# E-GOVERNMENT IN DEVELOPING COUNTRIES:

# FRAMEWORK OF CHALLENGES AND OPPORTUNITIES

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## ABSTRACT

Responsibility of success the Electronic Government (E-Government) is the responsibility of all citizens. E-Government is a massive automated project that uses Information and Communication Technologies (ICTs) to promote more efficient and effective of government, facilitate more accessible government services, and make government more accountable to citizens.

Through the implementation of E-Government, there are a lot of challenges and difficulties, at the same time there are a lot of opportunities that will help us to accelerate the application of E-Government.

This paper will be introduced these challenges and opportunities for developing a successful E-Government in developing countries, so we will discuss in detail the situation in Pakistan, India, Malaysia, Jordan, and others as examples. The aim of this study is find a general framework for the challenges and opportunities that facing the developing countries. Important issues will be discussing in this paper e.g., IT infrastructure, digital cultural, managerial issues, legislation issues, and budgeting.

**Keywords***: E-Government, Information And Communication Technology (ICT), Challenges, IT Infrastructure, Opportunities.*

## 1. INTRODUCTION

A developing country, also known as a less-developed country (LDC), is a nation with a low living standard, undeveloped industrial base, and low Human Development Index (HDI) relative to other countries [1].

E-Government can be defined as the ability of different sectors of government to provide government information and services to citizens by electronic means quickly and accurately, with minimum costs and less effort at any time and through a single site on the Internet. E-Government as a huge program seeks to achieve greater efficiency and effectiveness in government performance, through raising the performance of services for beneficiaries [2] such as individuals, institutions, businesses, and societies.

Based on this definition, the government seeks, through the application of the concept of electronic government is to re-invent itself in the performance of its functions effectively to its citizens through simplification of procedures and presented in a clear and transparent through the World Wide Web. Therefore the concept of E-Government is a radical shift from traditional methods that used before, which the main results is to review of all procedures in accordance with the application of the concept of E-Government.

And as it is known, the application of E-Government is not paved with roses, there are a set of weaknesses represented by challenges, difficulties, and obstacles that must be overcome. At the same time, there is a set of strengths represented by opportunities and other positive points that must be enhanced and built upon.

Despite the many circumstances similarities between the developing countries in terms of problems, difficulties, challenges, and opportunities; nevertheless, there remains a peculiarity of each country from the other. This paper try to find and identify a general framework, this framework includes similar problems and similar opportunities in developing countries, while preserving the privacy of each country.

## 2. SCOPE OF E-GOVERNMENT

Several major categories fit within definition of E-Government [3], the categories are as following:

## 2.1 Government-To-Citizens (G2c)

The G2C category includes all of the interactions between a government and its citizens that can take place electronically [3][4]. The basic idea is to enable citizens to interact with the government from their homes. G2C applications enable citizens to ask questions of government agencies and receive answers, pay taxes, receive payments and documents, and so forth. For example, citizens can renew driver's licenses, pay traffic tickets, and make appointments for vehicle emission inspections and driving tests. Governments also can disseminate information on the Web, conduct training, helps citizens find employment, and more [3].

## 2.2 Government-To-Business (G2b)

Governments seek to automate their interactions with businesses, we call this category G2B, and the relationship works two ways: government-to-business and business-to-government [3]. G2B refers to e-commerce in which government sells products to businesses or provides them with services as well as to businesses selling products and services to government [5]. Two key G2B areas are e-procurement and the auctioning of government.

## 2.3 Government-To-Government (G2g)

The G2G category consists of Electronic Commerce (EC) activities between units of government, including those within one governmental body [3]. Many of these are aimed at improving the effectiveness or the efficiency of the government.

## 2.4 Government-To-Employee (G2e)

G2E is an E-Government category that includes activities and services between government units and their employees [3]. Governments employ large numbers of people. Therefore, governments are just as interested as private-sector organizations are in electronically providing services and information to their employees. Because employees of state governments often work in a variety of geographic locations, G2E applications may be especially useful in enabling efficient communication. While the internal initiatives provide tools for improving the effectiveness and efficiency of government Operations like E-payroll, E-records management, E-training, Enterprise case management, integrated acquisition, integrated human resources, One-stop recruitment.

## 3. THE BENEFITS OF E-GOVERNMENT

State and Government seeking through the concept of E-Government to achieve a set of goals and objectives that will benefit for all individuals, institutions and societies, the following highlight some of these objectives [3]:

1- Raise the level of IEE for processes and procedures within the government sector, through:

- Improve the level of efficiency in the use and employment of information technology.
- Construction the government agencies, internally and externally of the electronic transformation.
- Reduce the time spent in the performance of procedures within each department.
- Take advantage of the best experiences (Best Practices) in the performance of the business.
- Accuracy in the completion of various functions.
- Facilitate the electronic payment system.

2- Reduce the costs of category G2G, through:

- Improvement and development and engineering of business processes.
- Construction the government agencies, internally and externally of the electronic transformations.
- Facilitate the flow of business and entry into high transparency and easy.
- Reduce the procedures and avoid duplicate information within the chain business seminars.
- Promote coordination and cooperation between state institutions and establish the concept of integration.
- Encourage the exchange of automated data.

3- Raise the level of satisfaction of the beneficiary for services provided to them G2C, through:

- Facilitate the use of government services.
- Reduce the time it takes to get the beneficiary on the service they need.
- Provide accurate data in a timely manner as needed.
- Strengthen the confidence of citizens in dealing with E-Government through the assured him in privacy, confidentiality, security, and e-payment issues.

4- Support economic development programs G2B, through:

- Facilitate transactions between sectors of government and business sectors.
- Reduce the costs of coordination and continuous monitoring.
- Increase career opportunities.
- Increase the profitability of the revenue transactions with government business sectors.
- Encourage the building of infrastructures and the dissemination of technical information for high efficiency.
- Open new opportunities for private sector investment information.
- Achieve a high degree of integration between government and private sectors to serve the national economy.
- Provide some services of interest to a large segment of the public and investors on the Internet or on the phone line or mobile phone.
- Provide accurate and updated information to decision makers and investors.

## 4. THE STATEMENT PROBLEM

One of the major categories of E-Government is Government-to-Citizens. The G2C category includes all of the interactions between a government and its citizens that can take place electronically [4] [5].

We believe that the application of E-Government will grow and prosper if it has achieved the requirements of users, also, the services are provided through E-Government must be consistent with the needs of citizens. If the citizens achieve their needs, the level of satisfaction for E-Government will increase.

There are great similarities between the developing countries in terms of the quality of the difficulties and obstacles, challenges and opportunities. The real problem in these countries is the lack of a clear vision of how to start a business e-government, they are not able to locate the force as well as the opportunities that exist have to build upon and strengthen, also there are unable to locate weakness and bugs up to treatment and control. These countries also suffer from a lack of benefit from the experiences of other similar countries.

This study aims to develop a general framework for the challenges and opportunities that facing the application of e-government in developing countries, so we expect to be benefit from this study and we hope to be one of the important references of the States that are looking to implement e-government.

## 5. LITERATURE REVIEW

E-Government is concerned with not only providing public services but also value added information to the citizens. It also enables government organizations to work together efficiently and effectively.

E-Government means the services available to the citizens electronically. It may provide opportunity to citizen to interact with the government for the services that they required from government. ICT plays an important role to providing the easy services by the government to the citizens. The government should treat their citizen as consumers or customers and provide services though internet and networks.

Most challenges and opportunities that are expected to be faced during the implementation of an E-Government program in the developing countries have been summarized as,

### 5.1 Pakistan

The main challenges and opportunities facing the application of E-Government in Pakistan were as follows [6]:

- ICT Infrastructure: We are lacking basic ICT infrastructure. People are unaware of use of technology. Many companies are lacking basic technology. Inter organization communication is yet in discussion phase. No concept of online culture.
- Low ICT Literacy: IT literacy is very poor. People do not believe in technology. Many companies have computer and they claim that they are using information technology. They don't have the concept, what technology is?
- Professional workforce: We have outclass and strong business and legal professionals, we lack mix of technology based business and legal professional. Old guys hesitate to get training in ICT. It's a big challenge for us.
- Resistance Handling: Hierarchical structure is disturbed while using eservices. Everyone is depending on IS

department. Sometime, they are targeting IS people.

- Collaboration: Collaboration is necessary in our business. We need information from different departments. We are efficient on our side, we are lacking cooperation.
- Top Leadership Commitment: E-services initiative is taken by organization themselves, government supports this project in financial terms. Some time we are lacking finance.

### 5.2 India

While in India the main challenges facing the application of E-Government were as follows [7]:

- Making a policy choice in favor of computerization to overcome radically the even if it requires huge investments for the purchase of hardware and software.
- Serious efforts would be required to mobilize resources for this arduous job. One way to deal with the situation could be that governments enter into arrangements for leasing of computers.
- Establishing complete connectivity between various ministries and departments so that transfer of files and papers could be done through Internet thereby choosing efficacious speed as an alternative to manual labor.
- Supplying information to the public in a language that they understand and are comfortable with, and generally, it is the local language.
- Changing the mindset of the government employees who are used to working only in the manual mode.
- Making cyber laws available to the public as early as possible so that the IT systems and information documents stored in the systems has the same legal validity as the documents stored today on paper.
- Build supporting infrastructures of power and all weather surface transport system to bridge the digital divide between the rural and urban India.

### 5.3 Malaysia

Despite early leadership, Malaysia's E-Government initiatives [8] face major challenges in moving to higher level of maturity and impact. Major factors include:

- lake of broadband infrastructure hindered roll out,
- low usage of Mykad beyond identity functions,
- slow adoption of E-Government applications due to lack of integration and insufficient engagement of key stakeholders,
- low PC ownership and low ICT literacy among the member of this society, the information provided by government agencies via the E-Government sites is stale and not current,
- The sites are not easy for the novices to navigate; implementation of Telehealth did not succeed due to inadequate change management and inappropriate Build Own Operate business model.

### 5.4 Jordan

The primary challenges in implementing the e-government in Jordan [9], is as followed:

- Budgetary Barriers
- Common Technical Framework and infrastructure
- Digital Divide
- Privacy and Security Concepts
- Rapid Technology Change
- Citizen Expectation and Seamless Services

### 5.5 Miscellaneous

Most challenges [2] [10] that are expected to be faced during the implementation of an E-Government program are Infrastructure Development, Law, Digital Divide, E-Literacy, Accessibility, Trust, Privacy, Security, Transparency, Interoperability, Record Management, Permanent availability, Education, Marketing, Public/Private competition/collaboration, Workforce, Cost structure, and Benchmarking.

Effective E-Government enables decision-making as well as decision follow-through across three primary components [11]:

Leadership: The roles and responsibility of the organizations appointed officials and senior executive management that shape the organization's strategic vision, culture, decision-making processes, and plan for action. Organizational Structure: The structure and form of organizational relationships that support

decision-making, foster appropriate culture, and build essential skills in order to marshal resources to make things happen. Process Management: The management of how organizations serve their customers and measure success or failure, including leadership and decision-making processes, as well as changes to operational processes required to support new E-Government capabilities.

The opportunities of developing countries [12], cost reduction and efficiency gains, quality of service delivery to businesses and customers, transparency, anticorruption, accountability, increase the capacity of government, network and community creation, improve the quality of decision making, and promote use of ICT in other sectors of the society. While the challenges are ICT infrastructure, policy issues, human capital development and lifelong learning, change management, partnership and collaboration, strategy, and leadership role.

In the E-Government project [13], managers facing five key strategic challenges: 1) Assessing the demand paradox of e-government. 2) Ensuring that gate-keeping mechanisms of the street-level bureaucrats are not eroding the dynamics of e-government. 3) Use of IT to decrease the high labour intensity in public service provision. 4) Revisiting the employees' readiness for e-government. 5) Building competences within government to ensure dynamic use of IT.

## 8. CHALLENGES AND OPPORTUNITIES FRAMEWORK

As shown in Fig.1, this figure describe the five keys of challenges and opportunities that will facing the implementation of E-Government in developing countries, next section will discuss each point in details.
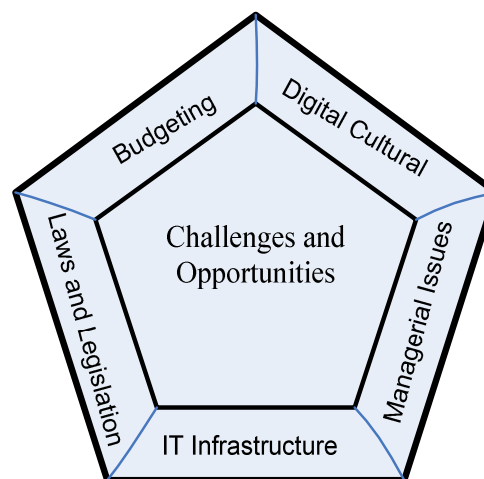


*Fig. 1 Challenges and Opportunities Framework*

Once governments assign to strategies transforming their governance processes into E-Government, important challenges and opportunities will arise during their implementation. These challenges and opportunities must be addressed by the E-Government initiatives of developing countries. The main idea of this paper is to addressing and classifies the challenges and opportunities in the form of categories; each category contains a group of detailed points as follows:

### 8.1 IT Infrastructure

From our point of view as specialists, the most important points that we will post them in this study are as follows:

    a. Lack of technological skills among leaders

    b. Lack of technological skills among employees

    c. Lack of technological skills among citizens

    d. Lake of technological skills among disabled people (those how are blind, deaf, or otherwise handicapped.

    e. Lack of qualifications required of government IT staff /developers of e-government project, as a result E-government projects are often outsourced to the private sector, and Large design-reality gaps as a result of using an off-the-shelf solution from an industrialized country for a developing country.

f. Lack of Hardware and / or maintenance and / or updated

g. Lack of Software and / or maintenance and / or updated

h. Lake of communication systems

i. Poor/Lake of Digitized Information, such as absence of databases with their various forms, archive different types of documents using the scanner, Information Dissemination, content, applications, developing procedures and protocols that supported disabled people.

j. Lake of Integration Systems, E-Government planners should develop their systems and applications that work together and across departments, the systems should be strongly related, opened, and interact with each others.

k. Lake of Interoperability, systems in government departments should be homogenous, taking into account the interoperability between old and new systems, because systems working together. As a result and through using common standards throughout the government to shorten development time and ensure compatibility.

l. Lake of Record Mobility, e.g., citizen record SNN (Secure National Number), land record, car record, patient record, and etc. Sharing data between government department is very useful because it saving money, time, and efforts. To achieve these goals, designer must simplify the processes of manual record to make the transformation for mobility record easier.

m. Availability and Preservation of Data, the historical documents are very important for the State, which is considered one of the pillars of the state, for example, the administration of land and real estate ownership for citizens and everything related to real estate register. Civil status registers in terms of births, deaths, marriages, divorce and other. All these documents and more is responsibility of the state in term of administrate, maintenance, availability, and preservation.

### 8.2 Managerial Issues

Top management and administration should seek to achieve the following points:

n. E-government project is needed well care from the top of the pyramid in the administrative state, e.g., king/president of states his responsibility to provide support in all phases of the project. E-Government cannot be implemented without supported, sponsored, and commitment of top leadership. It needs high capital investment and operational cost. Public sector organizations are generally hesitant to manage huge investment on E-Government project. Top management role is necessary in all stages of E-Government implementation. The project also needed an official body (such as establishment a Ministry of Communications and Information Technology (MoCIT)) his responsibility regarding supervision and follow up the progress of the project.

o. Workforce and Resistance of Change, there has been a culture of civil servants, that e-government project is a competitor to them; there is a concern that this project will take place and will be replaced, and will reduce their influence and authority. Employees have less experience of using modern technologies, feels that they are losing their powers, and they are being replaced with technology. While the corrupt layer and the beneficiaries of this corruption, they will be fighting to failure the project. Instead of this culture, partnership and teamwork culture must prevail, so civil servants are partners in the project's success. Policy makers redirect civil servants for such type of systems, through good training, encouragement, rewarding, and motivation.

p. Lack of Transparency, such as licensing and permit approval, reformers not only streamlined the burdensome regulatory

rules but they also created an online monitoring system to track the progress of government applications, transparency means reducing the number of bribes and collusion among corrupt bureaucrats because officials could now be held personally accountable for actions. Lack of transparency prevents the public from actively participating in government and from raising questions or protesting unfair or ill-advised decisions. A lack of transparency can hide official graft or bias. Lack of transparency means strengthening of injustice, corruption and infringement of the rights of citizens, lack of transparency is an important factor that led to what has become known as the "Arab Spring".

q. Turnover of workforce, high turnover rates of the employees in the public sector in general, and particularly in the government IT staff, this is because of uncompetitive payment and employment conditions as compared to private sector. In other words, Public sector organizations are lacking qualified IT professionals due to many reasons; one of them is low salary structure. This is to remember that the availability of ICT skills is important for successful E-Government implementation.

r. Collaboration and Coordination, is necessary for government to achieve full integration of e-services across administrative boundaries, because of the importance of E-Government project, it must be synergies and energies to success this project, for that, a high level of collaboration and coordination must be done between all individuals and institutions. Should also promote a culture of partnership and teamwork among the various departments and sectors.
   i. Lack of Collaboration and Coordination between government and itself.
   ii. Lake of Collaboration and Coordination between government and private sector.
   iii. Lake of Collaboration and Coordination between government and their citizens.

### 8.3 Digital Cultural
s. Digital Divide
   i. E-literacy, Developing countries suffer from Trinity poverty, unemployment, and illiteracy. Developing countries also have low literacy rate in general and information technology in particular. Here we are going to talk about e-literacy as a challenge facing e-government. Ensuring e-government programs help to create opportunities by educating those who have not used, do not have access to, or feel uncomfortable with technology.
   ii. Accessibility, E-Government must deliver their information and services to all citizens, regardless of ethnicity, religion, or places of residence, even people with disability like blind, deaf, and physically disabled. For that E-Government must design necessary programs to encourage citizens to use new technology, through developing training and educational programs for certain categories of people. And, some times motivated and incentives them.

t. Lake of Awareness
   i. Lack of orientation programs to the citizens about E-Government project.
   ii. Lake of educating citizens about the value and benefits of E-government
   iii. Lake Usability, how usable (easy to use) will the transactions will be, and if they are user friendly or not. This property reflects how easy it is to use the system. It depends on the technical system components, its operators and its operating environment.
   iv. Lake of incentive programs that able to encourage citizens for using E-Government

u. Lake of Trust, to enhance the trust e.g., starts with pilot short-time projects that yield early success results. This helps build trust and encourage us to go forward, also developing techniques that demonstrate that software can be trusted by its users. Systems that are unsafe or insecure may be rejected by their users. In another word, Untrustworthy systems may be rejected by

their users; Untrustworthy systems may cause loss of valuable information.

i. Lake of Security, how secure transactions will be and how E-Government can protect their sites from attack and misuse. The security of the system (its ability to resist attack) is a complex property that cannot be easily measured. Attacks may be devised that were not anticipated by the system designers and so may defeat built-in safeguards. The ability of E-Government to protect itself against accidental or deliberate intrusion.

ii. Lake of privacy, protection the personal information that government collects about citizens.

iii. Lake of Safety, ability of E-Government to operate without catastrophic failure.

iv. Lake of confidentiality, designers should normally respect the confidentiality of their employers or clients irrespective of whether or not a formal confidentiality agreement has been signed such as code of ethics.

v. Availability, the probability that E-Government, at a point in time, will be operational and able to deliver the requested services 24/7.

vi. ICT literacy could increase the trust of the public on online information.

## 8.4 Laws And Legislation,

Legislatures must ensure that laws are updated to recognize electronic documents and transactions. They must take proactive steps to ensure that policies support rather than impede e-government. There is rapid progress in terms of the development of systems and applications, while we find a lake of legislation and laws that support the electronic systems

## 8.5 Budgeting

E-Government project is mega projects, budgeting should be taken into account, each stage of the project needs the money, each program the government intends to work need the money, provide all sources for the purposes of the project needs the money, at the same time, it is no secret that the deficits budget in the developing countries, and the extent of the financially suffering of these countries. Leadership commitment is directly linked with the availability of financial resources. Availability of external fund worked as catalyst to take initiative to implement E-Government. For that it must be policies and spending wisely that consistent with the budget of state, therefore we must benefit as much as possible from all available sources, so develop projects that are achievable with resources already available, and avoided add any details that will push budgets into deficit. Developing nations must choose projects carefully in order to optimize their investment of time and resources.

8.6 Lack of budget in general

8.7 Lack of funding sources

8.8 Lack of management of the availability resources

8.9 Corruption and misuse public money

## 9. CONCLUSIONS

To achieve successful implementation of E-Government in developing countries it should be taken into account some important issues like infrastructure of IT, managerial issues, digital cultural, law and legislation, and budgeting. There are great similarities between the developing countries; there are similarities of challenges and opportunities, weaknesses and strengths, and off course the similarity of suffering. Framework presented in this study very useful and they will contribute in providing assistance to all who wish to initiate the application of E-Government in developing nations. The framework discussed in detail each point. And as they say, knowledge of the problem half of the solution, the study had a diagnosis of the situation in developing nations, and put a finger on places of defect, so we hope that this study will help a lot all those who wish to applicable the E-Government project. Through viewing this framework, the vision must be clear for E-Government team, and they can be able to developing necessary programs and also able to solve all the problems mentioned.

## 10. FUTURE WORK

In order to achieve complete and success e-Government, the government must solve all mentioned issues, these issues need more and more research from researcher, e.g.:

- Integration, Interoperability, Record Mobility, Availability, and Preservations.
- Resistance of change, Transparency, Turnover of Workforce, Collaboration and Coordination.
- E-Literacy, Accessibility, Awareness, Trust, Security, and Privacy.

All these issues need from us to find the suitable solutions. So, great efforts should be made to solve these problems, solving these problems will contribute to build success E-Government project. In case of verification success of these issues the level of citizen's satisfaction will rise and the customer numbers of using E-Government will increase also.

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