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E-Government in Pakistan – Implementation and Challenges

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Abstract: Today, the explosion of information and ever-improving digital connectivity has revolutionized the way business is performed, how organizations work, how the simplest of everyday chores are supposed to be done. A new world order has emerged; with newer, disruptive innovative ideas being incepted at a pace more than anyone could've ever imagined only a few decades ago.

Public organizations; just like private ones, had to re-invent themselves in order to sustain and keep up with the increasing expectations of digital and effective public service delivery; From conventional government to E-Government.

Implementation of e-Government solutions and strategies has become the topmost prerequisite of good governance in today's globalized world, yet it remains a challenge in most of the developing countries including Pakistan. Despite countless efforts of the federal and provincial government in trying to go paperless, there remains a gap between the government and citizens, in the context of service delivery and between government employees and administration in the context of effective business process transformations. This paper aims to:

- Study different models and indexes devised by scholars and organizations worldwide
- Current implementations and the reasons behind their success or failure; based on interviews with people engaged in implementations of different digital solutions.
- Study key contrasts in current and proposed business processes and their implications
- Study key contrasts between ICT implementation strategies adopted by different counties
- Identify recommendations and options for the government including institutional and cultural reforms for effective business transformation and service delivery
- Engage with the people directly involved with the current and previous implementations of e-government applications in the country to provide the crux of all the challenges faced in different parts of the country.
- Act as a roadmap for future ICT implementations in the country.

Index Terms: E-Government, Digital Government, ICT in Government, E-Government in Pakistan, E-Government Challenges.

1. Introduction

Electronic government broadly speaking, is the delivery of all the services and information provided to and from the government digitally. Over the years several definitions have been devised by different organizations worldwide:

E-government abstractly is the process of putting to use ICTs more efficiently and effectively to achieve the desired objectives of public service delivery in an optimum manner. It involves the use of digital means to carry out operations in the public sector for the benefit of the masses and the government itself. The objective behind this is to reduce manual work, decrease transaction time, better integrate the workflows and processes and reduce financial costs for more effective resource utilization while also making the processes more sustainable. Efficient and effective e-government is also likely to result in economies of scale and provide user-friendly technology-enabled services.

Table 1. E-government accepted definitions

Definition	Source
"E-government can thus be defined 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. The underlying principle of e-government, supported by an effective e-governance institutional framework, is to improve the internal workings of the public sector by reducing financial costs and transaction times to better integrate workflows and processes and enable effective resource utilization across the various public sector agencies aiming for sustainable solutions."	United Nations (2020) [1]
"E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that can transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."	The World Bank (2015) [2]
"Use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions. In particular, the networking potential offered by the Internet and related technologies has the potential to transform the structures and operation of government."	OECD (2012) [3]
"Uses digital tools and systems to provide better public services to citizens and businesses. Effective e-Government can provide a wide variety of benefits including more efficiency and savings for governments and businesses, increased transparency, and greater participation of citizens in political life. ICTs are already widely used by government bodies, as it happens in enterprises, but e-Government involves much more than just the tools. It also involves rethinking organizations and processes and changing behavior so that public services are delivered more efficiently to people. Implemented well, e-Government enables citizens, enterprises, and organizations to carry out their business with government more easily, more quickly and at lower cost"	European Commission (2019) [4]

Generally, utilizing ICT is regarded as a solution-oriented approach, however, in making this statement especially in the context of the developing world, a one-dimensional perspective is presented which ignores the challenges associated with its implementation and utilization. The challenges associated with it include organizational structures, the culture, types of leadership, and its willingness to accept these changes. It also involves lack of financial resources, unskilled labor, resistance to moving from traditional methods to more progressive methods that reduce human interaction, resistance towards collaboration and integration within teams. For effective utilization of ICT for e-governance, it is important to address these challenges beforehand, so that a seamless transition towards e-governance can take place. This paper aims to understand and analyze the issues and challenges involved in the application of e-governance in a third-world country and how the opportunities available can be put to use to improve public service delivery.

In Pakistan, no formal model of an E-Government is present as of yet, the provincial and local government despite having a national digital strategy on paper, are working in silos. Technology boards in all the provinces do not understand the need for government to act as a single digital organism. This paper aims to analyze the international models and metrics for internationally present to signify the need for an E-Government and propose recommendations extracted from the interviews of people directly involved with digital government solutions nationwide.

2. Terminology

- ***G2G (Government-to-Government)***

Government to Government sector covers the interactions between government departments. The G2G communication can be between local or provincial governments and the information exchanged by the government of a country to the government of other countries.

- ***G2B (Government-to-Business)***

This deals with the interactions and exchange of information and services between government agencies and private businesses. Corporate organizations worldwide are continuously adapting to the ever-changing digital landscape and implementing digital commerce solutions which save their costs and improve transparency and control Similarly, the transactions between businesses and government should also be automated and digitized which helps businesses and government both, and in effect the private and public service deliveries are synergized and improved for the public. Some samples of G2B solutions implemented worldwide are:

- e-Tender Box (ETB) system – Developed in the urban center
- e-Procurement Program – developed in the city
- Finance and support for your business – developed in the UK
- IRIS – developed by FBR for tax-related correspondence [5]

- ***G2E (Government-to-Employees)***

This covers the exchange of information and the services required for a department to be operational, they are between the government and its employees. The payroll and all services that are used by the employees of a government department to carry out operational tasks fall under this category.

- ***G2C (Government-to-Citizens)***

This category includes all the relationships and correspondence between the government and citizens. The aim is to enable citizens and governments to reach out to each other for any interaction one way or two way, required using electronic means. The interactions can range from anything related to service delivery like requesting for any welfare obligations on the government, to services that are required by the government for regulatory or licensing for compliance. Some examples of already established G2C services in Pakistan are:

- Job portal for online applications of government jobs
- Registration and renewal of Computerized national identity card
- Visa application service
- Allowing of payment of fines online
- Water, gas, electricity, and other utility bills payments
- Paying excise taxes for vehicles
- Filing and submitting Income and sales tax online
- Biometric Electronic Voting

- ***Transformational government***

The term transformational government [6] is commonly used to denoting the most effective possible level of what e-government can achieve:

1. *Presence:* Online presence of the government with information available online
2. *Interaction:* Interaction and exchange of information between government departments and citizens
3. *Transaction:* Payments done online without any hassle
4. *Transformation:* The business processes are changed to be more compatible with the current digital frameworks, hence making them more efficient

- ***E-governance***

"E-government should enable anyone visiting a city website to speak and interact with city employees via the web with graphical user interfaces (GUI), instant messaging (IM), study government issues through audio/video presentations, and in any rather more sophisticated than a straightforward email letter to the address provided at the site".

In essence "The enhanced value for stakeholders through transformation" and "the use of technology to bolster the access to and delivery of state services to search out citizens, business partners and employees". [7]the foremost target should be on:

"The use of data and communication technologies, and particularly the web, as a tool to know better government. The use of knowledge and communication technologies altogether facets of the operations of a government organization. The continuous optimization of service delivery, constituency participation, and governance by transforming internal and external relationships through technology, the web, and new media."

- ***Non-internet e-government***

When the term e-government is heard, intuitively the use of the internet comes into mind, but a lot of non-internet-based forms of governments are also operational. They utilize non-internet electronic sources like telephone, fax, PDA, SMS messaging, MMS, and local wired and wireless networks, tracking systems, RFID, Bluetooth, and other technologies. If the infrastructure is capable enough and used correctly, e-government without the internet can be just as effective.

3. Literature Review

- ***Evolution from traditional governance methods to e-governance***

Evolving from traditional methods of governance to electronic processes is likely to have a huge impact on the function of the government. Along with making life easier for government servants, it will also result in more effective communication between the government and the common man. In their paper on switching to e-governance, Mahmood

and Nayyar argue that the purpose of switching to e-government processes is not only to make service delivery more efficient but also to encourage disruption through technology at the highest levels of governance, which also results in the most complex of problems that need to solved [8]. Navigating through these problems successfully will not only send a very strong message with regards to the government's competence, but it will also push organizations to work towards introducing new technical skills for improving service delivery, democratic processes, and capacity building which provide strength and support to the Government policies.

The current era of digital transformation demands that governments around the world adopt e-government solutions to keep up and survive. Governments of developing countries are increasingly moving towards the use of technology to improve service delivery. What has become a norm in the developed world is still a daydream in the developing world. However, these third-world countries are realizing that the benefits of making this evolution lie in better service delivery along with greater transparency and accountability of government functionaries while also helping the government ensure the provision of services at only a fraction of the resources that would be needed if the same services were to be delivered by conventional ways. [9].

- ***Factors involved***

With the advent of time, many developing countries are moving towards e-governance, with a number of them being in their initial stages. How well do they fare in their efforts depends largely on how do their citizens respond to these reform activities that are likely to change the landscape of governance and are considered to be a big step in the field of public service delivery. However, the success of these initiatives will depend on several factors which include the ease of use, its utility, credibility, safety, and its relative advantage. Deakins and Dillon argue that the success of these initiatives depends heavily on the trust factor and how much do citizens trust such initiatives concerning their security and privacy issues [10]. In a survey carried out to measure the extent of the success of e-government initiatives and how well have citizens utilized the platform and have trusted upon it, it was deduced that it's a spiral where the more citizens use such platforms, the more trust they'll be able to build but to start also, they'll need a minimum level of trust with regards to their privacy. This can be worked upon by providing a user interface that the visitors find engaging and gives an authentic look and is easy to use. [11]

How well people adjust and adopt technological advancements varies from culture to culture. The argument that backs this statement is given by Evans and Yen who assert that e-governance should be practiced in a manner that the freedom and integrity of individuals, society, and their cultural heritage is maintained [12]. A study to fare the differences between the adoption of e-government processes in developed and developing countries was conducted, which further endorsed the cultural argument especially in the developing countries where culture plays a significant role in the use of e-government services by the citizens. This argument held especially true in those societies where there was a strong inclination towards religious beliefs, a factor that didn't affect the adoption so much in developed countries. Another study carried out concluded that in cultures where individualism or collectivism is prevalent, its chances of affecting the adoption of IT, and e-government services specifically, are very likely. The authors talk about how in societies with collectivist tendencies, relationships between people are strong and long-lasting and overlap between work, family, and friendship. Thus, as the growing utilization of IT services decreases chances for face-to-face interaction, it can be said that these are to be accepted in a relatively easier manner, being quicker, by individualistic societies as compared to collectivistic societies Chen et al [13].

Baker and Bellordre talk about the lack of awareness about technology and the benefits associated with its use [14]. To convince citizens to put to use the technological advancements, it is necessary to make them understand its value and utility. The lacking of these factors is what acts as a barrier in its usage. This is especially prevalent amongst groups such as old age people, economically unprosperous, people with special abilities, and those belonging to cultures where there exists a practice of resistance in different forms, ranging from political to social. However, with the growing use of online banking in developing countries as well, people seem to be decreasingly resistant towards introducing technology interruptions in their lives, given that it provides benefit to them.

On the contrary, it is argued by Beynon-Davies that awareness about the available online services will not necessarily help with their take-up [15]. An example of this in Pakistan is the service of filing [i]income tax returns online, which has not contributed towards improvement in the filing of tax returns. This is because even though the public is aware of it, they tend to not file their returns and hence keep their incomes hidden due to the issue of making money by illegal means or because of how state authorities selectively target these individuals. The reasons were that these services offered no benefit to the user in return.

In another study in Oman, interviews with private and public sector employees, with regards to the development and adoption of e-government services. It was found that several barriers exist to the take-up of e-government in Oman. These included lacking awareness, domain knowledge of IT, and the motivation to use it. Along with it, the lack of efforts from the suppliers to market their services, and the absence of formal rules contribute towards a lack of trust and confidence by the users, but the culture was observed to have little or no effect. [16].

- ***Measuring E-Government***

Each year, the Department of Economic and Social Affair in the United Nations publishes a survey report which studies the E-government ratings and indexes of all 193 nations recognized by the UN. Metrics have been defined by them for this purpose. The main ranking metric is EDGI (E-Government Development Index) which is a weighted average of 3 main components:

- Telecommunication Infrastructure Index (TII)
- Human Capital Index (HCI)
- Online Service Index (OSI)

TTI is an indicator of the state of the technological infrastructure of a country, calculated using 5 metrics; internet users per 100 citizens, mobile and landlines per 100 citizens, etc.

HCI is calculated using 4 components; Adult literacy rate, expected years of schooling in the country, mean years of schooling, and the gross enrolment ratio of the citizens.

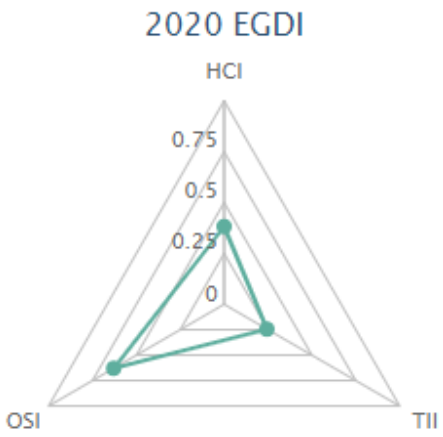

Fig.1. Pakistan's EDGI in 2020

OSI is calculated by 100s of researchers from 60 countries and defines the overall online presence of the country and public services. [17]

- ***E-government Index of Pakistan***

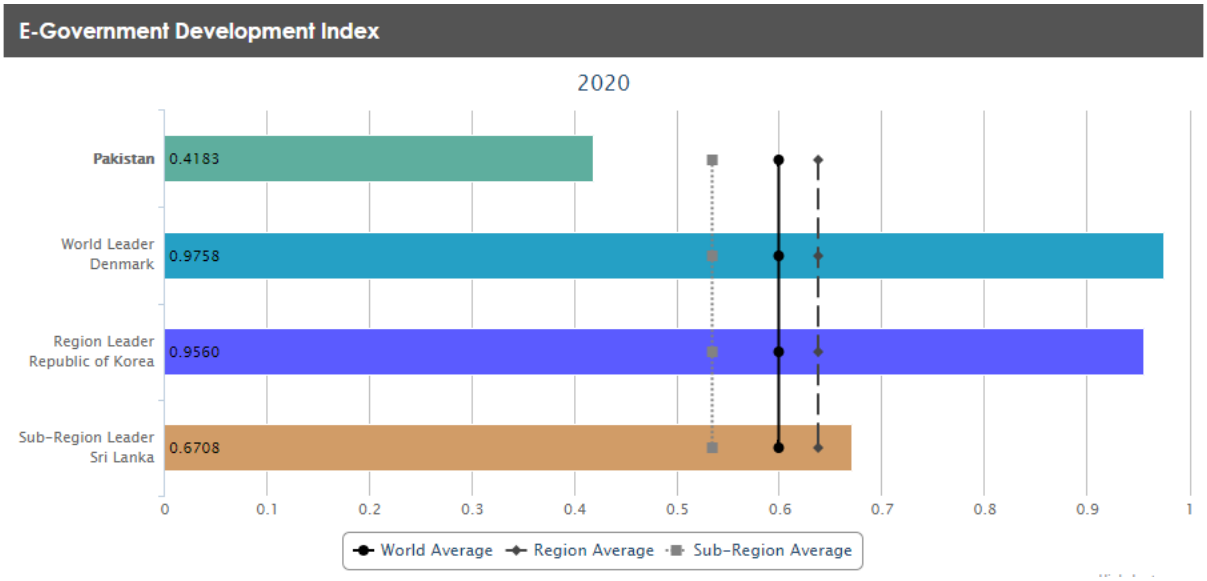

Fig.2. EDGI 2020 - Pakistan in region

Looking at the data from the 2020 UN survey [18] it can be seen that the lowest-scoring component for the country is the Telecommunication Infrastructure Index, which was also validated by the interviews conducted for this survey. Even though the Online Service index of the country is a little more than average because of the recent development of online services in the country, the effectiveness of the services remains a question.

Figure 2 shows the EDGI rating of the country about the world average and the rating of the current leader in the region. It was observed that while Pakistan is progressing in the context of worldwide developing countries, it is far behind in the local region.

Looking at historical data from the un survey, the rating and ranking of Pakistan were calculated since 2003. It was observed that even though visible progress of the country in the year 2020, with EDGI rating jumping to 0.4 after consistently being in the range of 0.2-0.3 for the last 17 years, the worldwide ranking of the country has fallen to 153. This further validates the observation that the country is underperforming in the current years and even after the visible progress it falls behind its peer countries because they are progressing at a rate that is much higher than Pakistan's.

Table 2. Historical EDGI ratings and ranking - Pakistan

Year	Rank	Value
2003	137	0.24749
2004	122	0.30418
2005	136	0.28358
2008	131	0.316
2010	146	0.27547
2012	156	0.28234
2014	158	0.25799
2016	159	0.25832
2018	148	0.3566
2020	153	0.4183
		

The data was collected from the UN E-Government Knowledgebase. [19]
https://publicadministration.un.org/egovkb/en-us/Data-Center

4. Methodology

This section describes the available research methods and justifies the ones chosen for this paper. The section is broken down into various parts starting from the discussion on the aim of the research, the research approach, the research strategy, and the methods used.

- ***Research Purpose***

The paper, through separate research initiatives, sought to identify the e-government implementations or systems that are in place throughout the country and the challenges that the implementing agencies and the users face. The annual UN survey on the e-government [18] is used to show where the country stands currently in the global ranking with metrics that specify the different aspects of e-government. Furthermore, the takeaway from this paper is the recommendations for the implementing agencies and policymakers which are justified by the study done on the available frameworks and guidelines on the strategical implementations of e-government provided by originations worldwide.

The case studies of the countries that have been implementing e-government solutions and strategies based on these frameworks along with the relation of how the GDP of these countries has been affected over these years [20] emphasize the importance of the proposed recommendations. The correlation between real GDP growth to e-Government index can be a solid indicator of how crucial it is to start focusing and investing in e-government right away.

- ***Research Strategy***

All the three main categories of research approaches differ significantly in terms of the purpose of the research, the questions asked and the problem the research is trying to address. We'll look over what the categories are to justify the approach used.

Exploratory research: This research approach is creative, where researchers try to seek insights into the nature of the problem, the possible alternative solutions, and all the variables associated with the problems and the proposed solutions. As the name suggests, it is highly flexible, mostly qualitative and unstructured.

Descriptive research: This type of research is mostly useful for getting deep insights into a problem. They may or may not propose a hypothesis.

Explanatory research: Only useful to show or prove the dependency or correlation of one or more variables to another. It is purely the explanation of some already established cause-and-effect.

The nature of our problem and the literature review makes it obvious that we use exploratory research for this paper. People directly or indirectly involved with the implementation of digital government solutions with basic knowledge of ICT and government policies are interviewed rather than a survey of a random sample of citizens. This will help in exploring the nature of the problem and coming up with solutions better than any other research strategy.

- ***Research Approach***

Common research approaches are quantitative, qualitative, and mixed methods. [21] Which approach to take depends upon the researcher's knowledge of the subject, the type of research problem, and the type of data that is required to be collected; numerical, textual, or both. Going through the definitions of the approaches helped us justify the approach taken for this paper.

Quantitative: When the need is to quantify the data, this type is research is the most useful. It helps to define the relationship and correlation between measured variables with the intent of explaining or predicting. Quantitative research aims to collect and analyze data to derive objective meaning from collected data. "Quantitative researchers seek explanations and predictions that will generate to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to the theory" [22]

Qualitative Research: Qualitative research is mostly useful for exploratory research with a holistic approach which ends in a discovery of a hypothesis. Typically, when the question is complex and collecting simple data cannot truly uncover anything useful, this approach is used. The participants usually describe their point of view and the results are therefore subjective. While there are a lot of methods for qualitative research, [22] recommended the following five methods;

1. Case studies,
2. Grounded theory,
3. Ethnography,
4. Content analysis, and
5. Phenomenological.

[23] described how all these methods cater to research questions of different nature.

Mixed Methods: With this research approach, the researcher combines incorporates different methods of collection and analysis of data from qualitative and quantitative research methodologies in a single research. - [21] The researchers may compile a questionnaire with close-ended questions to gather numerical data while conducting private interviews with open-ended questions to explore the qualitative opinion of the targeted segment.

The qualitative approach was chosen for the sake of this paper, because of the obvious lack of basic understanding of ICT implementations, their impact, and technology in general, in the people.

5. Findings and Discussion

Interviews were conducted with employees working in the provincial governments and the federal government. For a better insight, it was emphasized that the employees be directly related to e-governance reforms in their respective departments. The focus of the interviews was on the issues, challenges, ongoing projects, implemented projects, and the long-term vision and strategy concerning e-governance reforms.

- ***Issues and Challenges***

On questions related to issues and challenges, most of the respondents pointed out that internally, the issues faced were from the lower-level staff who resisted such kind of a change that would force them to move from their conventional methods of work to a more efficient method, largely due to their lack of knowledge regarding its benefits and their lack of ability to put IT equipment to use. This issue can be largely attributed to the low rate of literacy in the country which also has a direct bearing on the skill level of the employees in both the public and the private sector. Not being exposed to an environment that challenges traditional methods of practice, people tend to stick to the norm and hence are unable to adapt to new methods. This also has a lot to do with the lack of provision of education by the state which lacks resources to cater to all of its citizens. Consequently, it is the state that suffers from low levels of productivity and is unable to improve its economic condition, which can be termed as a spiral.

- ***Lack of financial resources***

Moreover, the poor economic condition of people forces people to get involved in illicit means of making money to make ends meet. E-government reforms, if introduced, will reduce human interaction over time and automate business processes. This will lead to reduced levels of bribery at lower tiers of the government, affecting their illicit income, hence making them resist such a move.

Respondents from the federal government pointed out that an e-office system has been introduced in 31 out of 42 ministries by NITB to shift from manual to paperless electronic systems. The system enables the digital tracking of files and the archival and retrieval of files. A major issue faced in the implementation has been the lack of availability of funds to acquire the required infrastructure [24].

- ***Legacy Processes***

Respondents pointed out that even though digital solutions are being implemented countrywide, the business processes that they are mapped on aren't compatible with the digital world. The business processes used in the government sector are legacy and designed for paper-oriented environments and the solutions which are implemented are being mapped on the current processes without any changes in the processes themselves. This leads to inefficiency of the digital workflows and causes hurdles in the adoption and acceptance of the implemented ICT solutions. A major overhaul of the government business processes and a complete digital transformation are necessary for systems to work efficiently.

- ***Culture and Red-Tapeism***

As the famous saying in the digital transformation industry goes, "Culture beats strategy any day.". This is especially true in the public sector. Tedious paperwork and complex procedures are demanded by every government department for the most basic of operations. The current SOPs do no allow any operation to work without these requirements. Every information required for an operation is duplicated in every department and for every new operation because nothing is paperless. This opens up the doors for bribery, inefficiency, and loss of information. Even the government employees who are sincere cannot do anything about it because this is infused deep in all of the bureaucracy and the long line of approvals makes it harder for an operation to complete efficiently. Most of the digital solutions that are implemented fail because the people who use them want them to fail, because the culture demands that processes be a black box for the people outside of the system, and transparency would be an end to red-tapeism and bribery.

- ***Lack of technical monitoring and auditing***

Respondents from almost all the provinces pointed out that the lack of technical measurement and auditing all over the country is a major issue and hurdle in the path of effective implementation of ICT solutions. Most of the ICT projects are developed by private contractors and there is no technical monitoring agency in place to measure the effectiveness and no metrics defined that adhere to the internationally accepted standards of ICT and E-Government implementations.

- ***Lack of Strategy and Policy***

Even though Pakistan's Ministry of Information Technology has published a Digital Pakistan Policy [25], the lack of seriousness of the policymakers, the lack of commitment and understanding of the people in charge, and the people implementing the strategies at the higher level is a serious issue for the country. The country lacks people in higher positions with an understanding of the digital dynamics and the importance of E-Government. This is because of the current bureaucratic structure which weighs years of experience more than technical knowledge and thus higher the post of an officer, most likely it becomes that the officer is from an age when computers were just calculators.

- ***ICT infrastructure issues***

In the ministries where this has been implemented, the respondents reported issues such as that of internet connectivity which causes crashing of files and downloading issues. This prevents the communication and operation from being seamless and causes inefficiencies. Another issue reported is that of duplication of efforts which exists because the processing of files is carried out electronically as well as in hard copy. This decreases efficiency instead of increasing it since greater time is consumed to process files from both modes of communication. In one study, it was pointed out that Pakistan is at 66^{th} place in e-readiness in Asia only. [26]

The respondents further said that this process of electronic filing still hasn't gone beyond intra-department communication. To add to this, e-files cannot be accessed from home by any officer other than the department secretary, who might want immediate processing of the file however due to the lack of access, junior officers would be unable to do so.

To achieve the objective of a paperless government, inter-department communication at all levels of the government is essential. This will also result in the protection of the environment and a decreased import bill since less paper will be required most of which is imported into the country.

A centrally connected and capable network infrastructure is required if the provincial and local governments are needed to work in synergy with one another instead of working in silos, this can be achieved using a universal networking model country-wide. [27]

- ***Benefits***

It was deduced that the benefits can only be reaped if the integration is end-to-end and i.e., it incorporates all the departments. This will lead to reduced usage of paper and eventually, the practice of paperless government will prevail. The decreased usage of paper will not only make the processes more efficient but will also help us from making the environment worse off by cutting trees to produce papers. In the context of Pakistan, the reduced consumption of paper will lead to a fall in our import bill too since the paper in the country is imported.

Moreover, the implementation of e-government will allow for a more rigorous record-keeping, where all files could be saved and none lost. This will allow the government to keep as many records as possible, no matter how old they are. The only task in this would be to purchase space on the cloud which has also become a very common practice lately. The loss of files in the past has also been used to not expose corrupt practices. Once the practice of cloud computing is in place, it is also likely to lead to reduced levels of corruption in the government departments, leading to a lesser burden on the public exchequer and better utilization of funds.

6. Conclusion

For a country like Pakistan, the 21st century has brought with itself not just numerous challenges but several opportunities, too. With the advancement of technology, several opportunities can be found in the area of technology, however, the challenges faced by the country hinder progress in that area. While the research above suggests that the potential for change due to e-governance is massive in Pakistan, where the role of government is vital, the state faces challenges such as lack of funds, lack of awareness, resistance towards usage of technology, legacy systems, and high levels of human involvement which has become so much of a norm that moving away from such practices is resisted by the majority. However, if the move is made, the benefits can be far-reaching, in terms of increased efficiency, lower levels of corruption, reduced human interaction, better service delivery, and a more efficient and transparent system of governance.

It is clear that apart from tackling the issues mentioned in the findings section, A national strategy and policies on the governmental level are mandatory if any implementation needs to be effective and successful. A strategy that incentivizes the use of technology and penalizes the ones who discourage or misuse it. The other most important thing is to adopt an international model like the ones mentioned in this paper or any other that is tried and tested, with a regular audit of the progress using metrics defined by the UN.

At the current pace of the changing digital landscape of the world, if immediate measures are not taken for the rectification of issues identified in this paper, Pakistan will be left behind by miles in the race of digital governance and E-government. Not only that but it is mandatory for the survival of the country given the ongoing cyberwarfare [28]. More political will and organizational commitment are required at every layer, hard decisions have to be made if Pakistan is to stand at international forums and before the agencies responsible for public service delivery collapse completely.

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