

Assessment of E-Government Projects

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INTRODUCTION

This article considers the issues relevant to assessing the success or failure of large-scale e-government projects in India. Prior research has highlighted a number of possible reasons why e-government systems in Less Developed Countries (LDCs) fail, underscoring, principally, the issue of the design-reality gap or design-actuality gap. We find that this analysis, though useful, is inadequate to capture the immense complexity of e-government systems design and implementation. This article proposes and elaborates on three issues that must be examined in the context of any e-government system in an LDC to assess its success or failure, in addition to other analyses. These issues are: demand- and supply-side stakeholder analysis, second order effects, and analysis of incentives for governance efficiency. We use the Bhoomi e-government system implemented in the state of Karnataka, India, as an exemplary system to elaborate on these issues and also to discuss concrete the theoretical aspects.

The article begins with a background of the literature on assessment of e-government systems and considers the issues of analysis, design and implementation of such systems. It then follows this review with a brief overview and history of the Bhoomi land records system. This is followed by a discussion of the issues of stakeholders, second order effects and incentives.

BACKGROUND: MEASURING E-GOVERNMENT SUCCESS

E-government systems that are designed for services that a population may use are typically hard to classify as successes or failures as the period of evaluation is a crucial factor in the assessment (Heeks, 2002b). Such systems may enjoy early success followed by declines in usage and then another upsurge, etc., where, if the metric of success is the number of people who "adopt" the service, the time at which the measurement is made may decide the evaluative result. These systems may be categorized as successes, partial failures or total failures, thus including in a continuum the measure of success. Heeks develops a theory of a "design-actuality

gap" between the current system and the vision of the future system that the builders have constructed based on the people, processes, structures and technology that are required. In another paper Heeks (2002a), identifies seven dimensions that help to map the difference between "where we are now" and "where we want to be." These dimensions, such as information, technology, processes, etc., help to find a gap (or lack thereof) in the achievements of the e-government system in relation to its design and implementation objectives.

Other research has highlighted factors that impact the success of e-government systems. Buckley (2003) showed that quality of public services through e-government offerings is predicated on the service meeting the criteria of having homogenous consumer groups, definable tasks and measurable outcomes. Burn and Robins (2003) found that a process change model proposed in the literature (Guha et al., 1997) was adequate for analyzing an e-government implementation. Hazlett and Hill (2003) found that delivering high service quality through e-government implementations is fraught with complexities, the most important of which is the dilemma of both reducing costs and improving quality. They argue that e-government implementations were motivated by "idolatrous" leanings toward technology rather than rational comprehension of the complexities involved. Devadoss and others (2002) used a structuration model, which examines the symbols of signification, domination and legitimation of the system within the social context, to analyze e-government projects. They identified tele-cooperation in the initial stages of the project to be important for the project's success, where tele-cooperation entails a holistic view of the project by all the participant agencies and actors. Layne and Lee (2001) developed a four-stage growth model based on the complexity and integration requirements of e-government projects to enable designers to "think about" the implementation process. Warkentin and others (2002) highlighted trust as the most important factor affecting e-government adoption and proposed a multi-pronged approach to build citizen trust.

The above literature review is a sample of papers that have appeared in the area of e-government project assessment. There are a plethora of methods, frameworks and models by which e-government implementation processes and outcomes may be measured and assessed,

and each is linked to a particular culture or economy. In the section below the Bhoomi e-government system is discussed, and the following discussion highlights some of the issues that arise in the context of Bhoomi that are not addressed by the models covered in the review.

THE BHOOMI SYSTEM

The Bhoomi e-government project of Karnataka is fast gaining recognition as one of the best-implemented projects in India. As of this writing, the Bhoomi model of digitizing land records and implementing a system of easy access to records, for verification and changes, is being adopted by the Government of India to replicate on a nationwide basis. This follows a felt need by the government to improve services for the bulk of India's over 1 billion population that is engaged in agriculture. The Bhoomi project is designed for the computerization of land records and all operations that surround it, such as, obtaining a copy of a land record, correction of errors on a land record, the mutation of land records, etc. The process was initiated in 1991 with financial support initially from the Government of India. To date about 20 million land records have been digitized covering the land holdings of some 6.7 million farmers in the state. Bhoomi kiosks are now located in all 177 taluks (a division of a district) of the state's 27 districts.

Bhoomi is one of numerous e-government projects undertaken by state governments in India over the last decade to introduce transparency and efficiency in government functioning. Such ventures are designed to enhance convenience in dealing with the government through easier, faster and smoother alternatives available to citizens. Bhoomi is considered to be a successful e-government project in India. Some of the stated reasons for this are: (1) Bhoomi has the most comprehensive backbone application of all the projects (a database of land records and associated cropping details), (2) Bhoomi is a self-sustaining project, (3) Bhoomi's success has gained international recognition and it was awarded a Silver Medal in the CAPAM (Commonwealth Association for Public Administration and Management) International Innovations award in the year 2002. (The CAPAM association covers over 80 countries.)

Bhoomi computerizes records of Rights, Tenancy and Cultivation (RTC), a document that establishes ownership, records succession of ownership, and crop details. In addition, farmers use RTC documents while seeking loans, getting scholarships for children, bail applications and crop insurance applications.

The manual system that Bhoomi replaced required the farmer to find the village accountant (VA), set up an

appointment, make the request, pay the requisite fees and bribes, and then wait several days (sometimes weeks) to obtain the document. In the Bhoomi system, the farmer approaches the Taluk kiosk for the RTC and makes a request by providing necessary information to the kiosk operator. Once a request is received, the relevant record is retrieved from the system. The main difference to the farmer is the speed at which his record can be retrieved, verified and printed (15 minutes on average) on Bhoomi as opposed to the manual method. For the VA, the difference is also in the speed of access, but a greater difference is the loss of control over the process and the data. Independent sources who have verified Bhoomi's usage through direct evaluation reported that farmers found the system to be easy to use and access, had fewer errors in their certificates and saved time in getting their records. Users also saved money in lost wages and bribes (Lobo & Balakrishnan, 2002).

COMPLEXITIES IN THE BHOOMI PROJECT

Bhoomi's design started in 1991 and the system became fully operational by 2001. It was hailed as a success by the media and observers, however, Bhoomi's eventual success is not without contradictions and compromises built into the governance mechanisms. Some issues that arise are:

- The digitized land records are maintained in each district and any farmer can access his or her information for a nominal fee. This introduces transparency in the information related to land records. However, it has also enabled the records to enter the public domain. There is no restriction on who can have access to the land information. This is a breach of privacy and could lead to misuse.
- The time required to obtain a copy of an RTC is much lower with the new system. However, farmers now have to travel a longer distance, to the taluk headquarters, and the average for the return trip takes about a day. The costs include the cost of travel, incidental expenses, and, in some cases, a loss of wages.
- Bhoomi is a silo application. It was funded, staffed and promoted by the Revenue Department of Karnataka, and other departments did not participate in its design nor do they use the data available in the system.
- The Bhoomi project did not include the digitisation of maps of the farming lands and the management of these maps remains a manual process. Also, the

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