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E-Government Basics and issues

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Abstract

E-government can be a powerful and important tool especially in developing countries facing a number of challenges, such as weak public services, unemployment, poor health, spread of crime, housing crisis, violence, and poor education. It represents a new opportunity for local governments to participate in governance and demand reform of basic business processes. This paper aims to explore the e-government concept and provide the reader with basic knowledge of the e-government fundamentals. The paper presents, in an easy to understand terms, a comprehensive summary of the e-government concept including what it's, its architecture, its categories, its importance, and the issues that must be overcome for an e-government initiative to succeed. We also illustrate an adopted framework of an e-government architecture which can help governments who are planning to adopt an e-government initiative. The importance of this research lies in the importance of the e-government as a new way of governance in the modern world. This research mainly relied on data gathered from conducting a literature search on the subject.

Key words – e-government, electronic government, digital government.

الملخص:

يمكن أن تكون الحكومة الإلكترونية أداة قوية ومهمة خاصة في البلدان النامية التي تواجه عددًا من التحديات، مثل ضعف الخدمات العامة، والبطالة، وسوء الصحة، وانتشار الجريمة، وأزمة الإسكان، والعنف، وضعف التعليم. إنها تمثل فرصة جديدة للحكومات المحلية للمشاركة في الحوكمة والمطالبة بإصلاح اجراءات الاعمال الأساسية. تهدف هذه الورقة إلى استكشاف مفهوم الحكومة الإلكترونية وتزويد القارئ بالمعرفة الأساسية

بأساسيات الحكومة الإلكترونية. تقدم الورقة، بعبارات سهلة الفهم، ملخصًا شاملاً لمفهوم الحكومة الإلكترونية متضمنًا ماهيتها، وبنيتها، وفئاتها، وأهميتها، والقضايا التي يجب التغلب عليها حتى تنجح مبادرة الحكومة الإلكترونية. نوضح أيضًا إطارًا معتمدًا لهيكلية الحكومة الإلكترونية التي يمكن أن تساعد الحكومات التي تخطط لتبني مبادرة الحكومة الإلكترونية. تكمن أهمية هذا البحث في أهمية الحكومة الإلكترونية كطريقة جديدة للحكم في العالم الحديث. اعتمد هذا البحث بشكل أساسي على البيانات التي تم جمعها من إجراء بحث في الأدبيات حول هذا الموضوع.

1. Introduction

Information and Communication Technology (ICT) has changed our lives significantly with each new development. Through its astonishing development, ICT has changed how citizens interact with the government, which led to an important development in their lives. Many governments worldwide have provided e-government as a way to reduce costs, improve services to citizens, and increase the effectiveness and efficiency at the national and regional levels of the public sector [1]. For example, 179 of the 193 members of the United Nations have worked to develop strategies for implementing e-government systems [2]. Hence, e-government was determined as one of the top priorities of governments around the world.

By improving access to information, and deepening citizen participation in the policy-making process, e-government offers a path to continuity with civil society and the private sector to design effective services and tools for policy implementation. E-government can help increase transparency and accountability in capable development and poverty reduction, by improving the country's ability to provide services, and achieving developmental goals, increasing efficiency and transparency [1]. E-government encourages more trust and participation among citizens, and to be more trustworthy to achieve investment and economic growth [1].

Many international organizations, including the World Bank and the United Nations, have realized its potential value, and therefore, encouraged developing countries to adopt e-government. E-government has become a means to help end extreme poverty and

enable shared prosperity by providing better and more efficient services, increased citizen trust, and participation; Therefore, effective e-government has become an important goal to many governments around the world [2].

In this context, this paper aims to explore the e-governance concept and provide the reader with basic knowledge of the e-government fundamentals. The paper presents, in an easy to understand terms, a comprehensive summary of the e-government concept, e-government types, e-government importance, and the issues that must be overcome for an e-government initiative to succeed. We also illustrate an adopted framework of an e-government architecture which can help governments who are planning to adopt an e-government initiative.

This paper is organized as follows. In Section 2 we explain what an e-government is. In Section3 we illustrate the architecture of e-government. In Section 4 we discuss the categories of e-government. In Section 5 we discuss the importance of having an e-government. In Section 6 we talk about the obstacles that commonly hinder the implementation of e-government. Finally, concluding remarks and recommendation are given in Section 7.

2. E-government

There is not one definite answer to this question. E-government (short for electronic government) is given different terms such as e-governance, digital government, online government etc. Wikipedia defines e-government as “the use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means.” [3]. However, the most comprehensive answer to this question is that, e-government is a means that governments follow through more use of ICT, especially internet-based applications, to facilitate procedures for citizens and the commercial sector, and ease access to government information and services, which also work to improve the quality of services, and provide greater opportunities to participate in democratic institutions and processes [4]. In addition, the term e-government is used by the Organization for Economic Co-operation and

Development (OECD) on the use of ICTs as a tool to achieve better government. Therefore, the e-government work relates to the use of ICT to structure procedures within state institutions, and most importantly changing the culture of government [5].

The report of the OECD emphasizes the importance of e-government as an important component of comprehensive reform agendas because it serves as a tool for reform. It renews interest in public administration reform, highlights internal consistency, and affirms commitment with the goals of good governance [5]. For its part, the World Bank defined e-government as the government that is owned or operated by information and communication technology systems which changes the style of relationships between citizens, the private sector, and other government agencies, in order to enhance the ability of citizens to receive services, improving the work of state institutions, enhancing accountability, increasing transparency, and ultimately improving government efficiency [2].

3. E-government architecture

The architecture of e-government defines the standards, infrastructure components, technologies, applications, business model and guidelines for electronic commerce among and between government institutions that facilitates the interaction of the government and promotes group productivity. An e-government portal requires a common and integrated architecture framework that allows different organizations, provinces, and municipalities to share and exchange data, independent of formats, devices and underlying architecture.

Figure 1 shows an adopted architecture framework for e-government [6]. It is divided into four layers: access layer, e-government layer, e-business layer, and infrastructure layer. The four layers of the architecture framework are connected through two-direction arrows that present the hierarchical level of the e-government implementation. The architecture framework portrays the logical connection of each relevant layer that allow two-way transmission of data and services. The top level of the framework represents the access layer that illustrates who might use the government services and what are the channels of access.

Throughout these channels, the e-government portal should integrate all government information and services from disparate departments and organizations, which represent the e-government layer. In connection to the e-government layer, the e-business layer is emerged to manipulate and integrate government data sources across government bodies and make information and services available to the e-government portal in real-time. In the bottom level of the framework, the ICT infrastructure of e-government should be built to reach out all parts of government and hence, support the e-government operation and provide effective and reliable e-government services [7].

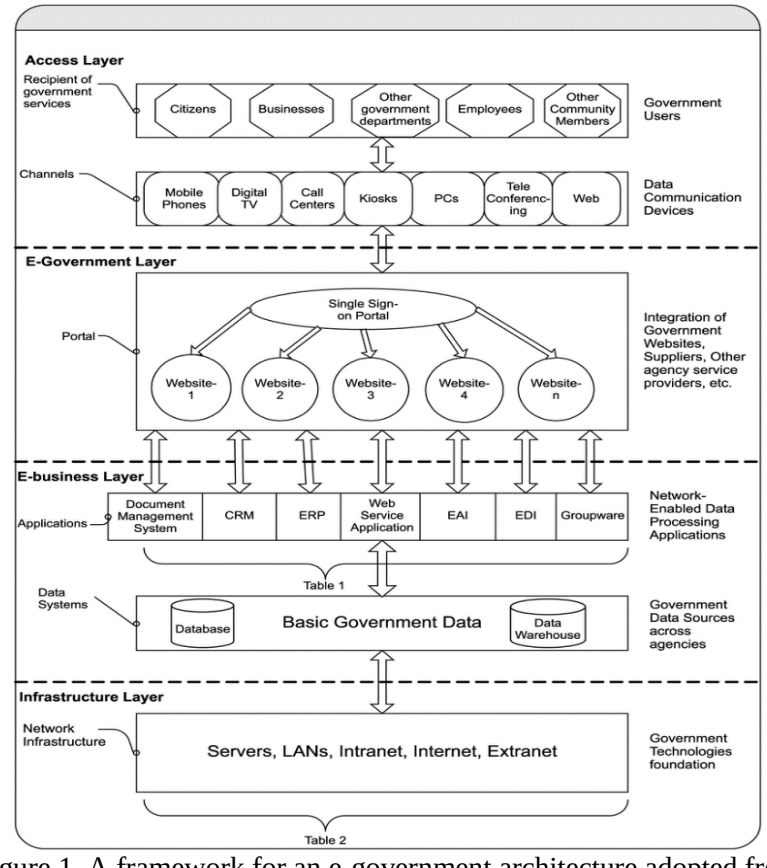

Figure 1. A framework for an e-government architecture adopted from [6]

4. E-government categories

An e-government provides services to those who are within the limits of its authority through electronic dealings. The services may vary according to the category of the service user. The following subsections give a brief idea for each e-government category.

4.1 Government to the Citizen (G2C)

Most government services come within this category of e-government, in order to provide citizens and others with comprehensive electronic resources to answer routine concerns and private government transactions by individuals. The main objective of this e-government category is to serve the citizens and facilitate their interaction with the government by facilitating access to public information using online websites, as well as, reducing the time and cost of making the transaction [7]. The continuous communication with citizens will strengthen accountability and improve public services. Citizens will have immediate and convenient access to government information and services from anywhere, at any time, using multiple channels. An example of such services are issuing certificates, paying government fees or applying to obtain licenses. The aim of a G2C initiative is to overcome potential time, geographical barriers etc. Therefore, it facilitates and increases citizen participation and trust in the government [4].

4.2 Government to the Business sector (G2B)

It is the second main category of e-government, which can achieve great efficiency for both government and business sectors. The category of government to the business sector includes various mutual services exchanged between government and business sectors, including memoranda, the distribution of policies, and rules and regulations.

Business services provided include access to current business information, new regulations, download of application forms, taxes, license renewal, company registration, and obtain Permits, etc. The services provided through the government to the commercial sector plays an important role in the development of the commercial sector, in particular the development of small and medium-sized companies

[7]. G2B applications are driving e-transaction initiatives, like e-procurement, developing an electronic market for government procurement, and executing procurement bids through electronic government means of exchanging information and goods. The government benefits from the experiences of online trade via this system in areas such as e-marketing strategies. A G2B category is as useful as the G2C category of e-government, which enhances the quality and the communication and transactions efficiency with the commercial sector, and increases equality and transparency in government contracts and projects [4] [7].

4.3 Government to the Government (G2G)

This category refers to the online communication between government institutions, departments and bodies based on government databases. In addition, it refers to the relationship between the government and its employees in a manner that enhances the efficiency and effectiveness of procedures through online communication and collaboration, which allow sharing databases, resources, and integrate skills and capabilities [7]. The government-to-government system provides information on compensation and benefit policies, opportunities for training and education, and civil rights laws in an accessible manner. The goal is developing a G2G group that improve regulatory procedures between government institutions through cooperation and coordination. On the other hand, it uses information technologies by various government agencies to share or focus information or to facilitate intergovernmental procedures that operate to save time and cost and improve services [4] [8].

4.4 Government to the Employee (G2E)

The G2E category refers to the relationship between the government and its employee only. This category is considered the least of the e-government categories [9]. It is seen by some researchers as a part of the government to the government type, and some of them deal with it as a separate system from the e-government. The purpose of this relationship is to serve the employees and provide certain services over the Internet, like review of payroll records, apply for

annual leave online, or check leave balance, and other issues [7]. Thus, it is a mixture of information and services that is provided by government institutions to their employees for the purpose of communication and interaction between departments and employees. The government to employee system is a successful way to provide e-learning, bring employees together and encourage sharing knowledge among themselves. It gives employees access to relevant information regarding compensation and benefits policies, training and education opportunities, and allow them to communicate online with management through an easy and fast contact form. The G2E system includes tactical and strategic mechanisms to encourage implementation of government goals and programs, as well as managing human resources [4].

5. The importance of e-government

An e-government strategy adoption can lead to great benefits for the government in providing effective and efficient information and services for all e-government sectors, and empowers government institutions to align its efforts as needed to improve service and reduce operating costs [4]. An OECD study of e-government initiatives in its member countries, mentioned the following advantages of e-government:

-Improve efficiency in processing large amounts of data.

-Improve services by better understanding of users' requirements.

Hence e-government aims to provide seamless online services to help achieve specific policy outcomes by enabling stakeholders to exchange information and ideas, assist in achieving government economic policy objectives by enhancing the productivity gains inherent in information technology, communications, and e-commerce, as well as participating in reforming governments by improving transparency, facilitating information sharing, highlighting internal contradictions, helping build trust between government and citizens which is a key factor in good governance using internet-based strategies, engaging citizens in the political process, while clarifying government transparency and accountability [5].

E-government has the ability to build stronger institutional capacity to better serve citizens and the commercial sector, and to reduce corruption through increased transparency and social control. The strategic application of information technology in e-government is able to radically reduce the amount of time, money and effort that citizens and the commercial sector must spend when complying with the rules and regulations [2].

This can be achieved in several ways. For example, the availability of information in one easily accessible location makes the provision of services to citizens possible and easy. It improves communication and interaction between government institutions with the business sector, industries and citizens, and increases the productivity and efficiency of government institutions; this allows citizens, the commercial sector, different levels of government institutions and government employees to easily find and access services; it thus makes transactions like paying fees and obtaining permits mush easier, more efficient and less costly.

6. Obstacles to implementing e-government

There is a number of obstacles that can hinder an e-government initiative. In this section, we mention and discuss the most common obstacles that must be overcome to implement a successful e-government system.

6.1 Privacy

Privacy represents a great obstacle when implementing an e-government initiative in the context of citizens' interest. Privacy requires ensuring an adequate level of protection for information attributed to individuals, and the government has an obligation to guarantee citizens' rights to privacy, and to process and collect personal data for legitimate purposes only [8]. The disclosure or misuse of private information, information sharing, and website tracking are recurrent globally. Also, there is a concern that e-government itself may be used to monitor citizens and spy on their privacy. Therefore, it has become necessary for the e-government to deal with great consideration and protect individual privacy [4]. There is a need to effectively respond to the issue of privacy in

networks, in order to increase the confidence of citizens in using e-government services. The confidence in privacy and the careful handling of personal information shared with government organizations is highly essential to e-government applications. It should be noted that in developing countries, people are so concerned with privacy and confidentiality issues that they may decide to refrain from the use of e-government.

6.2 Information protection

Information system security means protecting systems and information against intentional or accidental disclosure of unauthorized access, as well as unauthorized modification or sabotage [8]. This includes protecting the information structure including software, hardware, network assets, and controlling access to the information itself. The security of information or cyber security represents an important challenge for e-government because it is a vital component of the relationship of trust between citizens and government. Hence, putting policies and standards that meet citizens' expectations for security are very essential towards addressing their concerns. Information system security (cyber security) can be categorized into two components, document and network security [9]. It should include electronic infrastructure protection in the form of firewalls and limits on who have access to the data. In addition, the use of security technology such as digital signatures, encryption, user identity protection, passwords, bank account numbers, credit card numbers, and other data transmitted over the Internet or stored electronically is highly necessary to achieve the security objectives of e-government applications [7]. It must be recognized that no security system is perfect, and that everything can be overcome in the end. However, government organizations responsible for collecting, maintaining and distributing sensitive or confidential information should consider ways to provide collected information, as well as their websites.

6.3 ICT Infrastructure

The lack of compatible infrastructure and common standards between departments and agencies of the government is a major

obstacle in implementing an e-government initiative. An ICT infrastructure is one of the main challenges of e-government, because it is essential to operate the Internet to enable proper sharing of information and open new channels of communication and providing new services [4]. Implementation of the entire e-government framework requires a strong technology infrastructure. In order to provide e-government services, the government must develop an effective telecom infrastructure.

6.4 Policies and legislation

It must be realized that e-government is an organizational issue as well as a technical issue. It requires defining and implementing e-government functions with a set of rules, policies, laws, and new government procedures to address electronic activities like electronic archiving, electronic signatures, information transfer, computer crime, data protection, intellectual property rights, and issues of copyrights [9]. This effort requires a comprehensive vision that does not focus solely on technology. Outdated laws and regulations, and overlapping and conflicting authorities can complicate or stop an e-government altogether.

6.5 The shortage of ICT skills

A major challenge for an e-government initiative could be the lack of qualified personnel due to the lack of ICT skills. In developing countries, this is a big concern where the shortage of qualified personnel and insufficient training is a major problem [4]. Availability of essential skills is necessary for the successful implementation of e-government. E-government requires human, technological, commercial, administrative capabilities, and technical skills are necessary to design, install, implement and maintain ICT infrastructures. In addition, the skills necessary to use and manage processes, functions, and customers via the Internet. In order to address human capital development issues, there is a need for knowledge management initiatives that focus on training employees in order to create and develop basic skills for the use of e-government [5].

6.6 Lack of partnership and cooperation

Partnership and cooperation at local and regional levels as well as between public and private institutions are important components of the e-government development process. However, partnership and cooperation are not easily achieved [8]. Where governments often show great resistance to open and transparent systems, they try to maintain their authority and hierarchy. Citizens do not trust their governments, especially when there is a history of dictatorship, political instability, or widespread corruption. Therefore, to ensure that the public and stakeholders are partners in e-government efforts, it is important to try to build trust in government. Cooperation between the public and private sectors is also required in order to provide resources, skills and capabilities that may be lacking in government [7]. Here, the government can play the role of facilitator and encourage the private sector to participate in the development and implementation of e-government.

6.7 Digital divide

By the digital divide, we mean the gap in opportunity between those who have access to the Internet and who do not have access to the Internet, as the ability to use computers and the Internet has become a critical factor in the successful implementation of e-government [9]. The lack of such skills prevent people from the benefit of its services. Due to the lack of necessary skills or other reasons, not all citizens currently have equal access to computers and the Internet. Indeed, there are rationales for an e-literacy campaign for people who are unable to benefit from e-government applications. The government should train employees and citizens in basic computer and Internet skills in order to allow them to participate in e-government development applications. Moreover, providing a computers in public places, such as post offices, libraries, and shopping malls, may help address the gap between those who have access to the Internet and data services and those who do not [8]. The lack of Internet access among certain segments of the population is considered the most important obstacle to the development of e-government.

6.8 Leaders and Administrative Support

For the successful implementation of e-government there is a need to obtain support from the highest levels of government, and the support and commitment of senior management to provide a positive environment which encourages the participation in e-government applications. Therefore, government itself plays an important role in adopting and implementing e-government, as it requires explicit leadership participation in accountability for management improvements, overcoming natural resistance to organizational change, and pooling of resources for improved management. Involving high-level leadership as well as an integrated IT vision is vital to vertical e-government planning, acquiring necessary resources, motivating officials, and supporting engagement with external partners and stakeholders. As can be seen in developing countries, and transitional democracies the political leadership and an integrated vision of information technology drive the development of e-government [8]. Leaders who see potential gains from promoting e-government are more likely to support it, even in the face of obstacles, while leaders who believe they will lose from implementing e-government are unreliable. Therefore, the government needs to educate government leaders, managers and administrators in the planning and management of ICT in all public sectors, focusing on economic development opportunities and effective delivery of information and public services [7].

7. Conclusion and recommendation

This research examined the literature to define and illustrate the concept, categories, advantages and barriers of e-government. It is apparent that e-government has many advantages to offer to all government sectors. E-government can considerably improve the way governments operate and how services are delivered to their citizens and to the commercial sector. Implementing e-government not only saves resources, but can lead to a significant increase in service levels by reducing bureaucratic time. The e-government is a tool for reform and modifying the way governments work. Thus, e-government is not primarily based on automation of existing government procedures, but rather about changing the way the

government conducts its business and delivers services to its citizens. However, many critical issues face the implementation of e-government, some of which are of non-technical nature with wide impact and require comprehensive planning. Moreover, the successful implementation of e-government depends on how the capabilities of different infrastructures are built and how they are structured in an integrated manner. Courses and training are a prerequisite with the emergence of competitive technologies and models, and the full economic benefits of ICT depend on the training process and learning skills, and this is universal for all governments.

We recommend that more research be conducted on e-government implementation models to investigate what is required for governments to apply incrementally in each of its separate sectors.

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