

A Conceptual Framework for Measuring Benefits of E-Governance

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Abstract

E-Governance is about reform in governance, facilitated by the creative use of Information and Communication Technology (ICT). This leads to better access to information and quality services for citizens. Government invests large sums of money in implementing e-governance projects for benefiting the citizens. The main objective behind e-governance is to provide support and simplify governance for citizens. Therefore it is important to understand the types of benefits realized by citizens as a result of adopting e-governance services. The present paper discusses the benefits of e-governance by reviewing the previous studies done by various researchers. The researches on the benefits of e-governance in the contexts of various developing and developed countries are reviewed. Based on the review of prior research, a framework for categorizing the benefits of e-governance is proposed in the context of India, wherein four dimensions of benefits are identified i.e., Economic Benefits, Quality of Service (QoS) benefits, Quality of Governance (QoG) benefits and Personal Development. The scales for measuring these benefits are also proposed. The proposed framework can be used for empirically examining the extent of these benefits realized by the citizens and for studying the contribution of these benefits in the overall effectiveness of e-governance.

Keywords: E-governance, Information and Communication Technology, Economic Benefits, Quality of Service, Quality of Governance, India

Introduction

E-Governance is defined as the use of electronic medium in governance, in order to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities¹. E-governance involves 24/7 availability of government information and services without interruption. The implementation of e - governance depends on the effective use of Information and Communication Technology (ICT) for receiving and delivering information and services, efficiently and inexpensively. It is one of the important processes of bringing reforms in the systems of government. The key objectives of e-governance are to share information and deliver services with quality at minimum cost, improve interactions with citizens, businesses, government employees and to make system transparent and reliable.

There are four delivery models of e-governance applications²: Government to Citizen or Government to Consumer (G2C), Government to Business (G2B), Government to Government (G2G), and Government to Employees (G2E). Out of all these four delivery models, G2C is the most fundamental model of e-governance. A citizen transacts with the Government for various public utility services viz. medical facilities, transportation, electricity, education etc. and also for democratic services relating to the citizenship such as ID Cards, passports, registration, licensing, taxation, etc.

E - governance originated in India during the 1970's with a focus on automation and interconnection in the areas of defence, economic monitoring, planning, elections, census, tax administration, etc. In 1980's, National Informatics Center (NIC) took a significant stride by connecting all the district headquarters through ICT. From the 1990's, e - governance has witnessed the use of ICT for wider applications with emphasis on connectivity, setting up systems for information processing and delivering services. The applications include automation in individual departments, electronic file handling, public grievance systems, payment of bills and

¹ http://portal.unesco.org/ci/en/ev.php-URL_ID=4404&URL_DO=DO_TOPIC&URL_SECTION=201.html

² Jeong Chun Hai @Ibrahim. (2007). *Fundamental of Development Administration*. Selangor: Scholar Press. ISBN 978-967-5-04508-0

taxes etc. Keeping in mind the various positive impacts of e - governance, the Government of India approved the National e-Governance Plan (NeGP) on May 18, 2006¹. The plan was formulated by the Department of Electronics and Information Technology (DEITY) and Department of Administrative Reforms and Public Grievances (DARPG). The aim of NeGP is to make all Government services accessible to the common man and ensure efficiency, transparency & reliability of such services at affordable costs to realize the basic needs of the common man.

Government invests large sums of money in implementing e-governance projects for benefiting the citizens. The main objective behind e-governance is to provide support and simplify governance for citizens. The present study extensively reviews the previous studies done by researchers in the contexts of different developed and developing countries for studying the impact and benefits of e-governance. On the basis of the literature review, the study proposes a conceptual framework for measuring the benefits realized by citizens as a result of adopting e-governance services. The benefits of e-governance are categorized in various dimensions. The study also develops the scales for measuring these benefits in the Indian context. The rest of the paper is organized as follows: Section 2 presents a comprehensive review of studies that discuss the impact and benefits of e-governance. Based on the literature review, a conceptual framework is proposed in section 3, for providing a theoretical understanding of the dimensions of benefits realized by citizens as a result of adopting e-governance. The proposed scales for all the dimensions of benefits are also discussed. Finally, the study is concluded in section 4.

Literature Review

Various researchers have discussed the benefits of e-governance for government, citizens, businesses and society. Heeks (2001) analyzes case studies from South Korea, Chile, Honduras and Philippines and highlights three major contributions of e-government: improving government processes, connecting citizens, and building external interactions.

The e-government benefits study conducted by DMR Consulting (2003) in Australia identifies four categories of benefits viz. 'agency benefits', 'consumer financial benefits', 'social benefits' and 'contribution to broader government objectives'. 'Agency benefits' are related to benefits to the organizations that deliver e-government services. These benefits also include the benefits to service implementation partners. 'Agency benefits' consist of improved efficiency, cost reductions and increased revenues of the agencies through delivering services online. 'Consumer financial benefits' are benefits to the users of e-government services including citizens, businesses and intermediaries. These benefits comprise of time and cost savings for citizens, cost savings delivered to businesses and intermediaries, revenue generation opportunities for intermediaries, citizens or businesses. 'Social benefits' include contributions made by e-government services to the quality of life of citizens, businesses and intermediaries that are not easily measured in financial terms. These benefits consist of improvement in overall service delivery, increased community skills and knowledge of citizens, and new business and work opportunities generated due to the use of Information and Communication Technology (ICT). 'Contribution to broader government objectives' includes the contribution of e-government towards making the government less complex, more open and transparent that supports a more democratic government. It also includes greater acceptance of ICT in the information economy including macro-level improvements in economic, social and technological development.

Bhatnagar (2003) discusses the economic and social benefits of e-government in India. The author exemplifies the economic benefits in terms of increased revenue collections in government, improved service delivery to businesses, reduced costs in government procurement, and improved financial management in the government. The social benefits are demonstrated in terms of poverty mitigation, citizen empowerment, improved transparency in the government processes, and decreased corruption in service delivery.

Chen et al. (2007) discuss the benefits of e-government in terms of removed boundaries (more approachable government), enhanced accessibility of government information and services, improved service quality, efficiency benefits for citizens and government due to integrated agencies, improved reputation of the country and greater citizen participation. Sultan et al. (2012) also identify enhanced accessibility of government information and services to be one of the key benefits of e-government.

Various studies have examined the role of e-governance in corruption control and improved government-citizen relationship. Pathak et al. (2007) in their study conducted in Ethiopia highlight the potential of e-government to alleviate corruption. The results of their study suggest that e-government can not only mitigate corruption but can also establish more trustworthy and improved government- citizen relationship. Pathak et al. (2008, 2009) find similar results in the studies conducted in Fiji, which suggest that e-government can make important contributions to improving public services by improving the overall relationship between government and its citizens. The benefit of e-government in terms of reducing corruption has also been

¹ <http://india.gov.in/e-governance/national-e-governance-pla>

emphasized by Hopper et al., (2009) who suggest that use of e-governance services can reduce corruption by reducing interactions with officials, speeding up decisions, and reducing human errors. Mistry (2012) also suggests that the use of e-governance services decreases corruption. The study reports that the impact of e-government is higher in developing countries than in developed countries.

Kolsaker and Lee-Kelley (2008) categorize the benefits of e-government for citizens into two categories: tangible benefits and site-utility benefits. The study explores the tangible benefits, such as the provision of useful information, providing assistance to users in understanding the services on offer, providing an efficient communication channel, handling queries about services, and offering personalized services. The study also discusses the utility benefits of e-government websites viz, providing support to the user if stuck, being well designed, easy to use, reliable and offering high-quality services.

Monga (2008) analyzes the local, state, and federal levels of government in India, and reports that e-government drastically improves the quality of service delivery to the citizens by making the administrative processes more transparent, saving time due to one-stop service provisions, simplifying government procedures, reducing corruption, and improving behavior and attitude of government officials. Nagi and Hamdan (2009) in their research conducted in Jordan, find that e-government offers several benefits for users, businesses and society which include: creating job opportunities in public and private sectors, alleviating illiteracy, enhancing transparency of government, enabling the growth of knowledge-based economy, and improving service delivery to both citizens and businesses. Bhuiyan (2011) has studied the effectiveness of e-governance in Bangladesh. He concludes that e-governance plays an important role in modernization of public administration and provides effective service delivery to the citizens of Bangladesh. The author further explains that e-government also helps in reducing corruption and poverty.

Bhatnagar (2010) develops an impact assessment framework for e-government which assesses the impact of e-government on three groups of stake- holders: the clients/citizens who receive the service, the agencies (including implementation partners) which deliver the service, and the society which consists of citizens, businesses, and government as a whole. The study identifies three key dimensions of e-government benefits to citizens: cost of accessing service, quality of governance, and quality of service. Benefits in terms of cost of accessing service include cost and time savings due to the use of online government services. Quality of governance benefits include improved transparency in government procedures, reduction in corruption, and improved citizen participation. Quality of service benefits consist of quality of interaction with functionaries in terms of their attitude and behavior, satisfaction with the mechanism for complaint handling and problem resolution, convenience of working hours and ease of access to service.

Gallo et al. (2014) in their study carried out for European Commission discuss the direct and indirect benefits of e-government for users (citizens, businesses and intermediaries). They categorize the direct benefits into 'direct cash' benefits and 'time saving benefits'. 'Direct cash' benefits are monetary benefits realized due to avoided expenses (incurred on phone calls, posts, etc. for transmitting information) and reduced costs such as travel costs. 'Time saving' benefits are related to the reduced number of transactions which include reduced travel time, time saved due to one-time submission of data etc. The indirect benefits as discussed by Gallo et al. (2014) are value based non-monetary benefits realized due to improved efficiency and quality of the service. These benefits include quicker response, reduced error rates, reliable transactions, greater convenience, service integration, personalized service etc.

Proposed Framework

On the basis of the discussion presented in section 2, the study proposes a framework for assessing the e-governance benefits. The following dimensions of benefits are conceptualized: Economic benefits, Quality of service (QoS) benefits, Quality of governance (QoG) benefits, and Personal development.

Economic benefits

Economic benefit is 'a benefit that can be expressed numerically as an amount of money that will be saved or generated as the result of an action'¹.

Economic benefits of e-government are direct benefits realized by the citizens, which contribute to direct savings in costs and time (Bhatnagar, 2009, 2010). Cost savings include reduction in travel cost (Bhatnagar, 2008; Gallo et al., 2014), savings on amount paid to agents to facilitate services (Bhatnagar, 2008), and savings of expenses incurred on phone calls, posts, etc. for transmitting information (Gallo et al., 2014). 'Time saving' benefits are related to the reduced number of transactions which include reduced travel time, time saved due to one-time submission of data etc. (Gallo et al., 2014). For a developing country like India where the citizens have not very high income levels, 'economic benefits' are of a great importance as these are related to direct realization in terms of money.

¹ http://www.investorwords.com/16380/economic_benefit.html

Quality of Service (QoS) benefits

QoS or service quality is a measure of how well a delivered service matches the customers' expectations. Many researchers define QoS as the extent to which a service meets customers' needs or expectations (Asubonteng et al., 1996; Barbara and Vincent, 1990); Gefen, 2002; Wisniewski, M. & Donnelly, 1996). Various researchers have identified several dimensions of service quality in the context of online services (Kaynama and Black, 2000; Zeithaml et al., 2001; Liljander et al., 2001; Loiacono et al., 2000).

Quality of service (QoS) is a vital aspect to the success of e-government. Agrawal and Wadhwa (2007) propose a multi-dimensional scale for measuring e-governance service quality (EGOSQ) which includes accuracy and reliability of information, friendly and courteous interaction by employees, integration of services, enhanced accessibility, active service recovery, and assurance of services. Bhatnagar (2010) measures QoS of e-government through quality of interaction with functionaries in terms of their attitude and behavior, satisfaction with the mechanism for complaint handling and problem resolution, convenience of working hours and ease of access to service. Alanezi et al. (2012) measures QoS of e-government through various dimensions such as efficiency, privacy, fulfillment, interactivity, personalization, and responsiveness. Hien (2014) proposes three key dimensions for measuring e-government service quality: reliability, communication and responsiveness. Hien (2014) defines reliability as the service provider's (government's) ability to provide accurate and dependable services. Communication is keeping customer (citizen) aware and informed, whereas responsiveness is the willingness of service provider (government) to assist the citizens by providing fast and efficient services (Hien, 2014).

Citizens expect delivery of high quality services from the government. Government also aims at providing high quality services to citizens through e-governance. QoS is an important dimension of the benefits of e-government.

Quality of Governance (QoG) benefits

Quality of governance (QoG) also referred to as good governance, has been studied by various researchers (Andrews, 2010; Gilley, 2006; Grindle, 2007; Holmberg et al., 2008; Ott, 2009). QoG has received increased attention in developing countries (Smith 2007). The concepts of QoG and *good governance* are used by many international organizations such as the World Bank and the United Nations. World Bank's 'Worldwide Governance Indicators' measure QoG through various parameters such as accountability, government effectiveness, regulatory quality, and control of corruption, etc.¹ Rothstein and Teorell (2012) argue that QoG is indicated through impartiality, absence of corruption, democracy, and government efficiency. Vittal (2004) argues that 'equal opportunity for individuals to realize their full potential and maximum productivity in utilization of physical resources', is also an indicator of good governance or QoG.

E-government may act as a vital force for transformational improvement in QoG. Reduction of corruption, greater transparency and accountability are some of the benefits, observed as a result of implementing e-government (Gopakumar, 2001). Transparency and accountability in governance contribute to societal harmony which benefit the citizens especially the down trodden and under privileged sections of the society (Pathak and Prasad, 2005). E-government makes the government officials more accountable for their actions. Unlike in the manual system, the inappropriate actions can be traced and fixed in e-government system. Citizens can track their applications, complaints, and any delay can be brought to the notice of higher authorities which help in improving accountability of the government and reducing corruption, thereby improving QoG. In the context of India, where corruption is a major problem faced by citizens, benefits in terms of QoG are important to be included as a dimension of e-governance benefits.

Personal development

Personal development includes improving self-knowledge, improving or learning new skills, and improving potential (Aubrey, 2010). Adoption of e-governance may lead to personal development of citizens by enhancing their e-skills, improving their digital literacy, and empowering them digitally. E-skills are the set of technical skills and internet knowledge and concepts required for the effective usage of services provided at different stages of e-government (Khan et al., 2010).

The United Nations Expert Group Meeting Report on e-Government (2010) highlights the fact that e-governance in Romania has helped the citizens in acquiring e-skills and enhancing digital literacy. The report also discusses about the new competencies, and attitude and awareness changes developed in the citizens of Germany as a result of adopting e-governance. Hon'ble Prime Minister of India Mr. Narendra Modi, has also laid emphasis on digital empowerment of citizens of India by making all government documents/certificates available online under the 'Digital India' programme². Hence, personal development of citizens (in terms of digital empowerment and digital skills enhancement) is an important dimension of e-governance benefits.

¹ http://siteresources.worldbank.org/INTWBIGOVANTCOR/Resources/1740479-1150402582357/2661829-1158008871017/booklet_decade_of_measuring_governance.pdf

² <http://www.cmai.asia/digitalindia/>

Table 1 presents the proposed items for measuring the four dimensions of benefits discussed above.

Table 1: Dimensions and Items

Dimension	Proposed Items	Referred to
Economic benefits	<ul style="list-style-type: none"> E-governance services are accessible to me at any time and at any place Overall process of availing e-governance services is time-consuming Travelling cost involved in availing e-governance services is less Amount saved on expenses incurred on phone calls, posts, etc. for availing e-governance services is less 	Gallo et al. (2014) Bhatnagar (2009) Bhatnagar (2010)
QoS benefits	<ul style="list-style-type: none"> E-governance services are delivered within the expected time frame The rules and procedures involved in availing e-governance services are clear to me Availability of information about e-governance services is accurate and reliable Complaint handling procedure is easy Monitoring the status of my application is easy 	Alanezi et al. (2012) Hien (2014) Bhatnagar (2010) Agrawal and Wadhwa (2007)
QoG benefits	<ul style="list-style-type: none"> Corruption involved in availing e-governance services is less Amount paid to agents for availing e-governance services is less Government is accountable while providing e-governance services 	Rothstein and Teorell (2012) Bhatnagar (2010)
Personal development	<ul style="list-style-type: none"> Using e-governance services enhances my skills (computer skills, technical skills etc.) Using e-governance services gives me a sense of empowerment 	Aubrey (2010)

Conclusion

A detailed review of studies on the impact and benefits of e-governance has been presented in the study. The detailed study of existing literature provides an understanding of the benefits realized by citizens as a result of adopting e-governance services. Based on the review of prior research, a conceptual framework has been proposed for assessing the benefits of e-governance. Four dimensions of benefits have been proposed: Economic benefits, QoS benefits, QoG benefits and Personal development. The proposed framework holistically combines all the attributes that explain the benefits of e-governance in the context of India. The items for measuring the four categories of benefits have also been discussed.

Whilst the present paper provides the conceptual framework for studying the benefits of e-governance, much work remains to be done. The future research needs to empirically examine the extent of these benefits realized by citizens as a result of adopting e-governance. The contribution of these benefits in the overall effectiveness of e-governance also needs to be analyzed in future. The future studies can also compare the e-governance and manual services on the basis of the proposed dimensions of benefits.

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