (High Business Model change-Internal Pressure) boxes. Because of this, it would be prudent for those Canadian government organizations that haven’t already started planning to take concrete steps to prepare their organization and their employees. E-government is new territory, and as with all new innovations, there will be leaders and there will be followers. It will take time for organizations to learn, apply, and harvest the benefits of E-government.
Chapter 5 - Discussion

5.1 Discussion of hypotheses

We set out to investigate three hypotheses: (1) that E-government will have an impact on organization structure, specifically, leading to flatter organizations, (2) that E-government requires significant business process changes within federal organizations, specifically HR processes, and (3) that cost savings arising from the implementation of e-government will be little to non-existent in the short term (less than 5 years).

H1

Although we were not able to find support for the first hypothesis, there are a number of findings to consider. Thirty nine percent supported the hypothesis and 42% were uncertain based on the direct question on E-Government leading to a flatter organization. E-government is new territory for many organizations. Respondents could be uncertain about continued support and funding from central agencies. A large percentage of government workers are unionized and any discussion about reduction in levels of management would require the involvement of unions. Respondents may also be somewhat skeptical because of past initiatives that never materialized. Lack of knowledge about the potential impact of E-Government could be another reason.

The indirect questions in support of the first hypothesis included questions on network structures, autonomous teams, and transfer of authority to the outer edge of the
organization. They all garnered agreement in the 40-50% range. Increase in tele-workers was highest with 58% in agreement. All of these are indications of flatter organizations, but again the support is not overwhelming. The outsourcing questions received lower support (21-31%), and the centralization of back office functions received 40% agreement. One indication of these statistics is that approximately 50-60% of organizations are not aware of the potential impact of E-Government on their hierarchies. By not being aware of the impacts, they may not be taking the steps necessary to prepare their respective organizations. Preparations may include training, creation and experimentation with new forms of structures and authorities, new partnerships and shared visions and activities. On the other hand, 40-50% of organizations indicate awareness of the impact of E-Government on their organization structures and perhaps taking the steps necessary to prepare their organizations. These can be considered leaders on the adoption curve. Even though the literature we reviewed provides reasons for possible flatter organizations, respondents don’t seem to support the first hypothesis dealing with flatter organizations within Canadian federal government organizations.

H2

The second hypothesis, that E-Government requires significant business process changes within federal organizations, specifically HR processes, could not be accepted based on the responses received.

All the HR processes were below 53% for medium to high automation, re-engineering
and transformation. Finance processes had medium to high responses as high as 60% for automation. Program delivery medium-to-high responses were surprisingly lower (all below 46%) than responses for HR and Finance processes. Program delivery is a major aspect of E-Government, and yet the majority of respondents did not feel that program delivery processes would see major changes as a result of E-Government. Although consistent with their response to internal process changes (HR and Finance), it raises concerns about the level of understanding of the impact or uncertainties of E-Government. Responses to other processes such as Procurement, Ministerial Mail, Client Queries and Requests, and Asset Management were all below 51%. If requirement for change is not recognized, there may be little planning to prepare the organization for the changes that are expected to happen as a result of E-Government. With little or no planning and preparation of the employees, the changes could be very painful.

H3

The third hypothesis, that Cost savings arising from the implementation of e-government will be little to non-existent in the short term (less than 5 years), received the greatest support from respondents. All responses were consistently between 74 and 96% in favour of the hypothesis – that short term costs will be little to non-existent. The interesting finding was that the majority of respondents (53%) didn’t feel that there would be long term cost savings as a result of E-Government. This finding is very surprising considering that one of the drivers for E-Government is cost savings. Metrics is an essential tool for tracking costs. With many organizations not knowing their costs it will be difficult to prove a return on investment in GOL and E-government.
Chapter 6 - Conclusion

We began this research by providing relevant information from the literature by first defining E-government, its constructs and possible configurations, discussing why E-government is important, presenting the potential impacts on organization, processes and costs as a result of the introduction of major IT systems and networks, the consequences of planned and unplanned changes and a model for the adoption and use of E-government. This set the foundation for our theoretical model and the development of the three hypotheses.

We presented the exploratory study and our findings addressing each hypothesis in turn. Only about 40% of respondents supported the hypothesis that E-Government would impact organization structure, specifically, leading to a flatter organization. Respondent support for the potential impact of E-Government on various HR Processes such as Recruitment, Leave Requests, Training Requests, Benefit Entitlements, Performance Reviews and HR Reports was between 28 and 53%. There was stronger support for other processes such as Finance Processes, Program Delivery Processes and Miscellaneous Processes such as Procurement and Ministerial Mail, although never greater than 60% for any one process. Respondents overwhelmingly supported the hypothesis that short term cost savings would be little to non-existent (less than 5 years), with each process (HR, Finance, IT, Program Delivery) receiving consistently between 74 and 96% support. A surprising finding was that a majority of respondents (53%) did not think that E-Government would lead to long term cost savings. The findings are in line with
Gartner's (2001) study outlining the challenges of turning e-government into reality, namely, high expectations of constituents, difficulty in effecting change in the public sector, lack of funding, complex, expensive and risky initiatives, and rigid governance structures.

6.1 Implications of the study for the Canadian federal government

This study was carried out with the express purpose of helping Canadian federal government organizations en route to E-government. It was designed to act as a stimulus for reflection, discussion, decision, and action on E-government. Backed by an extensive literature survey, the research highlights that

- E-government is a major effort in transformational change
- That there is progress being made, but that the results are mixed – there is a need for ways to measure progress and return on investment, and articulate E-government objectives at the organization level
- That policy makers need to be aware of the possible mind set of organizations and activities required to make better preparations for E-government
- That if cost savings are not expected, GOL/E-government should be positioned as a means of improving services and providing a new channel of service.

6.2 Contribution to Literature

This research provides one of the first empirical studies on the potential impact of E-
government efforts in Canada. It has provided exploratory information on the impact of E-Government on internal processes, organization structure and short-term costs. It has also provided a snap shot of the progress of the Canadian federal organizations in their push towards E-Government through the GOL program. A number of relationships were explored and presented. The high level involvement of senior management in responding to the survey has meant that responses are a good representation of the organizations as a whole.

6.3 Limitations of the study

The limitations of the study are that it was mainly exploratory in nature. It depended on respondents to envision where their organizations were going with GOL/E-Government and the potential impacts it would have on their organizations. If the knowledge of respondents was limited or biased, then this would have shown in the responses and the results biased as a result. We have established that most of the organizations that responded had more than one person review and provide answers. This could have led to some conservative statements. This collaborative effort increases the reliability of the data but could also lead to “safe” answers, one possible reason for such high “uncertain” responses.

6.4 Benefits of the study

We expect the impact of e-government to be extensive, requiring organizational and
process changes for which federal organizations and their workers must prepare themselves. This research provides a starting point for federal organizations to review the potential impacts of E-government, and prepare long-term goals and plans with appropriate resources to fund the required change initiatives.

We hope that this research will provide a basis upon which future studies can be based and the impacts of E-government further explored.

6.5 Suggestions for further study

The E-Government arena is very vast and we have only managed to touch the tip of the iceberg. Further detailed research can be carried out on Human resources, Finance and Procurement processes, each providing ample scope for further detailed study. Other areas include inter-departmental flows in an E-Government setting, which was touched upon very lightly here and a look at the readiness of businesses and other potential partners for E-government.

This study was mostly exploratory and depended on respondent’s understanding and vision of E-government. It can be repeated in 3 to 5 years’ time to do an after-implementation study. Whereas the theoretical model presented looked at cost implications as a result of organizational change, other studies can focus on increased and improved services to citizens and businesses.
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Appendix A: Informed Consent Form

The Ethics Committee of the University of Carleton requires that all research involving humans follow the guidelines set out by the “Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans” by requesting that all participants who fill out a questionnaire sign an informed consent form.

The purpose of an informed consent form is to ensure that the purpose of the study and the nature of involvement is clearly understood. The goal is to provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

**Research Personnel:** The following persons are involved in this research project and may be contacted at any time. Principal Researcher: Matt Poochchi _______ (h) or _______ (w). Supervisor: Dr. Gerald Grant _______. You may also contact the Chair of the Carleton University Research Ethics Committee (Professor Klaus Pohle, telephone _______).

**Purpose:** The purpose of this study is to examine the potential impact of e-government on internal processes and organizational structure. Our study will lead to a better understanding of the major issues, challenges and strategies required to implement e-government. The results will be valuable for managers charged with implementing e-government and those charged with setting e-government policy.

**Task Requirements:** Only one questionnaire to be filled out.

**Duration:** Early tests indicate that it will take approximately 30 minutes to complete this questionnaire. It is envisioned that this questionnaire will be filled out by the CIO or other such informed individual in the organization.

**Potential Risk/Discomfort:** There are no potential risks or discomfort anticipated with this study. The Consent Form and the Questionnaire are to be completed and returned separately to ensure confidentiality.

**Anonymity/Confidentiality:** The data collected in this study is confidential. All data is coded such that your name or your organization's name is not associated with the data. The coded data is made available only to the researchers associated with this project. The Informed Consent Form will be stored separately from the data collected. The data and the consent forms will be destroyed at the end of the project.

**Right to Withdraw:** You have the right to withdraw from the research at any time without any penalties. Participants have the right to not answer any questions on the questionnaire. Participants can request that some or all of the data that they may have provided not be used by contacting the principal researcher.

**To be filled by Participant**
I have read the above description of the study and understand the conditions of my participation. My signature indicates that I agree to participate in the research. I understand that my signature in no way constitutes a waiver of my rights and I can withdraw from this research at any time.

Participant’s Name_________________________________________ Participant’s Signature__________________

Date: ___________________________ Survey Code Number: ____________________
Appendix B: Survey Cover Letter

Date

Address

Salutation,

Government On-Line (GOL) is a priority agenda item for the government of Canada. However, experience with e-government (of which GOL is a facet), is very limited. This has motivated us to carry out a study to look at the potential impact of e-government on internal processes and organizational structure.

Our study will lead to a better understanding of the major issues, challenges and strategies required to implement e-government. The results will be valuable for managers charged with implementing e-government and those charged with setting e-government policy.

All participating departments and agencies will receive a summarized report at the end of the study, expected to be available ________.

Please be assured that all responses will be coded and treated as confidential and aggregated for the final report. No individual or department will be identified in the final report.

Your participation will determine the success and quality of this study. Your response and participation is greatly appreciated. This questionnaire is directed to an individual who is very knowledgeable about your department’s e-government goals/strategies (preferably at the CIO or Deputy Minister level). A return date of ________ would be greatly appreciated.

The completed questionnaire may be faxed to: (613) ________ or mailed to: Dr. Gerald Grant at the address below. If we can be of any assistance in filling out the questionnaire or in clarifying any item, please do not hesitate to contact us.

Thank you for your interest and support of this very timely study.

Dr. Gerald Grant
Associate Professor
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TEL: (613) ________

Matt Poostchi
Principal Researcher
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Carleton University
Ottawa, Ontario
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TEL: (613) ________
Appendix C: E-Government Survey

E-Government Questionnaire

Survey Code Number: ___

Thank you for taking the time to fill out this questionnaire. Your response is greatly appreciated. The Survey Code Number maintains the confidentiality of respondents. Only the principal researcher can match a survey code to a participant. All questionnaires will be destroyed upon completion of this study and only aggregate results reported.

Section 3: Information about your Organization, “IT” shop and IT practices

The “IT shop” is that part of an organization that is generally tasked with the development, enhancement and maintenance of IT systems such as email and applications, and IT infrastructure such as networks, in support of organizational programs.

1. How would you categorize your organization? As a federal ... Please check one.
   - □ Department
   - □ Agency
   - □ Crown Corporation
   - □ Regional Development Agency
   - □ Marketing Board
   - □ Temporary Tribunal/commission
   - □ Other (please specify) ________________________

2. Approximately, how many employees work in your organization? Please circle your choice.

   Less than 500    501-2000    2001-5000    5001-10,000    10,001-15,000    over 15,000

3. Approximately, how many employees and consultants work in your “IT shop”? Please circle your choice.

   Less than 100    101-300     301-500     501-1000     1001-2000    over 2000
   Don’t have any IT Employees

128
4. Is the "IT shop" centralized or decentralized within your organization? Please check all that apply.

☐ Not Applicable - Don't have an IT shop  
☐ Centralized (one shop that does all IT work)  
☐ Decentralized (each business unit/region has an IT shop)  
☐ Some tasks are centralized, some decentralized (one central IT shop, but each business unit/region has an IT shop as well)

Comments

5. Are there any IT areas in your organization that have been outsourced? Please check all that apply.

☐ Not Applicable - Don't have an IT shop  
☐ All IT work done in-house  
☐ All or most IT work is outsourced  
☐ Some IT work is outsourced  
☐ Network (LAN/WAN) Management is outsourced  
☐ Help Desk is outsourced  
☐ Plan on outsourcing the following within the next 2 years

Comments

6. What percentage of your workforce is connected to the public Internet at work? Please check one.

☐ Less than 25%  
☐ 25 - 50%  
☐ 50 - 75%  
☐ 75-100%

☐ Not Applicable

Comments

7. Does your organization have an intranet? Please check one.

☐ Yes  
☐ No  
☐ Not Applicable

Comments
Section II: Government On-Line Initiative

Government On-Line (GOL) is a major priority government initiative.

1. Have GOL objectives been articulated at the organization level? i.e. have the GOL objectives been made part of the organization goals, objectives and vision? Please check one.

☐ Not Applicable - GOL does not apply to this organization
☐ Yes
☐ No
☐ In progress of articulating

Comments

2. Is there a GOL champion within your organization? A champion is usually a high level executive at the CIO or higher level that ensures that GOL objectives are incorporated into business and system processes. Please check one.

☐ Not Applicable - GOL does not apply to this organization
☐ Yes
☐ No

Comments

3. Which of the following best describes GOL in your organization? Please check one.

☐ Not Applicable - GOL does not apply to this organization
☐ One special group has been tasked with GOL responsibility for the organization
☐ Each project/group has responsibility for aligning their project with GOL objectives
☐ One special group plus responsibility for projects at project level
☐ In progress. No structure/responsibility defined as yet

Comments
4. Please identify GOL responsibilities within your organization. Please check all that apply.

☐ Not Applicable - We do not have a GOL group. Please go to the next question.

How to fill this table: If the GOL group is responsible for Planning of GOL activities, then place a check mark under the "GOL Group" column. If this activity is shared with the IT Shop, then place a check mark under both columns. Continue with the rest of the "Activity" column.

<table>
<thead>
<tr>
<th>Activity</th>
<th>GOL Group</th>
<th>IT Shop</th>
<th>Business Units</th>
<th>Steering Committee</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning of GOL activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prioritizing GOL projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommending GOL projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selecting GOL projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing GOL to the organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liaising with all stakeholders for GOL needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing GOL projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementing GOL projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of users</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capturing metrics for GOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting on GOL activities and progress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:

5. Do you have measurement processes for GOL? I.e. how do you know that you have achieved your GOL objectives? Please check all that apply.

☐ Not Applicable - GOL does not apply to this organization

☐ Metrics for GOL objectives
  ☐ Defined
  ☐ Being Captured
  ☐ Being Reported On
  ☐ Being Acted On

☐ Measurement tools and processes
  ☐ Planned
  ☐ Implemented
  ☐ Being Used

Comments:
6. How are GOL plans/information communicated to the rest of the organization? Please check all that apply.

☐ Not Applicable - GOL does not apply to this organization
☐ Messages are sent via email to all employees
☐ Information on GOL projects and progress is posted on the intranet
☐ Messages are printed and posted on bulletin boards
☐ Messages are communicated via workshops and conferences
☐ Don't see a need to communicate GOL information to the rest of the organization
☐ Other

Comments


This table measures two dimensions of GOL targets. One dimension measures the stage of a target and the second dimension measures the percentage of completion of a particular stage. For example, when responding to "Search Capability" as a target, your organization may have completed the "Planning", "Analysis & Design", "Construction", and "Implementation" stages and has just started tracking metrics. In this case you would circle "CD" under all the columns and "IP" under the "Realization" column. If an item does not apply to your organization, please circle N/A.

- Planning includes activities such as set up of a steering committee, GOL vision statement, charter and plan.
- Analysis & Design includes requirements analysis, stakeholder discussions, prototyping, architectural design and fit with business objectives and legacy systems/ processes.
- Construction includes development of applications, installation of supporting networks and environments, testing.
- Implementation includes training of users, development of user guides, rollout of the application.
- Realization includes the tracking performance measures, active acceptance of feedback, enhancement of the application based on that feedback, and maintenance and production activities.

<table>
<thead>
<tr>
<th>Target</th>
<th>N/A</th>
<th>Planning</th>
<th>Analysis &amp; Design</th>
<th>Construction</th>
<th>Implementation</th>
<th>Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td></td>
<td>NA</td>
</tr>
</tbody>
</table>

Current and reliable information on programs and services is available

| N/A | NS | IP | CD | NS | IP | CD | NS | IP | CD | NS | IP | CD | NS | IP | CD |

continued on next page...
<table>
<thead>
<tr>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forms related to key programs and services are downloadable and printable</td>
</tr>
<tr>
<td>Ability to e-mail organization is available with an automatic electronic acknowledgement</td>
</tr>
<tr>
<td>Search capability to find services and programs is available</td>
</tr>
<tr>
<td>Clients are able to complete transactions on-line in a secure and interactive fashion</td>
</tr>
<tr>
<td>Service,interactive electronic forms are available</td>
</tr>
<tr>
<td>Technical and content support is provided through various help services (online, phone etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target</th>
<th>Planning</th>
<th>Analysis &amp; Design</th>
<th>Construction</th>
<th>Implementation</th>
<th>Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td>NS</td>
<td>IP</td>
</tr>
<tr>
<td>N/A</td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td>NS</td>
<td>IP</td>
</tr>
<tr>
<td>N/A</td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td>NS</td>
<td>IP</td>
</tr>
<tr>
<td>N/A</td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td>NS</td>
<td>IP</td>
</tr>
<tr>
<td>N/A</td>
<td>NS</td>
<td>IP</td>
<td>CD</td>
<td>NS</td>
<td>IP</td>
</tr>
</tbody>
</table>

Comments

---

8. Do you think that GOV/E-government will bring about greater participation of citizens in policy setting? Please circle your choice as follows: 1 = Strongly Disagree  2 = Disagree  3 = Uncertain  4 = Agree  5 = Strongly Agree

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizens will be consulted via electronic town halls on major issues before legislation is passed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citizens will be able to vote electronically</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citizens will be able to participate in live sessions of parliament electronically</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments

---
Section III: Potential Impact on Business Processes and Organization Structure

1. This table measures two dimensions of impact on Business Processes. One dimension measures the impact ranging from automation to total reconceptualization, while the second dimension quantifies the extent of change. For example, automating "Recruitment" may have required high automation (little or no manual steps left), but medium process reengineering (the process has changed moderately) and Low Reconceptualization (the process is not integrated with other processes nor re-invented). Circle the degree of change under the appropriate column. If an item does not apply to your organization, please circle N/A.

Process Automation is when a manual process is automated with the help of computers. For example, if a leave request is submitted for approval using paper form, after automation, the employee will be able to submit the leave request electronically.

Process Re-engineering makes the process more efficient, usually taking out intermediaries that are no longer required. In the leave request example, the secretary and HR clerk are no longer part of the process because the HR database is automatically updated once the supervisor has approved the leave electronically.

Total Reconceptualization requires a totally new approach to the way the business process is carried out, goes far beyond "re-engineering", requires tight integration with other process changes, and demands major change in the organization.

Please circle your choice within each category.

<table>
<thead>
<tr>
<th>Business Process</th>
<th>N/A</th>
<th>Process Automation</th>
<th>Process Reengineering</th>
<th>Total Reconceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resources</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Recruitment</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leave requests</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Training requests</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Reviews</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Benefit Enrolments</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR Reports</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular Payroll</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Expense Reimbursement</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overtime</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Organizational Budgeting</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Finance Reports</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
</tbody>
</table>

continued on next page...
<table>
<thead>
<tr>
<th>Business Process</th>
<th>N/A</th>
<th>Process Automation</th>
<th>Process Reengineering</th>
<th>Total Reconceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Program Delivery - Exchanges with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citizens</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Businesses</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Other Fed. Organizations</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Municipal Governments</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Provincial Governments</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>International Governments</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Other Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement Process</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Ministerial Mail</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Client Queries</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Client Requests</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
<tr>
<td>Asset Management</td>
<td>N/A</td>
<td>Low Med High</td>
<td>Low Med High</td>
<td>Low Med High</td>
</tr>
</tbody>
</table>

Comments:

2. Studies indicate that with the introduction of IT networks and automated processes, organizations tend towards flatter organizations. Has implementing or planning to implement GOL/Government mean/mean a change in your organizational structure? Please check all that apply.

- [ ] Flatter organization by deletion of management layers
- [ ] Taller organization by addition of management layers
- [ ] There has been no change
- [ ] Not Applicable - GOL does not apply to this organization

Comments:
3. How do you think the hierarchical structure of your organization will change to meet the new demands of e-government? Please check all that apply.

☐ E-government does not apply to this organization
☐ Don't see any change as a result
☐ Will move towards a networked structure - one big network
☐ Will move towards a community of networked structures - many networks connected together
☐ Will move towards different team structures - some vertical representing only one functional area, some horizontal representing multiple functional areas
☐ Other

Comments

4. How are project teams organized within your organization? Please check all that apply.

☐ Not Applicable - we don't have project teams
☐ Teams are made up of employees only from the area concerned
☐ Teams are made up of employees from various areas representing an interdisciplinary team
☐ Other

Comments

5. Do you think that E-government/GOVIL will empower employees and enrich their jobs? Please circle your choice as follows: 1 = Strongly Disagree 2 = Disagree 3 = Uncertain 4 = Agree 5 = Strongly Agree

| Employees will have the necessary resources and tools to carry out their tasks when needed | 1 2 3 4 5 |
| Employees will have the necessary authority to make decisions regarding their everyday work | 1 2 3 4 5 |
| Employees will have increased knowledge and skills to deal with multiple functional areas | 1 2 3 4 5 |
| Employees will be able to decide their work hours | 1 2 3 4 5 |
| Employees will have higher job security because of their increased knowledge and skills | 1 2 3 4 5 |
| Employees will be recognized for good work done through rewards and bonuses | 1 2 3 4 5 |

Comments


6. Will GOL/E-government result in new ways of doing work? Please circle your choice as follows: 1 = Strongly Disagree 2 = Disagree 3 = Uncertain 4 = Agree 5 = Strongly Agree

<table>
<thead>
<tr>
<th>Change Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>There will be an increase in the number of tele-workers (working from home)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teams will become more autonomous and self-directing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teams will become more self-managed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The hierarchical structure of management will change more towards a networked structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The organization will be flatter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More decision making and authority will rest at the outer edge of the organization (at the front lines)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outsourcing of work will be common practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back office functions such as IT, Finance and HR will be outsourced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back office functions such as IT, Finance and HR will be centralized</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:

__________________________________________________________

7. Do you have any concerns regarding e-government? Please circle your choice as follows: 1 = Strongly Disagree 2 = Disagree 3 = Uncertain 4 = Agree 5 = Strongly Agree

<table>
<thead>
<tr>
<th>Concern Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOL/E-government will be realized unlike other initiatives (La Relève, PS 2000, UCS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enough resources are being assigned to achieve the required e-government objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a great need for increased Central Agency leadership re e-government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:

__________________________________________________________
Section IV: Cost Savings

The potential for cost savings is a major driver for E-Government initiatives.

1. In your opinion, which areas in your organization will see short term and long term cost savings and which areas will see short term and long term cost increases from GOV/E-Government implementations? For the purposes of this study, short term is defined as less than 5 years and long term is defined as more than 5 years. Please circle all that apply. If an item does not apply to your organization, please circle N/A.

<table>
<thead>
<tr>
<th>Business Process</th>
<th>N/A</th>
<th>Short term cost savings</th>
<th>Short term cost Increases</th>
<th>Long term cost savings</th>
<th>Long term cost Increases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Degree of Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 = No Change</td>
<td>1 = 1-10%</td>
<td>2 = 10-30%</td>
<td>3 = 30-50%</td>
</tr>
<tr>
<td>Human Resources</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Finance</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Program Delivery</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>IT Purchases</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>IT Support</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>IT Development</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Other Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Ministerial Mail</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Client Queries</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Client Requests</td>
<td>N/A</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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</tr>
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<td>Asset Management</td>
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<td>Other</td>
<td>N/A</td>
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<td>0 1 2 3</td>
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</tr>
</tbody>
</table>

Comments

__________________________________________________________________________________________
2. Does your organization purchase or provide "for-fee" services from/to other organizations? Please check all that apply.

☐ Not Applicable
☐ We purchase the following services from other federal organizations
  ☐ Consulting ☐ Project Management ☐ LAN Administration ☐ Network Management
  ☐ Programming ☐ Web-site Development ☐ Web-site Management ☐ Database Management
  ☐ Help Desk ☐ Other

☐ We provide the following services to other federal organizations
  ☐ Consulting ☐ Project Management ☐ LAN Administration ☐ Network Management
  ☐ Programming ☐ Web-site Development ☐ Web-site Management ☐ Database Management
  ☐ Help Desk ☐ Other

Comments
____________________________________________________________________________________
____________________________________________________________________________________

3. How do you think e-government will affect "for-fee" services between federal organizations? Please circle your choice as follows: 1 = Strongly Disagree 3 = Disagree 5 = Undecided 4 = Agree 5 = Strongly Agree

| E-government will increase "for-fee" services between federal organizations | 1 2 3 4 5 |
| E-government will decrease "for-fee" services between federal organizations | 1 2 3 4 5 |
| E-government will not have an impact on "for-fee" services between federal organizations | 1 2 3 4 5 |

Comments
____________________________________________________________________________________
____________________________________________________________________________________

4. May we contact you to clarify items? Yes ☐ No ☐

Thank you for completing this questionnaire.

Please be assured that your responses will be held in confidence. Only aggregate responses will be reported. Thank you.