Structurational Analysis of e-Government
(Case from Andhra Pradesh, India)

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SUMMARY

E-government is currently prioritized as a tool for re-energizing the delivery of citizen services. But its implementation turns out to be complicated owing to the intrinsic customary structures of public authorities; the multiplicity of the services accessible and significantly due to the inapt correspondence among various parameters involved in the implementation process. Therefore, it is essential to address these facets for a comprehensive dissemination of e-Government as it contains a social change process that occurs in a society along with various parameters and their interaction.

With this premise the objective of this study is to identify the inter-relationships among the dimensions of e-government and the critical factors that emerge out of their inter-relationships for the success of e-Government implementation from the perspective of structuration theory of Giddens (1976). The focal point of exploration is the IT enabled integrated electronic citizen services (eSeva) system for local administration at one of the Indian state. Qualitative methodology with a case study approach by multiple data collection methods was employed to develop an in-depth understanding of the e-government implementation process. The data collection and analysis are aligned according to the structurational framework.

The contributions of this study are: firstly, finding critical structurational factors which have contributed to the success of e-government implementation. Secondly, developing a model for success of e-government implementation, based on these findings. It mainly addresses the impact of interactive relationships among the constituents involved in implementing e-government and their role in restructuring the traditional public service system in an urban environment. While our study does not represent the entire picture of constituting an e-Government system, but certainly provides essential imperatives by highlighting the issues associated with interactive elements that are involved in the development and implementation process.

The results suggests that the success of implementation entails the concerted and collaborative efforts of all involved; willingness and strong commitment of policy makers

plays a predominant role in interweaving IT into routine work process in a conventional public setting; alignment between services and needs are optimized when service delivery models with effective infrastructure are designed around citizen's perception, rather than restricting to the needs of departmental structures; process models like structuration are more suitable for e-government for their ability to recognize the association of reciprocal inter-relationships that perform key function in implementation process.

Although our study focuses on a single case, but impart the basis for the future studies. Its applicability will be enhanced when the details associated with the issues discussed in this study are tested at national and cross country levels. While the practical implications of this study will allow administrators to proactively amplify the prospects of e-government success, the theoretical implications will facilitate for expanding more theoretical lucidity on e-government research.

We conclude that it would be appropriate for the government to look into the structural, technical, political, managerial issues and the manner how these parameters mediate with each other. This is essential, since the integration of delivery of multiple services is more complicated. Adding-in multiple services in a phased manner is more practical rather than integrating all the government services in a single attempt. We emphasize that technological benefits are augmented, only when its application is implanted along with the clear perceptive of the impact, which evolves out of its association with other parameters and their mutual interactions.

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List of Abbreviations

AP Portal	Andhra Pradesh Online Portal
APVAN	Andhra Pradesh Value Added Network
APSRTC	Andhra Pradesh State Road Transport Corporation
ASCI	Administrative Staff College of India
BSNL	Bharath Sanchar Nigam Limited
CARD	Computer-Aided Administration of Registration Department
CPDCL	Central Power Development Corporation Limited
E-government	Electronic Government
eSeva	Electronic Services
FAST	Fully automated Services of Transport Department
HRMS	Human Resources Management System
HU	Hyderabad University
ICSC	Integrated Citizen Service Center
ICT	Information and Communication Technology
IFIS	Integrated Financial Information System
ISDN	Integrated Service Digital Network
IT	Information Technology
MCH	Municipal Corporation of Hyderabad
MPHS	Multi Purpose Household Survey
OLTP	Online Transaction Processing System
RPO	Regional Passport Office
RTA	Regional Transport Authority
SAUKARYAM	Civic Urban Information Management System
SBMS	Social Benefits Management System
SKIMS	Secretariat Knowledge Information Management System
VOICE	Vijay Wada Online Information Center

Appendix

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 Research Background and Motivation

E-Government is on the proximity to become an important extension for the range of digital services offered by the government. It is gaining a high priority as a tool for re-energizing the public administration. In addition, it is emerging as a promising arena and widely used phenomenon (Tan et al. 2002) for refining the relationship and co-operation between government and the citizen (Heeks, 2001a). E-government is perceived as a cost and time effective medium to improve the delivery of citizen services, reduce digital divide and enhance the administrative role of government (Satiny, 2000). This belief is consequently resulting in vast investments on e-government around the world (Huang et al. 2002).

The current status of e-government illustrates that it is largely perceived as an "application of Information Technology to government service" (Marchionini et al. 2003). Although Information and Communication Technologies are instrumental for e-Government, the 'technological' approach alone fails to acknowledge its role in renovating the social setting (Montealegre, 1997) of a government. The technological changes in government are embedded with in a social and democratic process and applying technologies vigorously for service delivery could yield unpredictable consequences (Fountain, 2003) without a clear understanding of the requirements of the government and citizens. Many IT projects in government are inclined to total or partial

failures (Heeks, 2002) due to inapt correspondence among all the constituents involved in implementation process. Hence it is essential to address the other issues apart from technology, for a comprehensive dissemination of E-government.

Government is a social institution and its transformational course is a social process as it entails prolific interactions between human actors and administrative structures. The interactions of this nature in the public administration often complicate the course of transformation. They play a vital role while redesigning the administrative process and citizen services through e-government. Therefore it is very essential to emphasize these elements for successful diffusion of e-government for more optimistic results.

1.2 Significance of research

The prospect of e-government has also drawn interest from academic world. It has identified several factors such as technical, managerial, political, financial, senior management support, cost, time, functional, social information processing, supply, demand and cultural barriers (Bannister, 2001; Hackney and Jones, 2002; Nidumolu et al. 1996; Margetts, 2002) as either imperatives or impediments for successful implementation of e-government. But the existing empirical study on e-government represents a clear deficit in identifying the significance of the interactions of structure and human actors. In addition it also lacks in identifying the critical factors that emerge out of their interrelationships in the transformation process of conventional government to electronic structures.

The confluence of technology and communications culminated with the advent of the Internet is exposing the governments and the citizens to the contributions of IT-enabled communication mediums (Fountain, 2003). The potential of e-government as effective medium for public service delivery is widely recognized among government, general public and private business organizations. At present, application of Information and Communication Technology is woven into the fabric of social life (Fountain, 2003).

The awareness and exposure to the rapid technological growth is impelling the public to anticipate better responsiveness in their dealings with the government. Today, citizens are no more passive recipients of government services. They are unwilling to endure the hassle of time-consuming and unpredictable public services (Holmes, 2001). Concurrently governments have also realized e-government as a modulator to reinvent the public administration and reinforce the government-citizen relationship. They have initiated to offer an array of IT-enabled citizen services through diverse channels such as Internet, public portals, citizen service centers and kiosks.

The e-government services are mainly segregated into government to citizen and government to business. In either of the cases, it involves the interaction with the citizens. Government to citizen services allow public to make payments for various public utility services, registrations, tax payments, licenses and permits at a single gateway. Government to business applications includes all those related to business operations such as permits to set commercial organizations, submitting tenders for municipal works,

facilitating for the payments of essential services of private sectors such as telephone bills.

In summary, e-government is perceived as a citizen-focused, "one-stop service" portal to access and offer uninterrupted electronic services (Wimmer, 2002). In addition, it also facilitates refinement of citizen-government co-operation; administrative reform; rearticulation of service delivery and government functioning (Heeks, 2001; 2002) by facilitating a better client orientation (Sullen, 2002). All these understandings are projections of a very optimistic view of the new bonding between government and the citizen, which is gaining importance in the recent years in the administrative arena. They are undoubtedly the result of interactions between human actors and the structure of e-government system. The interactions that reconcile this new bonding have to be evaluated as they can either facilitate or impede the implementation of e-government. Therefore the study of the associated factors that are critical for successful implementation is important for optimizing the benefits of e-government.

With this premise, this study attempts to understand the development and implementation process of IT-enabled electronic citizen services, the eSeva (electronic services), and an e-government project initiated at one of the Indian state. This study attempts to enhance the impact of interrelationships of structure and human interactions and also the critical factors that emerge out of them in making the implementation of an e-government system successful.

While this study may not provide a comprehensive portrait of building an e-government system, it certainly highlights several issues worth considering for any government intending to initiate e-government projects. In addition, the concept of structuration employed in this study is expected to fill the deficit of theoretical concept in understanding e-government.

1.3 Research Objectives and Questions

This study applies the structuration theory (Giddens, 1984) and attempts to frame the important elements into various dimensions of the structuration model of Giddens (1984) that were found during the study of e-government system. Firstly, the objective of this study is to identify the interrelationships among of e-government dimensions that are framed, based on Giddens (1984) model. Secondly, to analyze the critical structural factors that emerges out of these interrelationships to facilitate the implementation of e-Government from the perspective of structuration theory (Giddens, 1984).

The research questions proposed and answered were:

1. How and why the factors among of e-government dimensions are interrelated in implementing e-government?
2. How and why the critical structural factors among interrelationships of e-government dimensions are interrelated for the success implementing e-government?

1.4 Significance and usefulness of the Research Objective

In the information technology era, the citizens are no more passive recipients of inconvenient services from the government; instead they are demanding a much faster response from the governments. In this situation, it is obligatory for the government to deliver the services according to citizen's perception, rather than on focusing on the internal needs and advantages of the government. Currently the traditional structures of government are not very relevant for delivering the services in concurrence to the citizens' anticipation. This necessitates the governments to redesign their structures to enhance the service delivery. While opting for redesigning, it is essential to look into the several factors of human interactions and the structure to achieve more optimistic results as the entire process involves prolific activities, which are reciprocal to each other.

With this premise, we apply the structuration model of Giddens (1984) to analyze the interrelationships of reciprocal elements among the dimensions of e-government. Its application is suggested for IS implementation in public administrative process since it possess the potential for better understanding of outcomes of interplay between social structure and human interaction in organizations (Giddens, 1984; Orlikowski, 1992).

The structuration model discovers the progression of events that emerges over an extent of time and explains why outcomes result at the end of the occurrence of an event (Robey and Newman, 1996). Hence within the perspective of this study, its application is justified for a better perception of e-government implementation and also to understand

the interplay of structure and human interaction mediated by a set of elements. These set of elements translate each event into a succession of meaningful actions in reinforcing the traditional government. The analysis of the results strongly designates the incidence of interactive elements as facilitating factors and also unravels the willingness of policy makers; technology; structure and change management as critical factors in executing an e-Government system.

1.5 Research process

The initial step in the research process is to review the relevant literature in order to gain the in-depth understanding of e-government and identify the gaps in the current empirical studies. The theoretical gaps clearly indicated the lack of understanding of e-government as a social process involving intensive human and structural interactions that are reciprocal in nature. With this background the structuration model of Giddens (1984) was chosen as an appropriate guide to achieve the objectives of the study. The relevant existing literature on structuration analysis was reviewed and research questions were formulated.

The case study research methodology was adapted to for data collection. A single case study on e-government that closely represents intensive reciprocal structural and human activities was selected. The research site opted for this study offered an ideal setting to gain the deeper understanding of the e-government implementation process; identify inter relationship of structure and human interactions; and the critical factors that are surfaced out of them as facilitators for the success of implementation. Required e-mail

communications for conducting case study, open-ended interviews, direct observation, on-site visits and study of documentation were then conducted for the selected case.

In-line with the structurational theory, this research mainly utilized the concept of "structuration process" to uncover interrelationships among the domains of e-government and the critical factors that emerge out of these interrelationships. Structuration process involves three major domains. It is a set of inter-connected elements that are inferred based on the reciprocal activities of structure and human actors in an organizational setting. The structurational process in e-government is analyzed to develop a model for the success of e-government system, which contains the critical structural factors essential while implementing an e-government system.

1.6 Organization of thesis

The contents in the rest of thesis are further organized as follows: Chapter 2 reviews the literature on e-government and sub divided it into various sections to attain a more comprehensive view of its development and deployment. Chapter 3 presents theoretical foundation for this study with various concepts of theory and its applicability in this research. The research methodology is described in Chapter 4 with a brief description of various approaches adopted within the scope of this study. Description of case is presented in chapter 5 along with case overview and its various phases of implementation. The subsequent chapter 6 includes the analysis and findings of the case. Chapter 7 discusses structural process and critical structurational factors for e-

government implementation. Chapter 8 provides the summary of the research, contributions, implications and limitations of this study and future research.

LITERATURE REVIEW

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the current literature on e-government. In addition it also includes some of the empirical studies reviewed from IS literature. It is categorized into different sections in order to gain insight on how the usage of IT in public sector evolved into electronic government. The various definitions on e-government and its importance, the issues involved in implementing e-government, its advantages, differences in public and private sector and theoretical gaps in the previous research are discussed in this chapter.

The basic rationale of this cataloging is to understand e-government as a social process of IS development in public sector involving technology, people and structure and their interplay with each other. This also facilitates to understand the development process of e-government and set a premise for our proposed study. Apart from this, some of the empirical studies on IS are also reviewed and have supported the analysis of this study to draw useful inferences. In addition, the literature review has helped to identify the gaps that are found in the existing literature and motivated for generating theoretical clarity for future research on e-government.

2.1.1   IT in public sector

The common assumption about information technologies is that they render the traditional structures obsolete with their potential to transform and support the social organizations with their wide functionality (Gronlund, 2002). This perception was materialized by an initial step of introducing computes in the government departments for internal dealings. In addition, the proliferation of technology has constantly engaged the public administrators and organizational reform of public administration is underway across the globe with diverse stimulating factors such as budget; increasing competition; lack of cost; transparency; bureaucratic structures; change of values and expectations of citizens, business and civil servants; reinforced demographic developments and technical changes (Archaizer and Schmeltzer, 2000).

The more optimistic projections suggest that a computerized and networked world would not only ensure a more widespread and rapid growth of employment, productivity and output, but would also improve access to facilities and enhance the quality of life (Chandrasekhar and Ghosh, 2001). The information and communication technologies during the last decade have heralded an information age in which economic and social activities have been widened, intensified and transformed.

The introduction of IT is not new in the government organizations. Recently, the usage of Information and communication Technology is greater than before. Previously the application of IT was limited to automate the internal workings of government for processing data. But the recent application is extended for supporting

and transforming the external workings of government by processing and communicating the data (Heeks, 2001a).

2.1.2   Evolution of e-government

The confluence of technology and communications culminated with the advent of the internet is divulging the governments and the citizens to the contributions of IT-enabled communication mediums (Fountain, 2003). Today, citizens expect more proximity with the government. They anticipate more convenient and less time-consuming service delivery in contrast to conventional inconsistent public services (Holmes, 2001). Public has begun to scrutinize funds utilization and demand for better customer services (Cats-Baril, 1995). Therefore e-government as a channel to renovate public administration is progressive around the globe with varied motivating factors (Archaizer and Schmutzer, 2000). A large number of e-government projects are escalating to contribute to the public sector reform and competency across a broad agenda (Heeks, 2002).

The internal use of IT is not new in the public administration, but what is new is novel kind of using information technology in the government. The amount of its use is more sophisticated and further emphasized along with the term 'electronic government' attached to it. Currently it is acting as an incentive to restructure the government operations to improve the cooperation between the government and the citizen, for increasing cooperation among government agencies and also for providing self-service facilities to the citizens (Gronlund, 2002). It not only enables the process of delivering improved citizen services, but also attempts to re-engineer the process of

service delivery, which could lead to more effective and efficient administration (Jain, 2002)

It is apparent that the earlier emphasis of using Information and Communication Technologies for internal dealings (Fountain, 2002) has changed into the novel models to support the external dealings. The anticipated prospects of this change appears to be based on the principle that Information and Communication Technology driven e-government will positively reshape the manner of delivering the public services and also the administrative operations (Heeks, 1999, 2001a, 2001b) by facilitating a better focus on citizen needs (Sullen, 2002) in the decades to come.

Large numbers of electronic government projects have been launched across the globe with an objective to provide electronic information and services to citizens and business. All these projects have strived, although at different speeds, to move beyond first generation e-government where e-government was perceived as an electronic bulletin board with a very limited ability to allow transactions online (Chen and Gant, 2001). Various government institutions are using a wide range of options where Internet-based or web-based solutions are concerned. Over the past few years there are an increasing number of government institutions and agencies at local, federal level attempting to offer a wide variety of web-based solutions (Asgarkhani, 2001).

The services that are offered under e-government covers creating government websites; posting government information and procedures on the websites; on-line citizen feedback system; on-line opinion polls; complaints receipts from public via e-mails; downloadable electronic versions of forms and applications; on-line

submissions and transactions; and other services specific to the requirements of the governments and public. The Internet as a medium for all these activities is anticipated to facilitate innovative transformations with new technologies and practices (Chen, 2002).

In response to this transition, in almost every country, the state has taken the necessary initiatives to restructure administrative institutions by adopting Information and Communication Technologies to enhance the service delivery (Haque, 2002). Thus, e-government is an extension of both internal and external use of information technology in a better and strategic ways (Gronlund, 2002) for more beneficial outcomes from the perspective of both government and the citizen.

2.1.3 Importance of e-government

E-government powered by Information and Communication Technology is emerging as a promising arena and widely used phenomenon (Tan et al., 2002) for refining the citizen-government co-operation and relationship to develop good governance (Heeks, 2001). The importance of e-government lies in extending the use of IT for citizen services, giving an option to the general public to reach the government and allow them participate in the government decision-making.

The goal of electronic government is to deploy information technology to improve the effectiveness and efficiency of democracy. The intention is to increase the convenience and timeliness of citizen and government interactions and reduce their cost (Watson and Mundy, 2001). Most importantly it serves as a guiding vision for

administration and democracy and surrounds the transformation process in the government that is anticipated in the future (Wimmer and Trannmuller, 2000).

2.1.4 Definitions of e-government

E-government is defined from several perspectives. Wimmer (2000) describes it as a phase, where citizen interface of administrative work is particularly prominent with optimal utilization of IT in a better and strategic ways. It is a channel for public service delivery and an incentive for restructuring and enhancing government operations by offering self-service facilities to the masses (Gronlund 2002) through a wide variety of web-based solutions (Asgarkhani 2002).

According to Wimmer (2002a) it is "one-stop service", for accessing and offering uninterrupted electronic services. Thus e-government is the effort intended to use emerging technologies to support the adaptation of operations (Reilly 2002) and a novel way of making information widely available to citizens for reducing cost; digital divide; empowering citizens, and enhancing government leadership (Satiny 2000) by concurrently making citizens more powerful (Lawson, 1988).

Tapscott (1996) exemplifies it as an inter-networked government. While Wimmer (2002b) contends it as a "catchword" covering various activities and attempts for innovating public administration and acts as a platform for public administrators to shape and frame their way into "information Society". It is more citizen-focused for directly providing services, information and also allowing for making transactions (Startford and Straford, 2000). Marchionini et al. (2003) state it as an application of

IT to government services and an accepted global phenomenon for public administrators to serve their constituents better by leveraging IT capabilities.

The recent contention by Wassenaar (2002) provides a business perspective to the e-government. He describes it as the application of information and communication technology to improve, transform or redefine any form of resource and information exchange between involved actors like companies and governmental agencies and their customers, suppliers or other partners by developing and maintaining a dedicated inter-organizational systems; virtual organizational and institutional arrangements.

Further, Lenk and Trunmuller (2000) provide a more comprehensive view of e-government and segment them into citizen; process; knowledge and tele-coopertion perspectives. Citizen perspective is where interface of administrative work is particularly prominent; process perspective involves re-organization of processes making use of all kinds of human and machine synergies; knowledge perspective highlights the management of information of knowledge as a major asset in many work situations in the public sector; tele-cooperation perspective complements the process perspective especially through insisting on tele-cooperation and collaborative efforts like meetings and negotiations.

All the above definitions infer e-government as a solution to achieve more transparent, reliable, cost and time effective services. This belief is gaining more momentum as a key to streamline the traditional structures of public administration, particularly with advent of internet as an extension of technological progression. This

whole new attempt of remodeling the traditional government through IT is coined as electronic government.

2.1.5 Complex issues in e-government

2.1.5.1 Citizen involvement and expectations

Today the use of information and communication technology is strongly associated with social life (Fountain, 2003). The public is not only aware of the technological changes around them, but also expects the same to be utilized by the government to provide better citizen services. Currently communities and citizens increasingly expect the same level of service from government institutions as they do from other private business organizations. This has given rise to a consequence where the government agencies around the world have to constantly create new ways to use the internet to provide web-based services to the citizens. The other reason for the existence of e-government is the public interest in the internet. This interest is making the public to expect the usage of Internet in the government organizations to incorporate the Internet resources into traditional governance practices (Asgarkhani, 2002).

The public organizations are antecedent to public ownership; public involvement; public funding (Rainey 1983). The public awareness to scrutinize funds utilization, demand for better customer services (Cats-Baril, 1995) growing more than before. Public expectation from civil servants is greater in terms of fairness, responsiveness, accountability and honesty (Rainey et al 1976). All these aspects make the process of goals achievement more complicated in public sector (Rainey 1983).

2.1.5.2 Project failures

Many of the government IT projects result either in partial or total failures (Heeks, 2002) and the failure is the unique reality and a common feature in public information technology projects (Peled, 2000). Recently governments are spending vast resources on IT for leveraging the administrative processes. Based on the public demand, although it appears best for government to serve its interest following the private sector, it necessarily has to consider the threats of replication without weighing the consequences as the requirements differ and exceed from the private sector (Scherlis and Eisenberg, 2003). Further government IT projects are always risky to handle because of the political element attached to it (Andersen and Dawes, 1991) as it might lessen the success rate.

2.1.5.3 Technical problems

E-government initiatives are largely perceived as computerization of government activities for allowing access to government information; identifying the factors involved in implementation of technology (Ahmad and Zink, 1998; Christian, 1999; Newell et al., 2000). But this perception compounds the intensity of the problems and excessive focus on technology alone may surpass the ends for which it is deployed in e-government (Hwang et al., 1999). Developments in the technologies poses a challenge for the teams of people interacting with it and the technological solution selected for a specific project may be obsolete at its completion (Andersen and Dawes, 1991). In addition the issues pertaining to information access, cost, security and connectivity while interacting via electronic medium, preservation of government records and training the ultimate users also discourage the governments (Amini, 2000) while making a decision on deploying the technology.

2.1.5.4 Lack of co-ordination

The traditional models of government were more paper based and involved lengthy processes, ultimately slowing down the dealings between government and the public. These are unsuitable for current situation and also hamper the developments (Tan et al. 2002) while implementing e-government. Although the Information and Communication Technology has remarkable potential for connectivity, the communicative inabilities that exists among bureaucratic institutions due to lack of interoperability of technology, professional and cultural norms, legal constraints impede the information sharing and make the incorporation complicated (Fountain, 2002).

Inter-governmental departments are normally inclined to work toward their inherent goals rather than comprehensive civic goals. Convincing diverse departments to agree on a common venture with a single leader to intercede co-ordination is crucial and a major task (Cats- Baril and Thompson, 1995). Lack of communication and common understanding crops up since people involved in the project are from different organizations with diverse perspectives (Andersen and Dawes, 1991).

Aicholzer and Schmutzer (2000) summarizes overall picture of basic issues that slow down the development of e-government are: guiding principles and problems of restructuring administrative functions and processes; suitable technological solutions; need to extricate the barriers for coordination and cooperation with all involved; lack of organized process for monitoring the performance effectively.

2.1.6 Advantages of e-government

2.1.6.1 Advantages from the citizen perspective

Electronic government is not just redesigned citizen service using state-of-the-art information technologies such as internet or intranet. It is more than that and involves a process of making information widely available to citizens by two-way communication between government and citizens (Satiny, 2000). At the outset it will empower the citizens through provision of convenient and direct communications channels, which further facilitate greater public participation and interaction with the government. Secondly it facilitates to organize the information in better ways; deliver more effective and efficient access to government information and services; increase speed of transactions; more convenient and improve the self-service facilities to the citizens (Gronlund 2002).

2.1.6.2 Advantages from the government perspective

Electronic government refers to the delivery and administration of government services by using information technology infrastructure. Therefore, computerization as a initial step in digitalizing the government structures result in enhanced availability of information which leads to better management control; decision making; operational effectiveness and efficiencies; improved citizen-government associations (Northrop et al. 1990).

2.1.6.3 Advantages from both citizen and government Perspective

The synopsis of the different views offered by researchers in the earlier sections promotes 'e-government', not only as an effective medium for service delivery and also as a means for bridging the gap between government and the citizenry. It relies on a fundamental redesign of the interaction between government and citizens which can be achieved through reorganizing the processes within public administration by coupling internal and external modifications (Lenk and Traunmiller, 2000). e-government is characterized as an 'advantage' for the government and the citizen (Gronlund 2002) and 'powerful guiding vision', for the transformation which governments and public administration have to undergo in the next decades (Lenk and Traunmiller, 2000)

The basic driver for electronic government lies in the hope of achieving the goals of improved service quality and cost savings by using information and communication technology (Lenk and Traunmiller, 2000). E-government at the root aided by information and communication technologies has the three basic potentials (automation, informatisation, transformation) bringing efficiency and effectiveness gains (cheaper, more outputs, quicker, better and innovative) for good governance for development (Heeks, 2001a). Thus e-government is an incentive to restructure the government operations to improve the co-operation between the government and the citizen; increasing the co-operation between the government agencies; and improving the self-service facilities to the public (Gronlund 2002) and improved citizen-government associations (Northrop et al. 1990).

2.1.7 Differences in IT/IS implementation between public and private sector

2.1.7.1 Design and implementation

Although e-government implementation appears similar to the IT/IS implementation in private sector, huge gaps exists in the implementation process due to the complications involved in the administrative structures in the government and inter governmental departments. Hence the designing and implementing an IT/IS system largely differs from public sector to private sector (Hendrick, 1994). The inherent features embedded with in the organizations make them very diverse (Thong et al, 2000). Particularly, the design and development of information systems in the private sector is more defined and less complicated (Hendrick, 1994) compared to public sector

2.1.7.2 Cost of implementation

Studies by Mohan et al. (1990) about implementation of Executive information systems (EIS) for New York State Office of General Services identify major differences in public and private sector. The implementation process is complicated due to the differences in the investment attitudes in public sector due to the cost and risk components involved. The private sector considers the huge investments on information systems such as EIS as reasonable as long as the investment helps the management for better decision-making. But the cost factor is not ignorable in public sector. In fact it is paramount in public sector and investments are not justifiable unless their objectives are well defined.

The private sector earnings are comparatively higher than the public sector and spending on an IS/IT is justifiable as long as they can give access to the critical information (Brody, 1988). In public sector, the lack of clarity on anticipated upshots leads to more focus on inputs and budgets, rather than on output and productivity. The budget becomes a sole output measure than an input tool unlike in private sector due to absence of a distinct determinant for output. With all these constrains and unpredictability the decision making process spans across many people and thus makes a development of public sector IS/IT system not justifiable on most occasions (Mohan et al, 1990).

2.1.7.3 Organizational process

The factors pertaining to the environmental, organizational, internal structure and process varies from public to private sector (Rainey et al. 1976). Indeed there are significant differences among the organizational and environmental constituents among the two (Rainey, 1976; Bozeman et al, 1986; Bozeman 1988; Coursey et al, 1990; Bret Schneider et al 1993). In addition the differences exists among functions and product due to indefinite objectives; numerous stakeholders; and complexity in the concepts such as quality (Hendrick, 1994). Further there are certain attributes which prominently enact in public sector such as multiple goals that are conflicting in nature; political surroundings with a wide array of constituent clusters; higher responsibilities and accountability; inflexible rules, regulations and constraints along with lack of promotional incentives (Robertson et al. 1995). Apart from all these the political initiatives and good leadership also contributes to the IT/IS implementation (Cats-Baril et al, 1995) and will have wider impact on the execution and development process.

2.2 Summary of the previous research

It is apparent that there is a concerted effort at institutional, academic, national and international levels for conducting research on e-government. Some of the institutions like World Bank, Asian Development Bank particularly focus on e-government in developing countries by funding; bringing out publications on e-government case studies and lessons learnt from various nations. Many individual e-government research institutions on national level are also contributing to e-government related issues through their publications. The private organizations like IBM are specialized in providing e-government solutions along with publications and research. On academic front, this is further emphasized by publications in academic journals and conferences. The major IS conferences have started to have tracks on e-government.

All these illustrations indicate that the electronic government is moving from infancy to maturity, but relatively not reaching the sound conceptual foundation like other domains of information systems. Although e-government is drawing the attention of the academicians and its potential promise acknowledged around the world has imposed the academic world to look into the constituents of e-government success. The contemporary study on e-government identifies managerial, political, financial, senior management support, cost, time, and functional and social information processing (Bannister, 2001; Hackney and Jones, 2002; Nidumolu et al, 1996) as facilitators for implementation success. Cultural barriers, organizational customs, values (Margetts, 2002) are identified as inhibitors for success.

Currently more emphasis is given for IT since it is believed that it facilitates for achieving more economic progress. The information available on the internet and the recent literature on e-government indicates the positive aspects that can be attained by shifting from conventional to IT enabled public administration. In contrast, although the human development report of 2001 reports on the role of information technology, it fails to provide a complete view for the policy makers what technologies are available for human development despite the attempts and the recourses spent on IT (James, 2002). The potentiality of Information Technology for contribution to the development of society is not completely realized (Walsham and Sahay, 1999; Gronlund, 2002). Table 1 provides the summary of the previous studies that was reviewed for the purpose of this study.

Table 1: Summary of literature review

Focus	Findings	Source
Impact of IT in e-government	IT facilitates structural transformation; internal and external dealings; efficient administrative services; public service delivery	Gronlund (2002); Heeks(1999;2001a; 2001b);Jain(2002);
Motivation for adopting e-government	Budget; competition; cutting down on higher cost; lack of transparency; bureaucratic structures; citizen awareness and anticipations; technical advancements; Internet; communication mediums	Aichholzer and Schmutzer, (2000); Fountain (2003); Holmes (2001);Cats-Baril (1995);
Advantages of e-government	e-government facilitates Public sector reform; positive outcomes; enhanced citizen-government association; reduced costs and time; administrative guidance; self service facilities; single stop services; speedy access and efficient process of information; two way communication; better management control, decision making, operational efficiencies	Heeks(2001;2002); Watson and Mundy(2001); Wimmer and Trannmuller (2000); Gronlund (2002); Wimmer (2002a); Satiny(2000); Northrop et al(1990)
Perspectives on e-government	Improving business-government information exchange through IT (business perspective); prominence to administrative work (citizen perspective);re-organization of process (process perspective);using information and knowledge(knowledge perspective);tele-cooperation and collaboration (tele-cooperation perspective)	Wassner(2002); Lenk & Trannmuller (2000)
Problems in e-government	Higher degree of citizen expectation from government and the civil servants; demand for utilizing IT for better services, expectation of higher responsiveness and accountability; public involvement and scrutiny; project failures; political issues; technical problems; cost, security, access and connectivity of digital mediums; Lack of co-ordination and communication; traditional models; design and cost of implementation; lack of clarity on goals achievement; budget constraints; lack of leadership, team work; complex organizational process	Fountain (2002;2003); Asgarkhani (2002); Heeks (2002); Peled (2000); Andersen and Dawes (1991); Hwang et al (1999) Amini (2000);Tan et al(2002); Cats-Baril and Thompson(1995); Aichholzer and Schmutzer(2000); Thong et al(2000); Mohan et al (1990); Coursey et al (1990); Bret Schneider et al (1993); Hendrick, (1994); R Cats-Baril et al, (1995);Robertson et al. (1995)

2.2.1 Theoretical gaps

The summary of the literature review presented in Table 1 indicates shortage of comprehensive studies about the impact of interactive elements of structure and human interaction, although it includes some elements of social interaction in e-government. The current literature available on e-government appears more like a collection of research studies of a range of Information technologies used in government, which are explanatory in nature and deficient in conceptual clarity and a common body of knowledge. This clearly advocates for achieving stronger theoretical clarity in e-Government research. The e-government history contains a number of political initiatives supplementing IT implementation, but not enhanced the IT potential compared to the private industries (Gronlund, 2002). Although Prior research on information technology adoption is a good source for research models (Lu, 2001) to extend the research on electronic government, but it favors more on the persistence of existing formal structures with the political alignment when computers are introduced in the governments (Scarbrough 1995).

These studies are concurrently deficit in identifying the influential role engaged by the interplay of actions between human actors, structure and technology in e-government and reflecting the resultant change as a social process. Moreover the former research has not associated the potential of information technology with other parameters, which involves intensive human interaction for the transformation of public administrative processes. The research on extensive relationship between electronic government and the social sciences is very limited and the research agenda that is systematic and cumulative is yet to be developed (Fountain, 2002; Gronlund, 2002).

More efforts are essential to develop a holistic and systematic approach to disseminate the lessons and best practices in relevant, context-specific ways (Pablo, Pan, 2002) to signify the developments in the domain of e-government.

The common assumption is that, the information technologies render the traditional structures obsolete with the potential to transform and support the social organizations with their wide functionality and all the organizations are need to be transformed with computer-based technologies to be more effective (Moton, 1991). This is more obvious by the way the governments, consultants, donor agencies encourage computerizing anything in sight (Wescott, 2001). Currently, any computer aided public administration is termed as electronic government leading to the examination of its exact terminology (Pablo and Pan, 2002).

In this context, the e-government is largely perceived through the lens of technology with less emphasis on underlying factors of constant interaction between all actors involved in a work system. E-government system as an information system development for public administration, has to consider the role engaged by structure, technology and human actors in the implementation process and also prior to the actual implementation. Most of the failure of information systems is attributed to the way the system designers view organizations, their members and the function of information technology within them (Robey and Sahay 1996). In addition, all these studies assumed that IS knowledge regarding key issues in IT implementation could provide the guidance in dealing with the same (Swain 1995) in government.

It is invariably essential to understand the fact than any successful information system implementation is influenced by both technical and social facets (Curtis et al. 1988). It is more critical for large public settings and particularly for e-government. This helps to leverage the returns that are resulted out of e-government projects and would certainly assists to design any new project to result in reduced failures within the allocated budget. Despite various definitions and perspectives offered on e-government, none among them considers the integration of social and technical parts; impact of interactive elements in implementation process as important imperatives for the success of e-government.

Collectively, the existing literature on e-government views it as a convenient mode for service delivery and improved government-citizen association and emphasizes more on technical component. There are no significant studies from the view of "structuational process" emphasizing on interactive elements in e-government implementation process, which equally serve the accomplishments and objectives of e-government. Hence the attempt has been made in this study to infuse this gap and present a structurational view of e-government implementation.

STRUCTURATION THEORY

Chapter 3

Structuration Theory

3.1 Structuration Theory

Structuration theory was developed by Anthony Giddens (1976, 1979, and 1984) as an attempt to move beyond those theories, which largely emphasized on structure of social systems and the importance of human actions. While the theory on social structure focuses on the conditions of social structures that influence or constrain human action, the theory on human actions focuses on the activities that are performed by human agents. It perceives that the social structures are result of the interpretation of human action. The former provides an objectivist view and the later the subjectivist view. But these two theories appear to be independent and conflicting (Jones and Nandhakumar, 1993).

3.1.1 Duality of Structure

This conflict between structure and human agency is resolved by Giddens in his concept of "duality of structure". It distinguishes that the elements of agents and structures are not independent or conflicting concepts; rather they are dependent and recursively correlated. According to Giddens (1976), "social structures are both constituted by human agency, and yet at the same time they are the very medium of this constitution". Giddens (1984) conceptualizes the key terms of structuration as represented in Table 2.

Table 2: Concepts of Structuration Theory (Giddens 1984)

Terminology	Concept
Structure(s)	Rules and resources, or sets of transformation relations, organized as properties of social systems
Systems(s)	Reproduced relations between actors or collectivities, organized as regular social practices
Structuration	Conditions governing the continuity or transformation of structures, and therefore the reproduction of social systems

3.1.2 Dimensions of Duality of Structure

The perspective of 'duality of structure" is based on the concept of Giddens (1976) that structuration is a social process involving reciprocal interactions between human actors and structure in organizations. Giddens (1984) indexes structuration into three major domains (structure, modalities, human interaction) and further segregates Structure into signification, domination, legitimation; Interaction into communication, power and sanction; Modalities into interpretive schemes, facility and norm. The modalities (interpretive schemes; facility: norm) act as linkages for communications between structure and human interaction. Figure 1 represents dimension of duality of structure put forward by Giddens (1984).

Structure	Significance	Domination	Legitimation
Modality	Interpretive Scheme	Facility	Norm
Interaction	Communication	Power	Sanction
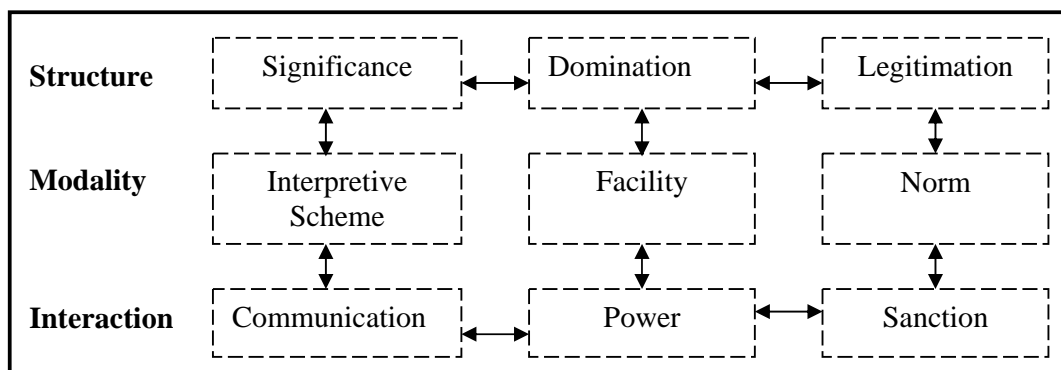
Figure 1: Dimensions of Duality of Structure (Giddens 1984)

As illustrated in the above Figure 1, the separation of dimensions of social structure (signification, domination and legitimation), human interaction (communication, power and sanction) mediated by three modalities (interpretive scheme, facility and norm) is solely for the analytical purposes, but they are inextricably interlinked in practice. Table 3 represents how Giddens (1984) explain the role of modalities in the process of structuration.

Table 3: Role of Modalities (Giddens 1984)

Modalities	Meaning	Role
Interpretive schemes	Shared stocks of knowledge that are drawn through human communication in order to make sense of interactions	Produce and modify social structure of significance
Facilities	Ability to allocate material and human resources that are drawn through the endorsement of power exercised by human actors	Produce and reproduce social structure of domination
Norms	Moral codes that are drawn through sanction of human actions	Produce social structure of legitimation

The interpretive schemes which are shared stocks of knowledge are incorporated by human beings to give an understanding to the interactions and this eventually reproduces the social structure of signification (**communication**). Facilities reproduce the social structure of domination (**power**) using the ability of human actors for allocating material and human resources by way of exercising the power. Norms, by using moral codes that are utilized by human actors to manage and articulate the approvals (**sanction**) reproduce the social structure of legitimation.

In the process of structuration, as the structure is being produced and reproduced by human actions through modalities, the social system is maintained over the time, and it is routine and stable. Though the structure is continuously reaffirmed as a result of human action, structuration theory does not favor the fixed structure. Instead, the structure in social system is considered as having an ability to transform due to knowledge and reflexive actions of human beings.

In addition they are means and products of the situated procedure by which a social system is composed (Sarson, 1995). It is a constant process of producing and reproducing and developing social structures, which are both enablers and constraints to human actors. It is a combination of face-to-face social and systems interaction with co-presence of both and becomes a practice which constitutes both society and structure (Rose, 2001)

3.1.3 Concept of Rules, Resources and Agency

Structuration is a set of rules and resources that can enable as well as constrain human interaction. At the same time these rules and resources are once again confirmed through human action and interaction. Giddens (1984) describes social structures as traces in the human mind and can only exist through human actions. He further claims that existence of such objects does not explicitly transform into resources, unless integrated within the process of structuration. The discussion on rules and resources are extended by Giddens (1984) in order to avoid misinterpretation of their definition and usage.

3.1.3.1 Rules

The two types of rules that are distinguished are constitutive and regulative. Constitutive rules are those rules of social life that considered as "techniques or generalizable procedures applied in the enactment or reproduction of social practices". Regulative rules are those, which are "codified interpretation of rules rather than rules as such". Examples for regulative rules are: rules of the games; bureaucratic rules; mathematical formula (Giddens, 1984). They are not fixed (Giddens 1984) and act as guides to act in a certain circumstances without further understanding of its meaning (Jones, 1999).

3.1.3.2 Resources

Giddens (1984) distinguishes the resources as authoritative and allocative. Authoritative resources refer to the transformative capability for producing command; control; co-ordination; over human agents and their actions. Allocative resources refer to transformative capability for producing command or control over material products or aspects, such as raw materials (Giddens 1984).

3.1.3.3 Agency

Giddens (1984) asserts that social structures can only exist in the minds of individuals. They have the ability to change the existing structures of the organizations or institutionalized social structures. Structuration theory highlights human actors as knowledgeable and reflexive agents who constantly observe and comprehend their physical and social contexts. In addition they also have the "transformative capacity". or "capacity to make a difference" (Giddens 1984). The

events that results from the actions of human are routine in nature. Thus the process of structuration acknowledges this routinization of social activities and illuminate on reproduction of established social structures (Walsham and Han, 1991).

In summary, the structuration importantly highlights the relationship between social structures and human actors and the process of reproduction of social structures. The reproduced social structures are the result of interaction between human actors. It is the property of social systems and can exist only when human actors enact and interpret it (Shanks, 1997). It is not independent of human actions as human actors become responsible for reproducing them through their knowledge and reflexive actions.

3.2   Structuration theory in Information Systems

The development of Information Systems was traditionally conceived as application of computer based technology into the existing organizational settings. System developers were compelled to have a clear understanding of the technology and had less knowledge about human actors involved in the system development (Hirschheim, Klein and Newman, 1991). The success of developing any information system involves technology and human actors as both modify the organizations (Caldeira, Faia-Correia 2002). Therefore recently more consideration is given for these two facets and the social process has gained its importance in many research studies (Ledington, Heales, 1993; Bostrum and Heinen, 1977).

Recently, Structuration theory is highly debated and has witnessed the substantial deviation in IS development for a rationale of generating several insights into role of

technology and its influence on organizations (Orlikowski, 1992; Orlikowski and Robey 1991, 1992, 2000; Jones and Nandakumar, 1993; Jones et al. 2000; Walsham and Han, 1997; Barley 1986; Walsham and Han 1991, Walsham 1993; Jones, 1999; Jones and Nandhakumar; DeSanctis and Poole, Poozebon and Pinsoneault 2001). It is employed for identifying the relationships between IT and organizations and also used as a framework to study the interaction between structure and human action in information systems.

3.3 Structuration as a social process

The general perception about structuration is that it has a general applicability as theory of social organization (Jones 1999). Apart from representing a duality of structure, it also represents a social process involving reciprocal interactions of human actors and structural features in organizations along with the conditions governing the continuity or transmutation of structures which reproduce social systems (Giddens 1982). It represents a duality of structure and a social process, involving reciprocal interactions of human actors and structural features in organizations (Giddens 1984).

Giddens (1984) basically address the issues whether social phenomena are "subjective" based on the human interpretive actions, or "objective" based on social structures. The Giddens theory argues that this social phenomenon was the result of the interaction between human actions and social structures, which are interactive. It blends the traditional categories of structure and agency in an established framework (Possebon and Pinsonneault, 2001).

Therefore as a social process model it represents the interactions of actors involved, over a time frame and identifies the subsequent events, providing a linkage between them and positions their occurrence within a three realms of structure, modalities and interaction (Figure 1). The identification and classification of actual incidents into varied events in the process model are opertionalized through specifying the rules (Van de Van and Poole, 1990). It serves as a foundation for comprehending the dynamics of organizational change and also facilitates to test the development process of adaptation, innovation, change and redesigning in an organization (Van de Ven and Huber, 1990).

With its potential to offer insights on the impact of IT or IS development, it has highly debated for exploring the associations of structure and human action, IT and organization (Orlikowski and Robey, 1991; Orlikowski 1992; Walsham and Han, 1991, 1997; Jones, 1998; Jones and Nandakumar, 1993; Jones et al. 2000). This explanation for process model is in line in structuation, representing the change process in its three realms and also acknowledged as having a general applicability as a social theory (Giddens, 1976, Walsham and Han, 1997, Orlikowski and Robey, 1991, Jones, 1999).

3.4   Differences between Structuration and other theories

We focus on two major social theories, adaptive structuration and socio technical theory to explicate their differences with structuration theory. The reason for selecting these two is that they are social process theories and deal with the social and technical aspects as well as interactions of human and structural elements. This process of

distinguishing between different theories will also provide good insights to choose appropriate theory to support the rationale of intended study.

3.4.1 Adaptive Structuration Theory

Adaptive structuration theory was formulated to analyze the role of advanced information technology in organizational change (DeSanctis and Poole 1994). The focus of adaptive structuration theory is more on technology and its impacts on organization. It bears little resemblance with structuration theory although it borrows concepts from structuration theory (Jones 1999). Similar to structuration theory, it also identifies two types of structures: the structures that are offered by advanced information technologies and structures that surface during human interface with such technologies. The structure within technology is initially incorporated by system developers from the knowledge they accumulate through their interpretations while developing a technology. Thus, technology may contain a social structure, rules and resources.

Although the conceptual foundation for adaptive structuration theory is structuration, DeSanctics and Poole 1994, asserts that it has certain limitations such as insubstantial consideration of the structural potential; exclusive focus on institutional levels of analysis; reliance on interpretive methods. But adaptive structuration theory facilitates the analysis between group differences; enhance the understanding of groups in general; accounts for the structural potential on technology; accounts technology as a key determinant of technology impacts.

3.4.2 Socio-Technical Theory

Socio-technical theory focuses on social and technical aspects in an organization. It emphasizes the co-ordination of technical and social facets as obligatory for attaining optimum results in technology implementation. The Socio technical theory is based on the principles favoring open systems in organizations; democratic values; beliefs and practices in society and the work place; the availability of options, and minimal critical specifications (Cherns 1976, 1987). It highlights on how intra and extra organizational factors can be jointly assessed and optimized. New technological designs fail to achieve maximum results on their own. It is essential to treat technology and people who work with are being coupled within a system and not as separate entities (Heller 1997).

This theory lacks the dimension of intermediary such as modalities for bringing in the co-ordination between technical and social dimensions. Secondly it does not emphasize recursive actions of structure and human actors, whereas perceptive of these aspects are offered by structuration theory. Therefore it helps in understanding the events that emerge out of interaction of human actors and structure and their progression into a meaningful actions. This essentially aids in comprehending the rapid form of changes and their resultant functions within the organizations, which is invariably applicable in case of public sector.

While comparing these two theories with structuration theory, it became obvious to use the concepts which will help to explain the new ways of organizing and using technology evident in Practice (Orlikowski 2000). Therefore the theory of structuration suits to explain the rationale of our study on e-government.

3.5 Structuration theory in previous research

The use of structuration theory is found more in Information System research. The social process is extended to study the issues involved in the introduction of information technology in private and government organizations (Ledington and Heales 1993, Devadoss and Pan 2002, Trauth, Frank and Mevissen, 1993). It is also found in the field of Management and Accounting (Jones 1999). In the area of IS, it was used in enterprise resource planning, executive information systems (Volkoff, 1999; Jones and Nandhakimar, 1993).

3.5.1 Structuration theory in Public Sector

A research study group in the UK focused on evaluating the impact of IS function of e-government. The study recommends the use of structuration theory and mentions that it will be most helpful to explain the interactions between agency and organization. It is further added that, it will also help to identify the constructs that connect organization and strategic aspects of managerial work. It argues that the continuous evolving social practices can best be understood using structuration theory and also help to illustrate how the dynamics of interaction patterns lead to reproduction of new organization (Senyucel 2002).

But recently it has been employed to study e-Government as IS development for public sector administration (Devadoss et al 2002), focusing on the interplay of social structure and human interaction and identifies the strong incidence of these two as facilitating agents in e-Government implementation. But this study is deficient in

exploring the critical factors that emerge out of these interactions to impart a unified view to the success of e-Government implementation process.

3.6 Objective of applying Structuration theory

There are various issues in public administration which are complicated to examine using make an empirical studies (Riccucci, 2001). The analytical tools of social sciences help in this direction to understand the process of operation and also the functions of the public managers (Frederickson, 2000). Social structure is an abstract property of social systems, it does not exist independently of human actors who enact and interpret it (Shanks, 1997). E-government implementation involves prolific activities of various elements of structure and human interaction. This study employs structuration theory because it contends how structures and actions are linked and how they translate their communications into actions using a medium (Barley and Tolbert 1997).

The e-government involves prolific activities of human actors and it is a social change process. Therefore it entails a sound conceptual foundation to explain its development and deduce the key elements that are proactive as facilitators. Structuration acknowledges the concept of routinization of social activity (Walsham and Han, 1991). This feature of structuration theory has potential to offer a clear explanation about how the proactive elements serve positively in the process (Robey and Newman 1996; Markus and Robey 1988; Creswell 1994) of e-government implementation.

Another premise of its application in this study is, it guides to discover the prototype of associations between human actions and relative issues that are experiential

throughout the settings of a case study (Jones and Nandakumar, 1993). Therefore, it serve as a channel to identify the interrelationships among the events and also support to absorb the outcomes of a social change that eventually transpire while implementing e-government. Secondly the system that we have focused is a network of many organizations. It is necessary to assess the effectiveness that is achieved in delivering essential services to the members of the community (Provan and Milward, 2001) and the structuration theory helps to perform this evaluation more effecively.

RESEARCH METHODOLOGY

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Research design and sampling

The study of e-government as an IS implementation in public sector entails interweaving the meanings with consideration to collective actions, events, social contexts and consequences involved in the implementation process. Deficit in the contemporary models on the process of e-government implementation motivated this study to adopt a qualitative case-study approach as a source of research design. Later the data was analyzed using the interpretive approach by triangulating the data from multiple sources. Thus this study combines the approach of qualitative, interpretive, case study and triangulation of data. Each of these schemes is elaborated in the subsequent sections with an explanation for choosing them within the context of this study.

Case study is flexible with regard to compilation of data by multiple data collection methods and allows for enhancing the richness of the research findings (Yin, 1984; Klein and Myers, 1999), while interpretive approach facilitates to interpret the meanings that are formed by the people involved, through the social construction of IS and the perceptions so formed are based on their individual understanding (Walsham 1995; Klien and Myres 1999). Further, data triangulation (Yin, 1994) facilitates the verification and validation of research findings that assimilated from observation of case by multiple data collection methods and the meanings that are assumed through interpretation of the data.

The focal point of our study is the implementation of integrated electronic citizen services (eSeva). It is an e-government system designed to deliver the citizen services using Information and Communication Technology. It establishes an ideal illustration for citizen-centric, sustainable organization structure as a venue for array of services in contrast to the conservative perception that government IT projects are unsustainable, poorly conceived and devour huge funds (Nidumolu et. al, 1996). Secondly the nation (India) of our data collection is identified as prominent for initiating e-government projects (Haque, 2002). But little is known about the factors which make their implementation possible, their sustainability and success. With this premise, our study attempts to explore some of the parameters that support the successful implementation of e-government system. This is expected to provide more useful insights for evaluation while implementing future e-Government projects.

4.1.1 Interpretive approach

We employ interpretive approach, as it presents a platform to build a theory and supports extraction of insights from the data analysis by mainly addressing "how" and "why" questions thus allowing the researcher to explore the issues pertaining to the system under study (Yin, 1989; 1994). It will also allow to examine a phenomenon in a natural setting of a case by multiple methods of data gathering (Benbasat et al. 1987); offers a flexibility to choose multiple data assimilating techniques to strengthen the potentiality of research findings (Klein and Myers 1999; Yin 1984); provide more constructive insights for better perception of the complexities involved in organizations (Van Maanen, 1979) to gain a more detailed picture of the studied phenomenon (Lee, 1989).

The use of an interpretive approach is more useful when the research question and nature of phenomenon of interest is complex (Orlikowski and Baroudi, 1991). On the other hand interpretive case studies are absent from pre-defined variables but focuses on the way people make sense at emergent situations (Kaplan and Maxwell, 1994; King 1996). The degree of openness that interpretive perspective imparts towards the field data leads to richer analysis and identification of new issues (Walsham, 1995). It also provides an in-depth perceptive of organizational change process shaped by human actors through the social construction of IS as the understandings are assigned based on a person's subjective interpretation and more appropriate for case studies aimed at gaining insights of IS functions (Klein and Myers, 1999; Walsham, 1995).

Interpretive research serves best in comprehending human thoughts and action in social organizational contexts (Klein and Myers, 1999) such as public sector and e-government for its potentiality to produce deep insights. With regard to this context, interpretive approach provides an understanding of the complexity of human making sense out of the emerging situations (Kaplan and Maxwell, 1994), because creating a valid interpretive knowledge is essential to study the human actors within their social settings since organizations and groups are associated with people (Orlikowski and Baroudi, 1991).

Walsham (1995) outline that the use of theory as an important area that researchers should adhere while following interpretive tradition of research. This aspect goes well with the objective of this study since the theory adopted works as an iterative process for data collection and analysis and secondly contributes to the recurring nature of structuration process of e-government system.

4.1.2 Case Study Approach

Case study approach is extensively employed for understanding the course of execution and development of a system (Markus, 1983; Robey and Newman, 1996; Sarker and Lee, 2000; Buttler and Fitzgerald, 2000) and possesses significant potential features that assist the researchers in the course of data collection.

It contemplates on the perceptive of the dynamics present with single settings (Kathleen, 1989); multi-faceted, usable and applicable in diverse means (Cavaye, 1996, Darke et al, 1998); investigates a current phenomenon within its real-life context, especially when there is interlink between the phenomenon and the context of the study (Yin, 1994). Thus provides an insider' s view (Yin, 1994) by emphasizing on the context (Daillak and Alkin, 1982) and thus helps in generating better insights from the research results.

Case studies executed at actual settings are appropriate for generating interpretive knowledge and employed as a medium for interpretive analysis (Walsham, 1995). This is mainly because it takes into consideration the role played by information technology in organizations; usage of IT by people; the way people manage the data; information; knowledge; logical judgments, organizational memory, group knowledge and archival evidences (Markus and Lee, 1999).

The experiences of implementing the information technology in the local administration is not so promising in less developed nations such as India, the reasons for which could be largely attributed to the implementation efforts which are

inappropriate due the lack of knowledge about ITC existing in the nations (Nidumolu et al, 1996). Under such circumstance, the case study approach presents holistic image of the examined phenomenon (Yin, 1989) by capturing the interface between numerous elements undergoing changes in extremely dynamic process (Daillak and Alkin, 1982) in an organizational settings such as e-government.

Hence adopting a case study approach is appropriate within the context of this study. Primarily to examine the occurrence of these processes through interrelationships among human actors and structure, secondly to explore the underlying principle among those processes that leads to the success of implementation.

4.1.3 Qualitative approach

Choosing a suitable research strategy is vital for achieving more positive results that are anticipated from the research study. Generally researchers adopt qualitative or quantitative approach depending on the requirements of the study. The earlier generates data by evaluating the organizational functions, lives, behaviors, emotions, feelings, social movements of individuals. The data generation in the later case is from statistical procedures (Strauss and Corbin, 1998).

This study adopts the first approach since the e-government system under evaluation is in line with context of qualitative approach which surfaces out of reciprocal actions between structure and human actors.

4.1.4 Triangulation of data

Triangulation refers to the application of multiple research design approaches and theories to amplify the vigor of a perceptive when a single case is attempted for exploration (Berg 2001). Triangulation can also be employed for internal check on the validity (Yin, 1984) of the research findings. The need for triangulation in case study arises from the ethical need to confirm the validity of the processes when data emerges from multiple sources (Yin 1984). It also allows for augmenting the validity of every type of data (Stake, 1994). These features of triangulation with reference to the rationale of this study helps in finding linkages between the research objective and the outcomes. Using this approach, an attempt has been made to understand the interpretations of various actors involved in e-government implementation. Based on the explorations in the pilot study, an iterative process was performed by linking analysis of the pilot data with data collection and analysis in the second phase which eventually has helped to gain a better insight of the entire process.

4.2. Data collection

The case chosen for the study is implementation of IT enabled e-Government system. Data collection was done in two phases (June to July 2002 and December 2002 to January 2003). The sampling plan selected was flexible and evolved within the context of basic rationale of the study. In-depth interviews with specific and open-ended questions were conducted with key officials in Information and Communication Technology department; the staff and officers at the government departments; private partners and technology vendors for the project; citizens; staff at

eSeva centers; and academicians. They were recorded, transcribed and codified according the objective of the study.

The discussion with key officials provided an overview of implementation process. The selection of other respondents was made based on these discussions and some of the correspondents provided a further reference of contacts. For example, the principal secretary of IT&C (Information Technology and Communication) department gave a substantial number of references for further discussions. The discussion with director of IT led to the second round of discussion with the principal secretary of IT&C and other concerned officers.

The director of eSeva suggested have a discussion with an academician who is a sociologist at one of the educational institution. The correspondence with director of telecommunications provided a reference for collecting information from the stastical bureau for the state. The conversation with two other academicians provided a reference of another academician whose research focus is on ICT in a different area. He provided very useful insights on the system from an academician view as well as the user of the system as a resident of the place of data collection.

Access gained to some of the structured information and several personal views on the implementation process provided by respondents offered an insight on the dynamics of the organization that is investigated in this study. In addition, to substantiate the data collected through interviews, the information was also assimilated from the newspaper clippings which highlighted e-government related matters; official documents such IT policies (2002-2005) for the state, released from IT&C department; proceedings of the meetings; presentations delivered from key

officials regarding IT and e-government; other appropriate archival documentations presented in table 4. The number of citizens those responded amounts to hundred. Their contribution serves as major source for evaluating the success of the system. Merging all this data from various informants has strengthened research findings and has allowed for articulating the ingrained factors for the success of implementation; to assign meaning for interactive elements in e-government implementation; to identify the interrelationships among the dimensions and the major factors that emerged out of them. Table 4 represents the summary of data collection.

Table 4: Summary of data collection

Outline of the Interviews			
Correspondents	**Source**	**No. of Respondents**	**No. of Interviews**
Key officials	IT&C	10	10
eSeva officials	eSeva Central office	4	4
Engineers	CMS and RAM Info	4	4
Regional sales Manager	CMS computers Ltd	1	1
Project leader	CMS Computers Ltd	1	1
Commissioners	MCH	2	2
Executive Staff	MCH	5	5
Senior Staff	MCH	6	6
News Correspondent	Times of India	1	1
Citizens	eSeva centers	*100	*100
Academicians	HU & ASCI	6	6
Outline of other data			
Nature of the data	**Date**	**Source**	
ICT Policy	2002-2005	Department IT&C	
Status of the major e-government projects	June 2002	AP portal	
Profiles of e-government projects in AP	July 2002	Department of IT&C	
Government orders on IT Infrastructure; architecture; functions; promotion; IT services; telecommunications; private partnerships; funding for e-government projects	1996-2002	Department of IT&C	
Brochures on e-government projects, eSeva, e-Hyderabad, Electronic Hardware Policy	2001-2002	eSeva, MCH, Department of IT&C	
Minutes of the pre-bid conference on establishment of TWINS centers	26 June 2000	Website of State Government	
IT policies and their implementation	13 October 2001	Proceedings of the National Workshop, ASCI, Hyderabad	
MCH to hold opinion polls on website MCH short listed for Stockholm award CM for online system in secretariat eSeva centers becoming popular Tax payers urged to avail of eSeva	25.06.2002 25.06.2002 25.06.2002 23.07.2002 24.07.2002	The Hindu (National News Paper)	

*responses from 100 people were accumulated in order to know the acceptance of the system by citizens

4.2.2 Data analysis

The data that was assimilated from multiple sources were analyzed analogous to the data analysis executed by Robey and Sahay (1996). The primary step in the process of data analysis was "coding and splitting" the data. All the recorded interviews were transcribed and coded according to: (1) the status of pre-implementation (2) the implementation process and its associated factors (3) the status of post implementation (4)the interrelationship among the elements of different domains of the system (5) the causes that led to the success of implementation

In the second step, these interpretations found in the coded segments were integrated with the spilt data to outline the premise by designating a meaning and merging the idea behind splitting the data. Thirdly these themes were aligned with relevant factors associated with the implementation process. Although there are numerous ways of grouping the factors associated with implementation, for the purpose of achieving more clarity, the current study segmented the factors into structural; administrative; technical and human factors.

This study utilized the structuration model for analysis and presentation of the findings whose primary notion is facilitating the understanding of the recursive interrelationships among the interactive elements of the system. Hence the fourth step involved inducing a dominant process among the associated factors since the understanding this process can be achieved only by charting the array of significant relationships among the critical factors (Butler and Fitzgerald, 1999). The fifth step involved was comparing the themes, processes and interrelated elements and the

critical factors that emerged out of them for inferring the consequences that leads to a successful e-government implementation.

It is necessary to comprehend the complex IS implementation process by predisposition about the meanings of its components and their associations. The process model which is adopted in this study focuses on those factors that are critical in the course of implementation of an IS project (Robey and Newman, 1996) in a government set up. This study represents relationships among the components of implementation in a pictorial form in line with the structuration model of Gidens (1984), with a consideration that the process of implementation is resultant of influential sequences among implementation factors. This representation serves as a valuable aid in grasping intricate conditions of implementation process because it links the ingrained factors to the whole process of implementation. Secondly it also offers a understanding about the chain of events that link the factors to consequences, and the laws of interactions governing them (Dublin, 1969).

CASE STUDY

CHAPTER 5

CASE STUDY

5.1 Case Overview

India is prominent in venturing e-government initiatives (Haque, 2002) and according to Ministry of IT, the government has targeted to perform one fourth of its dealings and services electronically. Although multitude of e-government projects are found nationwide, Andhra Pradesh is ahead in e-government initiatives; ranked high for IT-enabled services; and the e-government sector grew by 18% in 2001-02 over the previous years (Chandrasekhar and Ghosh, 2003).

The focus of this study is the implementation of integrated electronic citizen services (eSeva) in Hyderabad, capital of Andhra Pradesh. The pilot project (TWINS) of our focus (eSeva) was initially operational at only one centre and was later branched out to 28 under the name '**eSeva'** from 1999 to early 2003. A networked architecture technology is employed at three different tiers to link the central data centre, individual departments and the eSeva centers. The project implementation process has been categorized (Figure. 3) into phases, since the e-government system implemented was evolved out of the multiple iterations of different phases.

The data collected for this study indicates the increase in transactions from 1999 to early 2003, around 27,000 per month to 20,000 per day. Services on utility payments [electricity, water bills (20%); telephone bills (24%)] are used more often; most users

are educated and repeat users; services are under utilized due to the existence of other modes (manual counters, ATM, internet, banks) for transactions.

Despite this, the public suggests to expand the number of centers; launch services for re-connections; complaints filing for restoration of disconnected services; explicit instructions for service usage; centralized billing system to prevent multiple visits; penetration of services into other urban and interiors of the state. The entire picture portrays a coherent integration of all involved in the implementation along with user's acceptance. Table 5 represents Departmental Services available under eSeva. It also indicates the time taken for completion of each transaction prior to the implementation of eSeva and also after the implementation of eSeva.

It represents that the duration is significantly reduced from days/hours to days/minutes. The duration in pre-implementation includes the time consumed for waiting and the time taken for completing the transaction once the citizen reaches the place of transaction. The time indicated in post-implementation is inclusive of both. The time consumption was more during pre-implementation due to several aspects such as single man handled counters, improper guidelines for payments, redundancy, non-cooperative staff, middle man, lengthy procedures, long waiting hours in the public offices and so on.

Table 5: Departmental Services available under eSeva

Name	Services	Duration (pre-eSeva)	Duration (post- eSeva)
CPDCL	Payment of electricity bills	1-2 hours	10-15minutes
APSRTC	Reservation of bus tickets	1-2 hours	10-15 minutes
Commercial Tax office	Filing of central tax returns /State general sales tax	2-3 hours	20-30 minutes
MCH	Payment of property tax	2-3 hours	15-30 minutes
	Sale of Sports tickets/ pre-paid parking tickets	Not available	10-15 minutes
	Registration of birth/ death/ new trade licenses	10 days-2 weeks	1-2 days 10-15 minutes
	Issue of birth/death certificates	2-3 days	1-2 days
	Renewal of trade licenses	2-3 days	20-30 minutes
Metro Water Works	Payment of water/Sewage bills	1-2 hours	15 minutes
RPO	Sale/ Submission of passport applications	2-3 hours 1 day	15 minutes 30-40 minutes
RTA	Payment of vehicles /new vehicles /life time vehicle tax	1-2 hours 2-3 hours	25-30 minutes 25-30 minutes
	Change of address of vehicle owner	2-3 hours	25-30 minutes
	Transfer of vehicle ownership	2-3 hours	25-30 minutes
	Issue of learner's/Driving licenses for non-transport vehicles	2-3 hours 3-4 days	25-30 minutes 25-30 minutes
	Renewal of driving licenses for non- transport vehicles	3-4 days	25-30 minutes
	Registration of new vehicles	1-2 days	5-30 minutes
Office of inspector general of stamps	Sale of non-judicial stamps	1-2 hours	15 minutes
BSNL	Payment of telephone bills	1-2 hours	15 minutes
Intermediate Education Board	Collection of examination/ Affiliation/ recognition fee	1-2 days	20-30 minutes
Department of Central Income tax	Filing of IT returns of salaried class	2-3 hours	20-30 minutes
Department of Municipal administration	Property taxes of local residential extensions	2-3 hours	20-30 minutes
Private services	Reservation of water tankers Payment of telephone bills for Tata Telephones Limited	1-2 hours	15-20 minutes
Internet services	Electronic payments Downloading of forms Government Information	Not available	10-15 minutes

5.2 Development of electronic government in India

Although the main focus of this study is electronic citizen's services deployed at an urban level, the development at the national level has been reviewed to understand how it contributes to the development at state and local level administration. The following sections focus on e-government in India, contributions of information and communication technologies and Internet prior to discussing e-government status in the state and site of our data collection.

5.2.1 E-government in India

The e-government literature on the countries of early adoption like USA is enormous, since innovation in information technology is well established in those nations (King et al, 1994). In contrast, it is limited in the empirical studies about the recent adopters such as India. Moreover in the context of developed and developing nations, the technology is believed to stimulate the economic prosperity and enhance the quality of life (Peter et al, 1998). Therefore the available studies mostly focus on the benefits of IT and communication.

In the Indian context the conventional government system is largely manual and document based. Similar to any paper based administration, the system is featured with delays; lengthy process; lack of direct contact with government and citizen; distant location of the government departments and single staff handled payment counters. But the recent technological developments have transformed the process of government departments. Primarily computers that were introduced in the government departments for internal functioning are now extended to the advantage of citizens. In

addition the computer applications are enhanced with the advent of Internet technology in India.

The introduction of IT for internal administration in India dates back to more than a decade. But the Indian private firms are way ahead in providing the technology solutions to the world although the computerization in India is rather a recent development compared to the other Asian economies (Walsham, Sahay 1999). In India governments using electronic medium for providing information and services is not new – it can be traced back to perhaps the introduction of television in 1959. India's Space program, Railway passenger reservation system and the use of VSATs by the postal departments to process money orders are some of the important examples.

The rapid dissemination of Internet is concurrently impacting various public and private domains including business, communication and politics (Business Line 2001). These changes directly have impact on how government functions. Recently, the government has started to reciprocate to the citizen demands with a changed attitude. Awareness in the public has led the citizen charters of the public administrative offices to assume a whole new meaning as government has realized advantages of digital medium in administrative functioning. The state/local governments are aware of the fact that increased cost in government operations is due to delayed process, uncertainty and lack of transparency involved in the paper-based dealings.

Many government departments such as Customs, Income Tax, stamps and registration and the Passport office are using technology extensively for delivery of information and services; to adapt to new business processes; to work towards changing the mindset of people. The website of the Ministry of Information Technology (MIT), Govt. of India lists briefly the E-Governance initiatives undertaken by the various Ministries/Departments and States Governments. This indicates a fundamental change in the administrative process and the drivers for this change process appears to be political, technical, business and social factors [www.mit.gov.in/eg/ms.asp]

5.2.3 Information and Communication Technology in India

The significant step in the direction of application of Information and communication Technologies is "The IT Act of 2000" passed by the Government of India. This provides legal recognition for government records; digital signatures, enabling the conclusion of contracts; creation of rights and obligations through an electronic medium. In addition this act also facilitates for:
(a) delivery of electronic services through the use and acceptance of electronic records (b) digital signatures in government offices (c) authentication of electric records (d) availability of any information required by law in the electronic form and (e) acknowledgement of receipt of an electronic communication (Ministry of Information and Technology, India)

Under the IT Act, the controller of digital signature has been appointed as an authority to regulate on-line e-commerce and other businesses. The functions of controller are: (a) to certify public keys of the certifying agencies (b) specifying the conditions subject to which the agencies would conduct their business and (c) facilitating the

establishment of any electronic system by the agency either solely or jointly with other agencies (Shah, 2001).

The second huge step that India has taken is housing Asia's first media laboratory with an estimated cost of $1 billion investment. The funding arrangement comes from Indian government at 20% of the total estimated cost, $400 million of investment is anticipated from private sponsors and foundations and the rest from the World Bank. This is a leading and significant IT initiative of the Indian government. The lab is expected to facilitate India to emerge as a technology hub for the world (Electronic Engineering Times, 2001).

The target of this media lab is to facilitate the invention, refinement and deployment of innovations to benefit all sections of Indian society. The media lab will focus on applying the most sophisticated emerging technologies to solve the routine problems of India's poorest and least-educated people. The projects included under this aims for connectivity research center, electronic finance center with three of Indian Institutes of Technology. Other projects are expected to focus on electronic government.

Indian government is also collaborated with academic institutions like Indian Institute of Management to enhance the development of e-government. Indian Institute of Management, Ahmedabad and World bank have undertaken a joint project to compile case studies on various applications of IT that have been demonstrated to make difference in the delivery of services or products in rural areas both qualitatively and quantitatively (Center for E-governance).

This project assimilates the successful case studies to understand how the potential of ICT can be harnessed for accelerating development; utilize them as a guiding tool for the future projects; facilitate the replication of successful projects with optimal consumption of available resources. The case studies presented varied views on empowerment of ICT. They revealed a fact that ICT have provided a support in administrative decision making and enhanced the development programs, service delivery and transparency; empowered the citizens through access to the information and knowledge (Bhatnagar 2000).

Broad progress in bridging the digital divide requires economic growth and wealth creation, education and Government support (Business Standard, 2001). Because of huge pool of well-trained technical labor, India offers a good economic environment for foreign investors and offer opportunities and helps Indian economy to grow (India Economic summit 2001). India witnessed economic growth rates of 7% in the 1955-1997 periods. When in 1998, the year of the Asian Economic turmoil, India's growth rate was 5% and projection for next year was 5.5%. India's international payments position remained strong in 2000 with adequate foreign exchange reserves, moderately depreciating nominal exchange rates, and booming exports of software services

5.2.4 Internet in India

When the Internet became increasingly popular in 2000, there were only 4.5 million Internet users and 43 ISP's in India. This number has grown recently, and is expected to escalate in the future. An old telecommunications infrastructure connecting

populated areas, combined with high phone line connection costs, has stunned the growth of the Internet in India (World Economic Forum, 2002)

India's National Association of Software and Service Companies (NASSCOM), in its survey of 'Internet usage in India' has noted that an increase in net subscriptions could be directly attributed to the private ISP policy announced by the government. The number of current users has crossed the 3.7 million mark while Internet subscriptions have exceeded the 1 million mark (www.newsbytes.com)

The survey, which was conducted in more than 68 cities and towns across India, comprising 92 percent of the country's total Internet users, reveals that more than 81 percent of PC sales during the financial year 1999-2000 were driven by the need to access Internet despite a pending demand of additional 1 million Internet connections. The study also predicts that with the improvements in bandwidth and penetration of Internet through PCs, as well as cable TV, the Internet user base in India is likely to grow to 23 million by December 2003 (www. newsbytes.com).

According to the survey by KPMG, an international servicing and consulting firm, despite security and accessibility remaining significant concerns, the governments and agencies of all forms displayed a strong commitment to greater use of technology. The governments are largely using information technology for the purpose of sharing information and other organizations are adopting internet increasingly for simple online transaction and basic interactivity (DeZoysa, 2000).

The above information indicates that E-government is initiated across India. More importantly with the citizens' perceiving the benefits, the political class has begun to

support its implementation. There has been a significant effort by some State/Provincial and the Central/Federal Government in the direction of digital government. The rapid adoption of the Internet has brought about an organizational change, commonly referred to as E-transformation along with the development of Internet, E-commerce and Information and Communication Technology. One of the survey (Mahabharat 2000) done on forecasts of Internet growth in India is illustrated in the following table 6.

Table 6: Forecast growth of Internet in India

Date	Internet Connections (In millions)	Users (In millions)
31March, 2002	4	10
31March, 2003	8	18
31December, 2003	11	23

5.3 E-government in Andhra Pradesh

Although the e-government initiatives are attempted in many states, we focus our study on one of the city in Andhra Pradesh. This state is located in the southern part of India and the IT is growing rapidly with many government initiatives here. Andhra Pradesh has a population of 75 million people. It is driven by the chief minister's political agenda for an IT-enabled social transformation. The state has been in the news for its innovative approach for designing and implementing information and communication technology enabled strategy for e-government with an efficient CEO who has been featured as top-fifty people in Asia.

The government's approach to use information technology was not limited to e-Seva services alone, but is extended to provide other services to its citizens. The e-government drive in Andhra Pradesh started in the year 1998 when its first e-government project named CARD was initiated. It computerized property title

registration and stamp duty payments service. The project was extended to 214
centers including district key village headquarters across the state. The initiatives for
launching e-government project are considerably significant in the state of Andhra
Pradesh. Table 7 provides an overview other of e-government and IT projects in the
state up to year 2002.

Table 7 Overview of e-government projects in Andhra Pradesh*

Name	Description	Year	Department
CARD	Computer-Aided Administration of Registration Department -covering 249 sub-registrar offices in the state with funding of US$ 6 million	1998	Registration and Stamps
FAST	Fully automated Services of Transport Department -launched with three pilots projects and replicated in other 34 sites.	May 2000	Andhra Pradesh Transport Corporation
VOICE	Vijay Wada Online Information Center-with funding from the Ministry of IT, Government of India.	1998	Vijayawada Municipal Corporation
SAUKARYAM	Civic Urban Information Management System	2000	Municipal administration
e-Cops	Electronic computerized operations for police services-launched 200 sites in 4 districts for crime control, law and order and administration	May 2002	Police
AP Portal	APONLINE Ltd, joint venture between Andhra Pradesh Technology Services Limited and Tata consultancy services - on-line government portal for information and payment services	27th March 2002	Government of Andhra Pradesh
MPHS	Multi Purpose Household Survey –launched in phases respectively covering 1125 village Headquarters with a cost of US$10 millions.	1998 - 2000	Revenue
SKIMS	Secretariat Knowledge Information Management System (Now renamed as **SMART** Governance) with a cost of US$1 million	2002	Andhra Pradesh Secretariat
OLTP	Online Transaction Processing System for integration of the information systems launched in with the cost of US$400,000.	August 2002	Government departments at village headquarters
IFIS	Integrated Financial Information System launched at 400 sites across the state with cost of US$ 1 million	2002	Finance and its field offices
HRMS	Human Resources Management System commenced covering 5000 locations in the state	July 2002	1. State Secretariat 2. Office of CM 3. Office of other ministers 4.Departments outside the secretariat and within state 5. State owned pubic sectors, NGO's for welfare
SBMS	Social Benefits Management System was launched covering 100 locations.		

*The information stated in table7 is based on the documents collected from the department of IT&C

5.3.1 E-government in Hyderabad

Hyderabad is the capital of Andhra Pradesh with a population 3.14 millions where the most e-government projects are initiated for the state. It has been ranked number one recently by the NASCOM (National association of software and services companies) for IT-enabled services as represented in table 8. The capital city has been test bed for many e-government initiatives. The project that we discuss here was first implemented in Hyderabad in the premises of one of its government offices. Later it was expanded to both the twin cities of Secundarabad and Hyderabad.

Table 8 Ranking of IT enabled Indian cities

City	Rank
Hyderabad	1
Kochi	2
Chennai	3
Kolkata	4
Ahmedabad	5
Bangalore	6
Mumbai	7
Delhi, Noida, Gurgaon	8
Pune	9

5.4 The case of eSeva (electronic citizen services)

The system "e-Seva" is a one-stop citizen service system for providing an array of citizen services. It is a government organization built on public private partnership for the purpose of delivering administrative services through effective use of information and communication technology. This system provides a direct interface between the government and citizen by integrating all public utility services under a common roof.

The pilot project of the e-Seva was launched under the name TWINS (Twin Cities Networking Services) in Hyderabad in December 1999. The project was operational in one of the premises of the municipal corporation of Hyderabad. It was well received by the citizens although experimented only in location and was not accessible to the entire city. Based on the success of the pilot project, it was reinstated and launched as "e-Seva" (electronic services) on 25th August 2001 at 18 centers of Hyderabad and Secunderabad. The system also facilitates Internet based services through five government recognized banks. This gives an option to avail the service in a mode convenient to the citizens. Some of the additional features of the system are:

- Reduced waiting time
- Electronic queue system
- Comfortable office settings
- Absence of area jurisdiction
- Trained and co-operative staff
- Issuing printed receipts for transactions
- Service facility beyond regular office hours
- Incentive schemes for promoting the services
- Availability of services in the week ends and on public holidays
- Appending the services and service centers based on citizen demand

5.4.1 The PPP Model

The second phase of the project is a coalition of government and the private partners (RAM Informatics and CMS Computers). Uniqueness of the project is: it is built on PPP (Public Private Partnership) model. The government has invested a partial funding of US$ 600.000 for physical infrastructure for the service centers. The physical infrastructure includes providing office area; furnishing; hiring trained staff for service centers; training essential existing staff and in the government departments and posting them to e-Seva centers.

The investment of US$ 1.0 million on technical infrastructure is covered by the private partners, inclusive of hardware and software vending for the project. They are on contract period of five years that is renewable or non-renewable depending on the state of affairs. Other important specifications on which this model works out are listed below:

- The PPP model is based on transaction based financing model
- Nominal charges are collected from the citizens to sustain the project.
- The amount to be paid on every type of transaction depends on stipulations of the contract between the government and the partnering firms.
- Partnering firms acquire their investment depending on the total number of transactions completed at all the e-Seva centers.
- The payment to the partnering firms is fixed at a specific rate up to a certain number of transactions and increases thereafter
- The Andhra Pradesh Technological Services (APTS) invites the private partners for participation by calling tenders.
- Most suitable firms that are accord with the specifications, terms and conditions of the government were selected to partner the project

5.4.2 e-Seva Network Architecture

E-Seva transactions are done on real time basis and based on a three-tier architecture. The servers at departments and eSeva centers are connected to the central Data Centre. The lines are leased from BSNL (Bharat Sanchar Nigam Limited) a largest public sector telecom undertaking of India. The leased lines are backed up with ISDN (Integrated Services Digital Network) digital phone connections which allow data to transmit across simultaneously using end-to-end connectivity with digital network of high speed and high quality voice, data and image transfer over the same line. Multiple levels of high standard security are followed while processing the transactions restricting the access to authorized user only. The Internet users can get access to the database only after getting a clearance by a checkpoint firewall at second tier. Figure 2 illustrates Network Architecture of eSeva.

Departmental Servers

3rd Tier

BSNL

Internet

Router Pool

Checkpoint Firewall

Switch

Database servers NMS

DMS Zone

Web Server

Web application Server

2nd Tier

ICSC Location-1

BSNL

ICSC location-18

Computer terminals with printers

Computer terminals with printers

1st Tier

—— Leased Line

—— ISDN Line

⁂ **BSNL :** Bharath Sanchar Nigam Ltd
⁂ **ICSC** : Integrated Citizen Service center

Figure 2.   **e-seva Network Architecture**

5.5. Implementation process in eSeva

The implementation process of eSeva can be traced into three distinct stages due to its phased development from initiation to diffusion. The implementation spanned across the years from 1999 to 2002 and is still on the verge of wider expansion. The reason for segregation into three phases is to inline the perceptive of implementation process that has gained through the data associated with distinct steps and decisions taken the process of implementation. Table 9 represents the phases and process involved in eSeva implementation.

Table 9: Phases and process of eSeva

Phase	Process
Pre-implementation of eSeva	Scanning of organizational problems Identification of origin of problems Identification of problem clogged departments Dialogue with departments Expert consultation and formation of committees Public opinion gathering Decision making Establishment of ICT department Execution of pilot project Designing the actual project Technology selection Funding arrangements
Implementation of eSeva	Rectification of errors in the pilot project Launching actual project (eSeva) Public requirements gathering Appending the number of services Value addition for citizen needs
Post-implementation of eSeva	Continuous system review Expansion of service centers Planning for state-wide deployment

5.5.1 Pre-implementation

The pre-implementation of eSeva was featured with many complications both from the perspective of government and the citizen. The process and procedures were conventional in nature and imparting a greater inconvenience for the public in terms

of time, cost, labor and area jurisdictions. It was not beneficial to the government and was also hindering effective organizational operations. Secondly within the government it resulted in lengthy process, redundancy, delays and middlemen. The government functioned with number of branches with single staff making manual transactions without adequate facilities. The dealings at these offices again involved redundancy, errors and delay in transactions.

The scenario at the branch offices was not very appealing to the public. Transaction processing consumed a longer duration and involved lengthy hours of waiting. There was no supply of additional staff to assist the existing staff to expedite the process in the manual counters. The staffs at the departmental divisions were not very co-operative with the public. Only a cluster of staff was aware of exact procedures to guide the public and on some occasions the public sought the help of middlemen. The transactions like issue of entitlement certificates or registration of property involved commission to the middlemen, who many times were misleading the public. The intervention of middlemen was leading to repeated visits to the public offices. All these caused dissatisfaction and frustration among the public. Complaints demanding rectifications and clarifications were piled up in the departments.

Public complaints made it clear that citizens are no longer passive recipients of the inconvenient public services. It became obvious that the situation will be critical unless a suitable action is taken to set right the issues raised by the public. Government made a decisive move and started focusing on the problems and their origin. The concerned departments were identified based on the nature of complaints. Detailed evaluation was made about the causes that led to these problems. Later the

problems were discussed with the departments to chart out a possible solution. The expert team was consulted and committees within the government were formed to make detailed evaluation. The services where maximum impact can be made were studied to incorporate under the new system.

After a thorough evaluation and consideration of possible solutions, Information and communication technology was envisaged as possessing a potential to solve these problems. Hence the concept of forming an individual department to deal the matters of technical nature was materialized in due course. This later assumed a responsibility for all IT enabled and e-government projects for the state.

As an initial step the pilot project of eSeva (TWINS) was conceived and was operational at one of the municipal office premises. It was received well by the public despite constrained with some problems. This boasted the confidence of the government to initiate further steps in the implementation process. The ambiguities of the pilot project were evaluated and solutions were incorporated in the actual project (eSeva). The government took an enormous step of implementing the actual project in substantial number in the capital city. As per the government anticipation, the public started to utilize the services. Government realized that any form of service delivery which is relatively better than the conventional system will be accepted and sustains in the long run.

5.5.2. Implementation

The background of eSeva dates back to year the 1995 when the former Chief Minister took charge of the state. He viewed IT as a strategic area for development. The idea

of integrated citizen service system was initially evolved over a period of 1996-1999 when government began introducing the computers to enhance the internal work processes in the government departments. Only in the year 1997, the decision was materialized by initiating Andhra Pradesh Value Added Network (APVAN) for electronic delivery of all government information services.

The company that conducted the pre-analysis about 'APVAN' indicated some issues that would creep in when the project becomes functional. The significant suggestion offered from the pre-analysis was about the future of government departments. It indicated that a number of the existing government departments and their procedures are anticipated to be redundant by virtue of project 'APVAN' coming into place. But the plans concerned with this project were leaked out and there was a massive agitation from the government officers as they anticipated a considerable number of retractions from their current responsibilities. Hence government decided it was not appropriate to start this project in view of the consequences that would arise in the various departments

Later in the year 1998 the first e-government project called 'CARD' was initiated for the department of registration and stamps. This was successful and encouraged the government to initiate other e-government projects. The government decided to try the project 'APVAN' as pilot project 'TWINS' to test its feasibility. TWINS (Twin Cities Networking System) was set up in the year 1999 and demonstrated success. The success of TWINS encouraged the government to expand it further to the other parts of the twin cities of Hyderabad and Secundrabad. The inconsistencies found in

the pilot project were set right and it was reinstated with the name 'eSeva' (electronic services) in due course.

The concept of eSeva was evolved out of many events that took place in the state during the period 1995-2000. A document on IT usage for the state was prepared as a foundation for strategic use of IT in the state. It recommended to set up an IT and Communication Department. Secondly it also suggested having a principle secretary as a head who would be responsible for the all the operations related to IT and C that are functional in the state. Once this department was operational, it developed the IT policies and procedures for the state. The policy document was guided by the policies of the other nations and especially Singapore. The procedures stipulated in the IT policy for the state formed the basis for all e-government initiatives. In addition, the highlight of this document was, many of its recommendations on IT were incorporated in the National IT policy.

eSeva (electronic citizen services) is a government organization and it was an extended phase of the pilot project. It was functional by August 2001 in the capital city of Andhra Pradesh to provide a wide spectrum of IT enabled citizen services. eSeva was expanded into 29 centers from the date of its inception to early 2003. The project was ventured with a coalition in funding from the government and private partners, Ram Informatics and CMS Computers. A chain of computerized integrated citizen service centers conveniently accessible are stretched across the city. It facilitates one-stop venue for various departmental services. This system also offers services on internet. But these services are not significantly used by the public.

5.5.3. Post implementation

The current scenario of eSeva offers a comprehensive picture of sustainable establishment. The changes are clearly evident right from furnishing the centers to the services offered. Well furnished offices with adequate seating arrangement provide a comfortable waiting atmosphere to the citizens. This is complimented with an electronic queuing system and a friendly, co-operative staff in contrast to the long waiting, unfurnished office of the conventional government offices. Although the centers are crowded on some occasions the citizen's response is very positive about the system.

Citizens comprehended its paybacks in terms of time, cost effectiveness, convenience and service quality. In addition it has supported the working situation in the government departments. The concerned departmental staff is allowed to work more efficiently and have a sense of job satisfaction. Prior to eSeva many of them were posted to do the tasks that they were not trained for and there was a back log in the work. Post-implementation of eSeva has reduced all this as staff works on those tasks they were recruited and trained for.

The increase in number of services provided and the centers established is amplifying. Both are in concurrent with the citizen demand and expectations. The system is under continuous review and subject to modifications acceding to the requirements of the departments and the citizens. In addition the government is also planning for state-wide dissemination of the system. The positive attitude of the participating departments for collaborations and public acceptance is instrumental in penetrating

the system for the use of wider citizen base. The following figure 3 presents the phases and key events of pre-implementation, implementation and post-implementation status.

IT usage decision for state-wide development (1995)

Introducing computers in the government (1996)

APVAN for government information service (1997)

Conventional system assessment (1999)

Pilot project (TWINS) of eSeva (1999)

Pre-implementation
1995-2000

Implementation
2001-2002

Post-implementation
2003-Present

Citizen feedback compilation (2001)

Review of pilot project (2001)

Discussions & consultation (2001)

Departmental discussions (2002)

Technology selection (2002)

Implementation of eSeva (2002)

Continuous review

Expansion of eSeva

Planning for state-wide

penetration

Figure 3: Time line for Key events in eSeva

ANALYSIS
&
FINDINGS

CHAPTER 6
Analysis and Findings

The process of eSeva is closely in line as elucidated by Gidden's (1984) structurational model after segregating the assimilated data into three phases of pre-implementation, implementation and post-implementation. According to our data collection, the sequences of events from inception to implementation of eSeva have close similarity with the elements indicated at three domains of structuration. Implementation of eSeva was the result of interplay of social structures and human interaction (Barley 1986). Hence the interplay of these elements at different phases is mapped into three domains of structuration model (Figure 4). This mapping supports to validate our basic intent and also complements the in-depth understanding of implementation process to draw further inferences.

The change process from conventional government to electronic government clearly indicates that it was an outcome of multitude of reciprocal activities under each domain (Figure 4) of eSeva. These activities emerge out of constant interaction among the users and system developers (Contractor and Seibold 1993). The system developers here are: policy makers and their staff; hardware and software vendors. Users are: participating departments who offer the services and the citizens who ultimately utilize these services.
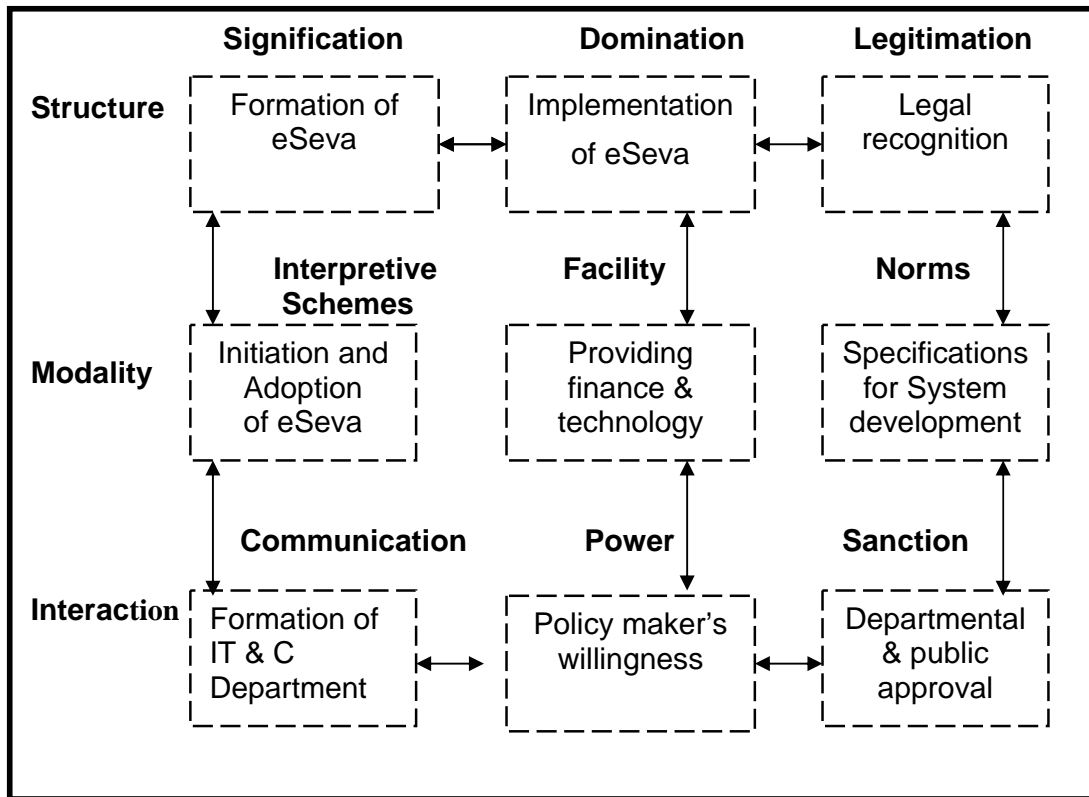
Figure 4 Structurational processes in eSeva

6.1. Interactions of social structure in eSeva

The main reason for inception of eSeva was the shortcomings that were surfaced out of inefficiencies of paper-based system. The public was at greater inconvenience due to this and government had to acknowledge their frustration. As narrated by the director of eSeva, the down side of the conventional system was:

"The paper based system was featured with delay; manual errors; redundancy; lengthy and time consuming procedures and this were complicating the processes for both public and

the government. The impact was more on public and we received numerous complaints from them".

This is a common scenario in a paper based system. Under such circumstances insistent efforts are required from the government to explore a mechanism to streamline, simplify and restructure the procedures for efficient service delivery. The number of complaints received made it obvious that public is unprepared to endure the hassle of time-consuming and unpredictable public services.

It was not a single service that the public was unhappy about, there were array of services from different departments, which they wanted the government to simplify and restructure. Therefore it was prime time for the government to explore a mechanism to streamline the procedures. This is very important specifically under a condition where the amount of dissatisfaction expressed by the users is more. In order to execute a massive restructuring course, firstly the government had to trace the origin of the problems, types of services that required immediate restructuring and the departments where these problems existed. Secondly it required scheduling of a system looking into the needs of the public. Thirdly, to convince and obtain the willingness of the departments which had inadequacies in service delivery.

Therefore, as stated by the principal secretary of IT&C department: "organizational establishment with a deliberation to the citizen's needs and participating departments became essential". But establishing a department was not a sole solution and conclusion to the problem. Concurrently it was

obligatory to get the recognition from public and departments, building trust among departments and public for participation and use of the system.

Generally people are less inclined to accept anything new from the government unless they are convinced about its authenticity as it was quoted by the director of eSeva:

"People are aware about the on-going changes. As tax payers they anticipate the government to reciprocate to their needs and in-tandem require a legal protection for every transaction they do with the government".

Further, renovating the structure that existed became essential for meeting the requirements of all involved in using the system and also to persuade people to use the service delivery. The preliminary study was done by the government on citizen's requirements. This provided insights on what they anticipate from the government. Hence as a primary step, government decided to set up department of IT&C to regulate and monitor the IT activities for state inclusive of citizen services. As contended by concerned executives:

"eSeva structure was developed weighting the consequences of collaborative efforts, felt-needs of the people. It was regulated by the norms of ICT department for the state and has legal binding for all the transactions".

The primary scanning of organizational problems and public opinion disclosed the facts that public are aware of the technological innovations, the confluence of technology and communications culminated with the advent of internet is certainly divulging public to the contributions of IT, they are aware that the conventional system can no longer reciprocate to their anticipations and service delivery can be enhanced by employing IT. These facts served as focal points for institutionalizing eSeva as an individual organization. As the director elicits:

> "Operational complexities, service needs of public, in
> tandem giving sophisticated physical appearance counter to
> inadequate amenities of manual offices to smoothen the
> transactional process developed into a criterion subsequent
> to institutionalizing eSeva".

It is not only the departments who are convinced by its legitimacy, but citizens as well. When it was asked regarding its legitimacy many presented the printed receipts of bills paid and related:

> "We have given an identification number on our bills. This also
> appears on the receipt of eSeva. We can produce it as evidence
> for any discrepancies and also to claim under law".

To enhance the legitimacy of the transactions, they are updated with every new payment in service centers, departmental servers and eSeva central office. This updating facilitates to demonstrate the authenticity of transactions to the customers.

The service delivery is not a sole tenet of eSeva. It functions in multiple capabilities as described by the deputy director for eSeva. The overall functions performed are:

"Project uptime; network monitoring; identifying the problem clogged services in the departments; resolving their conflicts, speeding up the delay and bring in co-ordination; site selections for expansion of centers and also state-wide eSeva expansion".

Therefore, its structure is a key player along the implementation process, perpetually supplemented with its reciprocal interactions among a series of events of setting up a new institution, being operational through implementation and gaining legal entity. Currently eSeva has appended many services from various departments. The participating departments are convinced that that eSeva as venue for their service delivery is beneficial and they can keep their customers and staff contented by incorporating their services under it. This is evident by reduction of manual work and declined public complaints. As remarked by an official:

"The manpower is now best utilized. We were many of our employees for unskilled work due to inadequate staff. Prior to the collaboration with eSeva, technical staff was posted to perform administrative tasks rather than attending on-site customer complaints which eventually led to the dissatisfaction

of our customers and complaints backlog. But after we joined eSeva, we could place our employees where they are really needed".

All these events which are associated with each other gives a coherent picture of the activities performed by eSeva and constant interplay of these elements with other two domains is evident all through the process thus indicating the incidence of strong social structure. Therefore, its structure is a key player with several competencies along the implementation process, perpetually incremented with mutual interactions among a series of events of assigning a new venue (signification), being operational through implementation (domination) and gaining legal endorsement (legitimation).

6.2   Human interactions in eSeva

The basic issues underlying the eSeva implementation were reduction in transaction processing time, cost and transparent dealings, eventually necessitating a good networking system and collective efforts. As narrated by the director of eSeva:

"There were several downside in the conventional system such as area jurisdiction; time consumption; manually single staff operated counters; inadequate waiting facilities; flaws; redundant entries requiring citizen for fruitless re-visits without proper guidance to proceed their transactions. This was excessively

unpleasant and frustrating the public and government acknowledged many complaints of mishandled transactions".

The discontent on incompetent service delivery was vented out by cumulative public grievances. The citizens relate their experiences with the conventional system as:

"I am living in this city for all my life. I have invested my time and money running around offices and as I grew old it became a strenuous task".

"I was told to go to local office, then to central office to submit my application, but none of them gave a right direction".

"I had gone 3-4 times to get my transactions rectified, but the officer was not responsive".

"Our residential electricity connection was disconnected even after I made the payment".

"I had to take off from my office on several occasions to make the payments as it consumed the entire day".

All these eventually obligated the government to reciprocate in a positive direction. One of the official remarked as: "this was a critical circumstance and government was certain that public will not take this for long". This insisted on amending the existing system. Government was obligatory to track the origin of the problems as it was very crucial for the subsequent action to avoid further negative implications.

There was a need for an official establishment to steer the future activities once the consequences for public inconvenience were explored. Hence as quoted by the personal assistant to chief minister:

"The state was recommended to have an establishment to lay out policies for all IT activities in the state and the current IT&C department was instituted to regulate and monitor all technology based initiatives in the state".

But IT&C division did not offer solution for the public grievances. The government had look for IT officials who could comprehend the implications of the existing situations along with technological perspectives. All these activities undoubtedly required initiatives from the top management for succession. It was concluded that:

"eSeva success is accredited to the efficient key officials who spent ample time to understand various facets of the problems

and also to the head of the state who could perceive the problems

from the view-point of a common man".

The data collected shows that eSeva did not evolve out of a vacuum, but marched forward in a phased manner with a clear vision that renovating a large social system in a single step will be futile. No innovation so far has matured and scaled up in a day or two and it entails a hierarchy in phases to diffuse as a routine activity. One of chief officer quoted that :

"It was an enormous step but government was confident of its success in due course for its functional payback for all involved. It has successfully sustained among all other e-government initiatives. It will also sustain in the future for its persistent requirement-based adaptations and constant focuses on swift technological innovations to incorporate into the system"

This exemplifies that eSeva aligns its operations on user perception and demands rather than only internal returns; aware of technical innovations required for upgrading; understood that entire project is futile without users receptiveness. As acknowledged during the data collection, currently public is contented except for occasional hassles.

When citizens were asked to narrate an incident of coercion, significant number of them noted that: "the discontent is minimal and it is rectified soon. We usually do not encounter the same in the following visits". Many of them

attribute "efficient services, friendly and co-operative staff, time saving" as the reason for choosing eSeva to make the payments.

The staff of eSeva appears to be at ease dealing with public. Many of them said that:

> "It looks much easier to work as we are trained prior to the postings here. We do have a minimal agitation from public, but we can convince them since there is no possibility for any manipulations in our service delivery as we update every transaction made".

This attitude of the staff suggests an apparent change in their attitude and also their acceptance of the system. Initial apprehension on job security, disinclination to use computers, inhibitions about new system has disappeared. They have comprehended the pay-off of the new system well. One of the staff who has been transferred from a main public service department was asked about the opinion of other staff in the department regarding working in eSeva centre, it was said:

> Many of our staff want to work in the eSeva centers. They are keen on getting trained for working here. The basic reason is the working environment is positive, not stressful and the system provides an option for working on shifts, which comes as great help for mutual exchange of working hours with the other staff at

the critical consequences; in addition getting trained for new working environment gives us job satisfaction and feeling of achievement in careers"

When the concerned officials were asked about the attitude of their staff accepting the new system, one of the key official at IT &C department who heads the division of training program for staff working in e-government environment said:

"Our staff has crossed the phase of initial apprehensions, reluctance, inhibitions of using technology and particularly the computers. Currently we have provided the computers for departmental use. Many of them including our senior staff are enthusiastic to learn the computer applications. We receive requests from staff asking us to send them for training. This is a massive change the government has witnessed in a very short span of time and an indicator that our staff is fine-tuned to the change. This will boost-up our confidence in bringing in more developments on e-government front"

This indicates that the events are reciprocal among staff, citizen and the government. The change management is having an impact on the employee attitude and morale and the same is encouraging the government for more expansions in the new system for the benefits of the ultimate users.

In summation, the foremost human interactions here are: forming ICT department (communication); citizens shifting from reticent to active change agents (communication); co-operation from people of all class in participating departments (sanction); appended services and its usage (sanction) along with policy maker's willingness (power). Nevertheless, the post-implementation is attributed to citizen feedback (communication) on deficiencies indeed inspiring the government to advocate further step up in the system.

6.3. Role of modalities between social structure and human interactions in eSeva

The modalities provide a linkage and mediate the human interactions and e-government structure. The foremost actions pertaining to this were scanning organizational problems and conceiving possible solutions. The public grievances were studied in depth to discern the origin of the problem prior to attempting a change. As revealed by the deputy director for administration of eSeva and also by one of the higher officer at the IT&C department:

> "The system developers scanned the organizational problems; its origin and focused on problem clogged areas". Subsequently, "committees were set up, public opinion was consulted; internal discussions were held; departments were convinced for participation".

Further these suggestions required a feasibility test to materialize. As a result, as quoted by an official present in the organization from inception:

"It was embarked by initiating a pilot project since the government was apprehensive about acceptance, but astoundingly it was well received despite some of its shortcomings".

Here the obvious reason for acceptance appears to be the better prospects of the pilot project over conventional system.

The next sequential action was actual implementation of eSeva following the success of the pilot project. It imparted an avenue for expansion with required adaptation but obligated tremendous internal and external amendments; required huge funding; attitudinal changes and other associated issues. The change process is slow in public sector environment government and requires a motivation from someone who can practically implicate its future consequences. As stated by the principal secretary for IT&C department:

"Main aim was to improve the service quality. Government realized it was possible with the appropriate use of IT along with a massive collective effort of all involved in the entire system", he also continued "in order to remodel the entire system, the government had to look for expert guidance, funding and technology partners".

Subsequently expert committees were formed; tenders were called from in order to get best deal for providing technology and financial assistance. Government received an overwhelming response from the agencies with diverse solutions. This obligated the government to evaluate the offers carefully for best suitability.

Finally two private agencies (CMS and RAM Info) competent to suit specifications were selected. Currently they provide funding and maintain the project for a contract period of five years. The part of funding is also from the government to provide the physical infrastructure for the service centers. In order to bring in accountability, the ownership of processes is clearly defined by paying a fixed amount to the vendors for every transaction.

Further the vendors appear to be without much inconvenience in dealing with government, public and the departments. When same was inquired with the technical team, it was said:

> "We generally have minimal problems with the staff and the public, but the problems crops up with the departments regarding sharing information". When asked to elaborate, it was said: "initially the departments were very reluctant to share the information desirable to devise the system. They took time to trust us that we are not intervening in their administrative procedures but work to the government's specifications".

This was a critical issue as some staff in the department thought that eSeva is counter to their jobs and declined to share the information. This was eventually resolved by eSeva with dialogue sessions and demonstrations about collaborating with eSeva. All these activities strongly supplement the events of other two domains by spawning into problem identification, solution finding and guidance from expert committee members (interpretive schemes); funding and technology from vendors (resource) and designing technology accomplishing the specifications (norms) laid by the government. Table 10 illustrates the differences in the pre and post implementation of eSeva system.

Table 10. Differences between Pre and Post implementation of eSeva

Pre- implementation	Post - implementation
Government centric	Citizen centric
Inefficient services	Efficient services
Inefficiency in administration	Quality and continued improvement in administrative process
Time consuming and lengthy processes	Time effective and undersized timely services
Higher control from the government	Separating service from control
Higher transaction costs and justification of costs	Nominal costs and accountability on costs
Less informed citizenry	More informed itinerary
Complicated rules and procedures	Simplified rules and procedures
Negative scope for citizen opinions, involvement and suggestions	Recognition for public opinions, involvement and suggestions

DISCUSSION

CHAPTER 7

DISCUSSION

7.1 Discussion of the findings from structurational analysis

The components designated by Giddens (1984) in the three domains of structuration model ultimately develop into interrelated elements that play a vital role in forming a social structure of organizations. Thus structuration implicates a process of building a structure which supplemented through a chain of mutual events among the various components involved with in an organization. The structure gains its significance through its interaction with human activities using modalities as vehicle for communication and emerges into meaningful actions that serve to develop a system.

eSeva as an individual organization involved a multitude of actions within its structural and social context. Prior to initiating a procedure for renovating the conventional system, the development team that was involved was guided by the groundwork done on acceptance of the pilot project; requirements of the citizens and the participating departments; funding and technology; location of the service centers and the anticipated circumstance that would emerge in the process of implementation. All these are important while attempting to revamp the conventional practices and the government ought to pair novel methods, by prospectively consolidating possible approaches (Allen et al, 2001) for more optimistic outcomes.

As an attempt to test the feasibility of sustenance, eSeva was launched as pilot project. With anticipation of further assent from the citizens and the concerned departments it headed for actual implementation that eventually resulted as "eSeva" organization. The process of implementation was not clogged at establishing an individual institution; rather it is a continuous development with a concern to the requirements of all involved in utilizing the system. Therefore from responses that were collected during data collection, we can inferred eSeva as:

"A unique and sustainable structure legally adhering to the procedures and polices of IT&C department for incorporating the various departmental services at a single venue to resolve the inefficiencies of the conventional system".

Further the access facilities involve the issue of cost and culture existing in the individual departments while offering either less or more amount of access (Monty, 1996). This plays a predominant role while acceding for collaboration. This was an issue of concern since the individual departments work on the norms that are inbuilt in the organization. So the current system is designed in such a way that it balances the departmental norms and subjected to the requirement based modifications.

In addition, the requirements of departments and also the citizens are paid attention to enhance the service delivery. Apart from this, the system also aims to deliver uninterrupted services with minimal possibilities of technical failures in its routine functioning. As more services are integrated under eSeva, the upgrading becomes necessary which eventually calls for constant attention on the above mentioned factors

along with a good communication channels for exchange of information among government; departments and the users.

The stability that has maintained among all these aspects has contributed while implementing eSeva. It, at the foundation gained impetus with an attitudinal change at concerned segments of the government, which is a significant contributor at the fundamental level. Since the government found that the only possibility of handling the challenging situation is to cautiously replace traditional structures by horizontal network structure; one-stop services; citizen-orientation and transparency (Schedler and Proeller, 2000). eSeva appears to have met these targets and most importantly the updating the transactions, which was absent to a greater extent in the previous system. This is a major contributor for achieving transparency in transactions which facilitates for building the trust among public which eventually draws the attention of public to exploit the system.

At the initiating phase, the optimistic responsiveness from the users for the pilot project motivated to extend a new structure. Later the IT&C department granted a swift momentum to steer the activities further. These processes were instigated by the events under interpretive schemes with obliging policy makers. This intention appear to be relatively good in the efforts put to establish eSeva and also building it as a useful physical and electronic means for service delivery. The realm of modalities concurrently supported the events at realms structure and interaction. This displays a certainty that interrelations at each dimension were reciprocal and proactive as contributors to the entire success of implementation. The prolific activities at each domain serve as channel for the consequential action and also as a source for multitude of social actions in an e-government setting.

The part played by technology is very significant in case of building any IT enabled system in a social institution. Developing any information system involves technology and human actors as they both modify the organizations (Caldeira, Faia-Correia 2002).The technology must serve the requirements for which it is adopted and must match the social consequences such user needs, the interaction of organizations with technical teams, attitude of staff and also the management. This becomes more critical in e-government as an effort is intended to use emerging technologies to support the adaptation of operations (Reilly 2002) and making information widely available in a novel way to citizens (Satiny 2000). This intention appears to be relatively strong in the efforts extended by all in case of eSeva in building it as a useful and sustainable electronic means for service delivery. Table 11 represents the summary of Structurational analysis at different domains of eSeva.

Table 11: Summary of Structurational Analysis at different domains of eSeva

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Domain 1: Structure

Signification:
1. Institutionalizing an individual organization for more enhanced citizen services (eSeva)

Domination:
1. Branching out the integrated electronic citizen service (eSeva) system
2. Calling for more departmental collaboration through systems' value demonstration
3. Appending the services with more departmental collaborations and   public demand
4. Plans for state wide dissemination

Legitimation
1. Legal recognition by forming IT policies
2. Authorizing IT&C department for authenticating the system implementation
3. Providing citizen identification numbers and issuing printed receipts for payments
4. Acceptance of printed receipts as a legal proof for discrepancies

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Domain 2: Modalities

Interpretive Schemes:
1. Public discontent persuading the government to review problems
2. Government interaction with the problem clogged departments
3. Convincing the departments for collaboration
4. Public consultation; experts consultation; Committee formation

Facility:
1. Choosing a suitable technology to fill in the shortage of pilot project
2. Scheduling plans for internal fund allocation and external contribution
3. Training the staff for computer operations
4. Promotional activities for public awareness
5. Choosing a PPP model for technical and financial collaboration

Norms:
1. Citizen feedback and departmental requirements review
2. Identification of the short-comings of the pilot project
3. Rescheduling the plans for a need based comprehensive system
4. Need based comprehensive technical solutions and system

Domain 3: Interaction
Communication:
1. Institutionalizing department IT&C for authority and control
2. Designating a head for IT&C department for overall control and responsibility

Power:
1. Head of the State's approval for the system and Over all political acceptance
2. Acceptance and support by all key officials
3. Positive initiations from higher group of officials

Sanction:
1. Citizen acceptance for the pilot project
2. Public demand for appending the service counters and suggestions for improvement
3. Reduction in manual counters and public grievances
3. Improvement in departments participation, work process and employee satisfaction

7.2 Discussion of Structurational factors

The Structurational factors are either enablers or inhibitors for foundation of successful e-government system as conceived out of the study conducted in this particular case. Generally a number of IT projects in government are futile due to inapt correspondence among various parameters. Further IT implementation turns out to be complicated owing to the intrinsic customary structures of public authorities and the multiplicity of the services accessible. Consequently, for e-government as a medium to modulate conventional structures, it is imperative to consider other pertinent segments as the entire process of reinstatement unfolds out of prolific interactions of all the participants involved in the entire implementation process. Rest of this section discusses the critical factors that emerged out of interrelationships of structural process of eSeva.

7.2.1. Willingness of the policy makers

IT-enabled change is complicated in the public sector due to prevalent issues of political, managerial cultural and social environments and applying vigorous technologies for service delivery could yield to unpredictable consequences (Fountain 2003). The barrier for uneven distribution of technology and its inherent effects on society (Bimber, 1999) depends upon the willingness of the political leaders to accept the changes that technology would bring in the administration. But in case of eSeva, the augmented number of transactions from the inception until early 2003 indicates the underlying efforts of the policy makers to restructure the traditional system for bringing in more functional effects.

IT projects in public sector are either partial or total failures (Heeks 2002). Under such conditions superior executives' perseverance and commitment to use an innovative system makes a profound difference in adopting or rejecting a innovation (Berry et al, 1998) of a system, and their support influences (Fountain, 2002) the acceptance of e-government system. Most importantly the development of electronic government calls for a collaborative efforts among the public officials, policy makers (Fletcher, 2001) and also public administration is bound to absorb the radical changes of technology pull and political push (Wimmer et al, 2001). In addition to this the administrators at state and local governments must also attempt develop a philosophy that focuses on law and public policy (Lee 2001).

In this perspective delegating a commitment of leadership and political will has undoubtedly steered the impetus of eSeva. Although the technologies are not very interesting to the politicians but found useful for bureaucrats, it is likely to decline the influence of the former in favor of the latter (Sullen, 2002). But in eSeva, it is contributing rather than conflicting each other's interest and both team up to play a role with mutual understanding towards a common intent.

The instances of dedicated commitment and political will are undeniable and it is a primary contributor for eSeva to propel further. This was indeed agreed by many respondents in the entire span of our data collection. Since true leadership is analyzed upon the ability to fabricate a picture for the future that is mutual and promote genuine perseverance rather than compliance (Heimer 1996).

7.2.2 Structure

The organizational alignment is important in the public sector (Swain, 1995). The most important facet expounded through observation of eSeva is, its structure to support the performance of multiple tasks. The requisite structure of eSeva was projected to facilitate a multitude of events. Devising a sustainable structure for assimilating extremely widespread vertical applications requires sizeable reengineering and an also a configuration that synchronize information among various authorities alongside their cooperation to develop a consistent process (Mecella and Carlo, 2001). Incorporating a suitable structure is the stumbling block in executing expansive and comprehensive e-government infrastructures (Elmagarmid, 2001) as they perform in the context of array of complex and informal associations for getting work done (Dawes and Prefontaine, 2003). In such cases the governments essentially have to pair novel forms, by prospectively consolidating the approaches (Allen et al, 2001).

The eSeva structure had to obtain a legal recognition in order to get the acceptance of the departments and users. This is important as people are always less inclined to adopt and accept any new system devoid of legal binding since the collaborations stretch across the boundaries of distinct organizations and necessities to establish a new kind of institutional legitimacy (Fountain, 2002). Apart from this, communication channels in most public bureaucracies are strangled (Heimer, 1996) and individually isolated strategies are likely to perpetuate contemporary structures and will absolutely not renovate government (Jupp, 2000). It is difficult to convince diverse departments to agree on a common venture with a single leader to intercede co-ordination among the

departments is crucial and a major task in a condition where departments are normally inclined to work toward their inherent goals rather than a comprehensive civic goals (Cats-Baril, Thompson, 1995). The solution is to cautiously replace traditional, structures by horizontal network structure and one-stop government, facilitating the services, citizen-orientation and transparency (Schedler and Proeller, 2000).

Further, inter organizational alliance entail an institutional framework (Dawes and Prefontaine, 2003). Therefore, the subsequent alternative available to government was to set up a new structure was to serve its defined objective of service incorporation for more functional pay off of all involved. This was essential in the case of eSeva in order to acquire accountability for all the events that encompassed the implementation process along with other different roles for which it was responsible. Hence the organization was formed as an entity which later branched out into several counters gaining an overall acceptance and recognition.

7.2.3 Technology

Recently, the concept of social process has gained its importance (Ledington and Heales, 1993, Bostrom and Heinen, 1977) contrary to the view of looking all IT and IS developments in an organization through the lens of technology, giving less emphasis for the underlying factors of constant interaction between all actors involved in a work system. It is not technology that shapes organizations, but organizations shape technology for their explicit motives (Orlikowski, 1992) and successful IS implementation is influenced by both technical and social facets (Curtis et al. 1988). The large-scale IS or

IT systems like e-government are complicated. They tend to shape the society and less shaped by technology (Hughes, 1994).

The role of technology is significantly applicable to e-government as an IS development, consequently entailing a radical change in the government perspectives while evaluating IS to renovate conventional structures into electronic (Sprecher, 2000). The pioneering IT in public sector strongly impacts organizational structures and compound the intensity of the problems and excessive focus on technology may surpass the ends for which it is deployed in e-government (Hwang et al., 1999), This warrants the governments, that a comprehensive study of user needs is decisive, while adopting a technology in crafting e-government for more promising upshots.

With this backdrop, it was unrealistic in the case of eSeva to design an individual technology for every department and this imposed to devise a mechanism that contributes to the requisites of all involved. Although there are several technology models available in private sectors for enhancing customer services and it appears best for government to serve its interest following the private sector, but it essentially has to consider the threats of emulating, as the requirements differ and exceed from the private sector (Scherlis and Eisenberg 2003). Most importantly capabilities of technology choices and technical tools strongly shape the performance and communication within the collaboration and have consistently important impact on outcomes. The selection of technology eventually calls for comprehending the probability of failures despite technology is foundation for e-government evolution (Dawes, Prefontaine, 2003).

Further, a comprehensive study of user needs is important while adopting a technology in crafting e-government for more promising upshots. Although IT has a remarkable potential for connectivity, the communicative inabilities that exists among bureaucratic institutions due to lack of interoperability among various issues will impede and make the information sharing and incorporation more complicated (Fountain, 2002). Hence cautious planning and execution are inseparable activities because failure is common in public IT projects (Peled, 2000). Therefore adoption and diffusion of any new technology for public administration needs an effective co-ordination of requirements, usage, cost effectiveness and users awareness about the technology (Kakabadse, Kouzmin 1996). In case of eSeva all these aspects necessitated to explore a method that which can effectively fulfill the requirements of its users.

Concurrently it was necessary to match the technology that suits the objectives; simple for the citizens to grasp: apposite for staff to perform the routine services. After a detailed evaluation, the current technology was chosen to be more pertinent and adaptable having associated features such as: local availability; applicability; appropriate to discharge the requirements; optimal use; funding and technology support; coherent synchronization between software and hardware vendors in administering the technology when incompetence darted up from many departments.

This necessitates understanding the suitability of the technology in specific country context rather than emulating the successful technologies from other nations without considering its appropriateness to optimize required potentiality (Khen 1995). Government IT projects are always risky to handle and evolving technology poses a challenge for the teams of people interacting with it, mainly due to learning curves

associated with the technical skills (and the deep understanding) needed by more sophisticated sets of solutions.

Sometimes, the technological solution selected for a specific project is obsolete at its completion The usual communication and common understanding issues that can be observed in any IT project become worse in most of the Public Sector projects, given that the people involved in the project came from several organizations with different perspectives of problems, objectives, values, and cultures. Moreover, IT projects in the public sector have an important political component (Andersen and Dawes, 1991).

It is essential for the governments to have a clear vision and objectives as well as a sound business strategy with a re-orientation of information systems for customer-centric services (Stamoulis et al, 2001). Governments must realize that the new technology poses challenges along with the promises it offers (Landsbergen and Wolken, 2001). In this regard extending e-commerce technology or creating a website will not suffice the need of people, nonetheless it needs a systematic evaluation (Huang and Chao, 2001). For all initiating activities government needs to perform value analysis focusing more on benefits from the user perspective before setting up an electronic network (Burn, Robbins 2001).

In this context, the government had to look for a technology that was suitable to pick up required information and data from the data bases of all the departments concerned, connecting to the service centers and to central data centre and in addition a technology that is simple for the citizens to comprehend and for the staff to perform the routine services without much hassle. Hence after a detailed evaluation, among the many entrants

who offered the technology solutions, the currently used technology was chosen to be more apposite and adaptable for eSeva.

The technology of eSeva has multiple features. Most importantly, its local availability has reduced the cost of importing the technology. The applicability and appropriateness fulfill the requirements, demands and needs of the end users. Another advantage is the funding and technology support from the private partners. The coherent co-ordination between software and hardware vendors in administering the technology in a situation where inefficiencies were shooting up from many departments has added a good advantage to the system.

7.2.4 Change management

Changing the mind set and attitude is a major constraint for the successful use of technology and is very diverse in government settings. The challenges of e-government are beyond technology, demanding for new organizational skills and structures, efficient leadership and redefining the entire purpose (Allen et. al, 2001) and also work system, as managing government in hierarchical ways is no longer pertinent in an information intensive age (Heimer, 1996).

Initially, the staff was impeding and apprehensive to employ computers in their routine work processes. This was counter to the aspiration of the executives in the government to align IT for effective work practice. Integrating an innovation into a work system demand cognizant change in the mind-set of employees and this is doable with the endorsement and encouragement of senior management (Berry et al, 1998) and elemental shift in

standards, attitude and mind-set must essentially transpire prior to transforming the government into a client oriented organization (Heimer, 1996).

The objective of e-government is to provide a direct interface between citizens and the government. Any well performing democracy requires an informed citizenry. Information creates trust and it is the mechanism for ensuring that administrators serve the public in competent ways. Democracy is effective when there is an unimpeded flow of information between citizens and government. All these activities of e-government are shaped only when communication media is more effective. In order to accomplish this effectiveness in the democratic process, the e-government as a medium to reinvent the traditional structures confronts with many challenging issues.

Hence the decision and efforts were extended to develop eSeva subsequently evaluating the antecedents and consequences to resolve the conflicts that crop-up along the way. Conflicts resolving and confidence building among the departments and citizens for integration and acceptance were handled through effective leadership, communication, advertisements, demonstrations and awareness programs and introducing incentive schemes for public to exploit the eSeva services.

The success of using digital public services comes through only when trust, social influence, website ease-of-use are coexists. These features could be enhanced with institutional mechanisms, expected nature of interaction, perceived social characteristics of the government agency and social tendency to trust (Gefen et al. 2002). The participation of citizen greatly depends on the transparency, openness of the government leading to two-fold values. Firstly from the citizen perspective it must allow the

individuals for exploiting rights and entitlements and from government perspective, it should encourage the active citizenship and encourage a model of citizen-government information interchange (Marcella et al, 2003).

7.3 Structurational process in eSeva

The Structurational process can be inferred as a process that involves a recursive action of elements involved in the course of developing a system. It is a social practice constituted by the persisting interaction of structure and human actors replicating and changing over time and space (Rose, 2000). This sequence of events evolves into meaningful proceedings that eventually facilitates in constituting a system. With this context the implementation of eSeva entails a substantial number of activities advocating a succession of events in its three domains.

This process of sequential action is significant since they lead to significant outcomes (Robey, Newman, 1996) which turns into further episodes of diverse events (Van De Ven and Poole, 1990) ultimately resulting in a development of new system. In context of the case discussed here, the prolific interactions that involved among the sturctuaional factors resulted in eSeva emerging as a successful system. Figure 5 represents a model for implementation of e-government success that has been generated out of the structuraitonal process of eSeva. The subsequent paragraphs elaborate on the processes that are involved among the factors that are generated as imperatives of e-government success.

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│        Success of e-government implementation        │
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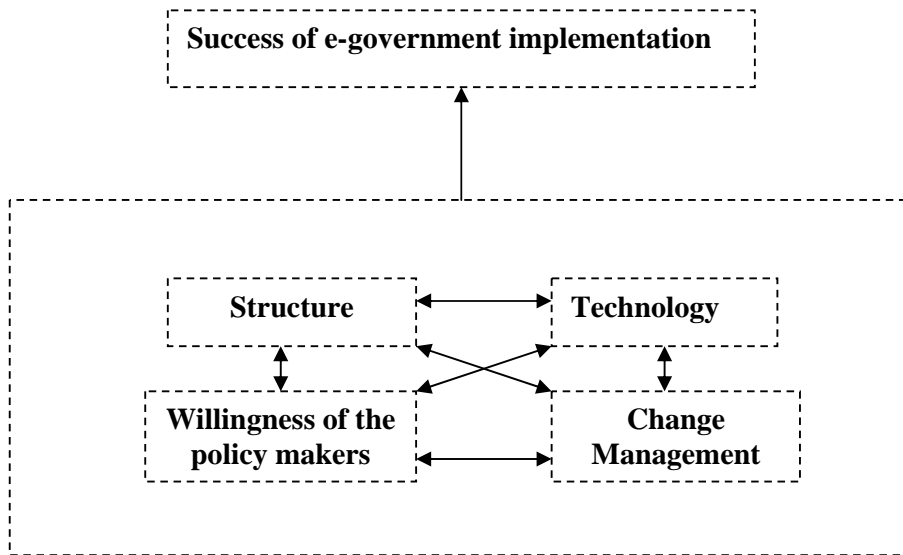
Figure 5: Model for success of e-government implementation

7.3.1 The process between Structure and technology

According to the information gathered during this study, the prime cause that led to the

implementation of eSeva was public discontent which evolved out of the inefficiencies of

the exiting manual system. This required the restructuring of the entire work process,

which is in other way required the remodeling of the existing departmental structures. But

It was not possible for any instant modifications to make it convenient to the citizen

because of the way it was structured and involved too many impeding aspects. This

appeared as huge challenge and a difficult task. As stated by one of the key official:

> "It was unrealistic to create a structure for every department.
> Moreover restructuring at the departmental level would not have
> served the purpose of saving the public from shuttling from one
> department to another in a situation where the departments are spread

across many locations having structural differences and area
jurisdictions for paying the bills"

Modifications at the departmental level are unworkable and will certainly counter the basic notion behind e-government, when e-government aims at providing services in a single portal. The modifications certainly make the incorporation complicated due the factors concerned with technological, professional, cultural and legal along with blocks in information exchange (Fountain, 2002). Hence the government attempted to understand the prevailing situation and started to work out a further suitable solution. After years of weighing the various options, the idea of integrating the services at a single window was evolved. As stated by the principal secretary of IT&C department.

"The idea of eSeva was not a one day decision; the decision making
has been consumed a considerable time as it involved many people
and diverse issue of attention along with considering the basic needs
that were demanded from the users and the requirements of the
departments"

This is because the process of upgrading the system actually evolves out of norms that are specific to the departments and needs of ultimate users and had at the same time required the citizen and departments approval. All organizations normally have integral norms and are inclined to achieve specific goals (Cats-Baril, Thompson, 1995) as per nature of the needs of its people it is serving. Therefore deviating from the needs of either citizens or departments was not possible in case of eSeva.

The success was dependent on the way it comes out as a user friendly system for the public and the way it serve the purpose of the participating departments. In a condition of requirements shooting up from different directions, it is very essential that the integration that ought to happen behind the citizen interface was equally critical as consolidating service delivery through a common interface and matching it with the right organizational alignment (Jupp, 2000).

Thus the structure of eSeva serves as a fundamental base for further developments that is in progress in the implementation process. The consequent action required was to align it with the suitable technology, as the basic for delivering electronic services is the technology. As the integration of services was from diverse departments, it required a best assessment about selecting a suitable technology. As stated by the director of eSeva, the tenders were called for participation from local agencies with a detailed explanation specific to the requirements. He further added that:

> "The response was overwhelming and made the decision of choice difficult to a certain extent. But we had to make a quick decision among the offers made to us from the agencies and hence asked them to demonstrate the value and applicability of their technology specific to our requirements"

In context of eSeva, good understanding and knowledge sharing between the government departments and technical team often facilitated to modify the patterns of service delivery. The system allows openness for implanting any technological development that would enhance its functionality.

7.3.2 The process between Structure and willingness of the policy makers

Willingness of the policy makers inside the department as well as state level, especially at the political level at each ministry handling the participating departments in eSeva was more important in making the changes in the structure. In the case of eSeva, the decision and opinions of the CEO of the state was given a priority. Most of the officials agreed that the basic idea came from the CEO of the state and officials of the government departments contributed to it. As one of the official remarked:

> "The vision of the CEO was very positive about of the benefits of technology was the premise for eSeva system. At the departmental levels, the credit should be given to one of our higher officer and his subordinates in the department of Information Technology and Communication to initiate the project and take it all the way to expansion"

A good leadership is comprehended on the basis of an ability to draw a sound vision for the future (Heimer, 1996) and foresight of the CEO and other officials significantly contributed in getting the consent of other policy makers. As the one of the higher official remarked:

> "When the proposal was put forth for structural changes in the departmental level, some of the ministries indeed accepted the proposal and welcomed the idea of integrating the services under

eSeva. Surprisingly many could comprehend the benefits and were

willing for collaborations"

The study also tried to explore the willingness of the officials as policy makers at departmental levels. The staff at one of the largest municipal services office said:

"Among our higher officers, there are many who are well aware of the

technological progression and also they are capable of comprehending

benefits offered by the technology. They are very keen to learn the

technical aspects which a new structure involves; in fact some of our

higher officers have slogged with a dedication to understand and learn

the technical aspects involved in the system"

In addition the technical background of some of the officials was also very supportive in this regard. The officials from non-technical and technical background have a good share in modifying the structure in making the service delivery available under eSeva. The executive commitment and the use of any new system bring in a lot of differences in making the system acceptable and influencing others (Berry et al, 1998, Fountain 2002) to use the system.

7.3.3 The process between technology and change management

Accepting any new system experiences a resistance and this was not new in case of eSeva. The resistance was also shown prior to the implementation in the government

departments. This is common taking into consideration that people come from various backgrounds (Andersen and Dawes, 1991) and as stated by one of the officer:

"It was a common inhibition found in all human actors for using new equipment. Using a computer was seen as a complicated task for them in the beginning".

When it was asked how this problem was handled, he said:

"The computers usage was limited to the staff at higher cadre in the beginning and slowly incorporated into the work system. They were more comfortable once they were trained to use it. It took some time for the staff to realize it was more helpful in their routine work".

The fundamental shifts in standards, attitudes and mindset (Heimer, 1996) and supportive higher management (Berry et al, 1998) will certainly help in dealing with change.

An officer from the one of the department providing important utility service mentioned that:

"Some of them saw eSeva as a threat to their jobs. But after the required training and demos done to explain the mechanism how it works, it has accepted as useful mode carry the routine services and they have realized that it helps in cooping with their work load to a larger extent "

Introduction of computers for routine working was done in many departments according the response collected from the staff and the officers. But incorporating a work processes under a new system like eSeva which entirely different. Moreover it involved a new technology. The staffs were expected to understand how the new system works out. When the clarification on this issue was requested, chief official at IT and C department for the state provided on overview of the change. He stated that:

"The ease of usage of computers from many of the staff members at different departments helped in the change process. They staff did not resist much. We did some demonstrations at departmental levels to make them understand how it works out. We gave them fairly good understanding of the technology which facilitates eSeva to work"

The officer at one of the departmental level said:

The positive attitude about computer usage and also the general awareness about communication mediums such as internet have helped in accepting eSeva when we incorporated our services under eSeva. Importantly they also have realized that this will not harm their job or lead to any retrenchment, rather they have found that it has relieved them in lessen their workloads"

Apart from this, it was essential to know if eSeva technology is complicated for staff to understand. During our data collection we found that they staff were comfortable in

using it. This comfort was according to the officials at the various departments was achieved as explained in the subsequent lines.

"We have given the required training for our staff after we have incorporated our services under eSeva. As far as the technology is concerned, we have a team of technical staff inside the department who are responsible for incorporating the services to be delivered electronically. Apart from this, there is also a technical staff posted at eSeva centers to handle technical problems and assist the staff".

The inabilities in communication present in government organizations (Fountain, 2002) lead to not optimizing the potentiality of technology. But co-existence of careful planning and efficient execution of the plans (Peled, 2000) will certainly lead attitudinal changes and combating the resistance which build a barrier for making the e-government system succeed. The explorations from the above responses reveal that although the technology was a core component, it was handled efficiently in case the of eSeva by changing the mind set of the people.

7.3.4 The process between willingness of the policy makers and change management

The issue of making a new system acceptable appears to be a great challenge in all organizations. But undoubtedly it is possible with a leader who is capable of handling such a challenge. The first and foremost willingness in case of eSeva came from the head of the state. As one of the officer stated:

"The system of eSeva was not materialized if the chief minister of our state was not inclined towards changing the work systems. He had a good knowledge of how technology is helping other nations to making the life comfortable to the citizens"

The support of the head of the state was available in abundance in case of eSeva. The absorption of radical changes and political pull (Wimmer et al, 2001) was available at a level where it was required. This has helped the system implementation from initiation to expansion in case of eSeva.

The next prime contributor is the attitude of the key officials in promoting the system implementation. As many of the staff members who were communicated during the data collection revealed that:

"Most of the departments had well educated officials handling responsible posts and they were always inclined to change the work processes. When they personally open for learning the skills required for the new system, the staff working under them was also motivated to learn the new skills required. They motivated for the change in attitude among the staff".

It is clear that the change management does required a push from someone who could motivate the subordinates to follow them. This is very important in case of e-government, since the basic requirements for it are new managerial skills, competent management (Allen et. Al, 2001).

The recursive action between the willingness of the policy makers and the staff is very positive in case the of eSeva. As the director of the eSeva summed up the change management:

> "Primarily the key officials were motivated from head of the state, the other political leaders were open for change when the idea came from the head of the state and they also saw it as sound vision for the future, and thirdly the staff was motivated from the higher officials"

When it was asked how the change management worked with the citizens as ultimate users of the system. He further added that:

> "The basic rationale of setting up eSeva was motivated from the citizens. It would not have materialized if citizen had not shown distrust and dissatisfaction about the previous system. But after the implementation and the way the public has accepted it, it is clear that any service that could make the life of common man a little better will be well received"

While the number increased services indicates the efforts and willingness of policy makers, the increase in the service centers and citizens' willingness indicates that change management has worked with the departmental level, among the staff and lastly from the citizen. It is evident in case of eSeva that hierarchical public administration is not the need of the hour, rather the fundamental shifts wherever required is important for the making the government more citizen oriented (Heimer, 1996).

As the director of eSeva, the heads of the departments of IT and C department stated, calling citizen participation through opinion polls, survey and discussion has helped to understand the nature of the service that is expected. Eventually this has assisted the government to craft the services according to their needs. The government must allow the citizen to exercise their rights and exploit their privileges (Marcella et al, 2003) to make a e-government system more successful.

7.3.5 The process between structure and change management

The previous sections have highlighted the recursive actions among the various events which include many aspects on structure and change management. The structure and technology have a significant contribution in making the eSeva system a success. As stated by many officials:

> "The structure of eSeva was not a result of single decision or a one
>
> time implementation. It was an on-going process with required
>
> modifications demanding on the needs"

The absence of uniform structure leads to many challenges especially in a government setting. This is the foremost factor which needs a careful evaluation since incorporating a structure suitable in executing e-government is an enormous task (Elmagarmid, 2001).

The system of eSeva was aimed at integrating many departments for a common objective, 'the convenience of the citizen'. To materialize this objective, it was necessary to get the other departments to agree on single portal to incorporate their services. The head of IT and C department and also eSeva share the same opinion about this. They mentioned that:

The manual system was running at a slow phase although there was a certain amount of technology present to speed up the processes. But it was not helping the ultimate user. In addition every department has its own patterns of work settings which are complicated. This nature of the departments required a long duration to change to enhance the service delivery"

This situation at the basic level involved a major change at the structural level and also change in the mind set of the people. According to the concerned officials it was achieved through:

"Demonstrating the value of the new system was the primary step. Secondly ensuring that the departmental needs and norms are given due consideration and modification will be made when ever the need arises and thirdly training the staff for adapting to the new work system"

All these have worked out well in case of eSeva especially when the work system in organizations is a mixture of intricate and informal associations (Dawes and Prefontaine, 2003). Initially although there were few departments agreed to participate, but slowly picked up the speed by willingness of the many departments when the trust was built about the functionality of the system. This is the reason for the e-government system to march in a phased manner as incorporating work systems of different structural designs and specific goals is a huge task (Cats-Baril and Thompson, 1995)

7.3.6 The process between the technology and willingness of the policy makers

The technology is "instrumental" in any e-government system. But choosing a right technology is complicated. This necessitates a careful evaluation while choosing a technology. When the government was looking for a suitable technology, the offer came from all corners to offer the right one. As the director of eSeva said:

> "We, in the first place needed a technology which can fulfill the requirements of the departments, secondly it involved a cost component which was huge for the government"

When it was asked to explain how the government dealt with the situation, he added that:

> "The government decided for financial collaboration with outside agencies and selected two private partners who were competent of suitable technology and also financial support for the system implementation"

This decision of the policy makers from government demonstrates the willingness for change and capability of thinking in new directions and avenues to bring in the change. The decision to bring in the outside agencies is agreed among all policy makers in unison in a situation where communication passages in public administration are strangled (Heimer, 1996).

As one of the higher official in IT and C department stated:

> "The entire success of the project goes to our dedicated official team
> as well as the political leaders who were supportive for the decisions
> made regarding the technology from IT and C department for the
> eSeva project"

The e-government projects are always aimed at serving huge purpose and its appropriate execution is very important to make it successful when a huge investment is made on technology. This is more important when since it is generally believed that obstacles for technological progress and its impact on civil society are mainly attributable to political willingness (Bimber, 1999). The commitment to bring in the suitable technology and change management has worked together in case of eSeva. The work processes clearly interprets that basic driver in the success of eSeva was the commitment of the policy makers. They include the political leaders as well as committed officers in the government departments.

To conclude the discussion, the four aspects: structure, technology, willingness of the policy makers and the change management are interlinked and are reciprocal to each other. The outcome the events that occurred at each of these levels support the action of the subsequent levels as indicated by the arrows in the figure 5. The success of e-government depends largely on these basic aspects and they are very critical. Although these aspects are common in case of private sectors, to achieve the same in public sector is a difficult task as explained in the various sections of this case study. All these aspects are easily achievable in private organization compared to public sector as managing the

IT projects in public sector requires a considerable effort from top management. Hence it is essential to have co-ordination among the factors that are highlighted in the model for success of e-government implementation (Figure 5).

CONCLUSIONS

CHAPTER 8

CONCLUSIONS

8.1 Summary of the research

This study supports the view of viewing e-government as an IS development for public administration from social process perspective rather than technological perspective. Although technology is the nucleus in the implementation process, we emphasize that technological benefits are augmented only when its application is made along with the understanding of the repercussion of other parameters and their mutual interactions.

The results suggest that government must suspend conventional philosophy that may prevent cooperation across departments, as government comprises sets of multitude of structural and human interactions when engaged in collaboration. It must constructively reposition itself for shaping the new patterns and frameworks to take advantage of e-government potential. It also essential to understand that preparing for swift organizational change needs a good approach that ought to evolve through interim steps; lasting objectives supported by policies. In addition the demand for enhanced services may go high along with citizen's awareness on IT innovations eventually demanding to reconsider objectives to provide better linkage between emerging IT tools and service provisions.

Shifting objectives, in concurrence with the modifications in implementation would ease the efforts of offering enhanced services, influence the administrative practices and widen the dissemination of e-Government. Finally, although this study does not

represent the overall picture of building an e-Government, but certainly provides essential imperatives by highlighting the issues associated with interactive elements, which were encountered during implementation of the system studied. The richness of the details associated with the issues discussed here need to be substantiated to a broader perspective as many specific issues are worthy of special attention.

8.2   Implications

The implications of this research are two fold. It offers implication from the relevance of theory and practice. The practical implication provide insights into building an e-government system, while the theoretical implication emphasize on the social process models to enrich the understanding of e-government implementation process in the absence of lucid theoretical models in the research domain of e-government.

8.2.1 Practical implications

From relevance of practice, the critical structurational factors for building e-Government enfolds the concerted and collaborative efforts of all involved with a due consideration to the interactive relationships of various agents. Incorporating IT into routine work process is rather a complex issue in a conventional public setting. Its adaptation implicates a meticulous change process due to its multifarious impact. But eventually it is possible with the willingness and strong commitment of policy makers to pull the initiative together, prioritize it and navigate it towards more optimistic outcomes.

Success of e-government necessarily needs a leadership or management people inside government with a positive reception about how technology can transmute and influence the service delivery and internal work process. Alignment between services and needs are optimized when service delivery models are designed around citizen's perception, rather than curtailing to the needs of departmental structures. This entails an effective infrastructure, which could be resolved through private-public partnership to avoid lack of skilled resources, and also to lower investment and maintenance costs as established in this particular case.

8.2.2 Theoretical implications

From relevance of theory, process models like structuration could serve appropriate for e-government for their ability to recognize the association of reciprocal interrelationships that perform key function in implementation process. But invariably calls for further assessment in different national and within the national settings to expand more theoretical lucidity. E-government implementation is a complicated process due to diverse interactions among the participants at different levels and also due the citizen's involvement. It is more appropriate for the government to look into the structural, technical, political, managerial issues and the manner how these parameters mediate with each other, as they might impede the ultimate objective and counter the needs of citizens. In addition incorporating multiple services complicated than providing a single service through e-government. Hence, integrating all the government services at single attempt is not practical and it is more prudent to advance it in phased manner for more functional benefits.

8.3   Contributions of the research

The research addresses the issues involved in implementation of e-government framing the implementation process into Structurational design. Effort has been made to add a value and contribute to the research on e-government by finding the major factors that are critical for the e-government success. The study aimed at understanding the implementation at urban level and offers insights to experiment the same at rural and national levels. We suggest that Structurational approach will be more suitable for e-government to avoid system failures. Since the understanding the interrelations of e-government domain will facilitate the effective deployment of the projects.

The model for success of e-government (Figure 5) that has generated out of the analysis of structurational factors will provide a comprehensive view of major contexts requiring emphasis while implementing e-government. The major factors identified offer the implementers, policy makers, e-government consultants more insights while developing models on e-government. The discussion on the contexts represented in the model also serves to complement the understanding of the role demonstrated by various elements in the implementation process. The discussion on the model suggests illustrates the role played by the interaction among the structrational factors in making implementation of e-government successful.

8.4   Limitations of the research

The study focused on a single case which offers less scope for wider understanding of the e-government system. The research outcome has surfaced only as facilitating

factors. But focusing on inhibiting factors is very essential and will certainly give a wider scope for collective understanding of the system.

Secondly although the existing contention of e-government is on-line services, this study fails to highlight this issue due to the lack of substantial data pertaining to on-line services. The reason for not focusing on this issue is, the usage is not very significant which could be attributed to various factors. This is counter to providing a more comphrensive view of e-government implementation. Although this is an effort to understand a specific system of e-government, but we acknowledge this has to be validated on variety of e-government systems at national and cross-country venues to generalize its applicability.

8.5 Future Research

The research studies should also focus on successful models of e-government implementation in order to compare perspectives offered in this study. The future research has to address the social and cultural barriers in implementing the e-government to enhance wider applicability, as they are very important facets in accepting a new system. Along with finding the facilitating factors, addressing inhibiting factors is very essential. Further, this study preferably calls for the extensive future work to validate the conceptual framework we have used. In addition it is necessary to test the same at different national environments in order to gain more insights on both the factors that induce success and failure. Secondly looking into the e-government projects that are implemented, but not successful will provide more comprehensive view for understanding the facilitating and inhibiting factors in implementing e-government.

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CHAPTER 9
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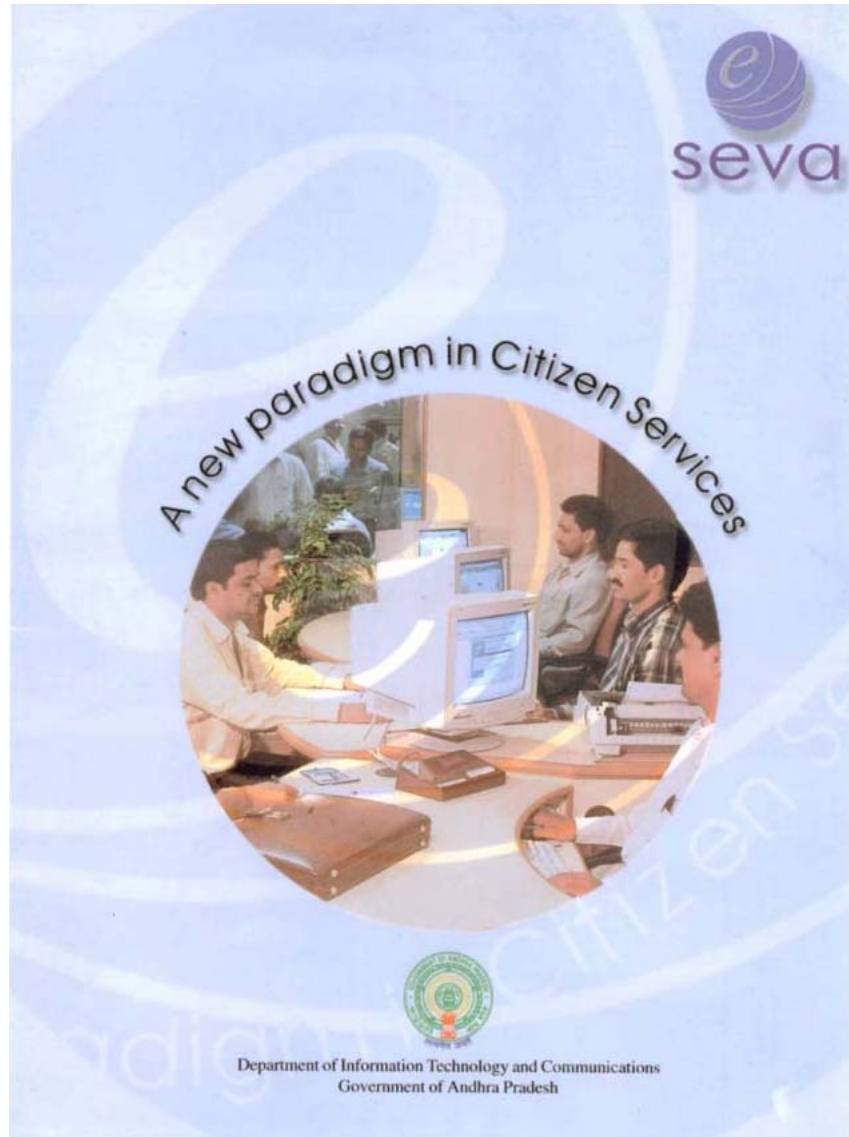
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APPENDIX

CHAPTER 10

APPENDIX

eSeva Centre: Interaction between citizens and the government

Government to Citizen services offered from eSeva

Projects Name and Description	Department
1. CARD: Computer-Aided Administration of Registration Department which was setup in 1998 covering 249 sub-registrar offices in the state with funding of US$ 6 million	Registration and Stamps
2.FAST: Fully automated Services of Transport Department launched with three pilot projects in the year May 2000 and has been replicated in other 34 sites.	Andhra Pradesh State Transport Corporation
3.VOICE: Vijay Wada Online Information Center in the year 1998 with funding from the Ministry of IT, Government of India.	Vijaya Wada Municipal Corporation
4.SAUKARYAM(Facility): Civic Urban Information Management System Was launched in 2000	Municipal administration
5.e-Cops: Electronic computerized operations for police services launched in May 2002 in the state in 200 sites in 4 districts for crime control, law and order and administrative operations	Police
6. AP Portal: AP online portal was launched on 27th March 2002. It is the official portal for the government, which facilitate comprehensive online information, interactive, and payment services. It is an a joint venture between Andhra Pradesh Technology Services Limited and Tata consultancy services to form a company in the name of APONLINE Ltd an independent entity with its own board of directors and functions.	Government of Andhra Prudish

Government to Business services offered from eSeva

Project Description	Department
1.e-Procurement: This system implemented in July 2002	1. All State government departments 2. All State owned public sector undertakings and organizations

Government to Government services offered from eSeva

Project Description	Department
1.MPHS: Multi Purpose Household Survey. The pilot project launched in 1998. The phase one and phase two were launched in 1999 and 2000 respectively covering 1125 village Headquarters with a cost of $ US$10 millions.	Revenue
2.SKIMS: Secretariat Knowledge Information Management System (Now renamed as **SMART** Governance) expected to be launched by end of 2002 the with an estimated cost of US$1 million	Andhra Pradesh Secretariat
3.OLTP: Online Transaction Processing System for integration of the information systems launched in august 2002 with the cost of US$400,000.	Government departments at village headquarters level
4.**IFIS**: Integrated Financial Information System launched in 2002 at 400 sites across the state with cost of US$ 1 million	Finance and its field offices
5.HRMS: Human Resources Management System commenced in July 2002 and is expected to be completed by June 2003 covering 5000 locations in the state	1. State Secretariat 2. Office of Chief Minister 3. Office of other ministers 4.Departments outside the secretariat, 5. All state owned pubic sector undertakings and organizations
6.SBMS: Social Benefits Management System was launched in July 2002 and is expected to be completed in 2003 covering 100 locations.	1. Welfare departments within the state secretariat 2. Office of Chief Minister 3. Office of other ministers, 4. All departments outside the secretariat and within the state 5. Non profit organizations working in the area of welfare
7.e-Cops: Electronic computerized operations for police services launched was in May 2002 in the state in 200 sites in 4 districts for crime control, law and order and administrative operations.	Police

Dedicated to

my beloved parents
Shri.K.Venkatarayappa
&
Shmt.M.K.Seethalakshamma

AND

my loving Children
RS Bharath Neogi
&
RS Meghana Neogi