



**OPPORTUNITIES:
INTERNET TECHNOLOGY
AND
E-GOVERNMENT**

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The focus of this paper is placed on the increasingly popular concept, e-Government, what it means to local government and the services provided to the residents. To fully understand the basic concept of e-Government will help leaders in the public sector use already limited, if not diminishing, public funds more effectively.

OPPORTUNITIES

Today, Internet technology is the dominant computing mode today. In a short period of five to seven years, the applications of Internet technology have gone beyond our imagination. Bill Myers, the Chief Executive Officer, United States Internet Council, provided some stunning statistics: the Internet use is at a stage where there are two billion web pages running on 4.5 million web servers worldwide. In the United States alone, the number of people who use the Internet for various purposes climbed from 70,000 in 1993 to 37 million today*. Such a high Internet usage pattern can also be seen at the local level. As shown in a yearly citizen survey conducted by the Village of Downers Grove, Illinois, 87% of local residents have a home computer, and 76% of the residents who have a home computer access the Internet from their home. This is a very high percentage home use of the Internet. For private business organizations, the usage level is even much higher.

The extensive use of Internet fundamentally changed the way business is conducted. The changes can be viewed in the following areas. First, the location of the business becomes an unimportant factor if not entirely irrelevant to the business, especially to those retail businesses and financial service institutions. Their use of the Internet breaks the traditional geographic limits, offering their products and services to any geographical location in the world where the access to the Internet is available. To the customers, the purchase appears to take place at their home, and the point of sales thus is not important. Second, the customers can initiate an online transaction at a time they choose, breaking traditional time limits set as the business hours. Third, in most cases, online transactions cost less. Although in the United States, there is a very

sophisticated tax system, whether and how to tax the online transactions have not been agreed to all. As of today, most of online shoppers are not paying sales tax for their purchases, which is a major attraction to many consumers. In addition, because of the smaller overhead costs, online stores are able to offer the same products at a lower price than most local traditional local stores. Finally, the online transaction process allows the consumers to "go into" the online stores' warehouse and easily compare the product and its price with those offered by another online store.

As part of the fast development of Internet technology, some very complicated computing activities in conducting online transactions are simplified so that a consumer who has limited knowledge of computers can still go through the online purchasing process. In terms of the functionality of the interface, on the other hand, the web pages can be designed to perform some technically sophisticated computing operations. For example, a review of some online electronic stores shows that just by a few simple mouse key clicks, the potential customer can check the product, its technical specifications, availability, price, and the information for shipping. Some online shopping web sites (e.g., www.dell.com, carpoint.msn.com, etc.) allow the potential buyers to customize the products by their options. Furthermore, throughout the whole customizing process, the final price is updated dynamically as the options are being changed by the customer.

In addition to the functionality, in an effort to make the online shopping as easy as possible, some web sites allow the customers to establish a personalized account with the company. Once the account is established, the subsequent purchases will require little effort from the customers except selecting the products. Customers can logon to the web site and check the history of her/his purchases, payment and shipping information, or modify the account information such as address, phone number or shipping address, etc.

More sophisticated functionality can be found on the web sites of financial institutions, especially those online stock trading companies. Customers of an online stock company can establish a totally personalized account with the company and manage her/his own stock portfolio directly on the company's web

site. All stock trading activities take place on the web. As part of the services, the company offer, via its web site, live stock price updates accompanied some charts showing the patterns.

As we can see, the wide spread online business has changed the traditional customer-business relationship. Customers are allowed to go inside the company and become a part of the business process. Allowing customers to have a total control of the purchasing process attracts more customers, giving the company a competitive edge.

The booming online business transactions have quietly changed the business environment, and the dominant mode of business mode today is characterized as "E-commerce." Internally, since the customers become the direct users of the company's information systems, the role of the information system department is undergoing an important change from an internal business support unit to major business department.

Compared with the private business, the public sector is falling behind in utilizing the state of art technology. For example, most local government web sites still remain informational. Does this mean that local governments do not need to take advantage of the current IT? What impact has the fast developing IT brought upon local government organizations? An e-Government!

In the early development stage of Internet technology, some local government organizations saw Internet technology as a means to build "a city hall that never closes." Many web sites managed by local governments offered a huge volume of information to the residents, resulting in a higher level of transparency for government operations. The development of Internet technology has created a high expectation for faster and better services from local governments. As a result, an information-only web site run by the city can no longer meet the needs of the residents. Not long ago, the trips to the village hall for a simple permit application or phone calls made to the city for checking the water usage status were viewed a normal business practice. Today, these trips and phone calls are viewed as a waste of time and another layer of government bureaucracy. The extensive use of the Internet in the business world has helped create the concept of e-Government. Some cities start to offer

some services online. The residents can apply for a permit directly online and check the status of their application online.

Although it has not caught the attention from many public administration theorists, the increasing use of Internet technology helps not only increase the transparency level of government operations, but also penetrate the traditional shell of the perceived bureaucratic process--the government process. What an online permitting system, or the online GIS, offers is not merely a convenient way to communicate with the city; it allows the residents to go inside and become a part of the government process. Traditionally, residents were kept out of the process as the opposite side of the service counter. This change may have a profound impact on the way a local government operates.

The possibility for moving along with the rest of the world in utilizing the current technology can be seen in the increasing accessibility of the Internet in common households today. Because of its slow speed, the modem type of Internet access limits the Internet use at a minimum level. In a few short years, cable modem and DSL (digital subscriber line) are attracting more and more home users.

Internet technology replicates itself at an unbelievably fast pace. As the more and more people start to enjoy the current technology, e.g., networking home appliances, MP3 on the stereo system, everything wireless, GPS and Internet-enabled cars, etc, even newer technology is in the horizon. A higher bandwidth network, known as Internet2, is underway. Internet2 allows a delivery of information over the Internet at the dizzying speed of 2.4 gigabits per second, 10-15 times faster than the speed enjoyed by organizations (e.g., T1), and hundreds of times faster than home users (e.g., modem). Such a high bandwidth makes it possible to search the global network in a few short seconds and to conduct online business transactions as fast as it was conducted on a local PC.

To conclude, the available technology makes the E-government necessary and possible. The question a public CIO (Chief Information Officer) faces is not whether the local government organizations need to take the full advantage of the golden opportunity the current technology presents to us. Rather, the question is how. The local government CEOs and CIOs would either

be the unwilling participants, or taking the lead in utilizing the technology to improve the services to the digitalized community today.

DEFINING E-GOVERNMENT

In their marketing efforts, many private companies that specialize in local government business heavily promote the concept of e-Government. However, there is rarely any in-depth discussion of the definition of an e-Government. The "E" for electronic is basically a borrowed concept from the notion of "E-commerce" promoted in the private business world. E-commerce generally refers to business, or commerce, conducted over the Internet. Today, we cannot imagine a successful business without a web site. For example, many large businesses exclusively sell their products online (e.g., Dell, Inc; amazon.com, etc.), and the Internet is their lifeline. When we copy the "E" concept from the private sector and apply it to a local government, we may see a different pattern.

The basic functions of a municipal government include providing public safety protection to the community, infrastructure construction and maintenance, economic development and some social activities, etc. These are by nature physical services and cannot be delivered via the Internet. However, with the assistance of information technology, local governments can deliver these services more effectively than ever. It has been often referred as "IT powered services."

e-Government can be seen in two major areas. One is the Internet technology-based services provided to external clients including residents and businesses. These services include all of the informational communications, and transactional activities such as online permitting, payment, etc. In addition, current information technology is utilized to its full extend to assist in delivering physical services provided to the residents and businesses.

The concept of e-Government is also applied to the area of the government's internal operation: Internet technology-based office automation and communication including web-based document delivery, storage, and retrieval, Email, and employee news bulletin, etc. Such a totally web-based internal operation is often referred as "paper-less operation."

It is important to understand that once the local government organizations start to advance both of their internal and external operations towards an e-Government, the difference between external and internal operations will start to diminish. For example, an online citizen response center allows the residents to enter the complaints and inquiries into the system themselves, and thus, the communication between the city and the residents requires little paper work and human intervention on a 24-by-7 basis. Such an operation benefits the city staff also. Information traditionally inputted by the village staff is now entered directly by the residents, and as a result, practically, the residents become part of the city's operation.

A deeper impact brought by information technology upon government organizations is that it will result in changes in the operational procedure, and eventually lead to environment and cultural changes. Changes are taking place quietly. In the case of PublicSalary.com, the online salary and benefit database, member cities enjoy the benefits brought by the technology, and the traditional "paper-pencil" type of salary survey is no longer acceptable. In another example, the Online Work Order on the web site managed by the Village Downers Grove, Illinois allows residents to enter their work order themselves. As soon as the residents hit the SUBMIT button on the web page, the work order is sent to the line supervisors in the Public Works Department, bypassing the traditional processing and distribution route. Internally, in an effort to reduce the paper work, many cities start to rely on intranet for document management. In doing so, many officials begin to re-examine the necessity of reports and memos in hard copies that have been passing around for many years.

As proved by the history, revolutionary advances in the way we communicate always result in radical changes in our life, e.g., the invention of telephone, radio, or TV, etc. What will be an E-government like?

e-Government is a true 24-by-7 government process. The core of Internet technology is that it is not limited by geographic locations and time. Therefore, the access to the local government is allowed on a 24-by-7 basis, and more importantly, such an access is not only allowed for information-only purposes, but also for transactional operations.

e-Government is an open government process. The use of Internet technology allows the residents and businesses to communicate their requests or work order to the operation units directly, and after the initial contact, the residents and businesses can check the status of their request or work order online with a dynamic system. Nothing is hidden behind the process.

e-Government is a simplified government process. Internet technology provides the organizations with an opportunity to simplify the existing operation procedures. In order to support various online transactions, document category and routing are being redesigned. During the redesign process, unnecessary steps are eliminated. For example, an online permitting system is less likely to require applicants to fill multiple forms for their applications. A single but standardized form may be used for all types of permit applications. Internally, office routine may be simplified to accommodate the change brought forth by the use of intranet. New technology does not work well when applied to the old procedures.

e-Government is an effective government process. Since the government process is conducted with Internet technology, less staff intervention is required. Processing procedures are pre-defined in the system that allows the whole process to be an automated operation. For example, when a resident completes his water bill payment with the online payment center, the actual payment process is completed. There is no city staff intervention necessary. Therefore, there is no confusion at neither end.

The concept of e-Government is not new any more to most local government leaders in local government organizations. However, some of them still believe that applying the current information technology to their operation will lead to an e-Government. It is true that IT is the core of any e-Government initiative. However, simply introducing IT to the organization will not lead to an e-Government. e-Government is a new government process accompanied by the changes in the organizational structure, and more importantly, people's conception of technology.

The application of new technology will either need a change in the organization's structure, or result in a gradual change after the application. That

is, switching from a traditional government to an e-Government will probably result in merging different functions and personnel together, or shifting certain responsibilities among various departments. For instance, the establishment of the Citizen Response Center, Village of Downers Grove, Illinois, in fact, shifts the responsibility between the city manager and department heads to the system with which not only the city manager, but also the residents and Village council members can check the status of each case reported.

An e-Government operates on a different environment from that of a traditional government. An organization that can easily adapt to changes is likely to move onto utilizing IT to improve services. IT can radically change the mode of daily operation. Many staff users are comfortable with the office routine, and thus making changes in their office routine can be a difficult task. Resistance to change occurs when there is a lack of understanding of new technology among staff members, or the fear of losing the status quo in the organizational hierarchy, even the position. If this happens to the top level management, e-Government can be a difficult concept to accept by the organization. Email has fundamentally changed the way we communicate both internally and externally. However, if one insists on printing a hard copy off the received Emails and replying by traditional post office mail, all of advantages brought by Email will be lost.

How to change people's conception of IT is one of the challenges we face today.

* Bill Myers, Chief Executive Officer, United States Internet Council. A speech at the 2000 Midwest Electronic Government Forum held at Chicago.