Policymakers' perspective about e-Government success using AHP approach

Policy implications towards entrenching Good Governance in Pakistan

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Abstract

Purpose – The e-Government has a potential to entrench Good Governance in Pakistan. However, this technology could not be successfully developed and implemented in public sector – despite of efforts made by the Government. Consequently, public sector is suffering from bad Governance, which ultimately affects the Governance as well as e-Government ranking of Pakistan in the globe – as indicated by the UN surveys and other relevant indices. This paper aims to propose a novel techno-policy framework for its successful implementation by considering all relevant critical success factors (CSFs) and determining their relative importance from policymakers' perspective. Further, it aims to excerpt the root causes of e-Government failure in Pakistan and to derive valuable policy implications for its success in the public sector.

Design/methodology/approach – The techno-policy framework was developed by identifying all the CSFs and assimilating them by deploying the analytic hierarchy process (AHP) approach. The survey instrument was designed to compare all the CSFs on the basis of AHP scale and to collect the socio-demographic data. An interview based survey of all the concerned stakeholders was conducted to know their perspective about the proposed framework and to determine their relative importance about all the CSFs. Finally, the empirical estimations were performed by using the Expert-Choice decision-making system.

Findings – The analysis of empirical results depicts that among CSFs' main-categories – *Governance* is the most important; whereas, the *Management* and *Resources* are relatively more important; however, the *Socio-Economics* is relatively less important for the e-Government success in Pakistan. Further, among CSFs' sub-categories – *Political, Managerial, Legislative, Non-Technical*, and *Technical* are relatively more important than *Social, Economic*, and *Scope* for the e-Government success in Pakistan. Lastly, among all CSFs – *Political Stability, Managerial Strategy, ICT Policies, Funding, Portal Technology, Education & Skills, Cost*, and *Autonomy* are the most important factors of their respective categories, and which can positively affect the e-Government success in Pakistan.

Research limitations/implications – This study fills the gap caused by paucity of literature in terms of empirical based techno-policy research in the e-Government domain – from implementation perspective. Further, it serves as a prototype for the prospective researchers, who aim to conduct policy oriented research toward e-Government development in their respective regions.

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Practical implications – The key findings, policy implications & recommendations of this study are quite valuable and of practical significance for the government, policymakers, practitioners, researchers and all the concerned stakeholders and beneficiaries. Further, this study paves a way forward toward entrenching the Good Governance in Pakistan.

Originality/value – This study contributes in several ways. It highlights the significance of e-Government as a technology for attaining Good Governance in Pakistan. Further, it presents consolidated view of all the concerned stakeholders toward the successful implementation of all e-Government programs in Pakistan. Finally, it provides a guideline for the government agencies to formulate their e-Government policy and strategy as per the needs of all stakeholders in Pakistan.

Keywords Governance, e-Government, Good Governance, IT Management, IT Policy

Paper type Research paper

1. Introduction

Pakistan is a sovereign state in the South Asia that got an independence from the British-India rule on August 14, 1947. However, since inception, it is suffering from bad Governance – mainly due to political, economic, legislative, bureaucratic and security issues. Besides, being a lower-middle income developing country, it still needs to seek the support of international development organizations to execute its development projects including the ICT4D as well as the e-Government projects (Hassan, 2016).

However, nowadays, all the international donors are basing their support to Pakistan subject to attain the Good Governance in the public sector. Thus, it becomes mandatory for the Government of Pakistan (GOP) to devise policy and adopt mechanism for establishing the Good Governance in the public sector (Hassan and Lee, 2015).

With the advancement and innovation in technology, it becomes imperative to use the information and communication technologies (ICTs) in the public sector – as they proved excellence in the corporate and private sector. In this regard, e-Government that uses ICTs is now being recognized as a potent technology to attain the Good Governance in the public sector (Ali and Mujahid, 2015). Keeping so, the GOP also undertook several key initiatives to promote the e-Government in Pakistan – as summarized in the Table I.

However, despite of such key initiatives, the e-Government programs could not be successfully implemented in Pakistan. Consequently, the e-Government ranking of Pakistan kept on declining and finally stood at 159th position. Nevertheless, it is quite low even from its own ranking in the preceding years as well as with respect to its neighboring countries i.e., China (63rd), Iran (106th) and India (107th) (UNPAN, 2016). The e-Government ranking and the e-Government development index (EGDI) of Pakistan from 2005 to 2016 with respect to the global leader, its neighboring countries, and other countries in South Asia is given in the Table II.

As we can see that the e-Government ranking of Pakistan was on 136th position in 2005, which was then raised to 131st position in 2008 – a slight improvement. However, it was dropped to 146th position in 2010 – a severe decline. In 2012, it was again dropped to 156th position – a major decline. In 2014, it was again dropped to 158th position, and recently, it stood on 159th position in 2016. This overall declining position of the e-Government sector in Pakistan is quite alarming for the GOP, policymakers, practitioners, and all concerned stakeholders. Therefore, this matter needs due attention and further investigation.

As far as the scholastic contribution is concerned toward the e-Government development in Pakistan, we experienced a great paucity of literature on the variety of related aspects – as we discussed below:

Date	Initiative	Aim & Agenda	Reference
August, 2000	Launched National IT Policy & Action Plan	To have policy for legal, financial and operational matters of IT sector Covers infrastructure, capacity building, e-Government development, software exports, and legislation	(MOST, 2000)
October, 2002	Established e-Government Directorate (EGD)	To manage e-Government projects for ministries and departments Covers planning, development and implementation of e-Government	(MOIT, 2002)
May, 2005	Devised National e-Government Strategy	To have e-Government strategy and action plan for next five years Covers infrastructure, networking, and e-Government services for all citizens	(EGD, 2005)
December, 2009	Devised National e-Government Standards	To have standard procedure for e-Government development Covers interoperability, data standards and technical vocabulary	(EGD, 2009)
July, 2012	Revised National IT Policy & Action Plan	To have updated policy with emerging economy and industrial theme Covers education, agriculture, health, governance, infrastructure, emerging technologies and social media	(MOIT, 2012a)
July, 2012	Revised National e-Government Strategy	To have updated e-Government strategy and plan for next three years Covers planning, capacity building and citizens-centric applications	(EGD, 2012)
October, 2012	Collaboration between EGD and PCB	To initiate the EGD and PCB's collaboration on e-Government projects Covers policies, expertise and resource sharing of both organizations	(MOIT, 2012b)
May, 2014	Organized e-Office Forum	To share Government officials' usage experience about e-Government To discuss policy matters and facilitate inter agencies coordination	(MOITT, 2014a)
August, 2014	Established National IT Board (NITB)	Initiated by merging PCB and EGD to expedite e-Government development Covers technical support, trainings, and benchmarking of e-Government	(NITB, 2014)
September, 2014	Signed MoU with NIPA and ITU	To collaborate with NIPA and ITU on e-Government projects Covers new e-Government master plan and strategy for e-Government services	(MOITT, 2014b)
December, 2014	Organized Workshop on e-Government for Good Governance	To encourage Government officials to use e-Government applications To foster e-Government adoption for establishing Good Governance	(UNAPCICT, 2014)

Table I.
e-Government initiatives in Pakistan

Since the inception of e-Government, very few scholars could highlight its essence for Pakistan. It was probably Mujahid (2002), who initially reported the key opportunities of digital era and shed some light on the e-Government in Pakistan. Later on, Arfeen (2004) elaborated the impact of e-Government on the socio-economic development of Pakistan – using SWOT analysis. Similarly, Mahmood (2005) explained the role of e-Government in

Group	Country	2005	2008	2010	2012	2014	2016	$EGDI_{2016}$	$EGDI\ level_{2016}$
1	South Korea	5	6	1	1	1	3	0.8915	Very high
2	China	57	65	72	78	70	63	0.6071	Medium
	Iran	98	108	102	100	105	106	0.4649	Medium
	India	87	113	119	125	118	107	0.4637	Medium
	Pakistan	*136*	*131*	*146*	*156*	*158*	*159*	*0.2583*	*Medium*
	Afghanistan	168	167	168	184	173	171	0.2313	Low
3	Sri Lanka	94	101	111	115	74	79	0.5445	High
	Maldives	77	95	92	95	94	117	0.4330	Medium
	Bangladesh	162	142	134	150	148	124	0.3799	Medium
	Bhutan	130	134	152	152	143	133	0.3506	Medium
	Nepal	126	150	153	164	165	135	0.3458	Medium

Notes: 1: Global leader, 2: neighboring countries, 3: other countries in South Asia
Source: UN e-Government surveys 2005 ~ 2016

Table II.
e-Government global ranking (Pakistan vs other countries)

delivering the public services. However, no scholar could relate the e-Government with the Good Governance and development of Pakistan. This study elaborates the potential of e-Government to overcome the bad Governance in Pakistan and ensure the support of international agencies for its development projects.

Similarly, very few researchers could promote the e-Government for establishing the Good Governance in Pakistan. Sarfaraz (2007) emphasized that e-Government can be used to achieve the Good Governance in Pakistan. Finally, Ali and Mujahid (2015) claimed that e-Government can be used to attain the Good Governance in Pakistan. However, they could not support their claim with any analysis. This study promotes the e-Government as a technology to establish the Good Governance in the public sector – by analyzing various case studies of several other developing countries.

Likewise, very few scholars could propose their frameworks for the implementation of e-Government in Pakistan. For instance, Afsar *et al.* (2005) proposed the framework for reinventing e-Government at municipal level. Farooq *et al.* (2006) proposed framework for decentralized e-Government. Finally, Kamal *et al.* (2013) proposed architecture for integrated e-Government at local government. However, the scope of all these studies was limited to the local government. This research study proposes a novel techno-policy framework for the e-Government implementation at national level.

Further, very few researchers could identify the CSFs for the e-Government success in Pakistan. For instance, Mohamed (2017) and Arfeen *et al.* (2017) claim that political-centric factors are very much important, whereas Memon and Awan (2017) and Siddique (2016) emphasize that legislative-centric factors are important for the e-Government success in Pakistan. Similarly, Al-Hujran *et al.* (2015), Elkadi (2013) and Khan *et al.* (2014) believe that managerial-centric factors are very important, whereas Rashid *et al.* (2017) and Islam *et al.* (2017) think that scope-centric factors are more important for the e-Government success in Pakistan. Similarly, Rehman (2016) and Memon and Awan (2017) debate that technical-centric factors are more important, whereas Abbas *et al.* (2017), Siddique (2016) and Haider *et al.* (2016) are of view that non-technical-centric factors are important for the e-Government success in Pakistan. Finally, Rana *et al.* (2013), Kundi *et al.* (2014) and Rehman *et al.* (2016) discuss that socio-centric factors are more important, whereas Ahmad *et al.* (2014), Osman *et al.* (2014) and Malik *et al.* (2016) state that economic-centric factors are important for the e-Government success in Pakistan. However, no study could present all the CSFs in a single

research study. This study presents the comprehensive list of all the context-centric CSFs that could positively affect the e-Government success in Pakistan.

Finally, no research study could present the multi-stakeholders' perspective toward the e-Government success in Pakistan by using advanced methodologies. For instance, Qaisar and Khan (2010) investigated the perspective of ICT officials toward the e-Government implementation in Pakistan. However, they used case study approach and the scope of their study was limited to few organizations. Further, Arfeen and Kamal (2014) investigated the government officials' perspective towards the e-Government implementation in Balochistan. However, they also used case study approach and scope of their study was limited to single province and stakeholder. This research study determines the perspective of all the potential stakeholders at national and international level, who are actively contributing toward the e-Government development in Pakistan.

Hence, keeping in view an overall deteriorating position of the e-Government sector in Pakistan and by considering the paucity of literature toward the e-Government development in Pakistan – we conducted this policy study to achieve the following research goals:

- to analyze and promote the e-Government as potent technology for entrenching the Good Governance in Pakistan;
- to propose the techno-policy framework for the e-Government success in Pakistan – by considering all the context-centric CSFs and AHP approach;
- to determine the multi-stakeholders' perspective about the proposed framework and the relative importance of all the CSFs; and
- to excerpt the root causes of the e-Government failure in Pakistan and to derive valuable policy implications for its successful implementation in Pakistan.

The rest of paper is organized as – Section 2 presents the review of related work. Section 3 explains the proposed framework. Section 4 illustrates the methodology. Section 5 presents the empirical results & discussion. Section 6 discusses our key findings, policy implications and recommendations. Finally, Section 7 presents the conclusion and future work.

2. Literature review

2.1 Governance

The concept of "Governance" is perhaps as old as human civilization. It can be viewed as corporate Governance, local Governance, national Governance or international Governance (UNESCAP, 2006). The World Bank defines it as exercise of power to manage country's economic and social resources for the development (World Bank, 1992). The UN considers it as exercise of economic, political and administrative authority to manage the state affairs (UNDP, 1997). The OECD treats it as exercise of political, economic and administrative power to handle the nation affairs (OECD, 1995).

Similarly, Kaufmann *et al.* (2000) describe it as traditions and institutions through which authority is exercised. Hufty (2011) treats it as decision-making process among actors that are involved in some collective issue. Bevir (2012) defines it as way of governing by the government, market or network over the tribe, organization or territory using certain laws, norms or language. Finally, Fukuyama (2013) perceives it as ability to enforce the laws and deliver the public services.

2.2 Good Governance

This concept was initially presented by the World Bank that termed the economic crisis in Africa as the crisis of Governance (World Bank, 1989). Later on, this notion received the

increased importance, when the international development agencies realized its absence as a serious barrier for the socio-economic growth of the developing countries. In general, the research on the Good Governance done by the World Bank and other development banks addresses the financial institutions and public sector management, whereas the UN, OECD and European Commission discuss the democratic Governance and human rights.

The World Bank recognizes the Good Governance through an open and rational policy making (World Bank, 1994), whereas the UN characterizes it through the participatory, transparent and equitable Governance (UNDP, 1997). Finally, the OECD identifies it through an environment supporting the socio-economic development (OECD, 1995).

2.3 *e-Government*

The term "e-Government" is short for electronic government. However, digital government, internet government, online government or connected government has been also found and synonymously used in literature (Grönlund, 2004).

The UN defines the e-Government as the utilization of internet and world-wide-web for delivering the government information and public services to the citizens (UNPAN, 2001). The World Bank treats it as the use of ICTs to improve the efficiency, transparency and accountability of the government (World Bank, 2002). The OECD considers it as the use of ICTs, particularly the internet as a tool to achieve better government (OECD, 2003). Finally, the ITU defines it as a transmission of government services to the citizens through new organizational processes and technological trends (ITU, 2008).

Similarly, Layne and Lee (2001) define e-Government as the use of internet to deliver information and services to the citizens, businesses and government. Similarly, Heeks (2003) considers it as use of ICTs to improve governance in public sector. Finally, Hassan (2016) defines it as a platform to attain the Good Governance by using the ICTs.

2.4 e-Government – as technology for Good Governance

Upon comparing all the anticipated benefits of e-Government – as recognized by the eminent scholars and characteristics of Good Governance – as identified by the international agencies; we can easily conclude that e-Government can be used as a potent technology to establish the Good Governance in Pakistan. For instance, the UNPOG considers that e-Government is way toward Good Governance and can play role in achieving several domestic as well as global policy objectives (UNPOG, 2014). The ITU also supports e-Government and persuades the developing countries to adopt this technology for improving their Governance (ITU, 2008). Similarly, Heeks (2003) explains how the e-Government can contribute in achieving the main pillars of Good Governance. Magno and Serafica (2001) elaborate the role of e-Government in establishing the Good Governance in Philippines. Yong and Koon (2003) illustrate how the e-Government can affect – the public services, organizational setting as well as the social norms and political system.

Saidi and Yared (2003) clarify that e-Government is a technology for establishing the democracy in the Middle East and North Africa (MENA). The study by Von-Haldenwang (2004) explains that e-Government and Good Governance are inter-related as both share same aim and objectives. Ciborra and Navarra (2005) blame bad Governance as a root cause of under-development in Jordon. The research study by Ahiabenu (2014) illustrates – how e-Government can eliminate the corruption and bribe in Africa. Kettani and Moulin (2014) explain the motivation behind the e-Fez project and how it improves the Governance at Morocco. Alaaraj and Ibrahim (2014) emphasize that empowering employees through the e-Government can promote trustworthy behavior and transparency. Sarfaraz (2007) states how e-Government can digitize the government affairs in Pakistan. Ali and Mujahid (2015)

analyze the e-Government development in Pakistan and appeal for its promotion from the government and citizens. Finally, Hassan and Lee (2015) emphasize that attaining Good Governance is quite critical for Pakistan to secure the international partners support for its development projects and e-Government can be positively considered in this regard.

2.5 e-Government – critical success factors

After conducting our preliminary literature review on e-Government issues in Pakistan as well as in its neighboring and other developing countries – we found that the successful implementation of e-Government in developing countries is not so easy as it seems, rather it is affected by several factors that are literary known as critical success factors (CSFs). Therefore, in order to determine all the CSFs that could potentially affect the successful implementation of e-Government programs in Pakistan; we re-conducted our required literature review through following phases:

- *First*, we searched our desired literature from all the key bibliographic databases, that mainly include – ISI Web of Science, Science Direct, Emerald Insight, Scopus, ProQuest, EBSCO, IEEE Xplore and ACM Digital Library. During our search, we used relevant keywords and phrases, i.e. "*e-Government*," "*Success*," "*Factors*" and "*Critical Success Factors*" – with all possible permutations, combinations and logical operators.
- *Second*, we explored all the key journals of e-Government, that mainly include – *Government Information Quarterly*; *Transforming Government: People, Process, and Policy*; *Electronic Government: an International Journal*; *The Electronic Journal of e-Government*; and *Journal of e-Government Studies and Best Practices*.
- *Third*, we analyzed key empirical studies of open access journals and conferences.
- *Finally*, we short listed all CSFs and classified them into following four main-categories.

2.5.1 Governance-centric factors. From governing aspect, the e-Government implementation in Pakistan is affected by various Governance-centric factors that are broadly classified into political and legislative factors. The former represent the government's role and support in promoting the e-Government; whereas, the latter indicate the government's policies and legislation in implementing the e-Government. However, the political-factors are affected by the political stability, leadership role and support, and leadership strategy; whereas, the legal-factors are affected by the ICT policies, legal framework, and regulatory framework – as explained below:

2.5.1.1 Political stability. The instability of political environment remains challenge for every government in Pakistan. Frequent changes in government badly affect the national policies and projects. Besides, the political instability distracts the international support for development projects (Kamal *et al.*, 2013; Rehman *et al.*, 2012; Haider *et al.*, 2016).

2.5.1.2 Leadership role and support. Leadership role is important for the e-Government development. The UN surveys indicate that e-Government flourished in Pakistan during 2000-2008 as it received strong support by the then leaderships (UNPAN, 2001-2008). However, it suffered during the subsequent governments' tenure (UNPAN, 2010-2016).

2.5.1.3 Leadership strategy. Leadership strategy is critical for e-Government promotion. The UN surveys indicate that the e-Government ranking of Pakistan was relatively better during 2005-2008 due to its better strategies (UNPAN, 2005-2008). However, it then declined due to inadequate strategies adopted by the then governments (Arfeen *et al.*, 2017).

2.5.1.4 ICT policies. The appropriate policies are critical for the growth of ICT sector and attract international support for the ICT4D and e-Government projects. The GOP devised

several IT policies, strategies and action plans; however, no version could be successfully implemented so far (Arfeen *et al.*, 2017; Siddique, 2016).

2.5.1.5 Legal framework. The legal environment facilitates the ICT led development. Therefore, developing countries do require an appropriate legal framework to provide the necessary legislation for the e-Government development and adoption in the public sector (Memon and Awan, 2017; Kundi *et al.*, 2014; Munir, 2010).

2.5.1.6 Regulatory framework. The regulatory framework benchmarks the ICT led innovation (WEF, 2017). Further, it provides enabling environment for the e-Government development (Siddique, 2016). However, the quality of regulatory framework also matters for the advancement and sophistication of e-Government services (UNPAN, 2010).

2.5.2 Management-centric factors. From the managerial aspect, the implementation of e-Government in Pakistan is affected by several managerial-centric factors that are broadly classified into managerial and scope factors. The former signify top-management support to promote the e-Government, whereas, the latter define organizational privileges to manage it smoothly. However, the managerial-factors are affected by the Top-Management Support, Managerial Strategy, and Collaboration; whereas, the scope-factors are affected by the Region, Structure, and Autonomy – as elaborated below:

2.5.2.1 Top-Management Support. The top-management support positively affects the e-Government implementation in an organization. It can range from simple participation to full cooperation and provision of required resources to execute the e-Government projects. It encourages the employees of an organization to adopt the e-Government applications and services (Wang and Lo, 2016).

2.5.2.2 Managerial Strategy. The national ICT policies and strategies only provide the guideline at macro level. Therefore, every organization needs to develop its own managerial strategy to accommodate the change management brought by the technology. This could be change in policy, process or culture (Lin *et al.*, 2017; Shah *et al.*, 2011).

2.5.2.3 Collaboration. The collaboration between government agencies and stakeholders stimulates fertilization of ideas, solutions and knowledge. Further, it helps organizations to share their policies, expertise and infrastructure. Therefore, it is a key for the promotion of e-Government in the public sector (Wirtz *et al.*, 2017; Khan *et al.*, 2014; Elkadi, 2013).

2.5.2.4 Region. The e-Government development needs serious commitment at all levels. However, national level plans may not simply work well for sub-regions – as each region has its own peculiarities, needs and priorities. The economic conditions, infrastructure and expertise are better in the urban areas but not in rural areas. Therefore, government needs to consider such aspects into consideration before launching the e-Government projects in the sub-regions (Rashid *et al.*, 2017; Wirtz *et al.*, 2017).

2.5.2.5 Structure. The structure of an organization affects the level of participation as well as the decision-making process of the e-Government implementation within the organization. Few scholars prefer the centralized, while others recommend decentralized decision-making structure to foster the e-Government adoption within the organization (Islam *et al.*, 2017; Wang and Lo, 2016; Elkadi, 2013).

2.5.2.6 Autonomy. Every organization has its own statutes and authority. Therefore, it can only handle the e-Government initiatives that lie under its jurisdiction. Likewise, it is only responsible for the internal readiness toward the e-Government adoption, but cannot be held responsible for the infrastructure and citizens-centric issues (Aladwani, 2016; Elkadi, 2013).

2.5.3 Resource-centric factors. From the resourcing aspect, the implementation of e-Government in Pakistan is affected by various resource-centric factors that are broadly classified into technical and non-technical factors. The former represent the technologies

used in developing e-Government projects, whereas the latter include resources deployed in implementing e-Government. However, technical-factors are affected by Portal Technology, Telecom Technology, and Security & Privacy; whereas, non-technical-factors are affected by Funding, Expertise, and Training – as described below:

2.5.3.1 Portal Technology. The quality of e-services depends on underlying technologies used by the e-Government portal. If they meet citizens' needs, then they are easily adopted, else merely diffused in the society. In begging, the e-Government was meant to just publish government information. However, now it is critical for the government to offer advanced services to facilitate all the beneficiaries (Rehman *et al.*, 2016; Sharma, 2015).

2.5.3.2 Telecom Technology. The efficacy of the e-Government depends on the quality of telecom network and services in a country. Thus, it is necessary for the e-Government agencies to first evaluate the telecom network and services with respect to their coverage, quality, price and then offer e-services accordingly (Muthu *et al.*, 2016; Zhao *et al.*, 2014).

2.5.3.3 Security & Privacy. The e-Government needs strong security policy, procedure and mechanism to build the citizens trust in confidently using the e-services. The policy defines an overall well being of the information assets, while procedure reduces the risk by advocating the end users to protect their information against illegitimate disclosure, and mechanism protects the sensitive information through encryption techniques (Memon and Awan, 2017; Shahid, 2016).

2.5.3.4 Funding. Normally, e-Government projects spawn over many years and involve hiring professionals, purchasing technology, installing infrastructure – and this all need huge funding. However, it is very difficult for e-Government agencies to get required funding from the federal government. Besides, government releases funds in installments and after evaluating stage-wise progress of each project (Abbas *et al.*, 2017; Haider *et al.*, 2016; Seo and Hasan, 2015).

2.5.3.5 Expertise. The role of expertise is not only limited to the development phase of e-Government, but also required throughout its life cycle. The successful completion of e-Government projects requires qualified, skilled and experienced professionals. However, it is still challenge for public sector to find relevant expertise and then retain it on long-term basis (Siddique, 2016; Haider *et al.*, 2016; Arfeen and Kamal, 2014).

2.5.3.6 Training. The e-Government services are technical in nature. Therefore, training is crucial to facilitate the end users in understaning and using the services. For government, it can foster the adoption of e-Government services in the public sector. For citizens, it can facilitate the diffusion of e-Government services in the society (Abbas *et al.*, 2017; Haider *et al.*, 2016; Rana *et al.*, 2013).

2.5.4 Socio-economic-centric factors. From the socio-economic aspect, the e-Government implementation in Pakistan is affected by several socio-economic factors that are broadly classified into several social and economic factors. The former signify the readiness and accessibility of citizens toward the e-Government services; whereas, the latter signify their affordability and expected benefits. However, the social-factors are affected by the Digital Divide, Education & Skills, and Trust; whereas, the economic-factors are affected by the Income, Cost, and Benefits – as explained below:

2.5.4.1 Digital Divide. It represents the digital gap in the society. It is also termed as digital poverty or information poverty and reflects the lack of access to the ICT resources. For developing countries, it can cause social inequality and becomes an obstacle for the e-Government development (Gupta *et al.*, 2017; Zhao *et al.*, 2014).

2.5.4.2 Education & Skills. Since the e-Government services are technical in nature. Therefore, citizens need to have certain level of education & skills. This may include basic know how about ICTs and practical skills on e-services. However, awareness

about new technologies, softwares and security & privacy issues would be highly beneficial for the citizens, while using the advanced services (Abbas *et al.*, 2017).

2.5.4.3 Trust. Trust is a psychological trait that plays an important role in satisfying the citizens to overcome risks, while using the e-Government services. It makes them more confident in sharing their personal credentials, doing online transactions, and perform similar operations (Rehman *et al.*, 2016; Rana *et al.*, 2013).

2.5.4.4 Income. It refers to the average income of a household and reflects the citizens' capacity to adopt the e-Government services. Some scholars found empirically that income has significant effect on the adoption of e-Government; whereas, other scholars found that the development of e-Government is relatively better in countries with higher income (Haider *et al.*, 2016; Seo and Hasan, 2015; Akman and Mishra, 2010).

2.5.4.5 Cost. The main idea behind adopting the e-Government in the public sector is to improve its Governance and reduce the operational cost. By adopting the e-Government, government agencies gain the economy of scale and become capable to offer the subsidized services to its citizens (Aladwani, 2016; Osman *et al.*, 2014).

2.5.4.6 Benefits. The e-Government can bring enormous benefits for everyone. For the government, it hosts its online presence, automates its offices, improves its efficiency and minimizes its operational cost. For the citizens, it provides online information about the government agencies and e-services, thus saving their cost, time, and efforts (Malik *et al.*, 2016; Azam *et al.*, 2013).

3. Proposed framework

In this paper, we proposed a novel techno-policy framework for the e-Government success in Pakistan – as illustrated in the Figure 1.

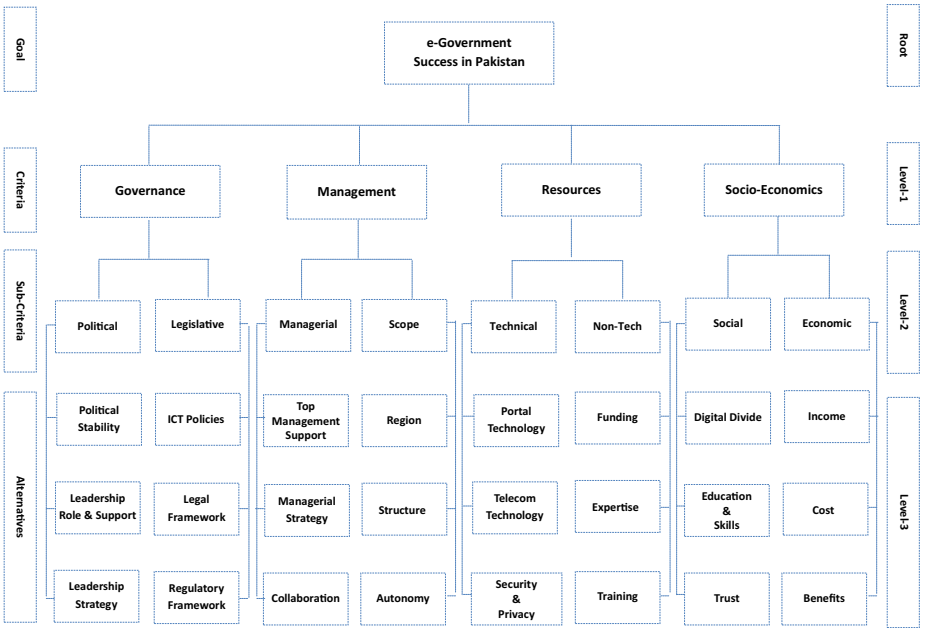

Figure 1.
Proposed framework for e-Government success in Pakistan – using CSFs and AHP approach

In the figure, the root represents the main-goal of our study. Level 1 represents the main-criteria of our study, which affects the main-goal and mainly includes the CSFs main-categories, i.e. Governance, Management, Resources, and Socio-Economics. Level 2 represents the sub-criteria, which affect its corresponding main-criteria and consists of the CSFs sub-categories, i.e. political and legislative, which affect the Governance; managerial and scope, which affect the management; technical and non-technical, which affect the resources; and social and economic, which affect the socio-economics CSFs main category. Level 3 represents the alternatives, which affect the corresponding sub-criteria and include the CSFs, i.e. political stability, leadership role and support and leadership strategy, which affect the political; ICT policies, legal framework and regulatory framework, which affect the legislative; top management support, managerial strategy and collaboration, which affect the managerial; region, structure and autonomy, which affect the scope; portal technology, telecom technology and security and privacy, which affect the technical; funding, expertise, and training, which affect the non-technical; digital divide, education and skills and trust, which affect the social; and finally, income, cost, and benefits, which affect the economic CSFs sub-category respectively.

4. Methodology

4.1 Rational for using AHP approach

In our daily life, normally, we take decision about any matter– after considering several factors (or criteria) that may affect our decision and then evaluate them based on our knowledge and experience. This refers to the multiple-criteria decision-making or decision-analysis (MCDA) problem – that is a sub-domain of *Operations Research* (Mendoza and Martins, 2006). The MCDA is a broader term to denote the collection of approaches, e.g. *MAUT, Electre, AHP* (Belton and Stewart, 2002). However, among all, the AHP approach is widely considered and used by sensible decision makers, due to its ability to resolve multi-criteria decision-making problem in thousands of diverse applications (Saaty, 1994).

In most of the organizations, the decisions are made collectively towards common goal by considering certain criteria. However, sometimes, it becomes very challenging to develop consensus among all the group members or for all the group members to meet at one place and time. Under such scenario, the AHP approach is quite suitable for taking group level decision-making (Dyer and Forman, 1992).

This approach was primarily developed by Saaty in 1970s to solve the multi-criteria decision-making problems that involve the matter of choice or prioritization (Saaty, 1980). It is based on the general theory of measurement and works on a principle that to make any decision; the experience and knowledge (*psychological trait*) of experts is at least as much important as the data (*physical trait*) they use for the group decision-making (Vargas, 1990). However, the important task in making decision is to first choose the factors affecting that decision. In the AHP approach, the factors, once selected are set into a hierarchical structure, descending from goal to criteria, sub-criteria and alternatives (Saaty, 1990).

This approach is found very useful in several domains such as defense, government, business, engineering and social sciences, in which the decision-making problem involves the matter of choice, prioritization or forecasting (Bhushan and Rai, 2004). The advancement in this approach has embraced several practitioners and researchers to apply this technique in solving complex decision problems in areas like resource allocation, conflict resolution, strategic planning, forecasting, public policy, and health care (Shahin and Mahbod, 2007).

Since many years, this approach has been used in the leading schools of public policy, management, and engineering. Further, it has been discussed by the mainstream textbooks

of the *Operations Research* and considered in the popular decision-making softwares such as *Expert-Choice*, *Super-Decisions* and *Make-it Rational*.

4.2 Estimation procedure

The estimation procedure of AHP approach is illustrated in the Figure 2. For further details and mathematical derivations, the reader is referred to follow Saaty (1980, 1990, and 1994).

4.3 Instrument design

The survey instrument contains the following key sections:

- Covering letter: An official letter was endorsed through the worthy Dean for all the concerned stakeholders to enlighten an overall essence and significance of this empirical study – with request to complete a survey.
- Proposed framework: This section illustrates our proposed framework developed for the e-Government success in Pakistan – by showing our main goal, criteria, sub-criteria and alternatives in a hierarchical fashion.
- Pair-wise comparison: This section contains questions with scale in order to perform the pairwise comparison of all the CSFs on a AHP scale.
- e-Government access and usage information: This section contains questions about the access and usage information of e-Government portal and services.
- Demographics and personal information: This section contains questions about the socio-demographic and personal information of a respondent.

4.4 Instrument validity

To check the validity of our survey instrument, we conducted the pilot survey online – by interviewing few key officials, who were managing the e-Government programs. After obtaining positive feedback about our proposed framework, useful suggestions about the questionnaire and significant estimation results (i.e. CR $<$ 10 per cent) – we finalized our survey instrument for the main survey. Saaty (1980) recommends that if CR $\leq$ 0.10, then the judgment obtained from the survey instrument is consistent and reliable, else it needs to be reviewed by the concerned respondent.

4.5 Respondents

The selection of concerned respondents for our main survey was really a crucial task. Therefore, first we reviewed several relevant studies that addressed the e-Government implementation issues in Pakistan and its neighboring and other developing countries. Then, we discussed our case with the key policymakers, practitioners and researchers. This helped us significantly to short-list all the potential stakeholders, who are contributing toward the e-Government development in Pakistan. Finally, we classified them into four groups – keeping their role and responsibility as shown in the Table III.

4.6 Descriptive statistics

After obtaining consistent results from our online pilot survey, we conducted our main survey offline – by surveying more than 50 key officials of 37 different organizations. Our approach follows the best practices of American Association for Public Opinion Research (AAPOR) that recommends interview based survey for having the high response rate and accurate judgments (AAPOR, 2015). The descriptive statistics of our main survey is given in the Table IV.

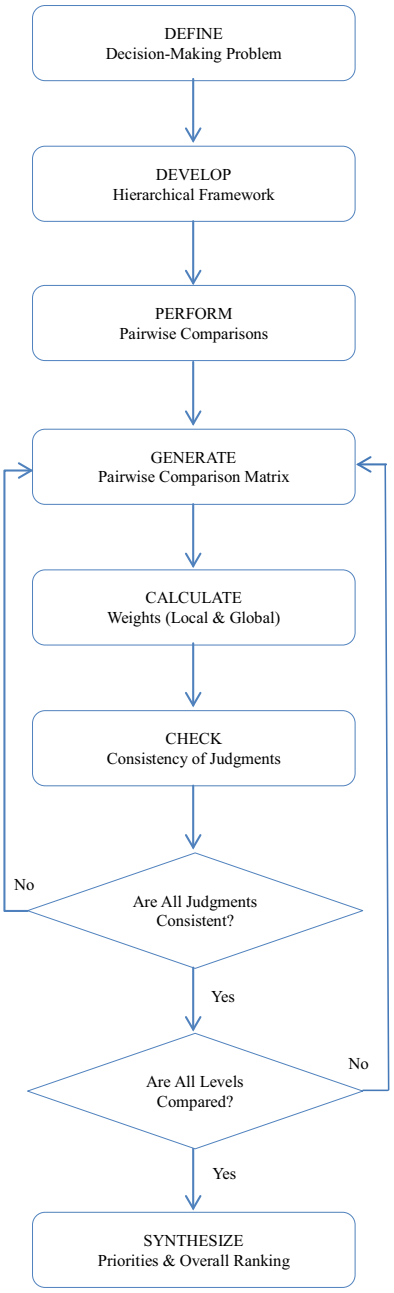

Figure 2.
AHP approach estimation procedure adopted from Saaty (1980)

5. Empirical results & discussion

To estimate the relative importance of all the CSFs; first, we modeled our framework in the Expert-Choice decision-making system – as shown in the Figure 3.

Then, we created an instance of all the groups and entered the judgments of all participants of each group. However, to consider any judgment to be reliable; first, we calculated its consistency ratio (CR) – as recommended by Saaty (1980). In some cases, where CR > 0.10, we requested the participants to revisit their judgments. Next, we computed the aggregated estimate of all the groups and compared their CSFs' weights.

Upon analysis, we observed that the CSFs weights are bit different across all the groups; however, their overall rank was same across all the groups. Hence, we computed an overall aggregate of all the groups, by calculating weighted arithmetic mean; as the number of

Table III.
Survey respondents

No	Stakeholders	Affiliation	Role and responsibility
Groups			
1	National IT Promotion Agency (NIPA)	Govt. of South Korea	Consultation Agency
2	National IT Board (NITB)	Govt. of Pakistan	Implementation Agency
3	Federal Ministries (Ministries)	Govt. of Pakistan	User Agency
4	Higher Education Institutes (HEIs)	Govt. of Pakistan	Promotion Agency

Table IV.
Descriptive statistics

SD-variable	Category	(%)
Gender	Male	97.36
	Female	2.63
Age	18-30	21.05
	31-40	63.15
	41-50	13.15
	>50	2.63
Education	Bachelor	5.26
	Master	86.85
	Doctorate	7.89
Occupation	Advisor	2.63
(Executives: 23.68%)	Professor	5.26
(ICT Officials: 76.32%)	Director	7.89
	Assistant Director	7.89
	IT Manager	2.63
	Project Manager	2.63
	System Analyst	10.52
	Software Engineer	5.26
	Web Admin	21.05
	Network Admin	31.57
	K.P.O	2.63
Experience	1-5	18.42
(Own Field)	6-10	39.47
	11-15	28.94
	>15	13.15
Experience	1-5	52.63
(e-Government)	6-10	39.47
	11-15	7.89
	>15	0

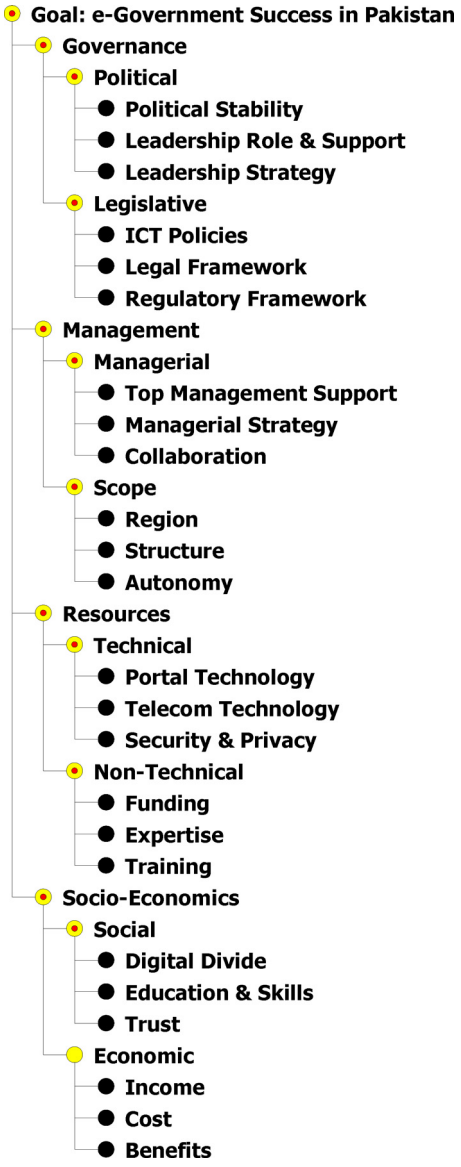

Figure 3.
Proposed framework (expert-choice view)

participants vary in each group. The final results are illustrated in the Table V with an overall CR of 3 per cent (i.e. CR≤ 0.10). The local weight represents the relative importance of CSFs within the category; whereas, the global weight reflects their relative importance across the categories. Finally, an overall ranking of all the CSFs is given in the "()" by using their global weight – in all the levels and categories.

The analysis of empirical results depicts that among CSFs' main-categories – *Governance* is the most important; whereas, the *Management* and *Resources* are relatively more important;

Table V.
Relative importance of CSFs (expert-choice results)

Level 1 CSFs main-category (Overall rank)	Local weight	Global weight	Level 2 CSFs sub-category (Overall rank)	Local weight	Global weight	Level 3 CSFs (Overall rank)	Local weight	Global weight
Governance (1)	*0.570*	*0.570*	*Political* (1)	*0.694*	*0.396*	*Political Stability* (1)	*0.394*	*0.156*
						Leadership Role & Support (2)	0.330	0.131
						Leadership Strategy (3)	0.276	0.109
			Legislative (3)	0.306	0.174	*ICT Policies* (5)	*0.341*	*0.059*
						Legal Framework (6)	0.334	0.058
						Regulatory Framework (7)	0.325	0.057
Management (2)	*0.239*	*0.239*	*Managerial* (2)	*0.895*	*0.214*	Top-Management Support (8)	0.257	0.055
						Managerial Strategy (4)	*0.493*	*0.106*
						Collaboration (9)	0.250	0.054
			Scope (8)	0.105	0.025	Region (24)	0.297	0.007
						Structure (23)	0.329	0.008
						Autonomy (22)	*0.374*	*0.009*
Resources (3)	*0.124*	*0.124*	Technical (5)	0.345	0.043	*Portal Technology* (13)	*0.357*	*0.015*
						Telecom Technology (14)	0.328	0.014
						Security & Privacy (15)	0.315	0.013
			Non-technical (4)	*0.655*	*0.081*	*Funding* (10)	*0.389*	*0.032*
						Expertise (11)	0.330	0.027
						Training (12)	0.281	0.023
Socio-economics (4)	0.066	0.066	*Social* (6)	*0.514*	*0.034*	Digital Divide (18)	0.327	0.011
						Education & Skills (16)	*0.341*	*0.012*
						Trust (17)	0.332	0.011
			Economic (7)	0.486	0.032	Income (21)	0.321	0.010
						Cost (19)	*0.344*	*0.011*
						Benefits (20)	0.335	0.011

Note: The CSFs italicized are relatively more important than others to attain their respective categories and e-Government success in Pakistan

however, *Socio-Economics* is relatively less important for e-Government success in Pakistan. Further, among CSFs' sub-categories – *Political, Managerial, Legislative, Non-Technical* and *Technical* are relatively more important than *Social, Economic* and *Scope* for e-Government success in Pakistan. Lastly, among all the CSFs – *Political Stability, Managerial Strategy, ICT Policies, Funding, Portal Technology, Education & Skills, Cost* and *Autonomy* are most important factors of their respective categories, and which can positively affect the e-Government success in Pakistan.

6. Policy implications & recommendations

First, all the stakeholders agreed that the political-centric factors are the most important factors for the e-Government success in Pakistan. This is acceptable as the country is suffering from very poor political structure, legitimacy crisis, malpractices, bureaucratic red tapism, corruption, and external interferences – that all together led the country towards the political instability and bad Governance. Such issues are also highlighted by the Worldwide Governance Indicator (WGI, 2016). This hinders the ICT4D projects, which depend on the support of international partners. Upon analyzing the ICT sector, we discovered that e-Government programs received strong support from the government during 2000-2008. In 2000, the national IT policy & action plan was launched to provide the roadmap for the ICT sector. In 2002, the e-Government directorate (EGD) was established to promote the e-Government in Pakistan. In 2005, the national e-Government strategy was devised to deploy e-Government in all the ministries and their affiliated departments and to provide the e-services to the citizens. Resultantly, the e-Government was strengthened and its global ranking was promoted from 136th to 131st position (UNPAN, 2005-2008). However, from 2009 to onward, the ex-governments as such did not support e-Government programs. Consequently, the e-Government ranking of Pakistan kept on declining in the globe and finally stood at 159th position (UNPAN, 2008-2016).

Keeping such political-centric issues, we strongly recommend that the MOITT/NITB should finalize and launch the new "e-Government Master-Plan" for all the ministries and their affiliated departments and "e-Services Strategy" for the citizens at their earliest – by consulting NIPA and ITU and implement them within the official tenure of incumbent government, keeping its political ambition and support into consideration. This policy cum technological advancement will definitely benefit all the stakeholders on time.

Second, all the stakeholders admitted that the managerial-centric factors are relatively more important for the e-Government success in Pakistan. This is true as public sector is led by the bureaucrats, who can directly coordinate with the political leaders. Normally, they plan new projects and then the minister in-charge approves the same after discussing with the concerned stakeholders and with the political leadership. However, sometimes due to inadequate strategy formulation or its non-alignment among the top-management, ministers and political leadership, such projects tend to fail – as argued by the Shah *et al.* (2011) and Qaisar and Khan (2010).

During survey, stakeholders reported lack of coordination among the top-management, ICT officials and employees toward e-Government success agenda of Pakistan. If there was some comprehensive master-plan and strategy – with details of projects that MOITT and NITB is developing now; then it would have saved a lot of time and resources and all the projects would have been completed on time. Consequently, the ex-MOIT and EGD could not implement the national IT Policy and e-Government Strategy on time – as reported by Kamal *et al.* (2013) and Rehman *et al.* (2012). Further, the Pakistan Computer Bureau (PCB), whose main job was capacity building and e-Government Directorate (EGD), whose assignment was e-Goverment projects development – both were directed by the MOITT to collaborate on the e-Government

projects. However, due to lack of coordination; such projects could not be completed on time and subsequently; the MOITT had to establish the NITB by merging both organizations.

Keeping aforesaid managerial-centric issues, we highly recommend that the top-management should first develop consensus with all the concerned stakeholders on the e-Government success agenda and then formulate their strategy in such a manner that it is properly aligned and acceptable to all the stakeholders. Further, there must be a coherence and cooperation among all the political leaders, top-management, ICT officials and employees. This is very important for sharing the updated policies, strategies and best practices as well as the latest technologies, expertise and skills – to save time and resources.

Third, all the stakeholders stated that the legislative-centric factors are relatively more important for the e-Government success in Pakistan. Upon analyzing the ICT policies, we discovered that the first national IT Policy was launched by the MOST in 2000, but it paid very less attention toward the e-Government development and few projects were launched on pilot basis (MOST, 2000). The second national IT Policy was devised by the MOITT in 2012 that proposed an intervention model to foster the diffusion of e-Government and offered e-office suite for the government organizations and e-services for the citizens (MOIT, 2012a). The third national IT Policy was devised by the MOITT in 2017 that offered several plans for the e-Government development, e.g. national data centers, G-clouds, data mining & analytics tools, e-services, m-Government and e-Democracy. However, as such there was no strategy or action plan to achieve such targets (MOIT, 2017). Upon reviewing the ICT laws, we found that the Electronic Transaction Ordinance (ETO) was the first ordinance (ETO, 2002), Prevention of Electronic Crime Ordinance (PECO) was the second ordinance (PECO, 2007), while Prevention of Electronic Crimes Act (PECA) is the most recent act to protect the digital rights and cyber space (PECA, 2016). However, PECA is still under debate in the civil society due to some controversial points in it that are against the human rights (HRW, 2015). Finally, many officials showed great concern over the growing cyber crimes in the country, as Pakistan is the second most spied state in the world (Shah, 2013), and that is why the ICANN also rates Pakistan in the low band – keeping its preparedness toward the cyber space security (Shahid, 2016).

Keeping aforementioned legislative-centric issues; we strongly recommend that MOITT should constitute advisory council, comprising of key international policy analysts, professionals and academicians; who shall carefully analyze all the existing national policies, strategies and plans – and point-out their deficiencies, with some useful suggestions for improvement. Besides, the MOITT should devise all the future IT policies, strategies and plans for at least 5 years to bring some tangible and timely advancement in the ICT sector. Further, in order to solve the civil society petitions on PECA; the Supreme Court of Pakistan (SCP) should form a commission, consisting of ICT lawmakers, professionals and human-rights activists – in order to analyze its controversial clauses and submit the rectified draft to the SCP and GOP for due consideration. Finally, the MOITT should establish a dedicated agency that shall devise the national cyber security policy and legislation for the timely prosecution of cyber crimes in Pakistan.

Fourth, all the stakeholders confirmed that the non-technical factors are relatively more important for the e-Government success in Pakistan. This is true keeping the funding and capacity building issues of the e-Government in Pakistan. Upon analyses, we found that Pakistan is still a lower-middle income developing country (World Bank, 2017). Therefore, all new projects are initiated and managed through grants from the international donors, e.g. World Bank, OECD, UNDP, ITU (COMSATS, 2007). Presently, the e-Government projects are supported by the ITU, while the NIPA is providing consultancy services on developing the new e-Government master-plan and strategy (MOITT, 2014b). Further, we observed that the federal institutions do not have enough professionals, who can manage the e-Government projects. Besides, majority of government officials requested hands-on training to manage

the e-Government applications at their offices. Finally, few officials revealed that the frequent transfer of IT officials managing the e-Government projects, is a serious issue till date.

Keeping such non-technical issues, we strongly recommend that the government should allocate enough funds in the annual budget for the MOITT and NITB – with strict audit to avoid any financial discrepancies. This will enable the MOITT and NITB to implement e-Government programs and projects in other organizations of all the provinces as well, which is now limited to federal level organizations only. Further, in order to fulfill the deficiency of e-Government experts; the MOITT should appoint IT professionals with higher qualification, practical experience and foreign exposure in the e-Government domain – preferably on long term basis, keeping the future of e-Government in Pakistan. Finally, for proper capacity building, all the government officials including the top-management, operational and supporting staff should be given hands-on training on the e-Government applications and services, so that they can easily manage the e-Government programs at their workplace.

Fifth, all the stakeholders duly admitted that the technical factors are relatively more important for the e-Government success in Pakistan. This is valid keeping the technical issues in the national e-Government portal and services and telecom eco-system.

Upon assessing the national e-Government portal, we found that it only hosts the very basic information about the GOP and its ministries. However, as such there are no advanced services through which the citizens can process their forms, documents and fee online. Such kind of constraints negatively affect the national Online Service Index (OSI). Besides, the existing telecom eco-system is not egalitarian even after lunching the 3G, 4G, and LTE mobile services with over 73 per cent tele-density (PTA, 2017), which negatively affect the national Telecom Infrastructure Index (TII). This low value of OSI and TII ultimately affect the e-Government Development Index (EGDI) of Pakistan (UNPAN, 2016). Finally, we observed that the security & privacy of government organizations is very weak and vulnerable to several kinds of threats. In past, their websites, networks and databases have been hacked, with several incidents of data-breaching. Such issues negatively affect the national Cyber Security Index (CSI) and this ultimately affect the citizens trust on e-Government services (ITU, 2008).

Keeping such technical issues, we highly recommend that the NITB should upgrade the national e-Government portal – by incorporating available advanced technologies, so that it can automatically provide the updated information about the GOP and its all organizations. Besides, the NITB should now launch the advanced e-services (transactional and integrated) for enabling the citizens to submit their forms, documents and fee online. Further, considering the 153 million mobile subscribers, with over 73 per cent tele-density; the NITB should now launch the m-Government to facilitate the citizens. Finally, to protect the e-assets of government organizations, the MOITT should now adopt the advanced security techniques and mechanism. Besides, the MOITT should organize the nation-wide seminars on the Information and Cyber Security to raise some public awareness. Such reforms will build the citizens trust on the e-Government programs and services, that will foster its adoption and improve the e-Participation Index (EPI) of Pakistan.

Sixth, all the stakeholders stated that the socio-centric factors are relatively less important, yet the *Education & Skills* of the citizens is the most important for the e-Government success in Pakistan. Upon analyzing the education sector in Pakistan, we discovered that it could not be progressed in the last few years, as it was expected by the government. There is a serious drop in the net enrollment rate of primary and secondary education, while the overall literacy rate remained static at 58 per cent since 2015 – as indicated by the *Pakistan Economic Survey* (MOF, 2017a). This is alarming as Pakistan needs to raise its literacy rate by 90 per cent as per its *Vision 2025*. Besides, the literacy gap and gender inequality in education sector are still two major issues in Pakistan. The literacy rate is 74 per cent in the urban areas, while it is hardly 49

per cent in the rural areas. Similarly, the literacy rate of the men is 71 per cent, while it is barely 48 per cent for the women. The government spending on the education sector is around 2.3 per cent of the national GDP – though it promises to raise it to 4.0 per cent by 2018; however, it is still the lowest in the region (PBS, 2016). Finally, Pakistan stood on 125th position out of 130 participating countries – by considering its human capital index (HCI), which measures the citizens knowledge and skills for value creation in the regional economy (WEF, 2017).

Keeping education-centric issues; we strongly recommend that the GOP should pay serious attention on the education sector and allocate adequate resources to improve its academic institutions and quality of education. Such efforts will certainly help Pakistan in achieving its desired literacy rate and human capital in the upcoming years. Further, the HEIs can play a vital role *in raising the citizens' awareness about the e-Government programs and services. Therefore, the MOITT should collaborate with the HEIs in arranging some new academic programs, seminars and R&D projects on e-Governanace. There are several benefits that the e-Government can offer to everyone; however, they are not elaborated properly. Therefore, the NITB should elaborate all the anticipated benefits of the e-Government to all the concerned stakeholders – to facilitate its adoption in Pakistan.*

Seventh, all the stakeholders revealed that although the economic-centric factors are relatively less important, yet the *Cost* of the e-Government services is the most important for the e-Government success in Pakistan. Upon analyzing the economic indicators of Pakistan, we found that it is still a lower-middle income developing country (World Bank, 2017). Besides, the *GNI per capita*, which measures the average income of an ordinary citizen, is around $1629 during 2016-2017 – that is quite low in the region (MOF, 2017b). This puts very serious constraint on the e-participation of 207.77 million citizens – even if the sound national IT policies, strategies, and plans do exist (PBS, 2017). Finally, in order to examine the real cost of e-Government service, we analyzed the case of *National ID Card*, which is essential public service for all the citizens. However, during our survey several officials complained about its very high fee structure, causing it almost unaffordable by the ordinary citizens in Pakistan.

Keeping the cost-centric concerns, we highly recommend that actual service fee of all the e-Government services should be adjusted according to the GNI per capita of Pakistan, so that all the citizens can easily afford and use these services. Further, all the essential public services should be freely offered to all, as a social welfare of the citizens in Pakistan.

Finally, all the stakeholders agreed that the scope-centric factors are least important, yet the *Autonomy* of an organization is the most important for the e-Government success in Pakistan. Upon analyses, we discovered that fundamental autonomy is very critical for all government organizations as it directly affects their due privileges and decision-making authority. During survey, several officials of the client organizations complained that the NITB has a central authority and privileges on all the e-Government projects and programs. Therefore, they are only authorized to use the applications and e-services installed by the NITB, but unauthorized to do any kind of customization, even if it is necessary to enhance their productivity at the workplace and facilitate the citizens.

Keeping the autonomy-centric issues, we strongly recommend that although NITB is the central body for all the e-Government programs; however, it should grant some due privileges to the ICT officials and staff, who are managing e-Government programs at client organizations. This will authorize them to perform due customization and timely updates in the e-Government applications, if so desired. Consequently, all the officials will be motivated and play their active role toward the e-Government development in Pakistan.

7. Conclusion & future work

Today, Pakistan is facing several critical issues, e.g. immature political system, legitimacy crisis, bureaucratic red tapism, corruption, internal disputes, and external threats – that all together led Pakistan towards political instability, economic crisis, and bad Governance. Under such circumstances, Pakistan does need a system driven by the technology for establishing the Good Governance in the public sector.

In this connection, we reviewed several articles and case studies on Governance, Good Governance and e-Government as well as analyzed the e-Government development models and best practices of the global leaders that led us to decide that e-Government can be used as a technology to establish the Good Governance in Pakistan. Like other countries, the GOP also undertook several initiatives to promote the e-Government in Pakistan. However, despite of such efforts, e-Government could not be successfully implemented in the public sector organizations. Consequently, today, the e-Government ranking of Pakistan stands at 159th position in the globe. Besides, we faced a great paucity of policy related literature that could address the e-Government success in Pakistan.

Keeping such issues, we conducted this techno-policy research study and proposed a novel techno-policy framework for the e-Government success in Pakistan. Further, we conducted the survey of all the concerned stakeholders and determined their relative importance towards all the CSFs by using the AHP approach. The policy implications & recommendations of this study are quite valuable for all the concerned stakeholders and can pave a way toward entrenching the Good Governance in Pakistan.

In future, we would like to determine the citizens' perspective (i.e. demand-side view) toward the e-Government adoption in Pakistan – by deploying the discrete choice modeling approach. Finally, we will perform the gap analysis to draw further insight from both studies, which would help us to devise better policy implications towards the e-Government success in Pakistan.

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