Interplaying User Roles in E-Government Design: A Participatory Good Governance Perspective

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Abstract

The interplaying roles among the user groups must be adequately-mapped to fulfil the design needs of E-government applications. In previous studies, the design of citizen-centric e-government and its theoretical understanding is still limited in relation to the requirement of engaging malleable features for supporting all relevant users' roles in governing bodies. Operationalising IS theories to improve the design of e-government application has been a much sought-after objective. Yet, there is a lack of actionable guidance on how to develop e-government application that exhibits high levels of users' engagement through malleable features. Under a participatory good governance perspective, the paper reports a qualitative study and identifies requirement of malleable provisions to support the interplaying roles among users in a case demonstration of extensional service delivery in government. While service content describes the features available on an e-government application for assisting user groups in completing their support services.

Keywords: e-government; participatory governance; end user group

INTRODUCTION

E-government research both in developed and developing countries around the world have been increasingly promoted as an effective application for enhancing citizens' interactions with governments. A few examples of successful e-government studies include Australia (Queensland Government Report, 2004), South Korea (Kim, Pan and Pan, 2007), Hong Kong (Luk, 2009), Malaysia (Lean, Zailani, Ramayah and Fernando, 2009) and the United States (Doty and Erdelez, 2002). Most of these studies hold common objectives, such as (1) the aim of involving citizens in the governing process; (2) the need to deliver government services or messages to citizens (3) gaining transparency, trust and accountability through greater access to public (4) involving government officials in the need to develop the necessary policy or laws to enhance public orientation in governing processes. This implies that citizen's participation has been of paramount interest in e-government research. Luk (2009) describes the impact of the interaction of all stakeholders on the success of e-government application development. In developing citizen oriented e-government application, the issue however remain unaddressed on what types of technological provisions are required to support the appropriate interplaying roles that will ensure effective citizens' participation.

Under an assumption of the interpretive research paradigm in IS development (Hirschheim and Klein,1989) we conducted semi-structured interviews (Van der Reis, 2000) to explore the status of citizens' participation in a developing country. The aim is to develop new e-government application according to the citizen's needs. Empirical findings suggest:

a) there is an ineffective citizens participation in governance

b) the required interactions between different stakeholders are ignored or inappropriately identified in governing processes

This study addresses these issues by identifying the interplaying roles of different relevant stakeholders (such as government and elected officials and local citizens) to ensure effectiveness of citizen's participation. The interplaying roles we refer in the case of e-government design, is to map appropriate interactions between relevant officials and citizens to deliver public services. The study subsequently identifies the malleable features to support the interplaying roles in designing the e-government application.

Previous studies for e-government development utilise top-down approaches to engage stakeholders in the process of outlining, analysing, developing and evaluating the IS application. Such application development does not ensure a direct participation of citizen in governance (Gould and Gomez 2011). In participatory good governance it is recommended that a direct citizen's participation in the governing process is the key that encourages bottom-up approach in all stages of government services (Barten et al. 2002; Bingham, Nabatchi and O'Leary, 2005; Carley 2006; Ciborra and Navarra 2005). However, there is a little research on how the bottom-up approach will be supported through effective technological provisions for the relevant stakeholders' groups (e.g. top policy makers, government officials and citizens). Our study investigates the interplaying requirements of e-government application development in Bangladesh and identifies provisions of malleable technologies to support the interplaying roles in a service delivery context.

With the demand of rapidly growing malleable technologies, the e-government applications should meet the growing needs for better citizens' engagement in governance (Bertot and Jaeger, 2008). For this purpose it is important to have an e-government application that will foster the key qualities of good governance such as participation, accountability, trust, transparency and predictability (Chadwick and May 2003; Jones, Hackney and Irani 2007; Navarra and Cornford 2005; Newman 2007). However, to address these needs of user-centred design principles in e-government have been prominent recently because, most of the public services are rapidly changing into a demand-driven delivery approach (Verdegem and Verleye, 2009). Consequently, many substantial issues arise in citizen oriented e-government, as the systems are incorrectly influenced by supply-side (van Dijk, Peters, and Ebbers, 2008), technological standing, rather than focusing on users and their appropriate interactions (Kunstelj, Jukic, and Vintar, 2004 and 2007). In addition, studies that reinforce citizen-driven method in e-government show limited advantages to support interactions between different stakeholders (for example Sharif and Manian, 2010; Schedler and Summermatter, 2007; van Dijk, Peters and Ebbers, 2008; and Bertot and Jaeger, 2008). However, none of these studies suggests technological provisions or features to achieve the objective of how to support the interplaying roles across all stakeholders in public service delivery.

Bertot and Jaeger (2006) describe user-centered e-government in which relevant agencies should take responsibilities for how the services meet the citizen's needs. It is suggested that the government agency should "*focus on electronic service delivery, however, does not always sufficiently consider the needs of users, which include ease of use, ability to find and access content, navigation, and a general ability*" (Bertot and Jaeger, 2006, p.164). This argument suggests a significant link between stakeholder's responsibilities and their interplaying roles in ensuring citizen-centric good governance. The interplaying roles of relevant officials should have a complete reflection on service design for target citizen's group. The study thus aims to outline features that may contribute in outlining appropriate interplaying roles within the government context, Research question is thus outlined, as such: *How can we identify malleable technologies that ensure interplaying roles between relevant users groups (end-government and end–citizen)?*

The paper is organised as follows. The next section describes the background of the study. The section after that presents the study design to conduct investigations and empirical findings. The subsequent section provides mealable provisions, followed by a proposed framework. Finally, a discussion and summary are presented, along with proposed potential improvements to the study.

STUDY BACKGROUND

The objective of e-government is to provide government information and services electronically to citizens, business and different government agencies (Gamper and Augsten, 2003). The advantage of this type of application helps in achieving government improved efficiency and effectiveness in the various public service deliveries. Harnessing the application, citizens and other relevant stakeholders can achieve their business goals and required support services. As such, the e-government applications for citizens can be viewed in many sectors such as: public administration (Gamper, 2003), Social security card system (Chen et al. 2009), e-stamping service (Luk, 2009) and policy service in rural court (Doty and Erdelez, 2002). From the citizen points of view, although these services, in most of the cases, bring advantages of reduced cost, increased trust, transparency, convenience, and improved communication (Yildiz, 2007), the citizens however, have limited customisable options on the relevant technology. Given this, the citizens have little scope to establish their expectations in local service delivery. Governments consequently suffer from issues for delivering public services according to the citizen's desires and context specific need, within their traditional settings.

Rowley (2011) describe the e-government stakeholders in terms of who are they and what do they want by proposing typologies of stakeholder roles and stakeholder benefits. Previous studies that reinforce citizen-driven methods in e-government service development (for example, in citizen's features as success indicators -Sharif and Manian, 2010; in customer centred e-government -Schedler and Summermatter, 2007; in improving use of Government Internet services -van Dijk, Peters, and Ebbers, 2008 and customer service improvement -Bertot and Jaeger, 2008) are still limited to address appropriate roles of stakeholders for interactions design. To achieve the objective in citizen-driven approach, it is also important for modelling the critical roles of the citizens and various

responsible government and elected officials who are playing roles in various service creations in the government end.

In end user computing, the end users community have recently been given greater control in system usage (Kreie, Cronan, Pendley and Renwick, 2000). However, the specific issues for end users in developing applications are not straightforward in the business context as Wagner (2000) identifies issues with end-user development namely: completeness of problem identification; decomposition of the problem; and sometimes the system outcomes are inappropriately driven by the end user's probabilistic reasoning (Wagner, 2000). Our study explores this issue through interviewing relevant stakeholders to define interplaying roles of the various actors and provisions within a non-technical user boundary.

User oriented E-Government Research

Previous studies identify many areas of citizen oriented e-government research. Table 1 illustrates some example studies.

Table 1: Examples of previous citizen oriented e-government research

Studies and main topics	*Descriptions of Citizen oriented e-government research*
User centred design in e-government (Velsen et al. 2009).	The study focuses on citizen-centric requirements engineering of e-government services. This case study based study utilizes interviews and citizen walkthroughs to design low-fidelity prototype.
Citizen interaction with e-government (Reddick, 2005)	The study identifies various attributes of citizen interaction with e-government application and provides following recommendations: 1) to make the experience for citizens when they go online more personalized and user friendly; 2) Necessity to market online services that governments offer to citizens; 3) Government should also take into account the digital divide and 3) the focus of governments should lead to more research on what citizens want online.
developing community response grids (CRGs) for community emergency response (Jaeger et al. 2007)	The study describes an e-government system development for better coordination in community response to major disasters.
Evolving relationship of citizens and Government (Evans and Yen, 2007)	The study examines the global scope of e-government by analysing e-government technologies in various countries and impact on the ability of citizens' support and governments to function for their citizens.
Information micro-practices in Texas rural courts (Doty and Erdelez, 2002)	The study uses multiple data collection and data analysis methods to produce a rich, thick description of the participants' behavior which is contextualised and used to identify important challenges in e-government implementation.
User-centered E-Government in practice for measuring user satisfaction (Verdrgem and Verleye, 2009)	The study describes the development of a comprehensive model to measure user satisfaction in the context of E-Government. It restructures the e-strategies of government and subsequently presents a conceptual model derived from ICT acceptance theory.
Evaluation of e-government application (Lean et al 2009)	The study describes factors affecting user intentions of e-government, mainly focusing on enhancement of evaluation strategy.

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The above studies indicate the common directions of citizen oriented e-government research. Our interest is far away from these works in that we focus on users interactions to identify relevant technological features that will fit within a participatory good governance principle. In good governance all stakeholders' interplaying roles are important to provide citizen oriented public services. In fact, different interdependent actors (government, and elected officials and citizens), who are responsible for ensuring effectiveness of citizens' participation, need to forgo the conventional top-down approach of engaging citizens to enhance effectiveness in public service delivery (Callahan, 2007; Holzer and Kloby, 2005; Sobol, 2008). Therefore, this study particularly focuses on the issues of relevant stakeholders' interplaying roles and possible technological features to support the interplaying roles in e-government.

STUDY DESIGN AND FINDINGS

The study used the philosophical assumptions of "*Social Relativism*" (Hirschheim and Klein, 1989) to guide the qualitative investigation in this research, as our data collection involves acquiring different opinions from stakeholder groups. The reason is that our research accepts the interpretive perspective to gain social reality and human expertise that could contribute in developing an e-government solution.

Six cases under two development projects, from each of three different rural local government bodies in Bangladesh, were selected for interviews, mainly to gain insight into citizen's participations in governance in order to develop an e-government system. We interviewed stakeholders who are directly related to government's service delivery. In total of 13 government officials, 21 elected representatives, and 106 citizens were interviewed. The semi-structured questionnaires were used for interviews. The interview method was selected as it is found to be suitable for data collection in developing societies (Van der Reis 2000). The interview texts were then organized under different broad descriptive codes using the NVivo software and coded based on targeted stakeholders groups who have their roles in local government services.

The empirical data analysis shows that inadequate citizens' participation is evident during public service delivery in Bangladesh. Government officials do not perceived any value in interplaying roles with different stakeholders. Elected officials are not representing the opinion of local citizens in public service delivery systems. On the other hand, local citizens or end users expect to gather more information about public service policies and procedures that affect them. This result thus indicates that a system is required in Bangladesh that will promote local citizens to join in local decision making process and empower them in public service systems through malleable technologies.

While local citizens were asked about the present system of their participation in local governments' processes they replied:

> *Of course we wanted to participate all along in the program but nobody called us. We elected our leader to speak for us, but he serves the purpose of officials.*

Similarly, a group of local businessmen said, during interview, that local elected and government officials do not share information with them.
> *They [officials] never invite us to join in their planning process, even if we want to do it voluntarily. They don't disclose their budget to us. It is really disgraceful/ ridiculous that they are here to serve us but they behave like our guardian. Sometimes they do not disclose their plan; what they intend to do for our benefit.*

Government officials found not interested in involving local citizens or perceived no value of local citizens knowledge. These extension officials claimed that they have more knowledge and information than local citizens, and hence they are right citizen to make a decision that will effectively benefit the local people. When they were asked how they determine the best desired project and satisfaction of local people with those development outcomes, they replied:

> *we are working in this area and we know all the pros and cons better than local people and their representatives, thus we are the best section to identify and select any development project within this Upazila (local council).*

Elected representatives, on the other hand, shown confident about their involvement in local programs and claimed that properly representing local citizens in decision making processes. In their view, they are elected by the local people through the democratic process so that they are actually working as spokespersons at the decision making table, instead of the people, and the people have bestowed a mandate on them to do so.

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I don't ask local people to be involved in the development programs. People have elected us to look after all the 'positives and negatives' that affect them, so I don't find any further need to ask every person about their opinion.

In fact in rural Bangladesh public representatives are inclined to government officials for the sake of doing corruption together. During interview, one local people vented his frustration in the following words.

Local leaders or bureaucrats are not accountable to us. Actually they were never accountable to us for their jobs. We can change a chairman after five years, i.e. through election. But where is a good candidate? Those who are good are penniless. They have no capacity to spend money for election. Even if a good person got elected, he would become changed after holding that chair.

During field study it is found that government officials only hang a signboard to inform local people about public developments and they think that is the end of involving local people in government service delivery.
To inform the local people we hung a signboard showing details about the project like: total budget, commence and finishing date, sponsoring authority, name of the contractor etc.

However, these types of signboards are not even placed for every development project: many development projects, during the field study, were found to be without any signboard. One report of the Asian Development Bank also mentioned that 'whilst GoB [Government of Bangladesh] requires that information is publicly displayed, for example at the site of construction work, in practice this is seldom the case' (ADB 2004, p. 28).

Because of these disengagement of local people with local government programs most of the development has been ineffective in rural Bangladesh. During interview one businessman expressed his dissatisfaction over the newly developed rural market.

It spoiled our business; earlier I had a big shop at the middle of the market, and I used to get a big turn over. But, now I only have a small shop outside the periphery. People do not want to visit this side. I am thinking to move to a new market.

Similarly, one primary school teacher said during interview that

All functions are performed by the Upazila Engineer and his collaborator –the contractor [supplier]. I think you have seen the worst quality of the building and furniture they provided. This engineer is the worst (corrupted) one I have ever seen in my life. They constructed such a building that will not last for five years; it started cracking at once. The plaster is falling out from the wall, and the furniture is damaged virtually before being used.

Observing these types of poor developments, local people gradually become more interested to join in local service delivery systems. During interview, some people are found to be very cautious about their rights of participation. According to these people, the local government's program is for them and local officials are working to render service to them.

What's wrong if we participate? We can work like a team. We know our problem better than the engineers and contractors. This project could be done differently if the officials asked us to participate.

We may be poor, we may have little academic knowledge, but we also have a voice regarding the activities that affect us. Unfortunately, no one is there to listen to us.

The above data analysis thus reveals that government and elected officials in Bangladesh want to provide a top-down service delivery only through informing local citizens. On the other hand, local citizens want more involvement in local services that affect them. Therefore, a system is required where local citizen can participate to outline their service requirements and government officials can share citizens' knowledge to policy development or relevant decision making. This will enable collaborative decision making in a preferable mutual way. The above data analysis thus indicates malleable e-government can address these issues of interaction. A malleable system is required for Bangladesh where local people would be involved in service delivery through better interactions.

PROPOSED FRAMEWORK

This study identifies the requirements of different stakeholders' involvement in generating an example government services for citizens in the agricultural sector. In this aspect, the aim is to outline the interacting roles that recognise different functional activities in government extensional service design. The interplaying roles can be informed through the tailorable technology built on "*the principles that allow an information system to be*

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modified by a user in the context of use" (Germonprez, Hovorka, and Collopy, 2007, p. 352). The structure of the interplaying roles is driven by a few key components.

The key components are based on tailorable provisions for the user functional activities. The tailorable provisions are to adjust the users' needs via facilitating features through appropriate interaction. The first functional role is for upper government management (i.e. top decision makers) that allocates resources and assigns tasks for service improvement/design. The second role is for government officials, where they can see the allocated service improvement/design tasks for continuously monitoring and enhancing services according to the citizen's requirements, or tailor them to their specific business context. Government officials create the service delivery rules of service offerings for the particular citizen groups. The third role is for the citizen that provides details for obtaining their business specific services. The combined framework will enhance interplaying roles of relevant stakeholders in delivering local services and will ensure effective operations at the end. The following table 2 shows the malleable features for enhancing interactions between the three identified stakeholders' groups.

Table 2: Malleable features in three different levels of e-government application

Malleable features for effective interactions in e-government	Descriptions
At user access level	The user access level includes access options for stakeholders. A manager can oversee activities. Citizen can obtain relevant services for their specific farming situation through a service request. Citizens can add relevant aspects and fields to provide specific details. By entering their farm level details, they can participate in obtaining government support services. One of the vital features for them is that they can add/remove their own relevant aspects specific to their appropriate farming conditions. Government officials can track down details for meeting the needs and expectations of the particular citizen groups.
At knowledge organization and utilization level	The knowledge organisation level is for government officials in which malleable service options exist and government official can acquire new requirements of their service priority and relevant actions.
Rules and policy level	The level includes tailoring options to generate relevant support rules. Government officials can generate support services through the use of business rules. They can group, categorise, and prioritise the support services through the features on the page. The service then can be delivered to the particular citizen groups in terms of downloadable materials.

As defined in table 2 our proposed framework identifies the interplaying boundaries of different stakeholders' roles to provide provision of activities. It offers features to support the needs of the particular user groups within a level of "*tailorability*" in which they can customize the features according to the emergent citizen's needs. For an instance, Figure 1 illustrates a screen-shot of our prototype in which the government official sets up different service rules for particular citizen groups to fulfill their needs.

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Figure 1: Screenshot of the extension professionals' page in which they tailor services for particular citizen groups (Adopted from Miah, 2012)

DISCUSSIONS

The case study findings revealed that when implementing e-government application for citizens in Bangladesh, the interplaying roles between the relevant stakeholders need to be thoroughly identified for effective public service delivery. Findings also suggested that government officials are less-interested in engaging local citizens and providing value of local knowledge. For instance, some extension officials claimed that they have more knowledge and information than local citizens whereas local citizens are expressed their interest to join in governance. A similar resistance from government officials were experienced in implementing e-government applications in South African countries (Schuppan, 2009). However, malleable provisions (demonstrated in three levels in table 2) for the user functional activities aimed to empower end users in public service delivery that can setup an initial basis for an e-government in developing country.

Citizen-driven e-government must deal with the paradox of the critical interplaying roles between the relevant actors who are directly linked to root level delivery of public services (Miah, 2012). A little is known in the previous studies on the interplaying roles of relevant end users and how it should be implemented through a technological support (Miah, 2012). Other related studies (Miah, 2009; Miah, Kerr and Gammack, 2009) discussed the interplaying roles in a dimension of decision support systems design. However, in this paper we extend the idea of implementing the interplaying roles in the development of citizen oriented e-government application.

We did not directly evaluate the proposed framework and its malleable features however we argue that our empirical findings suggested that e-government needs people-oriented features and the theoretical findings supported malleable features to implement direct participation. Without this good governance is nearly impossible. Our finding gathered from the root level of citizen's interactions reinforced adaption of user enabled technology so citizen with other stakeholders can be empowered as it is suggested as vital in many e-government studies over the past (Chadwick and May 2003;Cater and Bélangerg, 2005). End user citizens, in this study, though did not mention about e-government approach directly, but their opinions suggested that they require a malleable tool that may help them to participate effectively and interact meaningfully with other stakeholders in the governing process. The proposed e-government features could be ensured through use of end users knowledge that has been supported by our empirical findings. This study also revealed that achievement of good governance and effective development are not possible without the use of end users' knowledge and their active participation. Only an approach through e-government with proposed malleable features can help to ensure interplaying roles between all stakeholders in Bangladesh, which consequently enhance development of normative qualities in governing processes.

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CONCLUSION

The study identified a requirement of interplaying roles of relevant stakeholders to deliver effective government services, in which citizen's direct participation are ensured to gain qualities of governance in a developing country context. Qualitative field study provided a great deal of insight that suggests the importance to support the citizens' participation through the use of malleable technologies. This will allow citizens to be empowered through their participation in delivering various services. Citizen enables to customise the technology according to their specific requirements. An example screenshot of our prototype has been presented.

The study focused on interplaying roles of different relevant stakeholders in establishing citizen oriented e-government within a good governance context. Citizens' (end user) participation in end user's computing was the main research area. End user computing is an established research area in which various user roles are investigated within different IS design contexts. The philosophy of end user programming enables end users to create their own programs and using this, many researchers have been argued about empowering end users in system solutions (Burnett, 2010). Under the end user programming, Cabitza and Simone (2010) described a framework to enable the end-user development of "*coordination oriented functionalities*" that address user-friendliness, awareness of conventions and the context to enable users to quickly respond to service design. Drawing from this a further study is required to develop/refine the coordination oriented features in order to complete the e-government solution prototype. Potential improvement to our idea can be seen through the end user programming concept and our further research is in progress to refine the prototype solution for usability testing.

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