PUBLIC VALUE OF E-GOVERNMENT PROJECTS: A CONCEPTUAL MODEL

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ABSTRACT

The concept of public value is more and more being used for assessing the performance of public organizations on the creation of public value for citizens. It is used to measure the total impact of government services to citizens in terms of the value it creates. This concept is enormously valuable for government in improved policy decision making and building a better relationship between government and citizens. The concept of Public value has been understood in general and in the domain of E-Government and applied to identify the major determinates of public value. After extensive review of literature, four major public value creation drivers including (a) Delivery of Quality Public Services, (b) Effectiveness of Public Organizations, and (c) Development of Public Trust (d) Achievement of Socially Desirable Outcomes are found to be the main determinants for creation of public value of E-Government. And finally, these four determinants have been used to propose a conceptual model to assess the public value of E-Government in India.

To demonstrate the purpose of the present study, an extensive and systematic review of literature related to public value of E-Government from various secondary data base has been undertaken. To identify the determinants of public value of E-Government, more than 100 relevant research papers from reputed Journals like Emerald, Elsevier, Government information Quarterly, Springer were reviewed, of which 15 papers assessing E-Government frameworks, 11 papers assessing public value of e-government were picked for detailed review.

The detailed analysis of the reviewed relevant literature points out that the existing frameworks measuring public value of e-government are inappropriate for use in developing countries, particularly in India. The analysis shows that the public value framework to be applied in India would be different from the other public value frameworks adopted in different countries. Therefore, it is essential to develop a revised framework in order to adequately evaluate the public value of e-government in India.
The study is confined to published research papers which are available to us from chosen databases is the foremost limitation of this paper. There may be some published articles which could not be brought to our attention. Consequently, interpretation of the proposed model in this study is limited to Indian context.

This research paper contributes to e-government research by developing a theoretical framework for evaluating the performance of e-government with the use of the concept of public value. From the wide review of relevant literature available, the four major factors were found that have possibly significant effect on the public value of e-government. Supplementary, an empirical study is hence considered necessary to examine whether all of these factors contribute significantly to public value of e-government. It is strongly expected that there is a significant relationship between the proposed factors and public value of E-government.

Keywords: E-Government, Public Value, Evaluation, G2C, India

INTRODUCTION

The concept of public value is more and more being used to evaluate the performance of public services (Moore 1995). By using this concept, the performance of public services can be assessed with respect to the creation of public value through different sources (Moore, 1995; Kelly et al., 2002; Try & Radnor, 2007).

The domain of this study, however, is e-government in Indian context. E-government puts forward several opportunities for governments to get better the delivery of public services, automate several public services consultation processes, and achieve a broad range of socially desirable outcomes (Kearns, 2004). With the swift development of e-government, adopting the concept of public value for appraising the performance of e-government from the perspective of citizens is not only suitable but also necessary (Karunasena, Deng, & Singh, 2011).

Applying the above backdrop, this research aims to explore the public value of citizen-centric e-Government in India. The concept of Public value has been understood in general and in the domain of E-Government and applied to identify the major determinates of public value. To demonstrate the purpose of the present study, an extensive and systematic review of literature related to public value of E-Government from various secondary data base has been undertaken. Finally, a model to assess the public value of E-Government in India was proposed on the basis of major public value creation drivers identified through review of literature.
Justification for Preference for the Term E-Government:

The term e-government was first used in the United States in 1993 (Ho, 2002; Heeks & Bailur, 2007). E-Government or ‘electronic government’ is comprised of three main activities: the improvement in efficiency and effectiveness of the functions of government, including the delivery of services to citizens; the increase in transparency of government through the provision of a greater range of information; and the fundamental change in relationship between citizens and public sector organisations (Bellamy and Taylor, 1994; Li, 2003; Watson and Mundy, 2001).

Although the terms ‘e-government’ and ‘e-governance’ in the literature are often used interchangeably, some experts have highlighted the distinction between the two terms. While Satyanarayana (2004) has provided a grammatical distinction i.e. ‘e-governance’ is a verb and ‘e-government’ a noun, Riley (2007) attributes the choice of terms to focus or emphasis by users. According to him, ‘e-governance’ emphasizes the governing process where as ‘e-government’ emphasizes electronic infrastructure. Saxena (2005) has attempted by differentiating the terms ‘governance’ and ‘government’. According to him, while ‘government’ is the institution itself, ‘governance’ is a broader concept.

REVIEW OF LITERATURE

Public Value of E-Government: Research Evidence

Kearns (2004), examines the public value of e-government with the help of the three sources of public values creation proposed by Kelly et al. (2002), namely, delivery of quality public services, achievement of socially desirable outcomes, and development of public trust. In this framework, the public value of quality public services delivery is measured by (a) the level of information provision, (b) the extent of e-government use, (c) the availability of choice, (d) the level of user satisfaction, (e) the extent to which e-government is focused on user priorities, (f) the extent to which e-government is focused on those most in need, and (g) the cost effectiveness of e-government services. The applicability of this framework is exemplified through its use in assessing the public value of e-health initiatives in United Kingdom (Bend, 2004).
Australian Government Information Management Office (AGIMO, 2004) also proposes a methodology for assisting government organisations to evaluate the demand for and the value of e-government initiatives. This methodology facilitates individual agencies to assess the organisational financial value, users’ financial value, social value, and governance values created by their online programs.

The European Commission (2006) proposed a different framework for evaluating the public value of e-government. It considered three types of public values, namely, finance, political, and constituency values. Efficiency, democracy and effectiveness are considered as three public values drivers. In this framework efficiency is evaluated by examining the (a) cashable financial gains for public organisations, (b) extent to which public organisation empowers public employees, and (c) improvement of the ICT infrastructure in public organisations. Democracy is evaluated by examining (a) the extent to which public organisations demonstrate openness and transparency through e-government, and (b) citizens’ active participation in public sector activities. Effectiveness is evaluated by examining the reduction of administrative burden on citizens, (b) improvement of citizens’ satisfaction, and (c) the extent to which e-government provides more inclusive public services.

Golubeva (2007) extended the framework of Kearns (2004). He proposed a framework to evaluate the public value of e-government portals which includes three main dimensions, namely, (a) quality of public services, (b) public trust, and (c) public policy outcomes. The indicators openness, citizen-centricity and usability have been proposed to measure the public value of public service quality. Transparency and interactivity to measure the public value of public trust. This framework is applied in the Russian Federation for evaluating the public value created through regional portals.

The framework developed by Grimsley and Meehan (2007) to evaluate the public value of e-government. It was focused on (a) services, (b) user satisfaction, (c) trust, and (d) outcomes. The framework takes into account users’ experiences on the provision of public services and services outcomes for the development of public trust. The framework reveals that trust gives them greater personal control, and provides them with a sense e-government users experience” (Grimsley & Meehan, 2007, p 134).
The Agency for the Development of Electronic Administration in France proposes a framework for evaluating the public value of IT (Carrara, 2007). This framework examines (a) finance value, (b) social and operation value, and (c) direct customer value. The financial value is measured by examining the financial savings and increase of government’s revenue using net present value (NPV) which is a method of calculating the expected net monetary gain or loss from a project, internal rate of return (IRR) which is used to calculate the discount rate which makes the NPV equals to zero (Schwalbe, 2004), and break-even point calculations. The social and operational value is evaluated by assessing the impacts of improved service delivery and employee satisfaction resulting from e-government. Direct customer value is measured by assessing the benefits received by citizens such as service quality, social impacts, cost savings, time saving and so forth.

The framework of Liu, Derzsi, Raus and Kipp (2008) assesses the public sector IT investment by taking into account the multidimensional nature of the value of e-government projects in European Union member countries. It focuses on the finance value, the social value, the operational value, and the strategic value of e-government projects. This framework is extremely useful for assessing the value of the G2B type of e-government projects.

Karunasena et al. (2011) further extend the framework of Kearns (2004) with the inclusion of effectiveness of public organisations as a dimension of evaluating the public value of e-government. In this framework the public value of effectiveness of public organisations is evaluated by (a) efficiency, (b) accountability of public organisation, and (c) citizens’ overall perceptions about the effectiveness of the public organisation. Citizens’ trust in public organisations is evaluated through (a) security and privacy of citizens’ information, (b) transparency of e-government services, (c) trust of citizens in e-government services, and (d) participation of citizens in e-government. The public value of public service delivery is evaluated by examining (a) the availability of information, (b) the citizens’ perceptions about the importance of the information, (c) availability of multiple channels for accessibility of public services by citizens, (d) cost savings, (e) fairness of the services delivery, (f) citizens’ satisfaction on e-government service delivery, and (e) the take-up of e-government services. This
framework was used to evaluate the performance of e-government in Sri Lanka with the use of much secondary data.

Omar, Scheepers and Stockdale (2011) propose a conceptual framework for evaluating public value by investigating the quality of e-government service delivery. In this framework, the public value of e-government service quality is examined by considering service quality, information quality, and system quality issues. This framework aims to evaluate public value from the view of citizens, and considers how citizens perceive and evaluate e-government services (Omar et al., 2011).

Karunasena & Deng (2012) proposes a citizen oriented framework for evaluating the public value of e-government with the help of the three sources of public values creation, namely, the delivery of quality public services, the effectiveness of public organizations, and the achievement of socially desirable outcomes through e-government. The delivery of quality public services is measured through Quality of Information, Functionalities of the e-Services and User-orientation. Effectiveness of Public Organisations is measured through Organisational Efficiency, Openness, and Responsiveness. Achievement of Socially Desirable Outcomes is measured through Equity, Self-development, Trust, Participatory Democracy, and Environmental Sustainability. This framework has been exemplified by evaluating the performance of e-government in Sri Lanka from the perspective of citizens by using the data from several national surveys. Table 2.7 summarizes the frameworks evaluating the public value of e-government.

**Research Gaps in Literature**

From the in depth review of literature discussed above, there is a research gap for adequately evaluating the public value of e-government. Therefore, it is essential to develop a revised framework, and empirically test and validate that framework in order to adequately evaluate the public value of e-government in India.
Table 1: Summary of research gaps

<table>
<thead>
<tr>
<th>S.No</th>
<th>Reference</th>
<th>Research Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Karunasena &amp; Deng (2012)</td>
<td>Does not consider development of trust, the data used in this study is secondary data.</td>
</tr>
<tr>
<td>2</td>
<td>Omar, Scheepers and Stockdale (2011)</td>
<td>Does not consider achievement of socially desirable outcomes, development of trust and operating effective public organizations.</td>
</tr>
<tr>
<td>3</td>
<td>Karunasena et al. (2011)</td>
<td>lacks sufficient indicators for measuring the achievement of socially desirable outcomes, fails to identify different kinds of public value in the society.</td>
</tr>
<tr>
<td>4</td>
<td>Liu, Derzsi, Raus and Kipp (2008)</td>
<td>It is questioned for its biasness towards the G2B, public value is widely defined as the value created by the government for citizens.</td>
</tr>
<tr>
<td>5</td>
<td>Golubeva (2007)</td>
<td>focuses only on the supply side of e-government. Equity, self-development, responsiveness; efficiency, democracy, and environmental sustainability are not considered.</td>
</tr>
<tr>
<td>6</td>
<td>The European Commission (2006)</td>
<td>bias towards e-administration, inappropriate for use in developing countries like India</td>
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<tr>
<td>7</td>
<td>AGIMO, 2004, Carrara, 2007</td>
<td>give more weight to economic value, rather than considering social and democratic values in the society.</td>
</tr>
<tr>
<td>8</td>
<td>Kearns (2004),</td>
<td>Does not consider e-government service quality attributes, fails to consider the public value creation through operating an efficient and effective public organization, does not take into account the different public values in society.</td>
</tr>
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</table>

NEED OF THE STUDY

Earlier review showed that there were fewer studies conducted evaluating the public value of e-government. But, no rigorous assessment of the public value of citizen-centric e-Government particularly in Indian perspective is available so far although there is much literature that discusses the e-government usage in the public sector in India. Thus, it would be significant to explore the public value of citizen-centric e-Government in India by proposing a conceptual model.

OBJECTIVES OF THE STUDY

In order to answer the above-stated questions, the major objectives of the study are to:

- To understand the concept of public value in general and in the domain of e-government.
- To identify the constituents of Public Value in the domain of e-government.
- To propose a conceptual model assessing public value of e-government projects in India.

THE PROPOSED RESEARCH FRAMEWORK

Major Drivers Creating Public Value:
Delivery of quality public services
The delivery of quality public services is an important public value driver in e-government (Kearns, 2004). The public value created by the quality of public services delivery through e-government is reflected by the value of (a) information quality, (b) system quality (c) citizen orientation.

The quality of information can be measured through citizens’ perceptions about the value of the available information, reflected by the timeliness, relevancy, accuracy, understandability (Wangpipatwong et al., 2009; Papadomicelaki & Mentzas, 2009; 2011), and the level of detail of the information provided (Barnes & Vidgen, 2003).

System Quality originally referred to measures of the information processing system itself and generally reflected engineering-oriented performance aspects (DeLone and McLean, 1992; Negash et al., 2003). Bailey and Pearson (1983) developed and validated items to measure user satisfaction, seven items of which were assigned to measure system quality. Convenience of access, flexibility of the system, integration of systems and response time are examples.

Citizen orientation is about the provision of e-government services in a user friendly manner in order to satisfy users’ needs (Jorgensen and Bozeman, 2007; Karunasena and Deng, 2012b). It can also be measured by citizens’ perceptions on features such as the Usefulness of frequently asked questions, availability of site maps, presence of simple and concise website addresses (Papadomicelaki & Mentzas, 2009).

Effectiveness of public organizations
Effectiveness of public organizations creates public values (Moore, 1995). This can be measured by efficiency, Reliability, openness and responsiveness. Efficiency is deemed as the ratio of the output to the input of any system. It is concerned with getting maximum benefit with less cost, so it focuses on doing the thing with minimum cost. (Myers et al., 1997). Reliability is the confidence of delivering the right products, and correct charges (Alanezi, 2010). Parasurnaman et al. (1988) declared reliability as one of the most important dimensions in SERVQUAL instrument.
Openness is the transparency of public services (Jorgensen & Bozeman, 2007). It indicates the extent to which an organization reveals its decision processes and procedures and performance information in a timely manner (Wong & Welch, 2004).

Responsiveness refers to the degree to which the services provided by an e-government web site is helpful (Yang, and M. Jun, 2002) and resolves their problems (Alanezi, 2010). The public value of the responsiveness through e-government can be examined by considering citizens’ perceptions about the value of public organisations’ timely responses to their inquiries made through e-government channels (emails, forms available online on webistes etc) (Decman, 2007; Gauld et al., 2009; West, 2004;).

The development of public trust
The development of public trust between citizens and government is a key dimension for examining the public value of e-government (Heeks, 2008; Kearns, 2004). It can generally be evaluated from the viewpoint of security and privacy of citizens’ informations (Kearns, 2004; Carter and Belanger, 2005); trust of citizens in e-government and trust in internet has been taken up from the Web Trust Model (WTM) (McKnight et al., 2002; Belanger et al., 2002; Gefen et al).

Achieving socially desirable outcomes
Achieving socially desirable outcomes is a major source of creating public value through e-government (Kearns, 2004; Heeks, 2008). The achievement of socially desirable outcomes is replicated by the deliverables, consequences and impacts that public services are designed to attain or have (Cole & Parston, 2006) including equity, level of corruption, e-democracy, self-development of citizens, and environmental sustainability.

Equity refers to the availability of resources for all, and the protection and promotion of varieties of culture, particularly within minority communities (Benington, 2009). To ensure equity, e-government applications must avoid the exclusion of some groups in the society due to factors such as the lack of skills and resources, disability, income disparities, geographic locations, etc. The self-development of citizens is another important public value created through e-government (Jorgensen & Bozeman, 2007; Karunasena & Deng, 2012b). It measures whether
citizens can learn and develop their skills through various e-government initiatives like e-learning, improvement of ICT literacy skills, expansion of network skills and so forth (UNDESA, 2003).

In the context of e-government, democracy can be assessed by examining the extent to which citizens’ views expressed through e-government are taken into account in the decision making (Machintosh, 2004). Participation is an area of democracy (Machintosh, 2004). Participation in e-government refers to citizens’ participation through various e-participation applications such as virtual meetings, cyber campaigns, feedback pools, and public survey tools (Anttiroiko, 2003).

Corruption can be broadly defined as the abuse of public power for the benefit of private individuals. The introduction of ICT can reduce corruption and can increase transparency. However e-government reduces corruption through information publicizing, instant monitoring, preventing and control, and data sharing (Oye, N. D 2013).

E-government applications can bring many environmental benefits through energy saving, limiting duplication of efforts, sharing data and resources by automating repetitive tasks, reducing the use of paper (ITU, 2008). Public value of environmental sustainability can be measured through citizens perceptions on the value of saving energy, limiting the duplication of effort and resources, sharing data and resources, reducing the paper use, reprocessing consumable equipments (ITU, 2008; Molla, Cooper, and Pittayachawan, 2009).

Proposed Research Model
Based on the theoretical perspectives discussed above, a theoretical framework for evaluating the public value of e-government in India is proposed by addressing the limitations of the existing public value assessment frameworks and major drivers of public value creation. Figure 1 demonstrates the proposed research model.

The proposed research model for assessing the public value of e-government initiatives in India shown as in Figure 1 proposes four major public value creation drivers including (a) The Delivery Of Quality Public Services, (b) The Effectiveness of Public Organizations, and (c) Development of Public Trust (d) Achievement of Socially Desirable Outcomes.
Table: 2 Summary of Proposed Research Model

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Main factors</th>
<th>Sub Factors</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Delivery of Quality Public Services</td>
<td>Information Quality, System Quality, Citizen Orientation.</td>
</tr>
<tr>
<td>2</td>
<td>Effectiveness of Public Organizations</td>
<td>Efficiency, Reliability, Openness, Responsiveness</td>
</tr>
<tr>
<td>3</td>
<td>Development of Public Trust</td>
<td>Security and Privacy, Trust in e-government and Trust in Internet</td>
</tr>
<tr>
<td>4</td>
<td>Achievement of Socially Desirable Outcomes</td>
<td>Equity, self-development, e-democracy, corruption, environmental sustainability.</td>
</tr>
<tr>
<td>5</td>
<td>Public Value of E-Government</td>
<td>Delivery of Quality Public Services, Effectiveness of Public Organizations, Development of Public Trust, Achievement of Socially Desirable Outcomes.</td>
</tr>
</tbody>
</table>

Figure 1: The Proposed Research Model for evaluating public value of e-government
On the basis of the above conceptual model, it can be hypothesize that:
The public value of e-government is affected by Delivery of quality public services,
Effectiveness of public organizations, Development of public trust, and Achievement of socially
desirable outcomes through e-government.

CONCLUSION
This paper attempts to propose a conceptual model by recognizing a set of major determining
factors that contribute to the creation of public value of e-government. After the extensive
review of related literature accessible, the four major factors were identified that have possibly
significant effect on public value of e-government. In addition, empirical study is considered
necessary to inspect whether all of these factors contribute significantly to the public value
creation. A significant positive relationship is expected between the proposed major factors and
public value of e-government. The major limitation of the present study is that it has been
confined to published research papers from academic and practitioners which are accessible to
us. There may be some articles which could not be brought to our attention, for this reason,
explanation of the proposed conceptual model in the present study on Public value of e-
government in India may be to some extent limited.

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