E – GOVERNMENT FOR DEVELOPING COUNTRIES:
OPPORTUNITIES AND CHALLENGES

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1. INTRODUCTION

The explosion of digital connectivity, the significant improvements in communication and information technologies and the enforced global competition are revolutionizing the way business is performed and the way organizations compete. A new, complex and rapidly changing economic order has emerged based on disruptive innovation, discontinuities, abrupt and seditious change. In this new landscape, knowledge constitutes the most important factor, while learning, which emerges through cooperation, together with the increased reliability and trust, is the most important process (Lundvall and Johnson, 1994). The competitive survival and ongoing sustenance of an organisation primarily depend on its ability to redefine and adopt continuously goals, purposes and its way of doing things (Malhotra, 2001).

These trends suggest that private and public organizations have to reinvent themselves through 'continuous non-linear innovation' in order to sustain themselves and achieve strategic competitive advantage. The extant literature highlights the great potential of ICT tools for operational efficiency, cost reduction, quality of services, convenience, innovation and learning in private and public sectors. However, scholarly investigations have focused primarily on the effects and outcomes of ICTs (Information & Communication Technology) for the private sector. The public sector has been sidelined because it tends to lag behind in the process of technology adoption and business reinvention. Only recently has the public sector come to recognize the potential importance of ICT and e-business models as a means of improving the quality and responsiveness of the services they provide to their citizens, expanding the reach and accessibility of their services and public infrastructure and allowing citizens to experience a faster and more transparent form of access to government services.

The initiatives of government agencies and departments to use ICT tools and applications, Internet and mobile devices to support good governance, strengthen existing relationships and build new partnerships within civil society, are known as eGovernment initiatives. As with e-commerce, eGovernment represents the introduction of a great wave of technological innovation as well as government reinvention. It represents a tremendous impetus to move forward in the 21st century with higher quality, cost effective government services and a better relationship between citizens and government (Fang, 2002). Many government agencies in developed countries have taken progressive steps toward the web and ICT use, adding coherence to all local activities on the Internet, widening local access and skills, opening up interactive services for local debates, and increasing the participation of citizens on promotion and management of the territory (Graham and Aurigi, 1997).

The potential for eGovernment in developing countries, however, remains largely unexploited, even though. ICT is believed to offer considerable potential for the sustainable development of eGovernment. Different human, organizational and technological factors, issues and problems pertain in these countries, requiring focused studies and appropriate approaches. ICT, in general, is referred to as an "enabler", but on the other hand it should also be regarded as a challenge and a peril in itself. The organizations, public or private, which ignore the potential value and use of ICT may suffer pivotal competitive disadvantages. Nevertheless, some eGovernment initiatives have flourished in developing

countries too, e.g. Brazil, India, Chile, etc. What the experience in these countries shows, is that governments in the developing world can effectively exploit and appropriate the benefits of ICT, but eGovernment success entails the accommodation of certain unique conditions, needs and obstacles. The adaptive challenges of eGovernment go far beyond technology, they call for organizational structures and skills, new forms of leadership, transformation of public-private partnerships (Allen et al., 2001).

Moving away from these assertions, the aim of this paper is to identify and analyze the primary issues, opportunities and challenges that eGovernment initiatives present for developing countries. The insights and results here presented are based on an empirical, web-based research of 15 case studies undertaken in developing countries (Argentina, Brazil, Chile, China, Colombia, Guatemala, India, Jamaica, the Philippines) which have already explored and implemented eGovernment initiatives. In these cases, we can observe different applications and opportunities for eGovernment, such as: tax administration (Jamaica, Guatemala); better services to customers, businesses and stakeholders in general (Brazil, India); and eGovernment for transparency and business efficiency (the Philippines, India, Chile).

2. eGOVERNMENT LITERATURE REVIEW
2.1 Paradigm Shifts in the Public Sector
The advent of the Internet, digital connectivity, the explosion and use of e-commerce and e-business models in the private sector are pressuring the public sector to rethink hierarchical, bureaucratic organizational models. Customers, citizens and businesses are faced every day with new innovative e-business and e-commerce models implemented by the private sector and made possible by ICT tools and applications, are requiring the same from governmental organizations. Osborne and Gaebler (1992) referred to citizens as customers for governments, since governments need to empower rather than serve, to shift from hierarchy to teamwork and participation, to be mission oriented and customer focused, and to focus on prevention rather than cure. Governments worldwide are faced with the challenge of transformation and the need to modernize administrative practices and management systems (Tapscott, 1996). Recently, the public sector has began to recognize the potential opportunities offered by ICT and e-business models to fit with citizens' demands, to offer better services to citizens and to increase efficiency by streamlining internal processes. Tapscott and Caston (1993) argue that ICT causes a "paradigm shift" introducing "the age of network intelligence", reinventing businesses, governments and individuals. Paradigm shifts prevail in the public sector too. The traditional bureaucratic paradigm, characterized by internal productive efficiency, functional rationality, departmentalization, hierarchical control and rule-based management (Kaufman, 1977), is being replaced by competitive, knowledge based economy requirements, such as: flexibility, network organization, vertical/horizontal integration, innovative entrepreneurship, organization learning, speed up in service delivery, and a customer driven strategy (see Table 1). These new paradigms thrust the shift toward eGovernment paradigm, which emphasizes coordinated network building, external collaboration and customer services (Ho, 2002).

Paradigm shifts in public service delivery		
	Bureaucratic paradigm	*EGovernment paradigm*
Orientation	Production cost-efficiency	User satisfaction and control, flexibility
Process organization	Functional rationality, departmentalization, vertical hierarchy of control.	Horizontal hierarchy, network organization, information sharing.
Management principle	Management by rule and mandate	Flexible management, interdepartmental team work with central coordination
Leadership style	Command and control	Facilitation and coordination, innovative entrepreneurship.
Internal communication	Top down, Hierarchical	Multidirectional network with central coordination, direct communication.
External communication	Centralized, formal, limited channels	Formal and informal direct and fast feedback, multiple channels
Mode of service delivery	Documentary mode and interpersonal interaction	Electronic exchange, non face to face interaction
Principles of service delivery	Standardization, impartiality, equity.	User customization, personalization

Table 1 – Reinventing Local Governments and the eGovernment Initiative *(Ho, 2002)*

2.2 Defining eGovernment

EGovernment means different things for different people. Some simply define it as digital governmental information or a way of engaging in digital transactions with customers. For others eGovernment simply consists of the creation of a web site where information about political and governmental issues is presented. These narrow ways of defining and conceptualizing eGovernment restrict the range of opportunities it offers. One of the reasons why many eGovernment initiatives fail is related to the narrow definition and poor understanding of the eGovernment concept, processes and functions. EGovernment is a multidimensional and complex concept, which requires a broad definition and understanding, in order to be able to design and implement a successful strategy. Box 1 provides a synthesis of the principal definitions of eGovernment used in the literature

The crucial element of all these definitions is the use of ICT tools to reinvent the public sector by transforming its internal and external way of doing things and its interrelationships with customers and the business community. The analysis of these definitions allows us to individuate the main issues and components that characterize an eGovernment framework, such as:
1. Transformation areas (internal, external, relational);
2. Users, customers, actors and their interrelationships (citizens, businesses, government organizations, employees);
3. eGovernment application domains (e-services, e-democracy, e-administration).

Box. 1 Definitions of eGovernment

> **1. Abramson and Means, *2001*** - eGovernment can be defined as – the electronic interaction (transaction and information exchange) between the government, the public (citizens and businesses) and employees.
>
> *2. World Bank, 2001* - eGovernment is the government owned or operated systems of information and communication technologies that transform relations with citizens, the private sector and/or other government agencies so as to promote citizens' empowerment, improve service delivery, strengthen accountability, increase transparency, or improve government efficiency.
>
> *3. Fraga, 2001* - eGovernment is 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; Society.
>
> *4. Tapscott, 1996* - eGovernment is an Internet-worked government which links new technology with legal systems internally and in turn links such government information infrastructure externally with everything digital and with everybody – the tax payer, suppliers, business customers, voters and every other institution in the society.
>
> *5. UNPA & ASPA, 2001* - eGovernance is the public sector's use of the most innovative information and communication technologies, like the Internet, to deliver to all citizens improved services, reliable information and greater knowledge in order to facilitate access to the governing process and encourage deeper citizen participation.

2.3 Transformation Areas

The above definitions encompass three critical transformation areas of eGovernment (Hirst and Norton, 1998):

Internal - which refers to the use of ICT to improve the efficiency and effectiveness of internal functions and processes of government by interrelating different departments and agencies. Thus, information can flow much faster and more easily among different governmental departments, reducing processing time, paperwork bottlenecks, and eliminating long, bureaucratic and inefficient approval procedures. Internetworking among different governmental departments improves internal efficiency by enabling time reductions for using, storing and collecting data, reduction of labor costs and information handling costs, as well as the speed and accuracy of task processing.

External - ICT opens up new possibilities for governments to be more transparent to citizens and businesses, giving access to a greater range of information collected and generated by government. ICT creates also opportunities for partnership and collaboration among different governmental institutions (Allen et al.*,* 2001). Electronic government blurs the lines not only within government agencies, but also between government and those that touch it (Tapscott, 1996).

Relational - ICT adoption may enable fundamental changes in the relationships between the citizens and the state, and between nation states, with implications for the democratic process and structures of government. Vertical and horizontal integration of services can be realized, enabling the integration of information and services from various government agencies to help citizens and other stakeholders get seamless services. Fountain (2001) uses the concept of the "virtual state" that is a governmental entity organized with "virtual agencies, cross agencies, public- private networks whose structures and capacity depend on the Internet and web".

According to these three transformational areas it is obvious that an eGovernment initiative does not consist of a simple business process reengineering. Indeed, as Tapscott

(1996) suggests: "It requires a radical rethinking of the nature and functioning of the organization and the relationships between organizations. It needs to focus in a web of relationships including all levels and business functions, in which the boundaries inside and outside are permeable and fluid".

2.4. EGovernment Web of Interrelationships

The target of eGovernment encompasses four main groups: citizens, businesses, governments (other governments and public agencies) and employees. The electronic transactions and interactions between government and each group constitute the eGovernment web of relationships and the respective four main blocks of eGovernment, that are:

1. Government to Citizens (G2C)
2. Government to Business (G2B)
3. Government to Government (G2G)
4. Government to Employees (G2E)

Most researchers and academics refer only to the first three blocks, without considering the fourth or simply including it as part of 'government to government' block. The relationships, interactions and transactions between government and employees in fact constitute another large eGovernment block, which requires a separate and very careful handling. Many people today refer to employees as internal customers and as a result, in order for an eGovernment initiative to be customer oriented and centric, it has to take into account needs and requirements of this group as well. More specifically, these eGovernment blocks can be characterised as follows:

1. Government to Citizen: deals with the relationship between government and citizens. EGovernment allows government agencies to talk, listen, relate and continuously communicate with its citizens, supporting, in this way, accountability, democracy and improvements to public services. A broad array of interactions can be developed ranging from the delivery of services and the provision of welfare and health benefits to regulatory and compliance oriented licensing (Riley, 2001). G2C allows customers to access government information and services instantly, conveniently, from everywhere, by use of multiple channels (PC, Web TV, mobile phone or wireless device). It also enables and reinforces their participation in local community life (send an email or contribute to an online discussion forum).

2. Government to Business: consists of the electronic interactions between government agencies and private businesses. It allows e-transaction initiatives such as e-procurement and the development of an electronic marketplace for government (Fang, 2002). Companies everywhere are conducting business-to-business e-commerce in order to lower their costs and improve inventory control. The opportunity to conduct online transactions with government reduces red tape and simplifies regulatory processes, therefore helping businesses to become more competitive. The delivery of integrated, single-source public services creates opportunities for businesses and government to partner together for establishing a web presence faster and cheaper.

3. Government to Government: refers to the relationship between governmental organizations, as for example national, regional and local governmental organizations, or with other foreign government organizations. Governments depend on other levels of government within the state to effectively deliver services and allocate responsibilities (Riley, 2001). In order to realize a single access point, collaboration and cooperation among different governmental departments and agencies is compulsory. Online communication and cooperation allows government agencies and departments to share databases, resources, pool skills and capabilities, enhancing the efficiency and effectivity of processes.

4. Government to Employees: refers to the relationship between government and its employees. G2E is an effective way to provide e-learning, bring employees together and to promote knowledge sharing among them. It gives employees the possibility of accessing relevant information regarding: compensation and benefit policies, training and learning opportunities, civil rights laws, etc. G2E refers also to strategic and tactical mechanisms for encouraging the implementation of government goals and programs as well as human resource management, budgeting and accounting (Riley, 2001). The full exploitation and implementation of these complex webs of inter-relationships requires three main application domains for eGovernment (Heeks, 2001):

e-Administration – for automation and computerization of administrative tasks and for realization of strategic connections among internal processes, departments and functions.
e-Citizens and e-Services – to realize connections and interrelationships among governments and citizens and to deliver automated services.
e-Society – to enable relationships and interactions beyond boundaries, among public agencies, private sector and civil community in general.

These three application domains should be considered as overlapping and eGovernment can be found in the overlapping area of these three application domains, demonstrating the complexities and heterogeneities needed to be handled for assuring its success (Fig. 1).
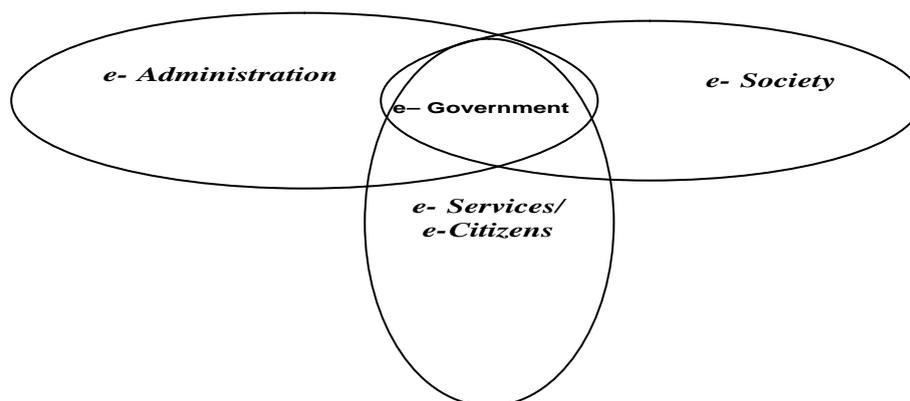

Figure 1: eGovernment domains

3. EGOVERNMENT FOR DEVELOPING COUNTRIES

It is now widely accepted that ICT offers increased opportunities for economic development and plays a critical role in rapid economic change, productive capacity improvements and international competitiveness enhancement for developing countries. The range of choices and opportunities in developing countries is expanding. ICT is believed to be a powerful enabling tool to address some of the key barriers and challenges for entering the global economy and for future growth potential. It can transform old challenges and create unprecedented possibilities for sustainable economic development, just as it has done for businesses in the industrial world. ICTs offer the potential not just to collect, store, process and diffuse enormous quantities of information at minimal cost, but also to network, interact and communicate across the world (Crede and Mansell, 1998). Econometric studies have found evidence of a strong positive relationship between ICT investments and GDP growth illustrating the importance of ICTs for development, both in the commercial and the public sectors. An OECD (2002) research project, based on national studies about the impact of ICT

on the economy, has shown that ICT investments accounted for between 0.5% and 1.3% in GDP growth per capita per annum over a number of economies in the 1995–2000 period. In Australia, the growth was 1.3% per annum over 1996-2000. More detailed statistics are set out in Table 2.

Table 2: The Impact of ICT Investment on GDP Growth: Results from National Studies
(Adapted from OECD 2002)

	GDP Growth		Labour Production Growth		Contribution of ICT		Notes
Country	90-95; 95-00		90-95; 95-00		90-95; 95-00		
Percent							
USA	NA	NA	1.6	2.7	0.5	0.9	91-95; 96-99
	2.5	4.0	1.4	2.7	0.5	1	90-95; 95-99
	NA	NA	1.5	2.7	0.4	0.9	90-95; 95-00
Germany							
	2.2	2.5	2.6	2.1	0.4	0.5	90-95; 95-00
France							
	0.5	2.2	1.6	1.1	0.2	0.3	90-95; 95-00
UK	1.4	3.1	3.0	1.5	0.4	0.6	89-94; 94-98
Canada	1.5	4.9	NA	NA	0.4	0.7	88-95; 95-00
	1.9	4.8			0.3	0.5	91-95; 96-00
Australia	NA	NA	2.1	3.7	0.7	1.3	89/90-94/95;
	1.8	4.9	2.2	4.2	0.9	1.3	94/95-99/00; 91/95; 96-00

Nevertheless, ICT represents a high risk for developing countries – the risk to deepen the digital divide and to further marginalize them with the networking revolution. Countries which fail to embrace and use ICT tools for entering the global network and for addressing development needs, will suffer pivotal disadvantages in form of information poverty that could further widen the gap in economic status and competitiveness.

Recognizing the power of ICTs, many developing countries, assisted by international organizations for development, have started building and encouraging e-strategies and initiatives to address a wide range of economic, social, technological, infrastructural, legal and educational issues. *G8 on Digital Opportunities Task Force* and *UN Task Force on ICT Access (Digital Opportunity Task Force, 2002)* have evidenced eGovernment as one of the priorities based on the decisive role it would play for ICT accessibility. Consequently, eGovernment initiatives have flourished in many developing countries such as Brazil, India, Chile, Argentina, the Philippines, etc., reaping the advantages and opportunities of ICT and the knowledge economy for collaboration, networking, better services, efficiency and effectivity. However, many other initiatives have failed. In a recent survey regarding the success and failure rates of eGovernment in developing and transitional countries, Heeks

found that more than one-third of initiatives are total failures (e.g. the failure of decision support systems in East Africa); further, half can be considered to be partial failures (e.g. the partial failure of management information systems in Eastern Europe); and roughly one-seventh are successes (Heeks, 2003).

An eGovernment benchmark study conducted by the American Society for Public Administration (UNPA & ASPA, 2001) aimed to categorize the progress made by developed and developing countries in developing an online presence on a five stages scale: *Emerging stage; Enhanced stage; Interactive stage; Transactional stage and Seamless stage,* revealed that nearly all 32 countries at the *Emerging Presence* level were among the world's least developed nations, characterized by static and insufficient information that is infrequently updated, few interactive features, and non-existent online services. There were, however, several cases of developing countries that were at the *Enhanced Presence* stage and *Interactive Presence* stage, demonstrating their predisposition for eGovernment success. The *Transactional stage* and in particular the *Seamless stage* were seen as very distant points for both developed and developing countries, with a few exceptions (Singapore, UK, etc) (UNPA&ASPA, 2001). The prevalence of stages 1 and 2 among developing countries can be explained by the fact that the adaptive challenges of eGovernment go far beyond technology: they call for organizational structures and skills, new leadership forms, and the transformation of public-private relationships (Allen et al., 2001).

Based on these assertions, in this paper I have tried to evaluate and assess the potential of eGovernment projects and initiatives for developing countries as well as to identify and analyze the principle challenges that may be encountered. An empirical web-based study of 15 eGovernment case studies in 9 developing countries was performed and the results obtained are presented in the following sections. What the experience with eGovernment initiatives in developing countries shows, is that:

EGovernment offers great potential and opportunity for developing countries for improving their governance and citizen satisfaction level. However, in order to realize the full potential of these applications, governments must accommodate certain unique conditions and be able to manage a set of issues, problems and related challenges.

4. OPPORTUNITIES OF EGOVERNMENT
Benefits assured by use and application of eGovernment in developing countries are the same as those in developed countries. The differences between these two groups could result from the fact that many potential benefits of eGovernment are not reaped by developing countries as consequence of their limited use of eGovernment. Box 2 shows the main opportunities eGovernment has triggered in our analyzed cases (see also Appendix).

BOX 2: EGovernment Opportunities

1. Cost reduction and efficiency gains
2. Quality of service delivery to businesses and customers
3. Transparency, anticorruption, accountability
4. Increase the capacity of government
5. Network and community creation
6. Improve the quality of decision making
7. Promote use of ICT in other sectors of the society

4.1 Cost Reduction and Efficiency Gains
Researchers (Tapscott, 1996; Amit and Zott, 2001; Malhotra, 2001) agree that ICT has considerable potential to contribute to efficiency gains and cost reductions for private

organizations. Furthermore, these benefits constitute a major aspect of eGovernment initiatives. Putting services on-line substantially decreases the processing costs of many activities compared with the manual way of handling operations. For example, it costs the US Inland Revenue Service $1.60 to process a paper tax form, but only $0.40 to process an electronic form (Al-Kibsi et al., 2001). The appropriate application of ICT may possibly reduce the number of inefficiencies in processes by allowing file and data sharing across government departments, thereby contributing to the elimination of mistakes from manual procedures, reducing the required time for transactions. Efficiency is also attained by streamlining internal processes, by enabling faster and more informed decision making, and by speeding up transaction processing.

Example: In Beijing's Business e-Park, there is a new system (www.zhongguancun.com.cn) that applies the latest computer and Internet technologies to improve the efficiency and responsiveness of government. If businesses choose to use this system, they can reduce the time required for gaining approval for specific applications from 2-3 months to few days. Moreover, data can now be submitted on line, greatly increasing the quality of service for customers (Lin et al., 2001).

4.2 Quality of Service Delivery to Businesses and Customers
In the traditional model of public service delivery, the procedures are long, time consuming and lack transparency. A business that wishes to obtain a license or a permit has to fill out a number of application forms, has to visit a number of different offices and spend a considerable amount of time. If a citizen wishes to be issued with a certificate or any other official document, he or she will have to travel to the central government office, go to different offices and spend a lot of time for a simple service. The consequences are high costs and citizen and business dissatisfaction. An eGovernment initiative, on the other hand, which puts government services online, thereby reducing the bureaucracy, offers roudn the clock accessibility, fast and convenient transactions, and obviously enhances the quality of services, in terms of time, content and accessibility.

Example: In Bahia, Brazil, Citizen Assistance Service Centres have been created offering over 500 separate services. These centres are placed in shopping malls or other public places, and people going to shop can simultaneously apply for different public services such as getting an identification card, looking for a new job, getting a passport, and checking on their retirement eligibility. Customer satisfaction studies revealed that over 89% of citizens evaluated the service centers as excellent (Rinne et al., 2001a). Thus, the quality of services is ensured by the reduced time that users spend on getting official documents, waiting and queuing to get documents, traveling, as well as more customized products and services, error free documents, and 24*7*365 accessibility.

4.3 Transparency, Anticorruption and Accountability
EGovernment helps to increase the transparency of decision-making processes. In many cases eGovernment offers opportunities for citizens to directly participate in decision-making, by allowing them to provide their own ideas and suggestions in forums and on-line communities. If web sites are designed carefully and openly, they can be valuable resources for transparency as citizens, businesses and other stakeholders should be able to see political and governmental information, rules and policies. Previously it was often necessary to go directly to governmental offices to obtain information, but now this information should be available on the web. The availability of a diversity of publications regarding the activities of the public administration, as well as economic and legislative aspects, increases the transparency too.

Example: The Central Vigilance Commission (CVC) in India started an initiative to create a website with the objective of reducing corruption and increasing transparency by sharing a large amount of information related to corruption with citizens. The CVC website communicates directly with the public through messages and speeches to bolster confidence in the institution, informs the public about its efforts in fighting corruption, and makes public the names of officers from the elite administrative and revenue services against whom investigations have been ordered or penalties imposed for corruption. Members of the public are highly encouraged (mainly by rewards) to make their complaints and to provide information against a public servant about taking of bribes in order for the commission to undertake the necessary anticorruption actions to eliminate bribery and to increase the transparency of rules, procedures and service delivery (Bhatnagar, 2001).

4.4 Increase the Capacity of Government

The use of ICT for the reorganization of internal administration transactions, communications, interrelationships and for easy information flow and transfer offers considerable opportunity to increase government capacity. Intranets allow different departments to share databases of common customers and to pool skills and capacities of their members for problem solving. These facilities in turn will pledge faster information flow and transfer, quicker and cheaper provision of goods and services, faster and better decision making processes, and unplugged paper bottlenecks. Knowledge based or expert systems help to create a more responsive and guideline based process. This approach assures benefits for businesses, which become both consumers of government services and providers of goods and services to the government. It also assures benefits to the government itself through reduced costs and spending, which could require lower taxes to finance.

Example: The Time Saver Centre in Sao Paulo, Brazil, brings together multiple services in a single location. Its objective is to deliver services more quickly and to increase the satisfaction level of its citizens. A person requiring a service, on reaching the appropriate agency, can register in the computerized tracking system and receive an electronic ticket, which indicates the services desired and the estimated waiting time. They can receive at the same time different services that traditionally were separated such as vehicle registration, driver's license, identification card, unemployment insurance etc. A customer satisfaction survey conducted in 2000 for five centres reveals that 94% of respondents evaluate services as "excellent" or "good". This case demonstrates the remarkable improvements that can be realized in service delivery (Rinne et al., 2001b).

4.5 Network and Community Creation

ICT creates both pressures and opportunities for network creation and community building. As argued before, an eGovernment initiative requires a complex web of interrelationships among government, customers, businesses, employees and other governmental agencies. Moreover, the very nature and function of eGovernment require a network approach to put together skills, technologies, information and knowledge that span the boundaries of different governmental agencies. It is generally impossible to find all of them in one single governmental agency. The need for learning and training, for example, requires a partnership between government agencies/departments and universities or research institutions. The provision of integrated services at one contact point requires the cooperation and collaboration of different departments and agencies, horizontal and vertical integration, and therefore the creation of a large and diversified network of relationships. The successful use and diffusion of ICTs in the public sector involves a collective, multidisciplinary and dynamic learning process (Mansell and Wehn, 1998). Moreover, the realization of electronic transactions triggers network creation among private companies, financial institutions,

telecommunication and ISPs. On the other hand, an eGovernment initiative enables community creation, giving citizens and businesses the possibility to participate in forums, and in decision making processes, contributing actively to different political and governmental discussions.

Example: Columbia's government portal is the entry point to every government agency website in the country, allowing citizens to search for and consult government information and to e-mail government representatives either to complain about problems or to make suggestions. A specific unit, the Government online Network, composed of eight people trained in the technology of government portals, was created for realizing Columbia's website and for advising, supporting, training and monitoring the remainder federal government. Financial support was provided by the UNDP, while the technology and experience were provided primarily by a partnership with two private companies: GovWorks Latin America/Taillon and Arthur Andersen (Porrua et al., 2001).

4.6 Improve the Quality of Decision Making

Community creation, forums, continuous interaction and communication between government and its citizens contribute further to the decision making process. By means of active participation in political and government discussions, citizens can contribute their own ideas, and share their knowledge and information. This will in turn lead to building trust in government and improving the relationships between the government and the governed. The OECD argues that the strengthening relationship between government and citizens could improve the quality of services by allowing government to tap wider sources of information, perspectives and solutions to meet the challenges of policy making under conditions of increased complexity (OECD, 2001). Considering citizens as governmental customers, listening and understanding to their needs and requirements, is essential for a better decision-making process. The appropriate use of shared data and information by all governmental agencies and departments offers the possibility to make quick decisions thus to serve the community better. However improvements in the speed and quality of decision making depend greatly on the willingness of governments to be empowered with new information, the capability of staff to process the large amount of information, the prevailing cultural values as well as the motivation of governments to shift from a hierarchical public administration model to a flexible, less centralized model.

Example: The CRISTAL initiative of Argentina's government was launched in order to disseminate information regarding the use of public funds, including information about the amounts of money for different programs, financial and employment data, public debt account including terms, guarantees, interest costs, and the outstanding tax and customs obligations of private companies. Its primary goal is to inform customers/citizens, to disseminate content and information, empowering customers to exercise more control over their political representatives. In their web site they also provided a specific section where users can send their questions, comments and suggestions for further improvements. Their feedback allows the government to adjust the content and information, to customize the information and to reorganize itself around customers' needs and requirements (Radics, 2001).

4.7 Promote Use of ICT in Other Sectors of the Society

Continuous interaction and communication between government and its stakeholders contributes to the creation of awareness about the potential contribution of ICT to local community activities. In this way, eGovernment plays a vital role, not only in facilitating market-led initiatives but also in initiating the process of capability building and in coordinating the actions of a large number of interested stakeholders (Mansell and Wehn,

1998). In fact, one of the main benefits of an eGovernment initiative consists of the promotion of ICT use in other sectors. In order for eGovernment staff to interact, transact and communicate electronically with businesses, citizens and other stakeholders, it is necessary to mandate the use of ICT tools and applications. For a government-to-business electronic transaction to occur, the business itself needs to make use of electronic equipment. On the other hand, financial institutions have to create secure and reliable methods for electronic transactions. The development of new technological and management capacities required for eGovernment functionality encourage the development in turn of new training courses and modules in schools and universities trying to supply the required skills and capabilities to the market.

Example: In India, the Gyandoot project is a government-to-citizen intranet project which offers numerous benefits to the region, to citizens and to the community in general. The goal of the project has been to establish community owned technologically innovative and sustainable information kiosks in a poverty-stricken rural area of Madhya Pradesh. The benefits assured by this intranet system have increased the awareness of ICT importance and have spin off other IT initiatives and programs, such as: the creation of new private ICT training institutions; a high level of student enrolment – about 60%; parliament has allocated resources to set up other kiosks in schools and to develop new models for e-education; Indira Gandhi National Open University has opened a study center for undergraduate and postgraduate courses on computer applications; the government has instituted a cash award to motivate ICT projects (Bhatnagar and Vyas, 2001).

5. CHALLENGES FOR A SUCCESSFUL IMPLEMENTATION OF EGOVERNMENT INITIATIVES
While it is evident that eGovernment and ICTs, in general, are powerful drivers of wealth creation and growth, there remain many challenges which hamper the exploration and exploitation of its opportunities. The multidimensionality and complexity of eGovernment initiatives implies the existence of a wide variety of challenges and barriers to its implementation and management. Box 3 represents the main challenges, identified in the case study analysis for eGovernment development and implementation in developing countries. In this section, we briefly introduce each of these challenges and offer some policy implications for their management (see Appendix).

BOX 3 – EGovernment Challenges

1. ICT infrastructure *(e-readiness, computer literacy, telecommunication equipment)*
2. Policy issues (legislation)
3. Human capital development and life long learning *(skills, capabilities, education, learning)*
4. Change management *(culture, resistance to change)*
5. Partnership and collaboration *(public/private partnership, community and network creation)*
6. Strategy *(vision, mission)*
7. Leadership role *(motivate, involve, influence, support)*

5.1. ICT Infrastructure
ICT infrastructure is recognised to be one of the main challenges for eGovernment. Internetworking is required to enable appropriate sharing of information and open up new channels for communication and delivery of new services (Tapscott, 1996). For a transition to electronic government, an architecture, that is, a guiding set of principles, models and

standards, is needed. Many developing countries suffer from the digital divide, and they are not able to deploy the appropriate ICT infrastructure for eGovernment deployment. The digital divide between richer countries and developing ones is large with high-income economies having 416 personal computers per 1,000 people and low-income economies only 6 per 1,000 (World Bank, 2003).

The development of basic infrastructure to capture the advantages of new technologies and communications tools is essential for implementing eGovernment. Different access methods, such as remote access by cellular phones, satellite receivers, kiosks, etc., need to be taken into consideration by governments in order that all members of society can be served irrespective of their physical and financial capabilities.

However, an ICT infrastructure does not consist simply of telecommunications and computer equipment. *E-readiness* and *ICT literacy* are also necessary in order for people to be able to use and benefit from eGovernment applications. Having the education, freedom and desire to access information is critical to eGovernment efficacy. Presumably, the higher the level of human development, the more likely citizens will be inclined to accept and use eGovernment services.

Example: In the *Gyandoot project*, the poor infrastructure facilities constituted one of the major problems encountered in developing and implementing the project. Local rural telephones infrastructure did not operate with optical fiber cable, and in consequence there were initially significant reliability problems. This caused a decrease in the motivational level of kiosk managers to participate in the project. Substantial problems were encountered with literacy and skills to use new technological tools and applications. To ensure the success and the sustainability of the project, the Indian telecommunications department undertook actions to upgrade the level and quality of connections, as well as study alternative solutions (such as wireless applications) to cover those zones where telephones were not available. In addition some basic training was provided to people who were directly engaged in management and maintenance of kiosks (Bhatnagar and Vyas, 2001).

5.2. Policy Issues

Processing of eGovernment principles and functions requires a range of new rules, policies, laws and legislative changes to address electronic activities including electronic signatures, electronic archiving, freedom of information, data protection, computer crime, intellectual property rights and copyright issues. Dealing with eGovernment means signing a contract or a digital agreement, which has to be protected and recognized by a formalized law, which protect and secure these kinds of activities or processes. In many developing countries, e-business and eGovernment laws are not yet available. Establishing protections and legal reforms will be needed to ensure, among other things, the privacy, security and legal recognition of electronic interactions and electronic signatures. Hence, governments all over the world need to tackle the design and development of a public key infrastructure, which will guarantee secure transactions between organizations and individuals.

Example: In the e-procurement system initiative in the Philippines, which aimed to streamline the purchase of goods and services for a large number of government departments and agencies, a number of actions were undertaken to change the legal framework and to issue new rules and policies that govern and regulate electronic commerce and interactions. An executive order was issued which provided legal guidelines about how to conduct electronic business, and how to advertise and post bids or notices in the new electronic system. In addition, an e-Commerce law was promulgated, in order to give legal protection to electronic documents (Granados and Masilungan, 2001).

5.3 Human Capital Development and Life Long Learning
A major challenge of an eGovernment initiative is the lack of ICT skills in the public sector. This is a particular problem in developing countries, where the chronic lack of qualified staff and inadequate human resources training has been a problem for years (UNPA&ASPA, 2001). The availability of appropriate skills is central for successful eGovernment implementation. EGovernment requires hybrid human capacities: technological, commercial and management. Technical skills for installation, maintenance, designing and implementation of ICT infrastructure, as well as skills for using and managing online processes, functions and customers, are necessary. To address human capital development issues, knowledge management initiatives are required focusing on staff training, seminars, workshops in order to create the basic skills for eGovernment handling.

Example: In Beijing's Business e-Park initiative, a key step in project implementation was the education programme. Firstly government officers learnt to do their jobs more quickly and efficiently. It was also important to educate government leaders, as they were responsible to explain what eGovernment is and what its benefits will be for the community. Ultimately, basic computer and Internet training were provided to government staff and public users of the eGovernment system (Lin et al., 2001).

In general, in almost all cases the focus on training and education programs was a paramount phase for the assurance of project endurance. However, the human capability development doesn't end up with the acquisition and achievement of basic initial skills. Instead, lifelong learning is an essential prerequisite as the rate of change increases and new technologies, practices and competitive models emerge. The full economic benefits of IT depend on a process of social experimentation and learning, which is still at an early stage (Freeman and Soete, 1994).

5.4 Change Management
Change management issues must be addressed as new work practices, new ways of processing and performing tasks are introduced. EGovernment correctly designed doesn't simply save costs and improve service quality; instead it revolutionizes and reinvents the government processes and functions. Change management can be divided into two sub-concepts: Change Management Approach and Management of Resistance to Change. Change management approach refers to the change management procedures established within organizations. DeLisi (1990) identifies culture as the primary driver of strategic organizational change. Being aware of an organization's culture is already a big step towards a higher capacity to change (Hassard and Sharifi, 1989). Hierarchy is the most traditional of cultural values of a government bureaucracy, in many ways its defining feature. In particular, intranets and the sharing of information throughout organizations can challenge hierarchies and can only really benefit an organization that develops a more networked approach; ICT is distinguished by its network character (Dutch ICT and Government Advisory Committee, 2001).

Employee resistance to change is still the biggest barrier to successful change. Employees fear changes in general and ICT applications in particular as they believe that ICT would replace them and so cause job losses. Moreover, it is very difficult in a short time to turn off traditional methods of working and learn new ones. Addressing resistance successfully means ensuring the existence of incentives for employees to learn and change and the establishment of well-structured plans that embrace employee participation throughout all stages of a change process.

Example: It is relevant to mention here the experience in India of the *Vijaywada Online Information Center* (VOICE). The main objective of this initiative was to realize an electronic system which enables the delivery of municipal services such as building

approvals, status certificates, and handles the collection of different types of taxes. Resistance to change from public staff was one of the major problems encountered in this endeavor. The revenue department staff were those who caused most problems as they stood to lose the income received from bribes. Some staff feared job losses, some others were reluctant to learn and use the new technology and new work practices. Several meetings and performance reviews were organized to persuade staff to become accountable and to motivate them for better performance (Kumar and Bhatnagar, 2001).

5.5 Partnership and Collaboration
Collaboration and cooperation at local, regional and national levels, as well as between public and private organizations, are important elements in the eGovernment development process. Nevertheless, collaboration and cooperation are not simple to realize. Governments often exhibit considerable resistance to open and transparent systems as they try to preserve their authority, power and hierarchical status. Citizens distrust their governments, especially where there has been a history of dictatorship, political instability or large-scale corruption. To ensure that the public and stakeholders will be partners in the eGovernment effort, it is important to try to build trust in government. Collaboration between the private (assuming that there is a private sector) and public sectors is needed too, in order to provide resources, skills and capabilities that the government lacks. For example, the ICT private sector is able to support government with technical skills and infrastructure; meanwhile, universities will provide the required staff, learning and training courses for government staff and citizens, and other governmental departments and agencies can contribute in data and information flow and knowledge sharing for problem solving of similar tasks or processes and so on. A 'new' development model is emerging that focuses on partnership among stakeholders in the knowledge-based development program (Talero & Gaudette, 1996).

Example: The initiative of the *State of Andhra Pradesh* in India to computerize the 1,124 administrative units, called mandals, in order to realize online delivery of services, required strong coordination and collaboration between various departments. Different databases were handled and managed by different departments, one from the revenue department, one from the national informatics department, another from the social welfare department. These departments were geographically spread over an area of 275,000 sq. kms., but the timeless delivery of services required the instant collaboration, communication and interaction between them (Bhatnagar, 2001).

5.6 Strategy
One of the main challenges for an eGovernment project is the establishment of an appropriate and context tailored strategy. Every project or initiative needs to be rooted in a very careful, analytical and dynamic strategy. This seems to be a very difficult task, requiring a focus on many aspects and processes, a holistic vision, long-term focus and objectives. Many public institutions limit their activities to a simple transfer of their information and services online without taking into consideration the re-engineering process needed to grasp the full benefits.

The government must have a clear strategy to overcome the barriers to change. Part of the strategy is to engage in a rigorous assessment of the current situation, the reality on the ground and the inventory of projects, articulate costs, impacts and benefits of programme as well as continuously monitor and evaluate the project upgrading. Borrowing a lesson from the private sector, eGovernment must be customer-driven and service oriented, meeting the needs of citizens and improving the quality of life. This means that a vision of eGovernment implies providing greater access to information as well as better, more equal services and procedures for public and businesses. Even when eGovernment projects seek to improve internal government processes, the end goal should be making government serve citizens

better. This means recognizing the diverse roles that citizens can play as partners, taxpayers, constituents, employers, employees, students, investors and lobbyists.

Example: A critical point for the initiative of the *government of Colombia* to realize an eGovernment portal was the definition of strategy and actions to be pursued. Initially the government created a specific unit to develop the strategy, objectives, and plan for actions and afterwards to assist and monitor the work progress. A 'Connectivity Agenda' was formulated which specifies the key objectives of the initiative, the strategic framework for subsequent actions, and different projects to undertake. The Agenda established an action framework that guided any plan in Colombia related to ICT development and electronic applications, thus allowing a rational and coordinated investment effort (Porrua et al., 2001).

5.7 Leadership Role

The public sector presents unique challenges for leadership. Changing and hazy visions confuse expectations for reforms and leaders (OECD, 2001). Leadership is one of the main driving forces of every new and innovative project or initiative. Since eGovernment is a complex process, accompanied by high costs, risks and challenges, public organizations are generally resistant to the initiation of change. A leading player (organization, institution), which is able to understand the real costs and benefits of the project, to motivate, influence, include and support other organizations and institutions, is required. Leadership is necessary before, during and after project implementation. Before the project is initiated, leadership is needed in order to explain the concept, the model and create awareness; during the project, leadership is needed to manage change and support the project; and after the project, it is needed to pledge the required flexibility and adaptability of the initiative. Top leadership involvement and clear lines of accountability for making management improvements are critical to overcoming organizations' natural resistance to change, marshalling the resources needed to improve management, and building and maintaining the organization wide commitment to new ways of doing government (McClure, 2001).

Example: Chile's government procurement e-System initiative was seen as a technocratic solution. As a consequence, the pledge of strong political support and top leadership was a critical issue. The political support through exposure in the press outlining the benefits of the initiative in terms of transparency, efficiency and e-commerce capacity was sought as vital by organizing staff. Further leadership and support was provided by lobbying political parties, interest groups, private sector advocates and information technology companies (Orrego et al., 2000).

6.   CONCLUSIONS AND IMPLICATIONS

In the new economy, underpinned by revolutionary changes in science and technology, information and knowledge has become a key factor in economic competitiveness. Developing countries must pursue a more active role in the formulation of national policies and strategies to promote the information economy, to reap huge benefits in terms of economic and social growth/development. eGovernment is believed to play a fundamental role to this end. It does not only facilitate market-led initiatives but it also plays a major role in initiating the process of capability building and in coordinating the actions of a large number of interested stakeholders (Mansell and Wehn, 1998). It offers the potential of reshaping the public sector activities and processes, building relationships between citizens and the government, enhancing transparency, increasing government capacity and providing a "voice" for those outside the government.

Nevertheless, the ability of developing countries to reap the full benefits of eGovernment is limited and is largely hampered by the existence of many political, social and economic hindrances. But, despite the barriers and impediments they experienced, the

reference cases provided here show that developing countries should and could take advantages of the ICT revolution. The case analysis reveals some important tips to consider for a successful design and implementation of eGovernment initiatives.

- E-readiness assessment - Start with an e-readiness assessment study which permits stakeholders to understand the current state of telecommunication networks infrastructure, legal and regulatory framework, current level of human resources and skills as well as the main impediments within a country's borders. Based on the outcomes of this assessment, it is possible to produce strategies and action plans for building human resource capability, legislative frameworks, institutional infrastructures, technological infrastructures and accessibility for all in a tailored and effective way.
- Raise awareness among public and private organizations - Organize workshops, events, seminars, conferences with the objective of raising awareness about real opportunities and benefits that the ICT revolution can bring. Prepare for long-term solutions to problems by ensuring the availability of appropriate training programs for future management of technological and business changes.
- Think small, be agile and fast - Begin with feasible pilot projects, tailored to specific contexts. Build up steadily the qualifications necessary for facing hindrances. Be prepared to make the required changes on the road. Agility and flexibility assure the success.
- Stimulate collaboration and coordination among government departments and agencies to increase efficiency and effectively in process handling. Address challenges and opportunities in strong partnership with private organizations, major donors, research institutions and universities, and support cross fertilization of ideas, solutions and knowledge.
- Invest in human development – the success of e-initiatives depends largely on human skills and capabilities. Accordingly, education and training initiatives must be considered as priority actions. Staff need to be trained to handle new processes and activities; they have to be given incentives (not necessarily monetary) to prevent the brain drain of skilled people; and they need to feel part of the organization by engaging in the decision making process. Some basic training needs necessary to be provided to community members, in general, in order for them to be able to use new facilities for accessing electronic information and services.
- Show sensitivity to local realities by assessing and evaluating different alternatives, ways and solutions for digital government development including mobile telephones, kiosks, and multi-channel access to services. Find viable solutions to ensure the effective participation of the community in the information economy.
- Adopt a holistic and comprehensive approach, with clear vision and strategy to overcome the barriers and challenges for change. Integrate eGovernment with other development strategies and policies to ensure a broad base diffusion. The active role of top leaders is crucial especially at the earliest stages, to raise awareness, make ICT development a national priority, build and maintain wide commitment and involvement at public and private levels.
- Prepare to manage knowledge and change - Establish knowledge management processes and tools to ensure storage, usage, easy retrieval of strategic information and knowledge for better and fast decision-making process, for further adaptation and development, for realizing the necessary improvements and always search for better and innovative value added services and solutions.

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Appendix:
TABLE OF CASE STUDIES AND THE SPECIFICATION OF THEIR RESPECTIVE OBJECTIVES, OPPORTUNITIES AND CHALLENGES

Country	Cases	Objective	Opportunities	Challenges
China	**Beijing's business e-Park –** is a project that applies the latest computer and Internet technologies to improve the efficiency and responsiveness of government.	*Improve services for business*	Time and speed of services; Better and higher quality services; Transparency and accountability; More information and knowledge available; Cost efficiency;	Change management; Training government leaders; Legal Issues; Staff Training; Cooperation and collaboration among different agencies; High – level leaders;
India	**Online delivery of municipal services in Vijaywada, India** – is an initiative created in a partnership between federal and state government agencies, the municipal government and a software development company aimed to deliver municipal services online such as approvals, birth and death certificates, handle taxes and other services by use of five kiosks located close to the citizens.	*Better service delivery to citizens*	Reduction of corruption; Time and speed of services; Convenience and access to services; Municipality become more responsive; Active participation of citizens in public decision-making process;	Resistance to change; Training programmes; Collaboration; Leadership; Technological skills and capabilities; Cost and finance of the project; Network creation;
Brazil	**Citizens service centers in Bahia,** - consists of the creation of service centres placed near public places such as shopping malls and major public transportation hubs which brings together federal, state and municipal agencies and offers better services that citizens most frequently need.	*Better service delivery to citizens*	Multi-channel distribution; More convenient hours; Massive richness and use of services; Better and higher quality services; Large number of services delivered; Shorter time; A great level of customer satisfaction;	Strong political leadership and commitment; Network creation; Service and information packaging; Assuring service quality; Process reengineering; Managing workers toward change; Shift toward customer–centric strategy; Technology and managerial skills;

Chile	**Chile's government procurement e-system** - is an e-procurement system used by the Chilean government to buy or purchase goods from the private business sector.	*Efficient government purchasing*	Elimination of information asymmetry; Transparency, accountability and reduction of corruption; Multiple choice opportunities; Efficiency gains in different government programs; Motivate e-commerce development and capacity; Reduce time and save costs;	Manage the diversity of public agencies; Obtaining financial and human resources; Strong leadership and support; Resistance to change; Cultural barriers; Creating strategic partnerships; Security and privacy issues;
Jamaica	**Jamaica customs automated services online** – is a project that modernizes and automates customs processes in order to facilitate the procedures for the importation of goods into the islands and the collection of government revenue at the points of entry. The online system is designed to capture entry data electronically by connecting seamlessly to the Customs Automated Services (CASE).	*Tax administration*	Increase in revenue collection; Convenience and increased speed in entry processing; Accessibility 24*7*365; Overtime reduction; Easy monitoring; Few errors and inconsistency; Greater efficiency;	Resistance To Change; Technology Skills And Capabilities; Funding; Commitment; Change management process;
India	**Land property registration in Andhra Pradesh** – is a computerized registration system aimed to help citizens to compile a land registration requirement form electronically within seconds instead of days. It is expected to increase the transparency, and to offer better services and convenience to the citizens.	*Better service delivery to citizens*	Reduced time on processing land registration; Pressure for further similar initiatives; Cost reduction and efficiency; Transparent system; Eliminate paper–based procedures; Better services, and quality for customers;	Customer orientation; Technology infrastructure; Change management; Shared mission, vision and objectives; Training and motivating employees; Process reengineering; IT legal framework; Educate the public on using the system;
India	**Mandals online in Andhra Pradesh** - is a project that computerized the 1,124 administrative units known as mandals in order to be able to deliver online statutory certificates in few minutes. The system also maintains a record of land holdings in the area and assist in land transfers and management of government lands.	*Better service delivery to citizens*	Information and data available to all; Efficiency of customer–government transactions; Accessibility 24*7*365; Reduction of waiting time and travelling.	Coordination with various departments; Data management; Digital divide; Security and privacy issues Human resource skills; Technical expertise

Brazil	Sao Paulo's "Timesaver" centres – consist of the creation of centres, which offer a bundle of public services and information in a single point of access. They bring together different governmental levels and departments. These centres are located in public places near to customers.	*Better service delivery to citizens*	Massive use of services offered by this centre; High level of customer satisfaction; Time saving for customers; Convenience and speed; High level of courtesy and professionalism; Multi-channel for service and information distribution;	Staff training; Manage the departmental and organizational diversity; Collaboration and cooperation among different agencies; Private/public relationships;
Argentina	**CRISTAL a tool for transparent government in Argentina** is a web site created to make transparent the process of public funds flow – how and when public funds are used. The objective of this initiative is to reduce corruption and increase government transparency.	*Transparency and anticorruption*	Quality of information and services; Active participation of the public; Transparency and corruption reduction; Increased number of users and visitors;	Cooperation among managers of different governmental agencies; Technical expertise Staff skills; Leadership and commitment;
India	**Central Vigilance Commission Website, India** – is an anticorruption experiment which, by sharing with citizens a large amount of information related to corruption through a website, aims to reduce corruption and increase transparency.	*Transparency and anticorruption*	Transparency; Quality of services; Convenience, speed and shorter time of transactions; Effective communication with citizens; Increasing credibility;	Change management; Culture management; Data management; Cooperation and collaboration; Commitment from the top;
The Philippines	**Philippine customs reform** – is an initiative that applies an "off-the-shelf" software package, to develop an on-line system that lessens the cost of trade for businesses, reduces opportunities for fraud, and helps the Customs Bureau to maximize revenue collection.	*Tax Administration*	Reduce costs of trade for businesses; Reduce fraud; Maximise revenue collection; Improve services; More convenient methods for payments; More time for staff to concentrate on other core tasks.	Project management and planning; Cooperation and collaboration among regions involved; Public/private collaboration; Technology innovation; Personnel training.

The Philippine	**Philippine electronic procurement system** – is an Internet-based Electronic Procurement System conceived to make more efficient and transparent the government procurement process.	*Efficient government purchasing*	Increased transparency; Cost reduction for government; Information availability and accessibility; Reduction of information asymmetry; More choices and information for purchase decision – making;	Legal framework; Resistance to change; High political support; Infrastructure and resources to support the system; Low level of e-readiness at the customers level; Staff training;
Columbia	**Columbian Government portal -** is a portal which contains all federal government agencies and their relative information and services.	*Empowerment through information*	Promote use of ICT in other sectors of the society; Facilitate search and information retrieval; Active participation of citizens in the decision making process; Increased accountability; Convenience, speed, transparency and cost savings;	Legal framework; Public/private partnership; Strong leadership; Clear and shared strategy; Low e-readiness level; Culture change;
India	**Gyandoot: Community-Owned Rural Internet Kiosks** – is a system conceived to give marginalized tribal citizens their chance to access knowledge and information.	*Better service delivery to citizens*	Transparency; More information and knowledge available; Increased awareness level of ICT importance; Better service delivery; Global accessibility.	Technology Infrastructure; Motivation and Training of mangers; Motivate people to use the system; Low computer literacy level;
Guatemala	**Guatemala's BancaSAT ETax Services** – is a system of online tax filling and payment supported by the World Bank and managed by the Guatemalan Tax agency.	*Tax Administration*	Improve the efficiency of administrative processes; Reduction of transaction costs; Improvement of efficiency; Speed and accountability; Reduction of errors; Public satisfaction; Convenient transactions;	Collaboration and cooperation; Change management; Legal framework; Staff training; Securing system; Strong political leadership;

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