E-Government Challenges in Public Sector:
A case study of Pakistan

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Abstract

A longitudinal study has been conducted to explore challenges confronting E-Government implementation in public sector organizations of Pakistan. The tremendous advancement of Information and Communication Technologies (ICT) strongly influenced the work process that brought change into the administrative setup of government / bureaucracy. The basic information about government organizations, but not all its relevant business / processes are made available online to the stakeholders concerned. However implementation of E-Government is a big challenge as it needs tremendous change in the existing work processes. Case study encompasses the challenges in area such as technological infrastructure, organizational aspect, and collaboration with other organizations. The study was conducted in one of public sector organization in Pakistan during the implementation of E-Government and second study of the same organization focused on how the challenges were overcome by introducing various strategies and to what extent such strategies found to be fruitful. The finding of the study shows that the implementation of E-Government is quite difficult where as basic ICT infrastructure and financial resources are not available in organizations. It has been recommended E-government could not be managed properly until the challenges should be addressed and managed well.

Keywords: E-Government, ICT and government, E-Government challenges

1. Introduction

E-Government has emerged as a revolutionary mechanism of the management of public sector organizations on global basis. It incorporates high level services; accelerated processing, increased transparency and low cost output are the mega products of E-Government. These objectives can be can be meat through the adoption of Information and Communication Technologies in various functional units. Wimmer, Codagnone, & Ma [22] pointed out that despite the many potential benefits of using modern ICT, governments still struggle with the problems of rigid, ineffective business processes, and the business processes are not properly designed for effective implementation through modern ICT. E-Government implementation should not be achieved without vision of using modern technologies. E-Government has been opted by developed as well as developing countries for providing better services to their citizens. It could bring forward the new concept to citizenship by enabling and empowering to interact directly. These interactions can be named as Government to Government (G2G), Government to Business (G2B), Government to Employee (G2E) and Government to Citizen (G2C) [16].

The rapid growth in Internet usage and development of Information and Communication Technologies and e-commerce/e-business in the private sector put pressure on public sector organizations serve citizens electronically [7]. Public sector organizations are under pressure of use ICT in their processes.

N.B. The name of the understudy organization has not been disclosed due to professional obligations.

1.1 Research Objectives

This objective of research is to explore various challenges that public sector organizations may face to implement E-Government. This consideration may leads to the following research questions.

- How does ICT infrastructure prove a barrier in the way of E-Government targets?
- Does Low ICT literacy impede E-Government implementation?
- Does collaboration between public sector organizations exist?
- Does professional workforce role exist?

2. Literature Review

The term E-Government refers to the use of information and communication technology (ICT) to enhance the range and quality of public services to citizens and business while making government more efficient, accountable, and transparent [19]. 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 customers and provide services though internet and networks. 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.

Internet use and benefits gained by advance countries pressurizing the government of developing countries to bring their information online. This may require the government to transform them self and start using the modern practices opted by the developed countries [20]. one author describe the challenges as "Many governments faced the challenge of transformation and the need to modernize administrative practices and management systems" cited in [16].

2.1 Defining E-Government

Moor & Norris [15] define E-Government as "means of delivering government information and services". Another author defines as "E-Government is the use of ICT to promote more efficient and effective government that facilitates more accessible government services, allow greater public access to information, and make government more accountable to citizens" [2].

Another definition of E-Government is "emphasizes coordinated network building, external collaboration and customer services" [7]. E-Government is "the electronic provision of information and services by government 24 hours per day, seven day per week" [8]. According to Yildiz [23] "E-Government is the use of ICTs by public administration to create a networked for; interconnectivity, service delivery, effectiveness, transparency and accountability".

The scope of E-Government by Federal Government of Pakistan may be considered as a combination of internal e-enablement and the external provision of e-services to stakeholders of the Federal Government. The figure 1 illustrates the defined scope:
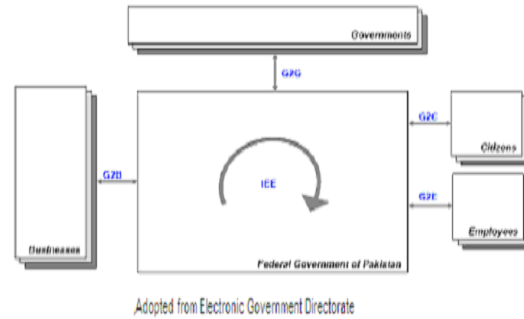

Figure 1 (**E-Government Strategy and five year plan for the Federal Government, 2005**)

2.2 Developmental stages of E-Government

Layne & Lee [11] proposed a framework for the implementation of E-Government. It includes four stages such as cataloguing, transaction, vertical integration and horizontal integration.

Cataloguing: create of static website to show online presence

Transaction: in second stage websites provide the facility of online transaction, accepting online payments, process e filling and interaction with customers.

Vertical integration: It requires integration required seamless linkages within the domain, a sharing of data vertically within the industry.

Horizontal integration: It requires integration across different levels of government and also across different function of government.

Some argue that an effective E-Government program requires seamless integration of an appropriate, quality information engaged public employee good administrative process, and government leadership [12]. Layne & Lee [11] argue that all the benefits of E-Government may be realized when full service integration in stage four.

UN & ASPA[21] report published in 2001 categorized the progress made by developed and developing countries in developing an online presence on five stages scale such as Emerging stage; Enhanced stage; Interactive stage; Transactional stage and seamless stage. Brief description of five stages is as under:

Emerging: An official government online presence is established.

Enhanced: Government sites increase, information become more dynamic

Interactive: Users can download forms, email officials and interact through the web

Transactional: Users can actually pay for services and other transactions online.

Seamless: Full integration of e-services across administrative boundaries.

Baoling [2] stated that E-Government aims at utilizing ICT to provide better quality services to the citizens through electronic means. The cost of

technology is decreasing day by day through this developing countries can effectively utilized the benefits of technology [1]. The E-Government may improve the quality of life of citizens through better service delivery at low cost. It may eventually transform the processes and structure of the government, empower civil servant to serve citizen better [18].

To take the initiative of E-Government projects depends on the internal and external factors. External includes the image of the organization, become a leader in information society and internal factors are efficiency, transparency and cost reduction, Fallahi [7] discussed in his thesis about the infrastructural obstacles he pointed out the accessibility of internet connection, less no of computers in organizatin , unavailability of web sites , low internet speed, lack of efficient banking system for e-payment etc.

The literature review leads to the explanation that the organization facing various challenges during the development stages of E-Government.

3. Research Methodology

To conduct this research, Case Study method has been employed to explore challenges confronting E-Government implementations in public sector of Pakistan. Time span of this longitudinal study is three years 2007-2010. During the period it is studied that how organizations overcome these challenges. The relevant authorities were contacted and gathered the information on challenges faced by organizations.

3.1 Case Study

A case study has been defined as an empirical inquiry that investigates a contemporary phenomenon within its real-life context [25]. The Case study method has its own limitations. It may be used for exploration of a study [24].

The purpose of using this method is to draw a close scenario of real work situation. This study has been conducted in natural setting. Data may be collected by multiple means and one or few entities (person, group or organization) may be examined (Christenson, 1976) cited in [3].

The study carried out with the purpose to examine the environment of the organization towards e-services (E-Government) implementation challenges faced by the organizations.

3.2 Data Collection Method

Yin [25] suggested that multiple data collection methods may be used in case study research; these are interviews, observations, archival data and documentations. The data was gathered through semi-structured face to face interviews with top level management of the organization. Information was also obtained through archival documents and official website. Interviews lasted for half to an hour. Interviews were transcribed. Data triangulation technique was applied to ensure the data validity.

4. First study during E-Government Implementation

E-Government implementation is a challenging task; in this section the results of first study has been presented.

4.1 ICT Infrastructure

Information and Communication Technology infrastructure is driving force for organizations to implement e-services. Within and outside the organizations communication is required to perform official tasks. As public sector organizations also seek services from different organizations, so the basic ICT infrastructure is essential for implementing E-Government.

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. (Senior Manager)

People are facing problems in accessing e-services due to lack of basic ICT infrastructure. To ensure successful implementation of the e-services, government needs to develop the allied departments, for example in one of the department in organization, online registration fee facility is not available, because the banks have no facility to transfer funds from one bank account to other bank account.

4.2 Low ICT Literacy

ICT infrastructure cannot be productive until IT literacy exists in society. ICT literacy is mandatory to empower in using online services provided by government.

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? (Manager Applications)

Countries like Pakistan have low literacy rate in general and information technology in particular. Citizens are shy of using computers for available

online services. Some times, they don't rely on online information.

4.3 Professional workforce

A professional workforce is enabler to implement E-Government. Public sector organizations are lacking qualified IT professionals due to many reasons; one of them is low salary structure. The availability of ICT skills is important for successful E-Government implementation. E-Government requires mixed workforce i.e. ICT based professional management.

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 (Senior Manager)

Organization is going to launch e-services in near future, but there is shortage of experienced man-power in different fields of E-Government. Organization's existing man-power has strong knowledge of business but lacks in ICT knowledge. Organization has started in-house training programs, but these are not sufficient to meet the current needs.
IS&T Department structure of organization

Figure 2: Adopted From organization website

4.4 Resistance Handling

Technology fever exists in public sector organizations. This fever encourages non technology people to start resisting in Implementation of E-Government. People have less exposure of using modern technologies, employee feels that they are losing their powers, and they are being replaced with technology.

*Hierarchical structure is disturbed while using e-*services*. Every one is depending on IS department. Sometime, they are targeting IS people. (Manager Systems)*

4.5 Collaboration

Inter organizations collaboration is important element in the E-Government to set full scale services.

Collaboration is necessary in our business. We need information from different departments. We are efficient on our side, we are lacking cooperation. (Manager Application)

The organization needs to collaborate among different organizations.

4.6 Top Leadership Commitment

E-Government cannot be implemented without the commitment of top leadership (Financial Commitment). It needs high capital investment and operational cost. Public sector organizations are generally reluctant to manage huge investment on E-Government project. Top management role is necessary in all stages of E-Government implementation.

E- services initiative is taken by organization themselves, government supports this project in financial terms. Some time we are lacking finance (Senior Advisor)

Only financial barrier can stop the leadership commitment. Finance is provided by government, remaining funds are managed by organization itself. The leadership is committed towards e-services due to external investment available.

5. Second Study after implementation of E-Government 2010

E-Government implementation is a challenging task. In this section second study has been presented.

5.1 ICT Infrastructure

Pakistan is lacking ICT infrastructure. It takes long time to develop infrastructure in country.

"We have developed a comprehensive system to meet the requirements of the customers but due to lack of ICT facilities in country, people show hesitation to use computers to perform their functions. Organizations are good on their part of using systems but lacking inter organization communication" (Senior manager).

The organization has developed their system to provide full length services to their citizens but citizens lacking ICT facilities on their part. Organizations are still lacking seamless integration with other organizations due to lack of ICT infrastructure.

5.2 Low ICT Literacy

"IT literacy is still poor. People are not willing to use online systems; they are lacking trained people to handle E-services. People are unable to handle online account to manage their company profile, even their password for online services. 80 to 90 % of our activities are performed offline" (Manager Application).

Organizations are lacking computer literate staff to handle online services; they prefer to use existing manual procedures. People are comfortable with lengthy process and they are not willing to accept the ease of use.

5.3 Professional workforce

"We have trained all of our staff managing e-services through different trainings. Luckily in our department employee turnover is low. Now we have expended and added all categories of skilled people. We have one of the best team in country, managing e-services. We have sufficient manpower to meet current needs" (Senior manager).

Professional workforce is available in organization to meet all challenges in implementing E-Government. They have extended their span of control.
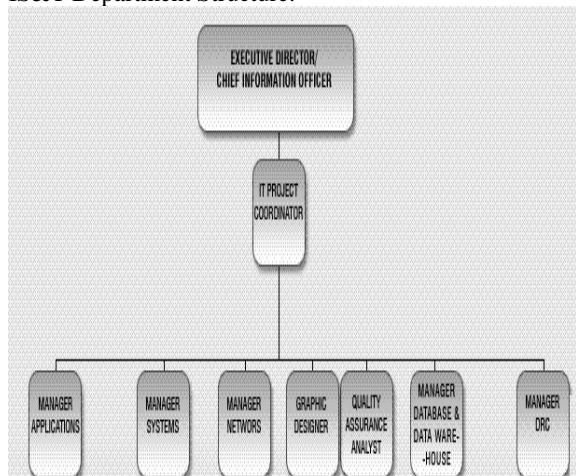IS&T Department Structure.

Figure 3 : Adopted form organization website

5.4 Resistance Handling

"Initially we faced problems to manage change in organization, but with the help of training, discussions and interest groups, resistant to change is minimized. Now people feel comfortable of using online systems, organizational information is available on a click. (Manager System.)

With the help of training people realized that they are not being replaced with machines (system), "man behind the machine" man is needed to operate machine.

5.5 Collaboration

"Collaboration is necessary for government to achieve full integration of e-services across administrative boundaries, we are lacking in collaboration with other organizations to share information with each other, we have discussed the matter with other organizations but they are not taking interest. I think collaboration is possible if government took initiative to establish collaborating governing body. (Manager Application)

Collaboration helps the organizations to share infrastructure, manpower, resources, and knowledge with each other

5.6 Top Leadership Commitment

"When we started project, top leadership was committed to implement e-services, capital cost is provided by the government to implement project. At the moment top leadership is reluctant to provide finance to expand the e-services to other department; one of the project is delayed due to bureaucratic procedures. Some time we faced problem to get finance to pay licence fee to different software's" (Senior advisor).

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.

6. Results and Interpretations

6.1 ICT infrastructure

Presence of ICT infrastructure is an inevitable requirement to progress aggressively in the global economy to facilitate their customers through the implementation of e-services. Across the

organization communication is required to perform duties effectively. It is decade long and expensive process to implement E-Government in developing countries, government has taken initiative to provide capital finance to public sector organizations to establish their infrastructure and internal organization communication. The current Infrastructure has shown tremendous growth as compare to what was available in previous study. Study reveals that still it has to go a long way to make everyone consume the benefits of e-services. It has been observed that a central hub for the provision and monitoring of e-services is missing. Within the organizations the infrastructure is good but the inter-organizational connectivity is still required upgradation. Lack of central coordination office among the organizations is proven a barrier. Layne & Lee [11] says that all the benefits of E-Government may be realized when full service integration.

6.2 Low ICT Literacy

ICT literacy is mandatory to enable the people to use online services; a society without IT literacy couldn't go to its higher level. ICT literacy could increase the trust and confidence of the public on online information. Pakistan is still suffering from low literacy rate in general and IT in particular. The study shows People are shows resistance of using computers for available online services, people are relaying on offline services because some time they don't trust on the accuracy of e-services. The organization used One strategy to encourage citizen by providing discount in fee for those they are using online services. One author wrote in his study that white collar worker group and college students showed more awareness than the blue collar workers [13]. Majority of the literate people still could not manage their online profile. Most offtenly they forgot their password for online services, up to 80-90% of the activities are performed off line. Kunstelj, Jukic, & Vintar [10] discussed in his survey findings that there are many reasons people are not using online services. Few of them are "No need yet, preferring to use traditional means, lack of awareness, no interest and no internet use". To explore important influencing factors, it is necessary to address the challenges confronting E-Government.

6.3 Professional workforce

The backbone of the implementation of the ICT infrastructure is the availability of the professional workforce, which is a challenge for organization to implement E-Government. Public sector organizations are lacking qualified IT professionals due to poor compensation and reward systems. In addition training and development aspect is also missing for the upgradation of organizational staff members.

Kifle & Cheng says [9] Poor IT capabilities and experiences exits in public sector organizations due to which E-Government projects suffered just lack of IT knowledge and resources. He also quoted Non –IT officers were asked to participate in the E-Government projects in many ministries and were even nominated as the CIO's. The presence of ICT skills pool is inevitable for the successful E-Government implementation and E-Government requires a combined workforce i.e. ICT based professional management. In this study, the turnover of ICT employees in organization is low, which is healthy indicator for the development of E-Government. On the basis of this low turnover and continuous growth of ICT staff now organization has all categories of specialization which include hardware, software, database and communication. O'Brien & Marakas [17] mentioned the four technology areas in his book which are essential for the development of e business and e-services. If compare figure 2 with figure 3, the organization has tremendous growth in professional workforce, this leads towards the successful implementation of E-Government.

6.4 Resistance handling

Unfortunately technology fever exist and prevail in public sector organizations which encouraged and contributed into the resistance. People with poor exposure of the usage of modern technologies are suffering from the apprehension of performing their e service based duties; this makes them feel the apprehension of losing their powers and fear of loss of job with technology. Study findings suggest that ICT is breaking the boundaries of hierarchical structure of the organization but at the same time all other functional areas have become depend upon ICT department. The resistance is managed through different strategies which include trainings, mutual interest, and with the involvement of pressure groups. Now gradually people are feeling comfortable in using online systems and they are getting optimal utility of the information available to everyone.

6.5 Collaboration

Integration is the basis of the creation of the world which is the necessity for the implementations of E-Government. Collaboration among different organizations is compulsory for government to share resources with each other. The findings of first study shows that there is not collaboration exist among the organizations. The organization overcomes this challenge through the discussion with other organizations to share knowledge, resources and infrastructure. To consume fruitful results of E-Government it is recommended that a

collaborating agency may be formed to bring the organization closer.

6.6 Top Leadership Commitment

Implementation of E-Government is not only requires the deep commitment of top management but also requires huge capital investment and operational expenditures. Public sectors organizations generally show resistance in the huge financial investment to initiate E-Government projects. In first study the top leadership shows enthusiasm and initiatives in the implementation of E-Government due to external availability of funds but gradually they loose their interest due to lack of available financial resources. Organization delayed project due to financial limitation and bureaucratic procedures. The involvement of top leadership in the implementation of all stages of E-Government is necessary. "The active role of top leaders is crucial especially at the earliest stages to raise awareness, make ICT development a national priority"[16]. Finding suggests that external funding is manadatory for successful implementation of E-Government.

Conclusion

Organizations are facing pressure to improve the quality of services to citizens. Quality of services can be improved through the successful implementation of E-Government. This implementations is a challenge for organizations and could be solved through external fundings in all stages of the project i.e. before, during and after implementation of the project. This conclusion could be given in following judgemental points.

- Organizations are facing pressure to improve the quality of services to citizens.
- Error free services may increase the confident of citizens.
- The level of services could be enhanced through external funding.
- Financal and Technical backup would always be required in all stages of project implementaion.
- Information and resources sharing is mandatory to get seamless integration.

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