

E-Information System as a Tool for Rural Development Of India – A Study

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ABSTRACT

E-government applications are being implemented in various developing countries under the promise of accelerating development processes. The initiatives are driven by the promised power of ICTs, which governments try to draw upon to modernize their functioning and to offer better services to the citizens. Further, these initiatives tend to be driven by the policies of international donor agencies that often impose such initiatives as a condition for aid. In this thesis, it is argued that these initiatives tend to be implemented within an economic development perspective that tends to marginalize concerns of the human well-being. The capability approach drawn from the works of Amartya Sen, which emphasizes the moral side of development and the enhancement of human capabilities, is seen as a useful means to try and redress this imbalance. This thesis presents an in-depth theoretically informed and empirically based study of e-government initiatives undertaken in India. Theoretically, the aim is to understand the development philosophy inscribed in the studied e-government initiatives and how they seek to meet broader developmental concerns as articulated by Sen's capability approach. The theoretical aim is to analyze the relation between e-government and development, which provides an important contribution to the domain of studies relating to ICT for development. Empirically, this relation between ICT and development is analyzed within the context of the broader strategy in India of public sector reform and development, and three particular e-government projects currently ongoing are studied. The three projects studied included: the electronic Land Management Information System, the State Financial Management Information System and the Government Network.

The research questions guiding this study were: 1) What is the process and underlying principles that drives the implementation of e-government initiatives in developing countries? 2) What are the major theoretical building blocks that can help to theorize the complex relation between e-government and development? Epistemologically, the research was conducted applying an interpretive research approach. The study was conducted in three provinces of India and took place during the period between 2005 and 2007. Empirical data was collected from 123 individual interviews and observations as primary data collection sources.

Keywords : E-government, Electronic, Economic growth, Poverty

1.1. Introduction

This study is concerned with understanding how e-government implementation can support poverty alleviation and a country's socio-economic development. Specifically, the study tries to link the potential of e-government applications with the enhancement of human well-being. The study is empirically based on a research conducted in India and theoretically based on Sen's (1984, 1987a, 1987b, 1993, 1999) 'capability approach'. This study is relevant in a developing country context where e-government is being widely advocated as a tool for development, and yet its contribution to alleviating development problems seems largely unrealized (Heeks and Kenny 2002; Wade 2002; Avgerou 2003).

The term '*electronic government*' or '*e-government*' focuses on the use of new Information and Communication Technologies (ICTs) by governments as applied to support the full range of their functioning. ICTs are means for communicating, collecting, storing, processing, disseminating information and are potentially inscribed with characteristics of speed, accuracy and reliability related to information handling (Hammer 1990). There is a belief that ICTs are capable of contributing to organizational efficiencies, rational decision-making (Kenny and Morton 1978; Sprague 1980; De Sanctis and Gallupe 1987), productivity (Landauer 1996), and enabling developing countries to compete on a more equal basis in the world market (World Trade Organization 1998; United Nations 2000). In particular, with the networking potential offered by the Internet and related technologies, there is belief that ICTs can radically change relationships among government, citizens and businesses by reconfiguring flows and also the content of information defining these relationships (Heeks 1999, 2001, 2004; Lal 1999;

Wolfensohn 2001; Ciborra 2003). Governments around the world are enthusiastically embracing e-government, based on a conviction that ICTs can transform government's often existing negative image by improving efficiencies (Pacific Council International Policy 2002).

The current optimism over the potential of ICTs in the context of e-government goes further, in the way that it is believed that they can promote development

and help alleviating poverty (UNDP1 2001). The DOTForce2 (2002) report states as follows:

“ICTs offer enormous opportunities to narrow social and economic inequalities and support sustainable local wealth creation, and thus help to achieve the broader development goals that the international community has set.” (pag.3)

Arguments such as above are leading different institutions and governments to focus their primary attention on the use of ICTs in the fight against poverty, often limited to issues of enhancing Internet access (Panos 1998, pag.1). The government of India is not an exception to this phenomenon, as exemplified in the following quote from the Primer Minister:

“...my country has recently adopted its national ICT policy, because we clearly see that ICTs have become an indispensable lever for a country’s development. In today’s world, it is the ability to efficiently and effectively use ICTs that plays an increasingly important role for a country’s relevance and competitiveness in the global economy.” (His Excellency Dr. Pascoal Mocumbi – Primer Minister of India, Italy, April 11, 2002)

Specifically, the adoption of e-government, for many is linked to the idea of good Governance, which in turn is seen as a condition for sustainable development, economic growth and poverty alleviation (Government of Italy and United Nations 2002). Better accountability and improved transparency are seen as the characteristics of good governance and becomes the *conditio sine qua non* for rich states and international agencies to supply aid to developing countries (Ciborra 2003). Therefore, in current times the purpose of many aid policies is to support the introduction of e-government into developing countries. However, despite this push, empirical research has not conclusively established a positive relation between the use of ICTs and poverty alleviation (Wang 1999; Eggleston *et al.* 2002; Heeks and Kenny 2002; Wade 2002; Avgerou 2003; Odebra-Straub 2003; Paré 2003; Madon 2004; Thompson 2004).

Given the existence of this ambiguous and complex relationship between e-government in particular and development, this study explores this relationship

using the development approach articulated by Sen (1999) also known as the 'Capability Approach'. Sen's approach to development has had significant policy impact in the UNDP and World Bank (Gasper 2002) and enables one to evaluate the bundle of options (or commodities) available to individuals in relation to their alternatives to lead a preferred kind of life. Therefore, evaluating what benefits, means and ends e-government can offer for development, involves fundamentally theorizing the relationship between e-government and development.

1.2. Research Motivation

India is a country of villages and about 50% of the villages have very poor socio-economic conditions. Since the dawn of independence constant efforts have been made to emancipate the living standard of rural masses. The five-year plans of the central government also largely aim at Rural Development. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture, handicrafts, fisheries, poultry, and diary are the primary contributors to the rural business and economy.

Rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. The present strategy of rural development mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programmes of wage and self-employment. ICT is the new tool for rural development. Information and Communication Technology, if used properly can be of great advantage for the development at grass root levels. At the same time challenge remains with the administration to capture the minds of the rural masses, mostly illiterate, to make them adapt the new technology which is completely alien to them. There are various -Rural development schemes run by the government of India and also organizations are present to look after the implementations of these programmes.

Within this historical context, examining the relation between ICTs and development is indeed a deep research challenge. Like in many developing countries, poverty reduction in India is the first and foremost policy goal. However, it is not a straightforward task, as it involves many inter related facets, including that of e-government for development which constitutes the focus of this study. Theoretically, the concept of development in e-government has often been taken for granted (Zheng 2007), primarily concerned with technical issues of systems development (De 2006), and being equated with economic development (Avgerou 2003; Madon 2004). Furthermore, even less is discussed about the moral implications as inscribed in Sen's view of development.

Based on my background in Computer Sciences and Information Systems (IS), where IS are argued to be conceptualized as social systems (Walsham *et al.* 1988; Land 1992), I theoretically seek to understand the relation between e-government and development and how this can also practically contribute to make e-government implementation efforts more effective in broader terms.

Also, this study aims to respond to the call in IS research by Walsham and Sahay (2006) who advocate the need to explore the meaning of development in relation to ICTs. They suggest the use of the concept of development from Sen (1999) as a possible philosophical lens for exploring the meaning of development and how ICTs can contribute to making a better world as a moral obligation.

1.3. Positioning my Study within e-Government Discourses

E-government has become a subject for debate among politicians, donors, scholars and practitioners. The nature of e-government discourses follows various trends, which include technical, political, socio-economic, theoretical and sometimes combined perspectives. Technical discourses tend to stress aspects of software, hardware, connectivity, access, communications and e-government technical models (Gil-García and Pardo 2005; Signore *et al.* 2005; Odebra-Straub 2003). Political discourses stress, for example, on e-government

visions and policies (Cecchini and Raina 2004; Signore *et al.* 2005; Gil-García and Pardo 2005). Discussions on the process of implementation of e-government projects in developing countries often emphasize on specific socio-economic discourses of e-government (Backus 2001; Allen *et al.* 2001; Okot-Uma 2005; OECD5 2003). Many related studies have pointed out the limited success in developing countries with respect to e-government applications (Avgerou and Walsham 2000; Heeks 2003), and realizing practical benefits on the ground. Therefore, there are various ongoing debates on the reasons for failure and the development of roadmaps (or guidelines) for success (Gartner Group 2000; Pacific Council on International Policy 2002; Heeks 2003; UNDESA6 2003). Research suggests that e-government initiatives in developing countries fail in 60% (UNDESA 2003) of the projects and only 15% of them can be described to be a complete success (Heeks 2003). It has been argued by many researchers that in order to succeed, these countries should follow various prescriptions (Pacific Council on International Policy 2002; Heeks 2003; Okot-Uma 2005), such as defining a clear vision and strategies of e-government within a country, selecting carefully the respective projects, strengthening political will, improving infrastructure and creating ICT culture and awareness. Another trend concerns the theorization of e-government: the use of theoretical and philosophical lenses to understand the phenomena of e-government. Actor Network Theory (ANT), Information Infrastructure, Structuration and Institutional theory and currently, Development theories are some of those being used by researchers to theorize e-government. For example, Fountain (2001) and Yang (2003) have explored the relationship between e-government and institutions using Institutional theory arguing that the evolution of e-government represents a process of institutionalization.

Government transformation through e-government is a complex process that depends heavily on the concerned institutions, and is dependent on peoples' visions, beliefs, and action, not only on formal or official authorizations for transformation (Yang 2003). For Fountain (2001), e-government success depends on the what she called, 'stability' and 'resistance' of institutions, meaning that the mere presence of technology would not necessarily bring

about change in governance, and building a virtual state is about the process and politics of institutional change rather than a set of predictions about the end results (pag. 203-204).

ANT and Information Infrastructure was recently used to analyze e-government by Navarra (2006) and Stanforth (2007). ANT is an interdisciplinary approach to social sciences and technology studies, and can be seen as an appropriate lens for e-government analysis, given the heterogeneous, socio-technical and multidisciplinary characteristics of such applications. ANT can be used to conceptually untangle the socio-technical processes involved, related to the development, introduction, use and consequences of e-government related initiatives (Monteiro 2000). In particular, ANT makes us sensitive to aspects of translation (Callon 1986), inscription, and black-boxing as social action and technical agency intermingle during the growth and stabilization (or not) of any information infrastructure (Monteiro 2000). Further, it sensitises us to the need for the heterogeneous resources needed (e.g. public opinions, role assignments, management support, expertise, work effort, contracts, budgets, standards, accepted work routines, software, technical devices) which have to be coordinated to get an e-government system eventually up and running effectively (Klischewski 2000, 2001).

With current international discourses focusing on development, another e-government theorization has emerged – ‘*e-government for development*’, in the context of developing countries (Bhatnagar 2002; Heeks 2003; Avgerou *et al.* 2005). Sen’s capability approach has been seen by various researchers as an appropriate theoretical lens to guide the analysis of the relationship between e-government and development (Madon 2004; De 2006; Zheng 2005, 2007). This approach has been complemented by other avenues to evaluate e-government based on social indicators (Bhatnagar 2002; OECD7 2003; Madon 2004) such as the Millennium Development Goals (Bhatnagar 2002). Various empirical studies have been carried out within this paradigm, especially based in Africa and Asia (Krishna and Walsham 2005; Zheng 2007; Byrne and Sahay 2007). Therefore, this thesis contributes to this body of research, specifically through

an empirical analysis of the e-government and development relationship in the context of particular applications in India.

1.4. Research Questions and Objectives

The underlying assumption informing this research is that e-government can contribute to development if its emphasis is on offering opportunities for individuals to effectively improve their well-being. This assumption has led to the following research objectives:

- 1. To conduct an empirical analysis to identify the process and rationale of implementation of e-government initiatives for development in India.***
- 2. This includes depicting the major challenges and opportunities in the process of e-government implementation.***
- 3. To conduct an empirical and theoretical analysis to identify the constituents of development that can and should be emphasised in the e-government implementation for development.***

These research objectives lead to the following research questions:

- 1. What is the process and underlying principles that drive the implementation of e-government initiatives in developing countries?***
- 2. What are the major theoretical building blocks that can help to theorize the complex relation between e-government and development?***

2.1. Rural Development Schemes in India

Pradhan Mantri Gram Sadak Yojana (PMGSY): This is a scheme launched and fully sponsored by the Central Government of India. The main objective of the scheme is to connect all the habitations with more than 500 individuals residing there, in the rural areas by the means of weatherproof paved roads.

Swarnjayanti Gram Swarozgar Yojana (SGSY): This was implemented as a total package with all the characteristics of self employment such as proper training, development of infrastructure, planning of activities, financial aid, credit from banks, organizing self help groups, and subsidies.

Sampoorna Gramin Rozgar Yojana (SGRY): This scheme aims at increasing the food protection by the means of wage employment in the rural areas which are affected by the calamities after the appraisal of the state government and the appraisal is accepted by the Ministry of Agriculture.

Indira Awaas Yojana (Rural Housing): This scheme puts emphasis on providing housing benefits all over the rural areas in the country.

2.2. Rural Development in India-Organizations

Department of Rural Development in India: This department provides services such as training and research facilities, human resource development, functional assistance to the DRDA, oversees the execution of projects and schemes.

Haryana State Cooperative Apex Bank Limited: The main purpose of the Haryana State Cooperative Apex Bank Limited is to financially assist the artisans in the rural areas, farmers and agrarian unskilled labor, small and big rural entrepreneurs of Haryana.

National Bank for Agriculture and Rural Development: The main purpose of the National Bank for Agriculture and Rural Development is to provide credit for the development of handicrafts, agriculture, small scaled industries, village industries, rural crafts, cottage industries, and other related economic operations in the rural sector.

Sindhanur Urban Souharda Co-operative Bank: The main purpose of the Sindhanur Urban Souharda Co-operative Bank is to provide financial support to the rural sector.

Rural Business Hubs (RBH): RBH was set up with the purpose of developing agriculture. The Rural Business Hubs Core Groups helps in the smooth functioning of the Rural Business Hubs.

Council for Advancement of People's Action and Rural Technology

(CAPART): The main purpose of this organization is to promote and organize the joint venture, which is emerging between the Government of India and the voluntary organizations pertaining to the development of the rural sector.

2.3. Scope of ICT in Rural Development

Recent developments in Information and Communication Technology (ICT) have introduced a plethora of opportunities for development in every conceivable area. ICT as an enabler has broken all bounds of cost, distance and time. The fusion of computing and communications, especially through the internet has reduced the world indeed into global village creating new actors and new environments.

One of the major components and driving force of rural development is communication. Conventionally, communication includes electronic media, human communication & now information technology (IT). All forms of communications have dominated the development scene in which its persuasive role has been most dominant within the democratic political frame work of the country. Persuasive communication for rural development has been given highest priority for bringing about desirable social and behavioral change among the most vulnerable rural poor and women. Initially, the approach lacked gender sensitivity and empathy of the communicators and development agents who came from urban elite homes. Added to these constraints is political will that still influences the pace and progress of rural development. Technological changes further compounded the direction of rural development as information and communication technology (ICT) has been thought by communication and development workers as a panacea for other ills that obstructs the development process. It has lead to indiscriminate applications and use of ICT in every aspect of information dissemination, management & governance of development. While there are few shining examples of achievements of ICT in development, there are a large number of failures and unauthenticated claims.

The closing decade of twentieth century was the opening of historic information and communication technology interventions for development. This period has witnessed enormous and unprecedented changes in every aspect of communications technologies policies, infrastructure development and services. The ICT boom in India has already started changing the lives of Indian masses. The role of ICT in Rural Development must be viewed in this changing scenario.

2.4. Expected Role of ICT in Rural Development

Since the dawn of independence, concerted efforts have been made to ameliorate the living standard of rural masses. So, rural development is an integrated concept of growth, and poverty elimination has been of paramount concern in all the five year plans. Rural Development (RD) programmes comprise of following:

1. Provision of basic infrastructure facilities in the rural areas e.g. schools, health facilities, roads, drinking water, electrification etc.
2. Improving agricultural productivity in the rural areas.
3. Provision of social services like health and education for socio-economic development.
4. Implementing schemes for the promotion of rural industry increasing agriculture productivity, providing rural employment etc.
5. Assistance to individual families and Self Help Groups (SHG) living below poverty line by providing productive resources through credit and subsidy.

Communication has been seen by a large number of development planners as a panacea for solving major social evils and problems. Apart from development, the introduction of communication in the educational process for open and distance learning is seen as step towards improving the quality of education and bridging the social and educational gap. ICT can be used towards betterment of education, agriculture, social awareness and health and hygiene.

3.1. Research Methodology

The study is based on secondary data and data is procured from published sources like the websites of Ministry of Rural Development, research papers, books and periodicals and newspaper reports.

3.2. Rural Development

India is a nation with 69.8% of total population lives in rural areas [1]. With such large rural population government is required to make concrete efforts for the development of Rural areas. Undoubtedly Government of India has made considerable efforts like Digital India campaign initiated in 2015 to reduce the digital divide and ICT has proved to be a tool for its successful implementation. As per Chambers rural development is a strategy which enables people to benefit themselves and their families by fetching more of what they need [2]. Singh defines Rural Development as a process which leads to sustainable improvement in quality of life of poor people residing in rural areas [3]. Table 1 highlights that even though the percentage of rural population in India is decreasing since last two decades but still it accounts for major proportion of total population. In 1991 the percentage of rural population was 74.3% which reduced to 72.2% in 2001 leading to 69.9% in 2011. This decrease in rural population could be understood as an indication that there is a need to provide better facilities in rural areas. It indicates that more people are migrating to urban areas in past two decades in order to get access to better facilities and services available in cities.

4.1 Summary of Research Findings

This thesis aims to address the following research questions:

1. What is the process and underlying principles driving the implementation of e-government initiatives in developing countries?
2. What are the major theoretical building blocks that can help to theorize the complex relation between e-government and development?

In Table 5.1, I summarize how the different articles described in this chapter contribute

to the thesis questions, and then discuss them in more detail.

Table 5.1. Synthesis of the Research Findings

<i>Research Question</i>	<i>Article</i>	<i>Findings</i>
What is the process and underlying principles driving the implementation of e-government initiatives in developing countries?	Article i	The implementation of e-government offers a number of opportunities for developing countries. However, it is accompanied by a number of adverse contextual challenges related to implementation. In order to help meeting the developmental goals, the process involves aligning every set of e-government project objectives with the country's broad development objectives. A country's public sector reform is one example of strategy that is linked to e-government. The process involves various stakeholders from different sectors to work with e-government. There are various principles driving the implementation of e-government globally: the tenets of New Public Management, Modernization, Improvement of governance, Economic and Social Development. Locally, there is the willingness, vision, strategies and local needs that shape the implementation process.
	Article iii	E-government projects aiming to meet social development goals are being implemented as isolated initiatives in the same context. Therefore, there is a need to improve the mechanisms of cooperation and communication across them to enhance the process of sharing experiences and not having to reinvent the wheel.
	Article vi	There are limited effective e-government assessment models based on interpretive analysis, which gather various intricacies implicated in the process of implementation of e-government. Participation in e-government cannot be restricted to (e-) participation. There is a need to value the participation of local people, and the knowledge they hold. E-government implementation is necessarily a complex and time consuming process.
	Article vii	New structures emerge from e-government implementation process. For example, new legislation is created.
What are the major theoretical buildings blocks that can help to theorize the complex relation between e-government and development?	Article ii	The capability approach is the major theoretical thought to plan, analyze, implement and evaluate e-government for development. The capability approach emphasizes more on what people value and not just economic development. Current e-government initiatives fall short in this regard.
	Article iii	The achievement of social development passes through the process of learning, which offers opportunities to enhance ones capabilities and functionalities.
	Article iv	Literacy is one of the basic capabilities that can help people to enjoy the opportunities inscribed in e-government.
	Article v	E-government is not a homogeneous technology but rather, it is composed by a set of technical and non-technical components, which are interlinked.
	Article vii	The society is driven by existing structures and the creation of new laws/legislation is one of the characteristics and requirements of e-government.

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Article vii New structures emerge from e-government implementation process. For example, new legislation is created. What are the major theoretical buildings blocks that can help to theorize the complex relation between government and development?

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The capability approach emphasizes more on what people value and not just economic development. Current e-government initiatives fall short in this regard.

Article iii The achievement of social development passes through the process of learning, which offers opportunities to enhance ones capabilities and functionings.

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Article v E-government is not a homogeneous technology but rather, it is composed by a set of technical and non-technical components, which are interlinked.

Article vii The society is driven by existing structures and the creation of new laws/legislation is one of the characteristics and requirements of e-government.

□□What is the process and underlying principles driving the implementation of e-government initiatives in developing countries?

In practice, e-government implementation is a process, not solely about installing online services. It is a process that involves building other concurrent infrastructure including training and creating awareness of the phenomena amongst people. E-government implementation process includes the development of appropriate visions, policies and strategies which are aligned with the country's development strategies such as poverty reduction and public sector reform. These processes take place under contextual constraints, for example, limited financial resources contributing to (un) met interests of international, national and local governments.

E-government implementation is also a process driven by international and national motivations. It is greatly motivated by processes of globalization (Jeger 2000; Polidamo 1999) including the drive towards New Public Management (Jeger 2000). New Public Management seeks to inscribe the following features into e-government processes:

decentralization, improvement of governance performance, custom service standards, outsourcing, market driven approach, liberalization of management, public-private partnership, entrepreneurial proposals and privatization of the state owned enterprises (Jeger 2000). In all this, ICT is seen as an important tool to enable development, a view often supported by donors and international agencies (Ciborra 2005).

Meanwhile, meeting the international and national agendas is extremely challenging at the local level of implementation requiring various forms of joint actions. Constructing joint action at the local level is difficult as processes are disjointed, with minimal sharing of experiences and learning taking place. Similarly, evaluation also tends to take place in isolation with cross-sectoral linkages being largely ignored.

□□ What are the major theoretical buildings blocks that can help to theorize the complex relation between e-government and development?

The capability approach is the major theoretical building block proposed in this

Thesis, and is extremely relevant given the majority of e-government projects that serve to enhance developmental goals. Given this, the capability approach offers an effective lens to see a range of development issues, with particular attention to what individuals need for their well-being in terms of specific capabilities and functionings. E-government implementation can thus be seen as a development intervention, which aims to enhance individual capabilities and functionings, and to remove the major constraints they suffer from and promote their well-being.

Notwithstanding the emphasis on the capability approach as the fundamental building block to theorize e-government for development, this thesis suggests additional concepts that can help to understand their relationship more effectively. Literacy is seen as the foremost complementary concept in this regard since e-government stands upon a strong basis of a literate population. Only through literacy, can people both enjoy the opportunities that e-government offers for development and actively participate in their use.

Meanwhile, e-government for development does not depend only on literacy (which is often based on formal education), but also on how society formulates solutions for everyday problems. One important problem domain concerns the lack of sharing of experiences across projects, forcing the repeated reinvention of the problem wheel. So, the focus on learning is: How to enable sharing and communication of experiences and best practices across projects. In this way, synergies can be developed and value added through these projects towards achieving developmental aims.

Learning takes place in social context. According to Karp (1986), agency in a social context is influenced by structures (existing or new) which in turn influence agency. Therefore, social structures serve as an important building block for analyzing the relationship between e-government and development. There are formulated rules (or specific written formal structures) involved in the implementation of e-government, which may enable/constrain the achievement of development objectives. Informal structures are part of the e-government

process as well, for example, related to informal modes and practices around communication. The notion of structures and how they are socially constituted and constituting, further help to look at e-government not just as a technical but a socio-technical phenomenon.

4.2 Linking the Capability Approach and the Research Findings *Procedures*

The proposed conceptual framework was inspired by the capability approach perspective, and also provided the frame in which to collect empirical data. For example, the capability guided me to examine empirical examples about capabilities, functionings and freedoms. Table 5.2 summarizes some of the concepts used to shape the empirical process. The capability approach also informed the process of identifying the constraints and conditions (e.g. institutional arrangements) that shape the achievement of e-government implementation goals, for example related to constraints of literacy. The analysis process further led to the expansion of the capability perspective as applied to e-government implementation.

Table 5.2. Functionings, Capabilities and Freedoms

	<i>e-SISTAFE</i>	<i>LMIS</i>	<i>GovNet</i>
<i>Functionings (ends)</i>	<ul style="list-style-type: none"> - Transparency in the management of public funds; - Participation in the budgeting decision making; - Being paid (public servants) on time. - Accountability in the execution of public finances; - Equity in the allocation of public finances; - Responsiveness in public finances related issues. 	<ul style="list-style-type: none"> - Transparency in the management of land; - Land conflicts reduction; - Effectiveness and efficiency in data sharing; - Responsiveness in land related issues. 	<ul style="list-style-type: none"> - To have reliable, effective, trustable means of electronic communication; - To be informed (have access to public sector information).
<i>Capabilities (means)</i>	<ul style="list-style-type: none"> - The ability to perform financial transactions; - The ability to administrate and manage effectively public funds; - The ability to access 	<ul style="list-style-type: none"> - The ability to register land electronically; - The ability to administrate and manage land electronically; 	<ul style="list-style-type: none"> - The ability to communicate electronically intra and inter public organization.

	benefits of good financial management.	- Apply less effort to have land issues sorted out. - The ability to access land related information	
<i>Freedoms (choices)</i>	- Choices for decision making process (eg. financial managers).	- Choices of using land titles for other transactions; - Choices for decision making process (eg. land surveyors, politicians, surveys).	- Choices of means of electronic communication and sources of information.

I now discuss some of the challenges I experienced in using the capability approach, and how I tried to address them.

5.1. Conclusions

In this study, I have tried to persuade e-government practitioners, politicians and managers on how e-government implementation for development should be understood in order to be effective. Such persuasion was based on theoretical constructions of development, information systems as social systems and empirical evidences collected in a particular developing country context. Thus, arguably I have contributed to the articulation of a richer understanding of the key elements implicated in e-government implementation. This study can help to further our knowledge base about what we need to make the relationship between e-government and development more effective

Meanwhile, while this is one of the early studies drawing upon the capability approach in IS research, and definitely the first of its kind in India, there are important future implications that have been identified.

The capability approach stands upon the satisfaction of several combinations of Capabilities . Current approaches tend to be guided primarily by market models, not often adequate for the purposes of supporting processes of social development. The capability approach offers a potential to cover both market and non-market environments. So, it not only includes material profits but also

aspects of people's well being opportunities- to have adequate information to lead a life one deserves.

As a positive implication of this research, the capability approach is a mechanism for the planners to assess the quality of e-government initiatives. The conceptual framework adopted, helps to delve into hidden possibilities and issues that are often taken for granted as existing or missing; for example, those of literacy and learning.

Such studies can stimulate e-government current practices for the expansion of literacy and learning programmes. For society, in general the capability approach applied in real life problems can be considered as an opportunity of creating solutions for their problems, since common frameworks of development have, to some extent, excluded their needs.

Future studies in this domain should seek to build on the work of Madon (2004), of assessing e-government achievements using the capability approach. While existing studies till date have not conclusively demonstrated evidence of e-government projects having improved people's capabilities, functionings and freedoms, there is a need to identify context specific approaches of how this may be achieved. While this study may have made modest gains towards this end, arguably significant work still remains to be done if we want e-government applications to deliver their promised potential.

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