

E-Government Systems in Developing Countries: Stakeholders and Conflict

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Abstract. With the widespread deployment of e-government systems in developing countries, and also their high failure rates, it is important to understand the complex processes that underlie successful implementations of large-scale information systems. MIS theory has explicated the nature of conflict in the design of information systems and the reasons why systems are resisted by stakeholders. In this context, it is important to have a nuanced reading of stakeholders in the e-government systems domain to understand the origin of conflict and resistance to such systems. This paper develops a framework for stakeholder groups and uses this to analyze conflict and resistance in four case examples of implemented e-government systems in India.

1 Introduction

E-government systems in developing countries represent vast public interventions. These are high technology interventions where the population that is targeted for these services is usually not well versed with the technology or with the new methods of acquiring government services. Most e-government systems in developing countries fail. In November 2004, Robert Schware, Lead Informatics Specialist at the World Bank, remarked that about 85% of the e-government systems that were implemented in developing countries turned out to be either total (35%) or partial (50%) failures.

While looking for the causes of these failures, many points are cited, ranging from the lack of sustained high-level governmental support to the corruption at the lower-levels that prevents the normal functioning of the system to technical flaws in the design or implementation. What is usually overlooked are the issues of conflict and active resistance to systems that emerge from groups of people who are responsible for both the delivery and the consumption of the services. Issues of resistance and conflict, though well researched in the Information Systems discipline, are often not used for understanding or theorizing about e-government systems. The objective of this paper is to highlight the value that understanding conflict and resistance by stakeholder groups can bring to the theory of e-government systems. In particular, in developing countries, these phenomena play a crucial role because existing institutional mechanisms cannot address the deep issues of disruption and disintermediation raised by e-government systems.

1.1 Methodology

This paper relies on the case-study method to support the issues of stakeholders and conflict. Four independent e-government initiatives from India are used as the case studies. Data about the cases is obtained from interviews (primary data), published papers, published reports and media reports. One case example forms the primary basis for assessing the hypothesis whereas the others provide additional support.

In the rest of this paper we begin with a review of the theories of conflict (or potential for conflict) that have been addressed in the Information Systems literature. A review of the subtle notions of stakeholders and their relevance for this analysis is then presented. The next section highlights the specific issues of conflict that arise in the e-government systems being studied in this paper. The last, concluding, section outlines the theoretical contributions of this research and points to future work.

2 Literature Review

External e-government systems or government-to-citizen systems in developing countries are embedded in public spaces and deliver services that are demanded by a significant and diverse population. Their implementation success is based on neither their technical merits alone (the systems view) nor on the aspects of change management and user acceptance alone (the user view). Such systems are embedded in a web of relations or in a web of interactions within a particular socio-economic context and their design and implementation requires an understanding of this context [1]. When viewed out of this context, particularly as a tool (to achieve a specific goal of, say, increased speed of processing), or as a proxy (as a surrogate for some economic criteria, say development), or simply as a nominal object (simply a name for some other object or action, say human development), e-government systems may suffer an endemic and hard-to-pinpoint problem of rationale, that is, why were they conceived and what was their goal [2]. This paper considers the “ensemble” view of information systems as the most relevant for the understanding of e-government systems and explores issues related to conflict, resistance and the role and motivations of stakeholders and their implications for the system that they have to interact with.

2.1 Conflict and Resistance

In a classic paper Hirshheim and Klein (1989) used the notions of conflict and order as a priori and ontological realizations of meaning by systems designers and users to derive four paradigms of systems development. Conflict, as opposed to order, as an ontological commitment entails assuming that objectives and goals of systems development will be opposed and contested by various groups concerned with the system. Conflict is related to change, disintegration and coercion. Hirshheim and Klein contended that most systems development efforts

fall under the functionalist paradigm where the basic working assumptions are of objectivity and order. The other three dimensions that include subjectivity or conflict are rarely, explicitly deployed by systems developers. The fundamental assumption of the functionalist paradigm is that all the groups or individuals involved in a project share common, objective and well-defined goals for the project and despite differing on the means of achieving the goals the ends are the same. One consequence of this paradigm is that it makes the issues of power, conflict and resistance outside the domain of the developer, enabling the focus on rationally defined objectives. The main drawback of this paradigm emerges from this denial, as agreement upon ends is rarely achieved in situations where there is a contestation of goals.

In another classic paper, Markus (1983) identified the roots of resistance to information systems as being in the interactions that new information systems had with people who were to use the systems. The principal issue, in retrospect, that Markus raised was that of the sustainability of the system. The most popular reasons advanced for the abandonment or overhaul of expensive information systems projects were those of technical problems with the system, lack of top management support, lack of "user-friendly" features in the system, a generic resistance to change from users, and a resistance to change deriving from perceived excess costs of systems that outweigh the benefits. However, Markus showed that simply the systems features, internal to the system, were not responsible for resistance to the system and neither were factors of resistance from people, inherent resistance, resistance to innovation etc. The interaction between people and systems was the basis of resistance, where resistance is understood as an active stance by an individual or a group to prevent the system's objectives from being achieved, as opposed to either or both theories outlined above. This interaction is best understood as a political process where systems are resisted (or not) if they redistributed or altered the basis of power within the organization. One important consequence of this theory is that it can explain why in certain cases people welcome a new system whereas in others they strongly oppose the same system; it all depends on the interactions they have with the system.

The political variant of this theory posits that information systems frequently redistribute power among key actors of organization where power is broadly understood as an individual or group's ability to cope with uncertainty and have their way in the face of resistance. Redistribution of power occurs when certain information, relevant and necessary for doing work, is made available by the new system to those who did not have this access before. The task of examining power relations is based on the assumptions that the intentions (derived from the specifications) of the system are known and that there is a particular structure of the organization in which the system is being used.

2.2 Stakeholders

The idea of stakeholders was developed in the literature in Organization Theory where the essence of a corporation's survival and success depends upon the ability of its management to create sufficient wealth, value, or satisfaction for all its

primary stakeholder groups [5]. In the field of Information Systems a stakeholder is a person or group who is able to have an impact on the eventual system in a practical sense [6]. By this definition one has to include all parties who can affect a system, whether their traditional roles and responsibilities are enhanced by the system or depreciated. The information systems literature has subtle variations on the notion of a stakeholder [7]. One difference is that most researchers consider a stakeholder to be one (individual or group) who is affected by a system. After a review of the extensive literature on stakeholders, Scholl (2001) concluded that the concept of stakeholders was necessary and important for public sector management also owing to the need for ‘inclusion and management of constituencies.’

Owing to the nature of e-government interventions it is important to include within the research ambit the questions of resistance, conflict and complex stakeholder relations. A review of the extant e-government literature reveals that such a viewpoint is lacking owing to an excessive emphasis on descriptive case studies and technology solutions discussions [9].

3 Demand-Side and Supply-Side Stakeholders

It is useful to view the stakeholders that impact the eventual success of a system as belonging to either the demand-side, those who will consume the services of the system, or to the supply-side, those who fund, design, implement and maintain the system. Individuals, groups and organizations belong to either stakeholder group according to their relationship to the system. These categories are not water-tight, that is, there could be individuals or groups who belong to both categories. This categorization enables a richer understanding of the e-government implementation process. It will be observed that most e-government systems implementations in developing countries are driven by the supply-side, who design the services, the processes and the architecture of the system without consulting any demand-side stakeholders. Supply-side stakeholders dominate the implementation process and are mostly informed by their own ideological commitments or by the technological imperatives of their commercial partners. They have control over all the resources and deploy them according to their understanding of demand-side needs.

Demand-side stakeholders consume the services of the e-government system and, on occasion, provide the revenues that sustain the systems. There are instances where demand-side stakeholders such as citizens’ groups and civil society groups have demanded that they be included in the implementation process but this is rarely achieved. They influence the eventual success of the system through use or non-use and are directly impacted by the service efficiencies achieved.

To understand the different stakeholder groups let us consider a particular e-government system, the Bhoomi system, that was implemented in the state of Karnataka in South India, and was launched in all districts of the state in 2001. It essentially allows farmers to receive a record of their land holdings at a reasonable price and also enter requests for mutations (changes in the land

record resulting from sale or inheritance) into the system. Land records are maintained electronically and details about crops are updated thrice a year. The main product of the system is a Record of Rights, Tenancy and Crop (RTC) certificate that is provided for a nominal price of Rs 15 (about \$0.33). This system replaced a manual system that was maintained by village accountants and was reportedly hard to access owing to corruption and red tape.

Neither demand-side nor supply-side stakeholders form a contiguous group, and there are further divisions of the stakeholders depending on their distance from the system (see Figure 1). For the demand side the primary users are the farmers who have records in the system and who use the system extensively. Till October 2004, over 22 million farmers had accessed the system since inception. Farmers use the certificates mostly to apply for loans from banks, along with using it as a surety in courts, for checking the details of their data, and for use in selling or mutation. With the advent of a faster process of obtaining the certificates, banks have an increased possibility of doing business (of giving loans to farmers) and they are the secondary demand-side users. Other secondary users are courts, police stations, and other financial institutions. Those institutions that benefit from the increased service in banks and courts are the tertiary demand-side users. On the supply side the primary users are the kiosk-operators

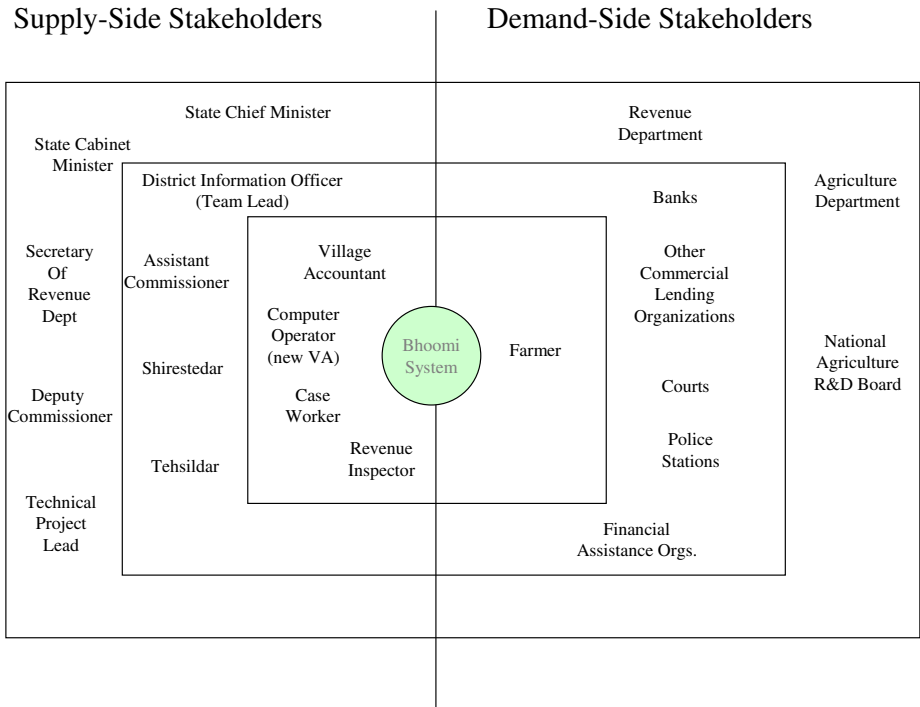


Fig. 1. Stakeholder Diagram - Bhoomi Example

(new village accountants) who run and maintain the system at the local level, the old village accountants who provide update data, case workers who assist farmers and revenue inspectors who are required for mutations of records. At the secondary level are district information officers, Tehsildars and Shirestedars (district officials) who also participate in the mutation process but not directly. They receive reports from the system that assists (or impedes) their work. At the tertiary level are the owners of the system such as the Secretary of the Revenue department, the Chief Minister of the state and others who are the top management that championed the project and whose work is indirectly assisted by the system.

4 Analysis

Using the framework of stakeholders and the issues of conflict and resistance that arise within e-government systems implementation we examine a number of e-government case studies. The case studies provide data and insights into various aspects of conflict and resistance. Data for the case studies was obtained mainly from secondary sources such as published reports and papers, and in the case of Bhoomi data was also obtained through primary means such as interviews and surveys. A brief description of the cases is provided in Table 1.

Table 2 outlines the conflict that arises in the expectations of demand-side and supply-side stakeholders. These conflicts may be viewed as goals, formally stated or informally understood, that stakeholder groups had of the system during its design or implementation. The figure outlines broad goal conflicts amongst groups, however there are subtle issues within each side that need to be highlighted. The fourth column identifies the resistance that results when there is a presence of conflict. In many cases of conflict there is not explicit resistance to the system that is manifest. There is no claim being made here that there is a directly observed and measured act of resistance here to a particular conflict. The observed phenomena in the case is best explained by the categories of conflict and resistance as attributed.

Conflict in the Bhoomi system is evident along the following points:

1. Historically, land records in Karnataka state were maintained in five different languages and the formats for the records were in the hundreds. In one particular region each land-owner practically had his own land record format. The issue of conflict here is that when computerization was attempted there was an expectation that the details available in the various formats and languages would be preserved in the new format (in Kannada, the official language of Karnataka). However, in many cases this was not done and much of the details were lost in the current data format. In some cases, lawsuits have been filed to rectify the suppression of data during computerization.
2. In the manual system the village accountant (or *patwari* in Karnataka) maintained all the records and there was a certain protection of privacy as he would allow only the concerned farmers to see their records. There was abuse of this power as corrupt accountants could show the records to anybody for a price.

Table 1. Description of E-Government Projects

E-Gov Project	Description
Bhoomi	Land records digitization project in the state of Karnataka, India, where 20 million land records were digitized and maintained in databases. The system provides access to farmers via kiosks located at taluk (part of district) headquarters where for a nominal sum farmers may obtain certification of their land holding and cropping, as also submit applications for mutation. In 2001 the Bhoomi system was legally vested and all manual records were made illegal. Sources: [10,11,12].
CARD	Another land records project implemented in the state of Andhra Pradesh in over 200 centers. The goal of the system was to introduce transparency and efficiency in the land registration process. The system was legally secured by amendment of laws but the manual process existed simultaneously. Sources: [13]
CRISP	A planning tool for development projects promoted by the Government of India. The tool assisted in data collection in rural areas, divided into blocks, and helped with analyzing the data for awarding bank loans to those who had been identified as needy and eligible as such by the survey. Pilot tests were successful and the systems were deployed in several blocks. After some time the systems fell into non-use and were subsequently abandoned. Sources: [14].
Gyandoot	Envisaged as a low-cost, community-owned, rural Intranet project, it was initiated in the remote Dhar district of the state of Madhya Pradesh. Twenty villages opted to set up information kiosks, with their own money, that were networked in an Intranet and served a population of about 20-30000. Youth from the villages were trained to man these kiosks as self-sustaining ventures. Each Gyandoot kiosk offered services such as: prices of agricultural produce at various auction centers in the state; copies of the record of rights to land at a nominal price; online application for revenue, caste or domicile certificates etc. Gyandoot facilities were used by up to 40,000 village users in the first few months of its deployment, with usage ranging from auctioning cows to seeking brides. The system was unsuccessful and was abandoned.

In the computerized system, the objective was to make all records ‘transparent’ at the taluk level. As such anybody can pay the minimal fee and access any record in the system by simply using the record number. The supply-side rationale for this transparency was to expose any possibility of corruption, such as changes made to records without the knowledge of owners. This conflict has subtle variations, where some demand-side stakeholders welcome the ability to view the land holdings of other owners, ostensibly to detect illegal acquisitions. On the down side, some land for which taxes have not been paid, in cases where owners cannot afford the tax, become targets for land sharks. They are able to obtain details about such land easily and target the owners.

3. An express intention of the supply-side designers was to exclude the traditional village accountants from having sole control over managing the land records. This was to avoid corruption as well as provide the state govern-

Table 2. Stakeholders and Conflict

Project	Demand-Side Stakeholder	Supply-Side Stakeholder	Resistance
Bhoomi	Multiple languages and formats for land records	Single format in one language for all records	Cases filed in court
	Privacy of land records	Open availability of land records to all, transparency	
	Inclusion of village accountant; an access to power	Removal of traditional village accountant; all transactions now at the taluk level	Resistance to system from old village accountants
	Address inequities of land records	Not a matter for e-governance to resolve	
	Inclusion of cadastral maps on digital records	Cadastral maps would slow down the implementation process	Cases filed in court for map updation
	Reduction of officials in processing	Inclusion of Tehsildar in mutation process	Objection expressed by farmers
CARD	Reduction in intermediaries in registration office	Retention of all functionaries in registration office	Continued usage of document writers for registration
CRISP	Variety of needs for which loans to be sanctioned	Limited needs for which loans to be sanctioned	
	Inclusion of local leaders and bank officials	Inclusion of only planning personnel	Bank officials stopped using the recommendations of the system
Gyandoot	Permanent access to higher level officials via the system	Temporary access to high officials	

ment better and updated information about cropping patterns and land issues. With Bhoomi installed the village accountants could no longer issue the land certificates to farmers to obtain loans for seeds and fertilizers. They were also not able to entertain applications for mutation of the records to adjust for sales and partitions. For many farmers this was a loss of their access to a power base. The village accountant was an easily accessible government functionary within the village with whom the farmers could maintain a long-term relationship. With the new system the power had shifted half a day's journey away to the taluk headquarters and new functionaries were in charge. The old village accountants actively resisted the computerization process and they had to be removed by bringing in about 1000 new village accountants who were trained to man the kiosks.

4. One of the strongest demands of the farmers of the land records management system was that it address the huge inequities and problems that had

cropped up in the land records over the years. According to a McKinsey report over 90% of the land parcels in India were disputed [15]. The practice in the British colonial period was to re-survey the land every 30 years and then resolve the ownership issues arising out of divisions and consolidations and sale etc without having to go through court [16]. Such a practice has declined in independent India as for most states land revenue constitutes a small fraction of its tax revenue, for example, in Karnataka, in 1990, the land revenue was only 0.8% of the state's tax revenue. Karnataka has not undergone a land survey and revision since 1978 and when the computerization effort was initiated in the 90s the problem of inequities was exacerbated. The stand of the supply-side stakeholders was resolute on this issue, they were not able to make any changes in land records as they did not have the legal mandate to do so and besides it was a highly time-consuming activity that would delay the computerization process.

5. The issue of cadastral maps is related to the above point. Since a survey had not been conducted, the maps were also outdated. Rather than digitize outdated maps the Bhoomi management decided to exclude them from the entire land management system.
6. In the Bhoomi system the district-level official, the Tehsildar, was introduced in the land record mutation process whereas in the prior manual system this official only had to consider escalation cases. This aggregates control and power at the level of the Tehsildar at the district-level, reducing the power of revenue inspectors, village accountants and Shireshtedars. Farmers are opposed to such a change as it increases the official review time and, in some cases, increases the corruption levels because of the increase in red tape for mutation.

The CARD system of Andhra Pradesh (a neighboring state of Karnataka) is similar in concept as the Bhoomi system but underwent a somewhat different trajectory. One of its key design goals was to maintain the number and scope of officials in the registration office as demanded by the employees. This was incorporated in the design of the system but was later objected to by the demand-side stakeholders as it retained the levels of corruption in the system. One act of resistance was that citizens went back to using document writers, or agents, who would act as intermediaries for them for a price. The expressed objective of the CARD system was to remove such intermediaries and hence to reduce corruption [13].

The CRISP system reported by Madon (1992) provides a clear example of stakeholder conflict. One of the reasons why farmers sought loans was to buy dairy cows. Loans were approved for this purpose. In a situation where there was a lack of a market for milk, farmers tried to process and sell clarified butter (*ghee*) but this was objected to by the lending authorities and their activity was stopped. The entire loan processing system in CRISP was highly politicized where demand-side stakeholders were interested in subverting the system as it did not allow them control over the loan disbursal process. Corrupt officials who were influenced by the local politicians about the planned loan dispersal process stopped using the system allowing it to fall into disuse.

In the Gyandoot system, which has subsequently been abandoned, one of the main differences in the perceptions of the demand-side and supply-side stakeholders was the duration of the engagement of government officials. From the documents it appears that the initial design by the supply-side was to set up a facility with e-governance services included but it was to become an independent service kiosk by itself, economically surviving by providing digital services to the local population. The demand-side stakeholders on the other hand were expecting the increased access they had to senior district officials via email and other means to continue but this did not happen. Further, the economic and administrative support that the government had initiated was also pulled away, against the expectations of the village residents. The Gyandoot system was not actively resisted by anyone but fell into disuse and failed. This is in sharp contrast to its initial promise, when it won the Stockholm Challenge Award in 2000.

5 Conclusion and Future Work

In the light of the large number of failures of e-government systems in developing countries it is important to consider issues other than the usual ones that derive from a functionalist paradigm of systems development. Developers of e-government systems have to contend with politics, power struggle, and conflict, although the literature that deals with this is sparse. This paper develops a framework of stakeholders that allows a nuanced reading of the conflict and resistance inherent in e-government systems. Stakeholders are understood to belong to either demand-side or supply-side groups where their role and relationship to the e-government system is understood from the ultimate benefits (or costs) they derive from the system. For supply-side stakeholders, e-government systems help to improve efficiency, transparency and effectiveness of services. These are the proclaimed benefits. More realistically, the systems often serve to enhance their power base in the public context, improve their standing with local politicians, help them with their career growth, etc. Demand-side stakeholders are rarely included in the design or implementation of e-government systems and as such there is hardly any record of their motivations for supporting e-government systems. Post hoc surveys, after the systems have been implemented, show that they benefit from speedier services and less corruption. But in most cases the benefits are marginal and have few externalities.

A review of four implemented e-government systems in India revealed that the framework of stakeholders is adequate to explain the conflicts and resistance that arise. Several issues raised in this context have to be addressed by future work: a) The stakeholder theory presented in this paper is normative and helps to explain some of the complex phenomena observed in the case studies, however it would be more useful in the instrumental sense where specific prescriptions could be made regarding design of e-government systems. b) The theory as presented seems to imply that resistance arises from conflict and not the other way around. This could be understood better by empirical work that examines the genealogy of events in the life cycle of an e-government system. c) Existing lit-

erature [17] shows that stakeholder importance and needs vary according to the life cycle stage an organization is in. The argument can be extended to show that stakeholder roles and importance also vary with the stages of an e-government project, from initiation to maturity. These roles are dependent on the nature of the stakeholder's interaction with the system with impacts of the system being felt as first order, second order or higher order effects. Stakeholders who initially benefit from the system will correspondingly impact others who will derive economic benefits from the first order beneficiaries. (The impact of the system could be negative also.) This web of dependence would determine the impact and outcomes of the system as it matures. This would have to be examined theoretically as well as empirically.

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