E-government: its characteristics, practices and future

1.

Introduction The Internet and the World Wide Web have changed our lives in many ways, making it possible to carry out a virtually unlimited number of activities from our home or office. For example, we can find information on camera features and prices before we actually buy a camera. We can communicate with our friends, relatives or other colleagues via e-mail on a virtually instantaneous basis, join a chat group discussing a current social issue such as horrible terrorists' attacks on America and America's possible response to the attacks. We can listen to remote radio or television stations live, meet colleagues with teleconferencing systems equipment, and buy some products and have them delivered directly home without going to the mall. Surely, we can think of many more ways to use the Internet and the World Wide Web. It was estimated that 144 million people were using the Internet around the world by the end of 1998.

The number has been growing very fast and is expected to increase to approximately 502 million by the end of 2003 and 1 billion worldwide by the end of 2005. Business has been concurrently changing as more and more people go on-line to purchase goods and services available on the Internet. Statistical research shows that the number of Web sites has been growing at a rapid rate with over 23. 78 million by the end of 2000, up from only 4. 06 million by the end of 1999 [17].

Electronic commerce has also been growing at a rapid rate in both B2B and B2C. Citizens themselves, based on the lessons they have learned and the skills they have developed through interactions with services offered in other

regular business areas, such as on-line financial services and information search services are driving governments to increase focus on customer service. These experiences are accelerating the demands and expectations that citizens place on public sector agencies. As customers, they are receiving one-stop shopping and service-in-an-instant; as taxpayers, they are demanding similar access and speed of service from their government. Clearly, the demand is there—citizens not only want information, they want higher-quality service, convenience, customization, and empowerment [2]. According to a recent survey, citizens wanted to renew driver's licenses (47 percent), file state taxes (34 percent), obtain park information (31 percent), review accident reports (29 percent), pay parking tickets (28 percent) and review real estate records (28 percent).

Businesses wanted to be able to search federal or municipal court records (47 percent), obtain or renew a professional license (43 percent), access one-stop shopping for opening a new business (39 percent), access criminal background record checks (34 percent), and apply for a business permit (36 percent) [3]. While observing the effectiveness and efficiency the Internet made possible, governments have also been trying to incorporate information technologies into the way they do business [24]. As stated above, the World Wide Web has become an increasingly important way for citizens and businesses to communicate. It is being used to disseminate information and services and to transact business.

It promises to provide " 24 hours a day, 7 days a week" access to government information and services. As a universal interface to information and services, the Internet offers many potential benefits to both users and

providers of information services. It presents a unified and user-friendly gateway to a myriad of resources. It can reduce the learning curve and training costs, help government reach an expanded audience, give citizens anytime, anywhere convenient access to government information and services increasing citizens' satisfaction and building up confidence between governments and citizens, and allow government to integrate information and services that originate at different agencies and on different platforms.

However, while regular businesses have made great strides in going on-line, governments have been less progressive even though activities have been significant in exploring the potentials [12]. The objective of this paper is to compare process, components, functions, and practices of e-commerce with those of e-government and then to find some implications and recommendations for improved government services and businesses. An important assumption is that most e-commerce practices and functions can be effectively applied to the area of government services and businesses. Therefore, the research questions to be answered in this paper are the followings: What kinds of regular businesses and services are currently on the Internet? What kinds of government businesses and services are currently on the Internet? What are similarities and differences between regular on-line businesses and services and government businesses and services? How can government on-line businesses and services be improved from the perspective of citizens? What are driving forces, barriers and future implications of electronic government? The first thing to be done is to identify and demonstrate regular Internet businesses and services and

government Internet businesses and services currently on the Web. Then, similarities and differences between the two will be explored.

Some implications and recommendations will be suggested based on the comparison of the two, on-line regular business services and on-line government business services. Finally driving forces, barriers and future implications or paths of electronic government will be stated. Primary works with this paper will be research on the existing articles and documents related with e-commerce, existing government services. The government level covered in the paper would be primarily state and local government agencies because they are nearest to citizens and businesses and because they must directly or indirectly contact citizens and businesses to do their business. However, the government level is not strictly applied through the sections where deal with some general concepts and practices. In addition, geographical area is not restricted to the United States through the sections even though e-government services cited here are based primarily on current practices of the United States' state and local governments.

. Electronic Commerce: An Overview Even though e-commerce has existed for over thirty years, it has just recently sustained significant growth. In the past 5 years, the Internet has transformed from an auxiliary communication medium for academics and large organizations into an entrenched communication medium that spans across nearly all parts of mainstream society. E-commerce growth is tied directly to these socio-technological changes. The more entrenched the medium become, the more users are drawn to it.

An increase in users increases markets. As markets expand, more businesses are attracted, which in turn drives the development of better, more stable and secure technology to facilitate e-commerce. A stable, secure environment for exchanging mission-critical and monetary information only draws more businesses and consumers to the Internet and ensures the growth pattern continues. All these related factors contribute to a burgeoning e-commerce marketplace that should continue to grow well into the new millennium.

2. 1. Definition There does not exist a simple definition of e-commerce that adequately describes the coverage of their operations, functions and underlying technologies. One common view is that e-commerce is on-line shopping via the Internet. Although this is correct, on-line shopping is only one of many types of e-commerce activities. In broader terms, e-commerce is any commercial activity conducted electronically, particularly via private or open networks, such as the Internet.

The key point of this definition is that e-commerce is a confluence of business operations with electronic and network technologies. Telephony and non-networked technologies such as CD-ROM media may integrate into operations, but the core of e-commerce is network technologies and especially open networks such as the Internet. . 2.

Process The e-commerce process can be described as one of the components of e-commerce and it includes marketing, sales, payments, fulfillments, and support in the most simplified approach. However, other elements could be added to complement the process of e-commerce. They

are creation of the on-line content and host of the content on the Internet. Therefore, an entire process can be understood as shown in the figure 1. In most e-commerce web sites, those processes are usually described in a way customers or general users can easily understand. This user-friendly description makes users feel comfortable when they do transactions in those e-commerce web sites.

They notify the transaction information on a real time basis to their customers and try to get feedback from them to make their features more clear. 2. 3. Components Description of components of e-commerce depends on various viewpoints and scope.

For example, in a technical term, e-commerce components can be understood to include portals, web browsers, plug-ins, HTML, JavaScript, XML, search engines. In a broader meaning, however, e-commerce can be said to have three major components: Institution that is external or surrounding elements, Networks that cover physical line and technological elements as well, and process that is internal handling of business. Each component is composed of various sub-components and those sub-components again include many elements, technological or non-technological. A simplified description of e-commerce components can be drawn as shown in the figure 2. 2. 5.

Functions In short, e-commerce offers a more efficient and effective way their customers reach their services. E-commerce helps expand markets beyond geographical, national boundaries, expand reach to new clients, realize economies of scale by increasing sales volume to new markets, and

streamline communication to suppliers and clients resulting in improved services to existing and new customers. It is making it possible to reduce paperwork and time spent on correspondence, track customer satisfaction, expedite billing, improve collaboration on work projects. Also, it would improve inventory control and order processing, lower costs of overhead, and make it easier to monitor competition and industry trends. In the short-term, entry into e-commerce may offer a competitive advantage over slower to act competitors.

The market for e-commerce is growing, as more consumers and businesses gain Internet access and transaction processing technologies improve security. The functions of e-commerce to regular businesses may include capabilities to: -Expand markets beyond geographical, national boundaries & expand reach to new clients -Realize economies of scale by increasing sales volume to new markets -Streamline communication to suppliers and clients Improve service to existing clients -Reduce paperwork and time spent on correspondence -Track customer satisfaction -Expedite billing -Improve collaboration on work projects -Leverage legacy data -Improve inventory control and order processing & lower costs of overhead -Monitor competition and industry trends -Improve or expand product lines – locate new suppliers, products that could be included in catalogue. E-commerce conducted over the Internet differs from typical commercial activity in that it is influenced by the unique characteristics of the medium itself. In contrast to print media, e-commerce is dynamic, allowing users to interact with the commercial site, send comments, and even define the scope of a document. Unlike person-to-person commerce, e-commerce allows for a controlled interaction between

vendor and potential purchaser, where the vendor may strategically direct the customer through a series of options and processes. E-commerce also differs from traditional commerce by its boundless relation to time and space.

Interaction is not restricted to normal working hours or geopolitical borders. There is potential to conduct business with other merchants and consumers around the world in different time zones, 7 days a week, 24 hours a day. 3. 3.

Practices By virtue of its similarities, the scope of operations for e-commerce is nearly as broad as traditional commerce. E-commerce includes both traditional activities (e. g. providing product information) and new activities (e.

g. conducting on-line retail in virtual malls, publishing digital information). Some of the common operations that define e-commerce are specific business-to-business and business-to-customer interactions. The Internet business can be characterized by its three-tier structure. In other words, its business types or patters can be divided into three main areas: Internet service provider (ISP), Internet software development, and Contents business. The Internet service providers offer the network and equipment for communication by constructing the physical infrastructure on which the Internet works.

In the area of Internet software development, various kinds of application software and system software solutions have made the Internet environment user-friendlier. Based on the network and software, the Internet offers

various contents such as news, entertainment, education, and Internet commerce. Among these three tiers, the contents business has been the most creative and dynamic area. Even though it is the software development area that makes the contents easier and more systematic, the software has begun to play a minor role rather than a major role. Although the ISP offers the infrastructure for the Internet business, it is difficult to judge whether it plays a core part in changing management paradigm. Contents mean " Value added information offered by the Internet" and include all forms of Internet-applied businesses based on the infrastructure such as network and Internet software.

The contents business can be divided into three categories by its activities performed: revenue creation, cost reduction, and brand building. Revenue creation activities include shopping mall, on-line auction, search engine, community management, and on-line advertisement while cost reduction activities include supply-chain management, customer service, on-line recruiting, and on-line training. Note that a mixed form of these two types is recently increasing. The followings are examples of common e-commerce features currently available through the Internet.

A. Information exchange The leading business that contributed to Internet proliferation was directory and search engine that enabled customers to gain the data or information they needed through subject or keyword search. Yahoo, Google, Infoseek, Altavista, Lycos, and Excite are examples of this category. They have extended their service into various areas such as news, shopping malls, chatting, e-mail, and so on. In fact, Yahoo offers most kinds of services available on-line.

Some customized services can be found in this category of the Internet services. Using intelligent agent to help facilitate their information search, users can save valuable time in finding information. B. Goods or services trading and on-line payment In the early stages of the Internet, products traded on-line are primarily personal computers, software, peripheral equipment, books, CDs, airline tickets, and other various tickets. However, as the on-line transaction has become more active, various kinds of products have appeared on the Internet.

Financial services such as bank, stock, and insurance, foods, and automobiles, which were considered difficult to trade on-line at first, have begun to sell on-line actively. Almost all the products in the traditional market have become available on-line. The on-line sales can also be divided into three categories by their way of doing business: on-line storefronts, which treat a limited number of specific products, on-line shopping malls, which are composed of several storefronts, and on-line auction sites, which sell products by auction. Customers can pay for goods or services they purchased by main credit or debit card such as Visa, Master, and American Express.

Also, other convenient payment method such as cyber-money is becoming available to make it possible for customers to pay very small amount of money that is inappropriate to be paid by credit card. Meanwhile, one unique feature that is easily found in these web sites is transaction record tracking system. Usually, customers have to register as members to buy some products on-line with their credit information. From this membership, customers can have their own space that stores their transactions or

whatever they did. C. Sales promotion and advertising Internet advertising that is characterized by the term " banner" is the base of various kinds of free services available on-line.

Just as without TV advertising, we would have to pay expensive fee for watching TV, we would have to pay for the Web site contents without " banner" advertising. D. On-line digital content delivery Fundamentally, most services are free on the Internet. Unless the information or the contents are highly specific and professional, there is no cost for acquiring them. People can enjoy on-line games or other entertainments at home and gain detailed information if they want. They also can download lots of software available on-line.

Revenue source is mainly advertising. E. Electronic funds transfers and transaction processing Electronic fund transfer (EFT), a popular electronic payment method, transfers money value from one bank account to another in the same or a different bank. EFT has been in use since the 1970s through automated clearing houses (ACHs). Today, we can also use an Internet-based EFT, which implies that the connection between cyber-banks and security protection during the transmission is necessary.

Many cyber-banks like Bank of America and Citibank support Internet-based transfer by encrypting messages for safety and security [21]. F. On-line sourcing and inventory management Electronic Data Interchange (EDI) has been used primarily by conglomerations to handle purchase and distribution process before the Internet is considered an alternative. Medium and small businesses could not afford to use their own EDI because of its high cost

needed to manage the network. However, the Internet enables medium and small businesses to construct networks with their suppliers with relatively low costs.

For example, a manufacturer can examine inventories and prices of their part suppliers via Web sites and the suppliers can trace the current production and part inventory level of the manufacturer, which results in decreased inventory and transaction costs. G. Direct consumer marketing The Internet, unlike other media, allows two-way communication close to customers. While traditional media is characterized by its information push that makes customer passive, the Internet can be characterized by its information pull in a sense that customers actively visit Web sites to find out information, which results in interactive communication.

Most companies have built their Web sites to incorporate this powerful characteristic of the Internet into their marketing strategies because the World Wide Web can be used to create and strengthen the brand power of their products or services in a long term. To attract customers to their Web sites, the companies offer related entertainments or other contents to give customers a strong impression of their products or services. H. Post-sales service Most companies allot lots of money and employees into customer service.

The World Wide Web enables businesses to offer the customer service more cheaply but more effectively. For example, companies can reduce costs by decreasing the number of employees involved in customer service. Meanwhile, customers are able to gain customized information from the

company's Web site involved whenever they want. Package trace service by FedEx and UPS, book search, purchase, and delivery information service, technical support service by Cisco, and PC problem solving information by Dell are good examples of customer service. 3.

Electronic Government: An OverviewIncreasingly governments have been moving to " intentions-based" models for virtual government, considering how and when citizens will want or need to interact with government regardless of the day or hour. This move requires a seismic shift in government operations. Governments have barely scratched the surface as they consider their " E-Futures", while the private sector zips by at " E-Speed", offering ever-ready services that today's digital citizens demand. Increasing numbers of public officials are contemplating how to marry the Internet with government [19]. As the public gains more experience with emerging on-line tools and information resources, people will come to expect a similar level of service from government entities [20]. 3.

1. Definition Like that of e-commerce, definition of e-government can not be simply put because one a simple definition cannot adequately describe e-government's operations, functions and underlying technologies. In general, e-government means using technology to streamline government by providing efficient and effective services and information to citizens and businesses. In other words, e-government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government.

Therefore, e-government has the same technical infrastructure as businesses in the private sector have. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. However, consideration of privacy and security should be more emphasized because e-government handles public information involving all citizens and businesses. Analogous to e-commerce, which allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C), e-government aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive [1]. By embracing and emulating the efficiencies already achieved in the private sector through the Internet, local governments can improve their service level while at the same time marketing themselves to citizens and businesses, thereby building a confidence between local governments and their customers (citizens and businesses) through a transparent process of business. 3.

2. E-government Process The government Web site should provide a single point for citizens and businesses to access e-government services. In other words, government should present a single, function-driven face to the public. To present a single face implies " one-stop shopping.

" A conceptual process flow can be drawn as shown in the figure 3. These processes are somewhat conceptual because there are few governments that incorporated these processes into their web services. However, even if

some of the elements in the processes are not available, the basic flow fits with most governments. 3.

3. Components As in section 2. , components of e-government depend on various viewpoint and scope and can be described in the same context. In a technical term, e-government components can be understood to include portals, web browsers, plug-ins, HTML, JavaScript, XML, search engines and in a broader meaning, can be said to have three major components: Institution that is external or surrounding elements, Networks that cover physical line and technological elements as well, and process that is internal handling of business.

However, there exist some fundamental differences due to the nature of organization. A simplified description of e-government components is shown in figure 4. 3. 4. Functions Just like e-commerce functions, every new on-line government service is increasing citizens' satisfaction and building up confidence between government and citizen by offering anytime, anywhere access to government information and services.

E-government helps government to reach an expanded audience and to do their business more efficiently by integrating information and services that originate at different agencies and platforms. Also, to reduce related costs and to create additional non-tax revenue sources could be labeled as e-government functions. Generally speaking, these functions are the very reasons why businesses and governments go on-line to do their business. The Internet revolution is just beginning to heat up. The promise of " e-government" could transform how customers obtain government services

and information, interact with their elected representatives and non-elected officials, and become involved as citizens and businesses. While many citizens are unfamiliar with the term " e-government," the public sees great potential in the government using technologies [15].

The public's vision of governmental use of technologies goes beyond a more efficient government that offers accessible high-quality services on-line, to a more informed and empowered citizenry and a more accountable government. The types of benefits can vary by their definition. An article says that e-government brings cost savings, competitiveness of citizens and businesses, and confidence between the government and the customer. A. Increasing Customer satisfaction Electronic government allows citizens to access public information on-line, increasing the satisfaction of the public by providing a seamless experience in which services are delivered in a very efficient fashion.

Citizens and businesses have quicker access to a wide variety of government information and services. Each information inquiry or business transaction fulfilled by the Internet saves valuable resources such as the need for less government staff time and reductions in mailing costs. These resources are either saved or devoted to other important services and functions. B. Building up Public Confidence between Governments and their Customers A research conducted in August 2000 indicated that e-government has the potential to reshape the public's largely negative attitudes toward government.

In that poll, 56% of the public and 67% of those who had visited a government Web site said that e-government would have a positive effect on the way that government operates. If those using government Web sites are more optimistic about the effects of e-government, increased public use of e-government may lead to increased public confidence that government can solve problems. The beginnings of this process may already be evident — 36% of those who have used the Internet to access a government Web site have a high level of trust in the government, compared with only 22% of those Internet users who have never visited a government Web site and 19% of those who do not use the Internet at all [15]. C. Increasing Efficiency & Effectiveness A good government on-line service should reduce the cost of government or increase efficiency and effectiveness by implementing re-engineered processes.

The governments might want to consider reducing some fees for services that can be performed more efficiently, passing on the savings to the consumer. Efficiency comes primarily from reduced processing time and cost, and effectiveness is related mainly to increased quality of services and customer satisfaction. D. Cost savingGovernments can avoid staffing costs through increased provision of government services on-line. By substituting technological inputs for labor inputs, the governments will avoid significant future increases in staffing costs.

In addition, citizens and businesses can save costs by reductions in the travel and time costs associated with conducting business with the governments. The cumulative impact of these costs on the citizenry will be profound, especially on those living furthest from the points of service

provision. Most Americans expressed a favorable view toward every proposed e-government function. Among those most popular with consumers were the ability to get medical information from the National Institutes of Health and other agencies, the ability to view candidates' voting records, access to Social Security benefit information, the ability to register motor vehicles on-line and the ability to apply for student loans on-line [14]. 3. 5.

PracticesThe followings are examples of e-government features that are available from some of state or local government agencies. A. Filing of Taxation & Payments Like customers who purchase and pay on-line, citizens and businesses of some local government jurisdictions are allowed to file taxation and pay taxes electronically. For example, taxpayers can file sales tax short form returns with tax due and make their payment using a credit card.

The user should be able to enter the primary tax return data and an application should the amount subject to tax. Typical examples are " Pay parking fines and water bills" service of Rochester, New York, " Tax payments over the Internet" service of Fairfax County, Virginia, " Water, sewer and stormwater bill payment" service of Durham, North Carolina, and " Business tax registration" on-line service of San Francisco, California. These services are currently available at many local governments including Springfield, Missouri, Boston, Massachusetts, San Diego County, California, San Francisco, California, Gwinnett County, Georgia, Seattle, Washington, Sunnyvale, California, New York, New York, Santa Monica, California, Lenexa, Kansas, and so on. B. Access to Information Just as customers can access any kinds of information on the products and services involved, citizens and

businesses should be allowed to access to most public information 24 hours a day and 7 days a week. Most governments have adopted similar logic of the directory and search engine because citizens and businesses are familiar with process.

However, they do not offer customized services that are currently available in most regular commercial web sites. Good examples of some local governments that offer access to valuable information together with general information are: Madison, Wisconsin – Property information, Who are my elected officials? , Where do I vote? , Lobbying information, Campaign finance information and New York, New York – View property information, Restaurant inspection information. Even though many governments adopt the same search engine technologies as the regular businesses such as Yahoo, Google, or InfoSeek, few government web sites offer customized services, which means they don't consider citizens' different demands and characteristics. C. Application and Renewal of Permits, Licensing & Certificate Applications for licenses and permits should be available on-line and applicants should be allowed to submit the applications directly on-line.

Governments should receive documents for filing from the applicants and the applications should be handled in a real time manner. Some examples of these categories of government services are " Business license application" service of Santa Monica, California, " On-line building permit" service of Sunnyvale, California. Other typical example can be found on the websites of San Carlos, California and San Jose, California, and Lenexa, Kansas. D. Request of Official Documents and other special services The Internet can be used to send documents on-line for printing out to citizens and businesses

that request them on-line. It also should be ensured that citizens and businesses are able to use credit cards or other electronic forms of funds available on the Web to pay for the services involved, regardless of the amount of money.

Current practices of this categories show that citizens and businesses can only apply documents on-line and wait for mail delivery. Many local governments now offer a document request form on-line. Meanwhile, some leading governments have successfully added a special service request form available on-line to the public and they include: Phoenix, Arizona – Street light repair request form, New York, New York – On-line service request forms, Springfield, Missouri – Service request form and citizen's service assistance packet, San Diego, California – Request form for fixing potholes, sidewalks, street signs, Phoenix, Arizona – Streetlight repair request form, Houston, Texas – Citizen request for services form, and so on. E. Reporting Problems or Submitting Complaints The point of this category is that citizens and businesses should be able to easily access appropriate public servants who can handle problems or complaints. Some local governments have enabled citizens and businesses to easily report problems and submit complaint, suggestions or whatever ideas or opinions on-line.

They include San Carlos, California (On-line Citizens complaint form), King County, Washington (Citizen input to proposed County FY2000 budget), Indianapolis, Indiana (Citizen feedback on proposed budget, Mayor's Action Center), New York, New York (On-line complaint forms), Kansas City, Missouri (Action Center – citizen inquiries and complaints), and Fort Collins, Colorado (Eyes and Ears: citizen report form, On-line crime reporting form). F. Web

casting and Video services for sharing current social issues Citizens and businesses should be able to access to current local issues directly or indirectly related to their rights and liabilities. Some local governments have web casting or video services to allow citizens and businesses to access city council meeting or general update information.

" Webcasts of City Council meetings" of San Diego, California, " Public meetings and city public affairs programming" of Bloomington, Indiana, and " Videos on disaster preparedness, city council updates, and presentations by the Mayor" of Seattle, Washington are good examples for this category. G. Community Services Just like commercial websites, a few local governments offer community bulletin board and forum pages on their websites. Good examples are " CityTalk interactive forum" page of Fort Collins, Colorado and " Neighborhood bulletin board" page of Santa Rosa, California. 4. Comparisons Between E-commerce and E-government 4.

1. Similarities A. Customer base Even though there exist some terminological differences seen in e-government and e-commerce, they share the same people and organization as their customer base. B.

Technological Infrastructure E-government and e-commerce share the same information technologies as their infrastructure. This means that they both pursue the same benefit from the information technologies: Efficiency and Effectiveness. It can be said that e-government and e-government have the same functions from the fact that they both pursue benefits from efficiency and effectiveness the 24-hour, 7-day on-line access offers. C. Basic Policy Both e-government and e-commerce share many issues or problems

because they have common customer base and technological infrastructure. For example, they both concern about customer privacy, system security, etc.

D. Basic Process Even though there exist some detailed differences, they basically have the same process in doing their business. E. Service Area and Time Regarding service area, basically there are no boundaries. This means that services available on-line are not limited to a specific local or region. In addition, there is no limit in service time, which means the 24-hour, 7-day on-line access offers.

4. 2. Differences A. Objective Even though they share the same people and organization as their service base, the nature of service is totally different. While e-commerce pursues making money or increasing profit by reducing costs and broadening their customer base, e-government goal is to increase citizens' satisfaction, build up confidence between government and citizen, create e-democracy, and save various costs.

Surely, the private sector may put a greater emphasis on financial success measures while the public sector frequently chooses to value more qualitative measures. B. Competition Even though the applications of both e-commerce and e-government are based on the same technological base, they are a little different in responding to customers, incorporating customers' demand into their service. Fundamentally, e-commerce considers customers a critical input element in developing a service or product and it is very quick in responding to customers' various request. The features of web pages are mostly user-friendly.

E-commerce focuses on customization in developing applications. To do so, e-commerce is very quick in adopting new technologies to meet customers' changing demands and increasing expectations because if not, they will lose their customers, so their business will die. In short, using intelligent agent, various payment method, and customization are good examples of how they serve their customers. However, when it comes to e-government, the story is very different. Basically, governments do not face a fierce competition in their business environment because they generally just use the money that citizens and businesses pay as their taxes. Basically, many government web sites still do not offer the various services mentioned in the previous section.

Even the governments that offer those advanced on-line services still do not adopt intelligent agent concept. Only credit card can be used as payment method. Customization has nothing to do with e-government. C. Process The process of e-commerce and e-government is the same in general meaning.

However, we cannot say they are exactly the same because there is something different in considering users' perspective. So to speak, e-commerce can be said to be more customer oriented because of the nature of competition in regular business world. That is, their processes are relatively clearer from the perspective of customers than e-government. Basically, governments have little motive to make business processes customer-oriented because they do not face fierce competitive environment.

However, some active governments try to make them clearer than before to meet their citizens' increasing demands. D. Standard The e-government tends to be held to higher standard than e-commerce. For example, while

customers are willing to accept some risk when doing business in e-commerce area, they expect total security when interacting with government. The government needs to balance providing a service that is easy to use and ensuring that it maintains confidentiality and integrity [8]. E.

Reward System Another significant difference is that whine idea generation is rewarded in e-commerce area, there are little motive to generate idea unless assigned as responsibility by regulation in e-government area. Additionally, while e-commerce is acutely aware of who their customers are and how best to address their needs in the marketplace, some government agencies serve either huge, undistinguishable markets or tiny, focused segments [8]. F. Legal Landscape There exist different legal boundaries between e-commerce and e-government. 5.

Electronic Government: Driving Forces and Obstacles 5. 1. Driving forces Driving forces of e-government means that what factors force government to go on-line in serving their customers. Because these forces result in e-government functions to meet the needs arising from driving forces, they are closely related to e-government functions. For example, meeting customer expectations with on-line government services is a driving factor by itself to force governments to incorporate information technologies into ways they serve their citizens and businesses. Most categories stated in this section are related to meeting customer expectations and exploring organizational benefits through e-government.

Note however that the most significant underlying factor is advanced information and communication technology because they have made all

other things happen. It is base infrastructure of e-government. A. Accessibility Having had to wait in one of those seemingly endless queues at the Town Hall or had to work their schedule around some of those incredibly short opening hours of certain government departments or agencies, citizens clearly want accessible public services, especially when they have to fill out forms, for example. Surely, new communication technologies obviously can help make these services more accessible.

By definition, the Internet is a permanent medium, accessible from any point at any time. B. Simplicity Citizens have gone to a government agency for some routine paperwork and found themselves having to go from one window to another to collect various documents. For example, there is nothing unusual about the case of the young man who wants to register as a self-employed worker and is sent from the trade registry office to the VAT authorities, then on to the Institute of Self-Employed Workers before ending up at the Social Security Office. Through a simplified and integrated architecture, e-government is able to reduce the complexity of government services and help the citizen fill out the necessary forms to start up as a self-employed worker, adopt a child or obtain a building premium.

C. Transparency The Internet is not in itself more transparent than paper. However, because it can be accessed from any computer day or night and has search engines and interconnected databases, the Internet makes government much more transparent. Codes, laws, treaties, rulings, decrees, circulars, court decisions and so on form a mass of legal documents that is difficult to manage. An Internet portal can help simplify access to these texts.

The Internet can become a virtual meeting place. Specific technologies like chat rooms, forums, discussion lists or video streaming enable interaction and immediate transparency. Certain government data, be it geographical, statistical or economic, may be of real interest for certain associations or businesses or even for the general public. With IT, it is possible to better organize and systematize the publication of this information and offer it free or against a fee. Transparency can help increase public confidence between government and citizen.

D. Cost-effectiveness With increased efficiency and effectiveness made possible through information and communication technologies, government can save lots of money otherwise spent in an inefficient manner. 5. 1. Obstacles There exist different ideas about what factors make e-government projects delay. A related article shows that technology suppliers in the United Kingdom see the following as those obstacles to e-government projects: Cultural issue (49%), procurement processes (40%), government coordination (36%), budget (20%), skills (20%), legislative issues (11%), and technical issues (9%) [5].

One other study identifies seven major barriers to e-government implementation: security and privacy, cultural resistance to change, trust, interoperability of systems, ability to make payments, insufficient funding and limited resources [22]. A. The digital divide The downside of an integrated public service with more benefit is the threat that a new social gap will develop between those capable of using the new model and those " lagging behind". This divide is indeed real.

Citizens are not always connected in the same conditions. Some have rapid access while others use simple modems. Some have large color screens when others have small black-and-white terminals. Some have the most up-to-date browser, equipped with the main multimedia plug-ins whereas others, the visually impaired for example, only use text. Only recently, a law in the United States has been requiring government sites to be accessible to the blind. But, according to a study by Newsbytes [11], the law is still not really being enforced yet.

In the United Kingdom, government sites have been accused of taking little heed of international recommendations on accessibility [18]. B. Lack of funding Even if in the medium or long term, e-government saves money, in the beginning it requires large-scale investment. It is just one more item on the budget competing with other pressing needs like employment, health care, education or repayment of the debt. Basically speaking, the variable degree of progress of national governments in the field of information and communication technologies is linked to the general state of socio-economic development of the respective countries.

In countries with the financial means, information and communication technologies are much more widespread than in poorer countries. In Addition, the difficulty of the e-government project is that it involves government at all levels. By definition, it concerns all departments and agencies. This means an overlapping of responsibilities and a fragmentation of budgets and actions that, if not properly coordinated, risk bogging down the project.

Spending for e-government at the local level is estimated at $500 million for 2000 and expected to increase to $1. 6 billion by 2003, according to Federal Sources. Because e-government spending for state and local governments is roughly equivalent, combined spending for e-government by state and local governments is expected to reach $4 billion by 2003, with states spending slightly more than local governments [22]. C. Institutional complexity In countries like United States, the fact that there is a federal government makes the development of e-government projects much more complex because the idea is to create a network with integrated projects where layers of government and their different areas of jurisdiction do not stand in the way.

D. Security problems E-government is directly exposed to all kinds of known reliability and security risks typical in an IT environment: privacy and confidentiality, accuracy of the data transmitted, proof of ID, proof that a transaction occurred, authorization systems, and exposure to viruses Certain particularly complex functionalities require several layers of security. In the case of on-line voting, for example, a system is needed to manage authorizations, guarantee confidentiality, ensure the accuracy of the data, prove the voter's identity and trace each transaction. In the case of the U. S.

government Web sites, only 28 percent of government websites show some form of security policy [23]. E. Shortage of IT professionals As reported by one recent, wide-ranging study, local government officials believe e-government is hindered by a shortage of information technology workers, too little money, and a technological pace that exceeds the speed of government [13]. Another report said that 87 percent of state governments

and 80 percent of local governments in the US are suffering a serious shortage of qualified IT professional [7]. 6. Electronic Government: Future ImplicationAround the world the Internet and related information and communication technologies are being used to dramatically improve public services to citizens, to better provide licensing and regulation of businesses and to provide public servants with better tools to do their jobs.

Today, government portals are providing a common entry point for accessing government's services agency-by-agency, department-by-department. Though today's portals are at the early stages of one-stop shopping, advanced e-governments are striving for fast, seamless customer service that spans department boundaries and gives constituents what they need, when they need it. E-government is being spurred by a desire to both reduce costs and to improve public services. Looking at the e-government practices and initiatives and its driving forces, we can draw a picture of the future of electronic government. Tomorrow's leading governments are enabling a common view of customer needs so that filing taxes and renewing a license will become elements of a valuable relationship, including common customer information and a common financial account. Businesses, especially, are demanding the consolidation of isolated transactions into a common relationship because it reduces costs and accelerates their performance.

According to a report, e-government portals play a role in the context of enterprise transformation. It defines the terms and scenarios for how government enterprises might look and operate to move from transactions towards relationships, describes the limitations of such concepts, and sets the planning parameters for government enterprise transformation in the era

of portal service delivery. Here are some trends that might be included in e-government projects in the near future. 6. 1.

Citizen Relationship Management The concept of the single portal represents more than just a change in customer service delivery. It means the coming of the new government enterprise where private sector issues and concepts such as customer relationship management (CRM) will need to be addressed. Planning for enterprise transformation is a necessity if governments expect to make their portals a strategic component of community representation. According to the study, to be successful in the era of electronic service delivery, governments must be able to understand not only how the portal model fundamentally alters their relationships with citizens, but also what the implications are for the future in terms of organizational structure, investment and, in the broadest sense, governance. State and local government often go to great lengths to respond effectively to citizen complaints and inquiries.

This is no small feat in large organizations with many elements often linked in responding to a single inquiry or complaint. Internationally, in Australia and Germany, for example, integrated call centers are providing one telephone number service for accessing government services and addressing complaints. A customer service representative in a call center equipped with a web-enabled system field complaints with a minimum of call transfers with the citizen. The web is also being used directly in combination with internal citizen relationship management software systems that link all elements of an organization in providing coherent and timely responses to citizen concerns. 6. 2.

Community Organization and Citizen Self-help One other category of activity that might be included under e-Government is citizen organized self-help and community organizing. Citizens can also organize crime watch and other community building activities. Providing web access to volunteer resources and opportunities is often promoted or facilitated by local governments as an adjunct to paid public services. 6.

3. Citizen Oriented Approach One emerging trend is to organize websites around what the citizen wants rather than how government departments are organized. One example is the e-citizen portal that has been built by the Singapore government. This shows how government information and services can be integrated and presented to people in the context of life events where people typically come into contact with government. For example, it has a " road of life" graphic with icons for such things as " buy a new vehicle," " get married," buying a property," and " attend to a demise" as entry points to more detailed information. Each of these areas cuts across a variety of government departments, for example, but a single organized face is presented to the citizen [26].

A second trend is to try to use " intelligent voice recognition" via the telephone instead of a keyboard to provide greater and easier access. It is important to remember that complex systems are not always required to make the web useful to citizens. Simple efforts such as customized email mailing lists to citizens in a given community around such things as changes in hours of service, available recreational opportunities and new program information can be a virtually " no cost" way to provide more timely and targeted information to citizens. Web pages offering public service are in

rapid evolution. Making web pages easier to use, and more valuable to citizens, will be an ongoing effort for some time.

6. 4. The Future of E-government Transactions in federal, state and local government amount to about a trillion dollars a year. Only about 1 percent of these transactions are carried out on-line currently.

There is a scramble on many fronts to put more transactions on-line from bid management systems for procurement, to outsourced bill payment systems, to excess public property auctions to name only a few. These systems have shown significant savings in securing supplies and have shown significant reductions in the cost of transactions in the early going, and the field is accelerating rapidly. Many different " business models" are being pursued in this area of e-Government from private-public partnerships, to franchises to internal operations to shared services among peer governments. As American baby boomers begin to retire from the paid workforce over the next decade, the resulting labor shortage may provide the impetus for increased use of web-based public services to a greater extent than today. Although there has historically been a reluctance in many quarters of the public sector to invest heavily and quickly in advanced information technologies, this looming labor shortage in public service, improved technologies with demonstrated track records of performance, and heightened expectation of citizens about public service delivery could combine to support a major push toward e-Government.

Already there are signs of public support for this direction. Almost 70 percent of Americans surveyed supported investing public funds in e-Government as

a priority, but two-thirds of Americans also want it to be developed cautiously to address privacy and security issues, as well as lack of Internet access in some parts of our communities [15]. As governments at all levels quickly enable web-based electronic transactions, significant cultural and organizational changes will confront government agencies as they go beyond the web site to enhance customer service and business performance. 7. ConclusionThe objective of this paper was to compare process, components, functions, and practices of e-commerce with those of e-government, to find out similarities and differences between e-commerce and e-government services. Also demonstrated are some driving factors and barriers of e-government trend and its future implications or direction.

An important assumption is that most e-commerce practices and functions can be effectively applied to the area of government services and businesses. To reach objective, firstly identified and demonstrated was regular Internet businesses and services and overnment Internet businesses and services currently on the Web. Then, similarities and differences between the two were explored. Finally, some driving forces, barriers and future implications were stated. In this paper, the regular on-line businesses (e-commerce) and government on-line businesses (e-government) were approached in the perspective of their simplified process, components, functions or objectives, and current applications. Drawn from the fact the paper found were some significant similarities and differences between e-commerce and e-government.

One significant fact found was that even though some governments offer some advanced on-line services such as tax filing, payment, access to

information, etc, most local government still don't offer these basic services on-line. Even in the case of those governments that initiated some advanced on-line services, they are a little slow in adopting significant concepts commonly prevailing in regular on-line businesses. Intelligent agent and customization were illustrated as good examples that show how much governments are slow in adopting new technologies and service concepts. These facts offer significant implications and recommendations for improved e-government services. The obvious fact found is that the government web business is still in its growing stages.

Therefore, the most urgent recommendation is " Just do it" recognizing issues of privacy and security. Well-run, efficiently organized government web sites would offer useful services to citizens and businesses, which may have a significant positive effect on public spirit and the attitude of citizens and businesses toward government. For the electronic government to be successful, the public sector must be prepared to do things differently. Governments must be prepared to challenge their tried and tested ways of doing things to continually innovate and adapt business and operational processes, and to radically re-engineer and totally transform the way they do things. The electronic government is one of the catalysts to help our society make the transition to the new knowledge-based economy. This study was dedicated primarily to identify what current government on-line services are and how they work on-line.

Each application of e-government could be an individual research topic. Yet, this paper did not address what government services could be newly launched on-line. Therefore, this paper is an introductory study that lacks

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understanding electronic commerce-How online transactions can grow your business, Microsoft Press, 1997, p. 6. Figure 3. A Simplified E-government Process Figure 4. Components of electronic commerce Note: Basic Idea of this figure came from Kosiur, David, understanding electronic commerce-How online transactions can grow your business, Microsoft Press, 1997, p. 6.