

E-Governance Policies & Practices

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Editors

Nityesh Bhatt
Akshai Aggarwal



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E-Governance Policies & Practices

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About the Editors

Dr. Nityesh Bhatt holds MBA and Ph.D (e-Governance) degrees from M.L. Sukhadia University, Udaipur. He has also completed four months Faculty Development Programme (FDP) of IIM-A and Online Internet Governance Capacity Building Programme of Diplo Foundation, Malta in year 2006. Out of more than 13 years of experience in academia, corporate training and research; in his first nine years, he was associated with NIIT and First Computers, and Pacific Institute of Management, Udaipur. In 1998, he was awarded the best faculty of NIIT in North India.

Credited with good number of research papers and management cases, he has also co-edited three books in the areas of technology and management. Two students have been awarded Ph.D under his guidance. In year 2006, he was invited to participate in first Internet Governance Forum (IGF) meet jointly organized by United Nations-IGF Secretariat and Government of Greece at Athens. Since year 2007, he is a member of the National Executive Committee of Special Interest Group on eGovernance (SIGeGov) set up by Computer Society of India. Dr. Bhatt is also a research consultant with Indian Space Research Organisation (ISRO), Ahmedabad in ICT area. He was awarded as 'Best Teacher of Information Technology' in 17th B-School Affaire & Devang Mehta B-School Award for year 2009. He has imparted lectures in almost 200 MDPs for more than 30 leading companies like *ONGC, BPCL, BOSCH, HZL, Reliance Power, Sterlite, Alstom Power, Kalpataru Power, J.K. Cement, Parle, Zydus, Torrent Pharma, GMDC, SBI, Bank of Baroda, Indian Air Force* etc at different levels.

Prof. Akshai Aggarwal is working as Vice Chancellor, Gujarat Technological University, Ahmedabad, India. Before joining as the Vice-Chancellor, he was working as the Director of School of Computer Science, University of Windsor, Canada. At Windsor, he established the High Performance & Grid Computing Laboratory along with 3 Centers. He worked as Professor and Head of Department of Computer Science at Gujarat University for about 10 years. Before that he was Professor and Head, Department of EE at M.S. University of Baroda. He was Chairman of IEEE India Council for two years. He initiated IEEE activities in Gujarat by starting the first IEEE Student Branch at M.S. University of Baroda. Later he initiated the establishment of the Student Branch at Gujarat University. He was also the founder Chairman of IEEE Gujarat Section, the IEEE Computer Society Chapter and the IEEE Joint Chapter of Industry Applications, Industrial Electronics and Power Electronics. The Section conducted two International Conferences and one national Seminar during his Chairmanship.

He graduated with a B.Sc. (EE) from Punjab Engg. College and studied at MS University of Baroda for his Master's and Doctoral work. He has published a large number of research papers in national and international journals and conference proceedings. At GTU, he has initiated National Conferences on Business Ethics and Financial Services. GTU is setting up Centers for studies in the areas of Business Ethics and CSR, Financial Services, Governance Systems in businesses, industries, universities, hospitals, mass transportation systems, NGOs and governments.

Prologue

Governance is considered to be the principle driver of nearly all aspects of life in any society. Governance means the process of decision-making and the process by which decisions are implemented (or not implemented). According to a UNESCAP¹ study, good governance should have eight major characteristics. These are: participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. Even though good governance may be an ideal which may be difficult to achieve in its totality, to ensure sustainable human development, every society must work to approximate towards this ideal.

A new movement, known as 'Information and Communication Technologies for Development (ICT4Dev)', is arising all over the world. ICT4Dev refers to the application of ICTs within the fields of socioeconomic development, international development and human rights. ICT4Dev focuses on using digital technology to deliver specific development goals, most notably the Millennium Development Goals (MDGs)².

ICT in last two decades has supplemented various developmental initiatives of governments at greater extent. However, the same technology has also created a new kind of divide known as digital divide. To bridge this divide and to equip the poor villagers with latest information and knowledge related to education, health, trade, agriculture and other aspects of their life, a large number of initiatives both from public as well as private sector have been undertaken across the globe. These ICT and e-Governance initiatives have been successful in reducing the corruption by eliminating middlemen and increasing the transparency in government processes. This has also resulted into empowerment of citizens.

However, in developing countries, many projects of e-Governance implementation have failed while others have added very little value. Broad reasons for the partial success or failure are related to people, policy, process, infrastructure etc. This has happened because while technology can be borrowed, every country has to study its own social conditions and needs and every organization has to be aware of its own culture. If those responsible for getting the project implemented do not have the humility to study and accept the cultural imperatives and sociological needs of users of the technologies, the project may not yield the expected outputs. In recent years, many of such projects have been initiated under the public-private-partnership (PPP) model. There is a growing debate whether this model is actually a boon or a bane.

E-Governance helps make the task of governance more systematic for those, who govern. It may make it convenient to avail the services by the 'governed', if ICT is used effectively with a focus on user-friendly products. This book, which contains 28 learned papers on various aspects of e-Governance, will make the readers aware of the progress made in the fields of e-Governance implementation, research and evaluation.

¹UN Economic and Social Commission for Asia and the Pacific.

²MDGs are eight international development goals that all 193 United Nations member states and at least 23 international organizations have agreed to achieve by the year 2015. These include eradicating extreme poverty, achieving universal primary education, promoting gender equality, reducing child mortality rates, improving maternal health, fighting disease epidemics such as AIDS, ensuring environment sustainability and developing a global partnership for development.

Today some of the multinational companies (MNCs) have become so large that their impact on the lives of people is no less than that of governments. All the MNCs use ICT technologies to manage their operations, both in their home location as well as in the rest of the world. However whether ICT is being used effectively to provide excellent service to the ordinary persons and small and medium enterprises, who work with the MNCs should also be studied by researchers. Good governance by large corporations and NGOs may be as important for the people as people-oriented e-Governance by governments is.

In this book, researchers have reported the use of various Technology Acceptance Models to study rigorously the services provided by the government agencies. Similarly to make web portals more user-friendly, researchers have discussed the issues of Website Quality Certification and Standardization and of development of search platform supported by domain ontology. If we enlarge the sphere of studies to include the e-Governance structures of MNCs, large national corporations and NGOs, we may be required to improve these tools. This will help both the service-providers and the users.

We believe that this book will provide an opportunity to the readers to appreciate the research efforts of scholars from academia, government and industry that address some of the above queries in the areas of e-Governance implementation, impact and policy implications.

Nityesh Bhatt
Akshai Aggarwal

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Section I

E-Governance & Society

E-Governance is the application of ICT in the field of governance to bring about Simple, Moral, Accountable, Responsible and Transparent (SMART) government. The fruits of SMART governance are intended for various stakeholders of society i.e. citizens, businesses, employees etc. E-Governance as a discipline has evolved in last one decade and is broadly classified into Government to Citizens (G2C), Government to Businesses (G2B), Government to Government (G2G) and Government to Employees (G2E). In this section, the readers can find a blend of well-researched empirical work as well as conceptual papers based on experience and desk research of authors. Some of papers lucidly show the impact of e-Governance in society.

The paper **“A Systematic Review of E-Government Research in Developing Countries”**, thoroughly reviews a large number of articles on the adoption, diffusion, use and impact of E-Governance. Authors found that the Technology Acceptance Model (TAM) was the most often utilized theoretical models and survey was emerged as most widely utilised method. Paper **“e-Governance System: Understanding the Complexities of Its Implementation Through The Concept of SPOT”** concludes that understanding the complexities of implementing and diffusing the e-governance plans needs a 360 degree view of social, political, organizational and technological (SPOT) issues. Paper **“Towards Understanding e-Government Application Development”** based on exploratory research outlines some of the perceived challenges of e-Government applications in South Africa.

“E-Government Adoption Research: A Systematic Literature Analysis of Organizational Issues” investigates the existing body of research based on employees and organizations to reveal that some of the variables such as: perceived ease of use, perceived usefulness, intention to use, attitude, and satisfaction drive the research for employees. The paper **“Management and Execution of the Impact of IT and e-Governance in Government Offices”** explores the organizational and management issues arising from the use of IT technologies. The strategic issues cited are resource management, right people, e-leadership, IT infrastructure, e-trust, pace with technology upgradation, security and disaster recovery and managing information overload.

The paper **“E-Governance at Blocks with Pension Schemes: A G2C application at Grass Root Level Benefiting the Rural Mass”** studies the Indira Gandhi Old Age Pension Scheme (IGNOAPS), Indira Gandhi Widow Pension Scheme (IGNOWPS) and Indira Gandhi Disabled Pension Scheme (IGNODPS) and highlights that this MIS is a milestone in achieving the penetration of e-Governance at the grass root level in India.. Similar attempt has been made in paper **“E-Governance at Blocks level for Managing Self Help Group: A G2C application at Grass Root Level Benefiting the Rural Mass”**. It gives details of the SHGs formed at villages/ panchayats, the fund allocation and expenditure, the special projects related to training the rural youth and their placement and tracking the beneficiary to a limited period.

ICTs do mobilize citizens for participation and are often influential in leader identification. The enablers of ICTs to mobilize the voters include i) electoral system support, ii) perceived social goodness concern of the ICT initiatives and iii) design & regional language presence while hindrances of ICTs are lack of support from the political party and the ruling party's intervention over the ICTs initiatives. These were the conclusions of paper "**Does ICTs Mobilize Participation in Election? : A Case from India**" based on research conducted at Kerala during 2011 Assembly elections. Paper titled, "**New Information System Models for E-Gov 2.0**" establishes the need of a Government Information System (GvIS) and presents several new Information System (IS) models based on the study of the branch of aquatic ecology (Limnology) and analogy between water and information. "**Computer Pornography: A Criminological Study**" attempts to explore a range of issues relating to illegal, harmful, hateful and offensive content online including the criminological issues related to computer pornography, child pornography and online paedophilia.

A Systematic Review of e-Government Research in Developing Countries

Mohammad Alryalat, Yogesh Dwivedi,
Michael D. Williams and Nripendra P. Rana

Swansea University, UK

E-mail: mohammad_ryalat78@yahoo.com, ykdwivedi@gmail.com,
m.d.williams@swansea.ac.uk, nrananp@gmail.com

Abstract—The purpose of this paper is to explore research progress to date by systematically analyzing the existing body of knowledge on electronic government (egov) related issues from the developing and under-developed countries' perspective. A total of 158 relevant articles were identified from the relevant sources. The systematic review revealed that majority of articles have examined issues related with adoption, diffusion, use and impact of egov, the Technology Acceptance Model (TAM) was the most often utilized theoretical models and survey was emerged as most widely utilised method. The review also indicate most frequently reported limitations of existing research that include methodological weakness posed due to investigation of single case study, culture, or country and lack of generalisation due to data collected at single point in time. The paper also discusses relevant issues identified from the analysis before outlining key conclusions.

Keywords: Developing countries, E-government, Research Issues, Theories, Limitations.

INTRODUCTION

Electronic Government (hereafter used as 'egov') is defined as the use of information and communication technology (ICT) in public administrations combined with organizational change and new skills in order to improve public services, democratic processes and strengthen support to the public policies (European Information Society, 2004). The e-government projects aim to provide convenient access to information, services, alternative transaction medium, and to enrich the quality of its collaboration with citizens and businesses (Lean, Zailani, Ramayah & Fernando, 2009; Siau & Long, 2005). Within the past 10 years, governments across the world (Field, 2003) have adopted electronic government as a means of delivering of government information and services 24 hours per day, seven days per week (Norris & Lloyds, 2006).

Although it is a critical move, the desired objective is to have the omnipresent access of the government information and services and total transparency of government operation that contribute to the social and economic interests of the citizen. Some developed countries are already engaged in the transformation of the governance practices through increased citizen participation and being transparent through convergence of information and services. However, developing especially poor ones lag far behind their progressive counterparts (Banerjee & Chou, 2004). In many developing countries, there are social groups whose members desire to a way of life that has been cultivated in the contemporary societies of developed countries, but for them, the information, knowledge, and technologies have little significance to the way they live their lives (Joi, 2004). Existing research have shown that it is not only the application of electronic government, but also the ICT in general, that unexpectedly fails in developing

countries (Basu, 2004; Ndou, 2004; Shareef, Kumar, Kumar & Dwivedi, 2009). Shareef et al. (2009) further argued that most developing countries are either at emergence or broadcasting stage of e-government evolution and provides very few interactive services to their citizens. It has also been argued that the technology absorption capacity of developing countries, from both the government and citizen perspective, is quite different from that in developed countries (Shareef et al., 2009).

A literature search and analysis suggest that there are large number of scholarly journal articles already available describing the egov initiatives in the context of the various developing countries. However, such publications are scattered in variety of publishing outlets including journals and conferences. This may create fragmentation in egov knowledge development and repetition of similar research and therefore wastage of effort and resources. Therefore, there is a need for identification, analysis and synthesis of relevant studies to illustrate emerging trends of egov developments in developing countries. Considering above discussion the aim of this article is to undertake a systematic review of existing literature on electronic government research from developing countries perspective to categorise existing publications according to types of issues investigated, theories and models utilised, research methods employed and limitations of the published work.

The paper proceeds as follows: the next section will briefly outlines methodology, the subsequent section will then categorise the publications according to country, the different themes explored, the list of theories and models used in the various research studies, different research methods adopted for conducting the research, and the broader categories of limitations outlined in the context of developing and under-developed countries. This is followed by the discussions based on findings which were analyzed from the relevant information based on the facts and figures gathered from the findings of previous scholarly literatures. Finally, the salient points deriving from the findings are outlined as concluding remarks.

RESEARCH METHOD

A combination of bibliometric and systematic review method was deemed appropriate to collate and analyse current state of egov from developing countries' perspective. The relevant articles were searched and collected utilising appropriate database and manual search of table of contents of dedicated egov journals from last 12 years (1999-2010) of e-government research. 118 journal studies on egov research in developing countries' context were found out from *ISI Web of Knowledge*®. A total of 87 articles were also explored from dedicated journals on e-government research such as 51 articles from the *Electronic Government, an International Journal* (EGI); 22 articles from the *International Journal of Electronic Government Research* (IJEGR); and 14 articles from *Transforming Government: People, Process, and Policy* (TGPPP). Hence, a total of 205 articles were identified considering all studies from *ISI Web of Knowledge*® and dedicated journals on egov research. 76 articles from 118 studies of *ISI Web of Knowledge*® and 82 articles

from dedicated journals were found appropriate for further analysis. The above search, identification, and screening activities were ultimately resulted in a total of 158 relevant and usable articles which were scanned for country-wise electronic government applications, the broader themes, the diversities of existing theories and models utilized to base the egov research, the research methods used, and limitations outlined by existing studies.

FINDINGS

Egov Studies According to Country

Our systematic review first analysed the country-wise details of the egov applications in the context of developing and under-developed countries. The existing research has examined various egov applications implemented in more than 40 developing countries. The analysis indicates that India is the leading country (16 studies that include Banerjee & Chou, 2004; Faisal & Rahman, 2008; Gupta & Jana, 2003; Madon, Sahay & Sudan, 2007; Ojha, Sahu & Gupta, 2009; Sahu & Gupta, 2007; Verma, 2004; Yadav & Yadav, 2006) for undertaking and publishing egov research in comparison to other developing nations. Other developing and under-developed countries that have investigated a number of egov studies including: **Taiwan** (13 studies that include Chiang, 2009; Hsu, 2005), **South Korea** (nine studies that include Im & Seo, 2005; Kim & Holzer, 2006), **Turkey** (nine studies that include Arpacı, 2010; Akpınar & Ondin, 2008), **Thailand** (seven studies that include Phusavat, Anussornnitisarn, Sukhasem, Rassameethes & Lin, 2010; Phusavat & Anussornnitisarn, 2007; Phusavat & Anussornnitisarn, 2008; Vathanophas, Krittayaphongphun & Klomsiri, 2008), **Saudi Arabia** (six studies that include Al-Fakhri, Cropf, Higgs, & Kelly, 2008; Al-Shehry, Rogerson, Fairweather, & Prior, 2009), **Bangladesh** (five studies that include Dwivedi et al., 2007; Hossan & Bartram, 2010), **Brazil** (four studies that include Hayashi, Rothberg & Hayashi, 2010), **Jordan** (Elsheikh, Cullen & Hobbs, 2008), **Iran** (Ghapanchi, Albadvi & Zarei, 2008), **Malaysia** (Lean et al., 2009), **South Africa** (Brown & Czerniewicz, 2010), **Bahrain** (Al-Alawi & Al-Amer, 2007), **Qatar** (Al-Shafi & Weerakkody, 2009), **Kenya** (Banerjee & Chou, 2004), **Argentina** (Falivene & Silva, 2008), **Cambodia** (Sang, Lee & Lee, 2009), **Romania** (Colesca, 2009), **Oman** (Al-Busaidy & Weerakkody, 2009), and **Kuwait** (Almutairi, 2010).

However, the countries like **Sri Lanka** (Davidrajuh, 2004), **Ethiopia** (Banerjee & Chou, 2004), **Ghana** and **Uganda** (Schuppan, 2009), **Peru** (Banerjee & Chou, 2004), **Chile** (Banerjee & Chou, 2004), **Vietnam** (Tsai, Purbokusumo, Cheng & Tuan, 2009), **Sudan** (Gasmelseid, 2007), **Tanzania** (Kaaya, 2009), **Pakistan** (Dwivedi et al., 2007), **Palestine** (Sabri & Jaber, 2007), **Lebanon** (Azad & Faraj, 2008), **Dubai** (Badri & Alshare, 2008), **Mexico** (Lau, Aboulhoson, Lin & Atkin, 2008), **Indonesia** (Mirchandani, Johnson & Joshi, 2008), and **Mauritius** (Shalini, 2009) seem to be under-represented with only one study each. There were nine studies (for example Al-Nuaim, 2009; Goh, Chua, Luyt & Lee, 2008) which have contemplated an assortment of developing and under-developed countries while researching for egov applications. Moreover, one study (Holliday, 2002) has considered East and South-East Asia for investigating the egov research for examining generic egov applications.

Research Issues Examined from the Developing Countries' Perspective

According to similarities in research problems investigated 158 studies were classified into 13 broader categories: (1) adoption and diffusion; (2) use and impact; (3) development and growth; (4) implementation issues; (5) egov applications and technology; (6) organizational issues; (7) e-governance; (8) trust; (9) digital divide; (10) e-business related issues; (11) quality of websites; (12) risk; and (13) security. Investigating all the research studies in this context, it was found that adoption and diffusion (investigated by 32 studies) of egov was the most explored theme followed by use and impact (31), development and growth (29), implementation issues (26), egov applications and technology (14), organizational issues (8), and e-governance (8) as some of the leading themes examined by the various research studies. However, the themes such as trust (4), digital divide (4), e-business related issues (3), quality of websites (3), risk (1), and security (1) were relatively under-represented.

A total of 32 studies on *Adoption and Diffusion* category looks into the various aspects of egov services from the perspective of citizens such as difficulties, barriers, benefits, and challenges involved in the adoption and diffusion of electronic government. Example of such studies includes Al-Busaidy & Weerakkody (2009), Al-Fakhri et al. (2008), Al-Shehry et al. (2009), Akpinar & Ondin (2008), Dwivedi & Weerakkody (2007), Dwivedi, Khan & Papazafeiropoulou (2007a), Dwivedi, Khoumbati, Williams, & Lal (2007b), and Tung & Rieck (2005) to name a few. The theme *use and impact* includes studies (31 articles) on various aspects of the actual usage of egov facilities, its positive or negative impact, and evaluation. Example studies from this category are: Almutairi (2010), Badri & Alshare (2008), Gupta & Jana (2003), Kanat & Ozkan (2009), Kovacic (2005), and Klischewski & Scholl (2008).

The theme *development and growth* mainly categorizes the initiation, development, strategies, and readiness of electronic government in developing and under-developed countries. 29 studies fall within this category such as Al-Sobhi et al. (2010), and Holliday & Yep (2005). A total of 26 studies explored issues related with *implementation* of egov that entail the challenges and concerns of generic and specific services implementation. Example studies from this category include Al-Fakhri et al. (2008), Azad & Faraj (2008), and Zhang & Hsieh (2010). *E-government applications and technology* theme covers issues related with specific applications. A total of 14 studies (for example Chiang 2009; Hung, Chang & Yu, 2006; Luk 2009) were placed within this category.

Organizational issues deal with all aspects of egov researching related to private or public sector organizations (for example Al-Alawi & Al-Amer 2007; Banerjee & Chou 2004). *E-governance* involves all such themes where the implementation of e-government has resulted in driving the effective governance (for example Bhattacharyya 2008; Brown & Czerniewicz 2010). The theme *digital divide* also known as info-exclusion basically involves all such studies which deal with unequal access of egov or exclusion of certain people, or even developing or under-developed countries from the

information society (Joi, 2004; Xiong, 2006; Yu & Wang, 2004). In addition, trust (Chiang, 2009; Colesca, 2009; Das et al., 2009), risk (Phusavat et al., 2010), security (Chiang, 2009), website quality (Huang & Shyu, 2008; Wangpipatwong & Chutimaskul, 2009; Yucel & Ozok, 2010), and e-business related issues (Hsu, 2005; Prakash, Jaiswal & Gulla, 2009) were also categorized for fewer studies in context of developing world.

Theories and Models Utilised in e-Government Research

In course of examining all the studies (N=158), it was found that only 25 studies have used 19 theories and models to base their egov research models. It was further visualized that TAM was the most frequently utilized (employed in 10 studies, for example Chiang, 2009; Colesca & Dobrica, 2008; Hsu, 2005; Lean et al., 2009; Mirchandani et al., 2008; Phang, Sutanto, Kankanhalli, Tan & Teo, 2006; Sahu & Gupta, 2007; Sang et al., 2009; Sang, Lee & Lee, 2010; Shareef et al., 2009) model, followed by Diffusion of Innovation (DOI) (Lean et al., 2009; Mirchandani et al., 2008; Sang et al., 2009; Shareef et al., 2009), Extended Technology Acceptance Model (TAM2) (Al-Shafi & Weerakkody, 2009; Sang et al., 2009), Decomposed Theory of Planned Behavior (DTPB) (Lau, 2004; Lau & Kwok, 2007), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Sahu & Gupta, 2007; Yeow & Loo, 2009).

Following theories and models utilised only in one study: Theory of Planned Behavior (TPB) (Sun, Ju & Chen, 2006), Institutional Theory (Kim, Kim & Lee, 2009), Actor Network Theory (Ochara, 2010), Growth Theory (Siau & Long, 2009), Human Capital Theory (Siau & Long, 2009), Complexity Theory (Falivene & Silva, 2008), Fuzzy System Theory (Yucel & Ozok, 2010), Dynamic Info-inclusion Model (D2I) (Joi, 2004), Theory of Connection (ToC) (Davidrajuh, 2004), Grounded Theory (Hsu, 2005), Myers et al.'s IS Success Model (Sun et al., 2006), Trust Model (Lean et al., 2009), Transaction Cost Analysis (TCA) (Shareef et al., 2009), and DeLone & McLean's IS Success Model (Wangpipatwong & Chutimaskul, 2009).

Investigating all studies (N=23) which have used existing theories and models it was noted that all these research studies have been published during or after the year 2004. As far as the research methodologies of these studies (N=23) are concerned, it was visualized that 70% (N=16) of these studies have used quantitative approach whereas 13% (N=3) studies used qualitative approach and theoretical approach was employed by 17% (N=4) of the cases only. Moreover, it was also seen that eight studies (for example Hsu, 2005; Lean et al., 2009; Sahu & Gupta, 2007) have used two or more theories and models to perform their researches. Maximum four studies (Lean et al., 2009; Mirchandani et al., 2008) used TAM and DOI together where a study by Sang et al. (2009) even used TAM, TAM2, and DOI.

Research Method and e-Gov Research in Developing Countries

Analysis of different research studies indicates that majority (N=71) of articles have employed **survey** as research method for examining egov related issues in developing countries perspective (for example Al-Alawi & Al-Amer, 2007; Al-Busaidy &

Weerakkody, 2009; Al-Fakhri et al., 2008; Al-Nuaim, 2009; Al-Shafi & Weerakkody, 2009; Almutairi, 2010; Badri & Alshare, 2008; Bhattacharyya, 2008; Brown & Czerniewicz, 2010; Chiang, 2009; Colesca, 2009; Colesca & Dobrica, 2008; Das et al., 2009. The survey in general mainly includes questionnaire survey, web-based survey, web-sites survey, self-administered survey, questionnaire, survey-based interviews, survey based empirical study, online survey, and paper based survey.

This is followed by case study (31 studies that include Chan & Pan, 2008; Fedorowicz et al., 2010; Gasmelseid, 2007; Kim et al., 2009), Literature analysis (22 studies including Al-Sebie & Irani, 2005; Elshieikh et al., 2008; Lee, 2010), interview (13 studies including Badri & Alshare, 2008; Kannabiran et al., 2008; Mofleh, Wanous & Strachan, 2008), secondary data analysis (10 studies including Hayashi et al., 2010; Heeks & Bailur, 2007; Klischewski & Scholl, 2008; Mofleh et al., 2008); content analysis (for example Tsai et al., 2009), and focus group (for example Al-Shehry et al., 2009; Phusavat et al., 2010) as some of the frequently utilized research methods. However, filed study (Kumar & Best, 2006), experimental study (Akpinar & Ondin, 2008), interpretive structure modelling (Faisal & Rahman, 2008), dialectical approach (Falivene & Silva, 2008), observation (Waheduzzaman, 2010), and framework analysis (Hui & Hayllar, 2010) were employed in one study each.

Limitations of Existing e-Gov Research from Developing Countries Perspective

The eight broader categories of limitations acknowledged by the various studies on developing and under-developed countries. It was found that only 36% (N=56) of the total studies (N=158) explicitly mentioned their limitations in the research articles. The remaining studies (N=102) did not mention their limitations. The various limitations gathered across different studies were then classified in eight broader categories. *Single subject* (with 15 studies) was considered as the most common limitations across different studies. This is followed by *biased sample* (12), *sample size* (12), *specific findings* (8), *cross-sectional studies* (8), *incomplete research* (2), *response bias* (2), and *unexplained variance* (2). One additional limitation category called *other limitations* contains the specific limitations reported by one study only.

Single subject contains the list of all such studies which have either used only one application, web site content, case study, particular community, organization, culture, or country to perform the research or considered it as their limitations (for example Al-Sochi et al., 2010; Dwivedi & Weerakkody, 2007; Kim et al., 2009). *Biased sample* is the sample which although was taken to perform the research but does not represent the actual population and so is a limitation for studies under various circumstances (for example Al-Busaidy & Weerakkody, 2009; Chiang, 2009). *Sample size* was considered as a limitation when the various studies reported comparatively small sample to undertake the research (for example Al-Shafi & Weerakkody, 2009; Kanat & Ozkan, 2009; Lean et al., 2009). *Specific findings* were accepted to be a limitation by a number of studies when the outcome of the research is limited to certain context and hence it cannot be

generalized (Al-Sochi et al., 2010; Kim & Holzer, 2006; Luck, 2009). Data collected at single point in time (i.e. snapshots) were also considered as limitation by a number of studies: Colesca (2009), Dwivedi et al. (2007a), Dwivedi et al. (2007b), Luck (2009), Sahu & Gupta (2007).

Few studies also reported *incomplete research* as their limitation because the research was not complete and validated till the time of publication (Faisal & Rahman, 2008; Go et al., 2007). *Response bias* was considered as a limitation for those studies where they thought that the sample was collected from respondents of a particular age-group or specific organizations whereas the actual outcome may be applicable to the whole population of citizens or similar organizations even though they may have differences in culture and other social norms (Phang et al., 2006; Zhang & Hsieh, 2010). Moreover, few studies reported *unexplained variance* as their limitation substantiating much of their variance remained unexplained in particular (Sang et al., 2009; Sang et al., 2010).

However, few limitations such as secondary data reliability issue (Siau & Long, 2009), merely narrative case description (Chan & Pan, 2008), threats to external validity and additional constructs overlooked (Hung et al., 2006), focus on pre-implementation factors only (Sharif & Mania, 2010), sample not separated as functions (Liu & Lai, 2004), egov examined only through websites (Tsai et al., 2009), several cases undertaken (Yana & Yana, 2006), limited prediction (Almutairi, 2010), lack of use of moderating variables (Yeow & Loo, 2009), limited validity (Arpaci, 2010), student sample (Huang & Shyu, 2008), and framework not optimal (Gupta & Jana, 2003) were reported only once in different studies and hence kept under the category of *other limitations*.

DISCUSSION

Looking at a range of generic and specific egov applications across different developing and under-developed countries, it was found that India is a leading country with 16 studies researching seven different applications. The striking reason for this may be due to accelerated emergence of various egov applications leading to an encouraging trend for the researchers to undertake the appropriate level of such research on egov in different governmental sectors and the evaluation of its impact on citizens and organizations. But, the count of research studies is still not convincing looking at the facts that the research on the egov facilities can guide the government to reflect upon its weaknesses and challenges and by bolstering upon its strengths, and opportunities to effectively implement the egov system in the best possible way. This is also very relevant for the rapidly developing country like India to reduce the corruption at the various levels in the government hierarchies by ensuring efficient interaction of citizens to the relevant egov portals to get their services done. Since similar problems are faced by other developing countries, such suggestion would also be applicable to other developing nations.

The analysis also found that leading countries in egov research such as India (63%), Taiwan (46%), China (50%), and Turkey (78%) have explored majority of generic egov perspectives than the specific applications. There is a need to carry out research on specific egov applications in these countries to know more details about their ongoing egov development and growth. The analysis of the egov research in one of the leading developing countries like Thailand indicates that out of seven studies carried out there till date three were contributed by a common author *Phusavat*, which indicates that although some different research being performed but lacking a diverse set of researchers to take initiative in this direction. The researchers from the developed and developing countries' community can look forward to undertake more research studies to help the research community regarding the whereabouts of the egov development in general and helping the government of these countries to manage their governance in particular.

Looking at the various studies addressing the different themes similar to the one represented by Lee (2010) where authors broadly divided the themes particularly in two different categories as operation/technology and citizen/service (Lee, 2010), we divided them into 13 different themes addressing a diverse range of research issues. The attractive reason for major representation (N=124) of four highly addressed themes such as adoption and diffusion, use and impact, development and growth, and implementation issues seem to be very evident as egov is in its nascent phase in the context of most of the developing and under-developed countries. However, the more critical dimensions along the egov research in these countries such as trust, digital divide, risk, and security are still underrepresented and hold a highly significant role to uplift the egov awareness among the stakeholders. In addition, there is also a roaring need for more representations of organizational issues, egov applications and technological dimensions, and e-governance.

Investigating the discrete theories and models used by the different studies to incorporate the appropriate variables, it was seen that few studies (Lean et al., 2009; Sang, 2009; Shareef et al., 2009) used even three theories together. It was also noted that TAM and DOI were the common theories/models used across all these three studies. The theoretical models, particularly TAM and DOI, have overlapping constructs. The complexities construct from DOI is similar to the perceived ease of use (PEOU) construct from TAM. Similarly, some researchers have suggested that perceived usefulness and relative advantage are the same constructs (Carter & Belanger, 2005). Moreover, one study (Sang et al., 2009) has used both TAM and TAM2 together even though TAM2 is nothing but the extended version of TAM.

Looking at the research methods being adopted it was found that survey alone in its different forms contributed to 45% (N=71) of the total number of studies (N=158) examined in developing and under-developed countries' contexts. The salient reason for this may be the ease of carrying out this particular research methods over the others. Taking survey as a research method sometimes considered as a need of the hour whereas it results in some contrary outcomes when some other research methods

would have been more suitable in that point of time. This also results into some limitations for those studies in the form of non-representative and inappropriately small data samples whose outcome may not be acceptable in the generic contexts. Based on analysis of the studies it was also realized that there is an under representation of certain research methods such as field study, experimental study, observations, and focus group with only one study each using them. The researchers should make use of the appropriate method as per the requirement of the study and not merely for conducting the research for their convenience of collecting the data. This inappropriateness of the outcome has been reported by many studies (for example Al-Busaidy & Weerakkody, 2009; Al-Shafi & Weerakkody, 2009; Arpaci, 2010; Bhattacharyya, 2008) as their limitations which clearly reflect the lack of selection of suitable research methods.

Looking at the limitations of the studies it was seen that single subject (reported by 15 studies), biased sample (12), sample size (12), specific findings (8), cross-sectional study (8) were among the major limitations reported by majority of the research studies. These limitations attract a considerable attention of researchers to look into the research agenda very seriously. Single subject represents data from only one application, web content, case study, community, organization, culture, or country whose results may not applied to the other similar counterpart. But, researchers can even think of taking a generous sample which even can represent the similarity with other applications, content, culture, or community in a larger sense to ensure that the outcome of the study can work as a pragmatic lens to draw certain conclusions by applying them to diverse areas. The cross-sectional studies become the limitations because they are not able to properly reflect a clear picture of the research because of the concise nature of the survey. Lee et al. (2003) argue that users' intent and opinion may change over the period of time and hence it is required to assess the adoption behaviour at various points over longer period of time (Lee et al., 2003).

CONCLUSION

The following prominent points can be drawn from the findings and discussion of the study: (1) Adoption and diffusion (32 studies) is a leading theme along with use and impact (31), development and growth (29), and implementation issues (26) constituting to 75% (N=118) of the total studies (N=158) being examined; (2) The significant themes such as trust (4 studies), digital divide (4), risk (1), and security (1) are still under represented in context of developing and under-developed countries; (3) TAM (10 studies) was the most popular model employed in egov research studies in context of developing and under-developed countries followed by DOI (4), TAM2 (2), DTPB (2), and UTAUT (2); (4) Four studies (Lean et al., 2009; Mirchandani et al., 2008; Sang et al., 2009; Shareef et al., 2009) have used TAM and DOI together even though these models have overlapping constructs; (5) TAM2 (Sang et al., 2009) and UTAUT (Sahu & Gupta, 2007) were used with TAM even though TAM2 and UTAUT are considered as an extension of TAM; (6) Among those studies (N=23) which have used existing theories and models a large proportion (N=16) utilised quantitative methodologies whereas 17%

(N=4) adhered to theoretical and 13% (N=3) employed qualitative approaches; (7) Survey (45%, N=71) was the most frequently used research methods followed by case study (20%, N=31), literature study (14%, N=22), interview (8%, N=13), and secondary data analysis (6%, N=10); (8) The research methods such as field study, experimental study, observation, and focus group involve the least representation with only one study to their names; (9) The *single subject* (15 studies) was the major limitation of egov research followed by non-representative sample (12), small sample size (12), specific findings (8), and cross-sectional studies (8) as some of the most frequently encountered broader categories of limitations; and (10) Only 36% (N=56) of the total studies (N=158) on egov research in context of developing and under-developed countries have mentioned limitations while publishing the scholarly literature.

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e-Governance System: Understanding Complexities of its Implementation through the Framework of SPOT

Sapna Choraria

Doctoral Student-Marketing, Institute of Management, Nirma University

E-mail: sapna.choraria@yahoo.co.in

Abstract—e-Governance system is one of the most growing trend among developed as well as developing countries. With the ongoing development and improvement in Information and Communication Technology (ICT), the quality and efficiency of the services has also improved. In the economically growing country like India, implementation of such ICT based governmental projects are on high scale, but diffusion is still comparatively slow. Understanding the complexities of implementing and diffusing the e-governance plans needs a 360 degree view of social, political, organizational and technological (SPOT) related issues. This paper tries to identify and conceptualize the major issues and thereby resolving them to create an efficient, effective, responsible and citizen-centric e-governance system.

Keywords: Governance, e-Governance, SPOT framework.

INTRODUCTION

The era of internet age has greatly influenced the civic life across the world. The world of online community demands an active social participation which acts as a base for developing psychological sense towards community. Introduction of social networking sites like facebook, orkut, linkedin, myspace and many more swayed the societal, technological, political and organizational boundaries. These websites have now become the source of voice for wide spectrum of people. They meet on these virtual spaces and discuss on varied topics from general to political to environmental to scientific and entertainment related. The success of these social networking sites has given an opportunity to the concept of e-governance implications and its diffusion in the developing countries like India. In the democratic country like India, Government is a form of public organization, set up by the collaboration with the society, with an objective of fulfilling society's developmental needs. Here, government legitimacy and transparency are the central criteria along with the organizational development for the smooth functioning of the government. The model of e-governance is based on the efficient delivery of information and services to the nation through different mode of managing the information (Table: 1). Applying the combination of information technology and communication technology results in the SMART (Simple, Moral, Accountable, Responsive, Transparent) working to accomplish reliable and continuous flow of information life-cycle of e-government. It manifests smooth intervention between citizens and government. This interactive tool enables the active citizen participation through wide services such as informing, representing, encouraging and consulting for the various activities (Patel, 2001). E-governance is therefore a transformation of internal and external public sector's relationship via technological enabled operations to optimize governmental activities (Kumar, 2004). On the basis of the influence of social (S), political (P), organizational (O) and technological (T) aspects,

this paper employ the framework of *SPOT* (social, political, organizational and technological). Based on these aspects, *SPOT* framework represents the major factors responsible for the successful implementation and diffusion of e-governance in the Indian democratic environment.

TABLE 1: COMPARISON OF TRADITIONAL AND E-GOVERNANCE SYSTEM

Participation Indicators	Traditional Governance Model	E-Governance Model
Mode of participation	Representative	Individual collective
Domain of participation	In-situ	Ex-situ
Approach of participation	Passive/reactive	Pro-active interactive
Impact of participation	Indirect/delayed	Direct/immediate

Source: Sangita & Dash (2005)

DEFINING E-GOVERNANCE

Backus (2003) defined the concept of e-governance as an interactive tool that enables G-C (government-customer), G-B (government- business) and G-G (government-government) interactions to simplify and improve governmental and business aspects of governance. Similarly, several international organizations and governments have defined the term e-governance that suit their objectives and goals. According to World Bank: "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions." The definition given by UNESCO emphasize on the exercise of authority in the management of a country's affairs along with articulation of citizens' interests leading to greater transparency and efficiency. The Council of Europe has taken e-government as an interactive tool between citizens and government to promote democracy and improve public services. Similarly the former President of India, Dr. A. P. J. Abdul Kalam, visualized the term of e-governance as "A transparent smart e-Governance with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to the citizen". The above explanations point out the implementation of ICT at every junction of governmental operations for the continuous and flawless flow of information, efficient and effective delivery of quality-public services, improvement of the internal efficiency, improving the financial status and restructuring the organizational processes (Bhatnagar, 2004; Backus, 2003; Venkatesh, 2003).

There are varieties of e-governance model depending upon the interaction between the type of governmental bodies such as: G-C, G-G, G-B and G-N (G=Government, C=Citizen, B=Business, N=NGOs') (Sachdeva, 2003). It can also be classified as e-administration and e-democracy, on the basis of policy formulation and implementation

(Sangita & Dash, 2005). Every model here represent the role of ICT in transforming the public sector's relationship, broader opportunities and demystifying the bureaucracy.

SPOT FRAMEWORK FOR IMPLEMENTING AND DIFFUSING E-GOVERNANCE IN INDIAN DEMOCRACY

The development and maintenance of such website also demands a periodical up-gradation and quick responsive actions from the governmental entities to make a continuous flow of communication with the citizens. Therefore, the major challenge for such electronic government indicates smooth collaboration of technological, social, organizational and regulatory aspects to redefine and improve societal/citizen relationship (Weerakkody et al., 2010).

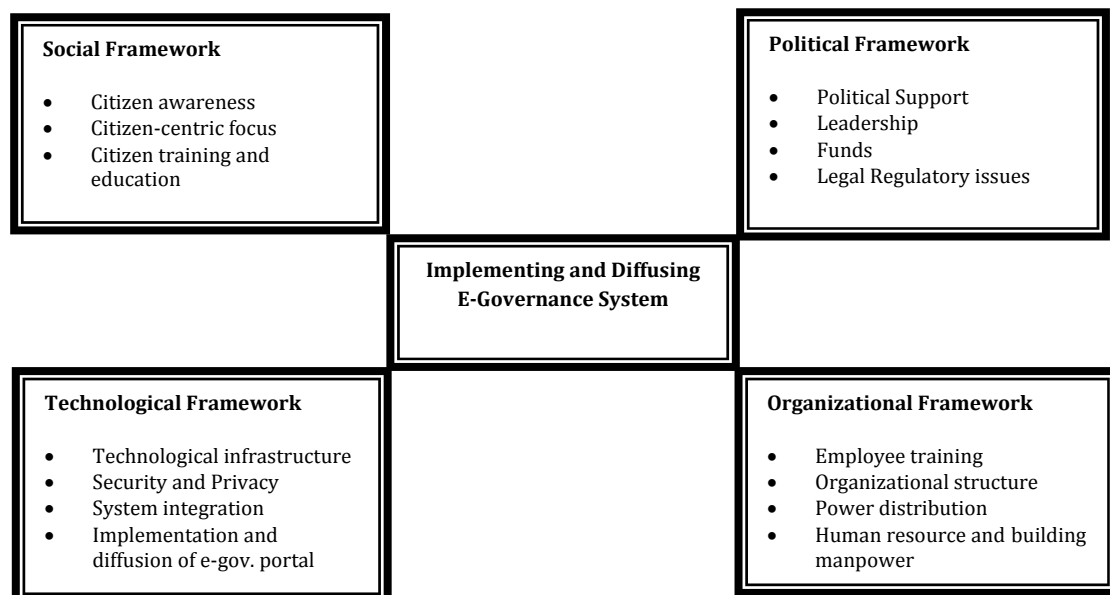


FIG. 1: A CONCEPTUAL MODEL: SPOT FRAMEWORK FOR IMPLEMENTING E-GOVERNANCE IN INDIAN DEMOCRATIC SYSTEM

With the growth in the Indian economy since 1990, the country finds an ease in the availability of the high-end technologies to boost the implementation of e-governance. The evidence of the successful implementation of e-governance in the developed countries shows the intrinsic linkages between the phases of computer technology, communication technology and networking systems. In the developing country like India, the onset of e-governance shows four different stages: Computerization, Networking, On-line presence and interactivity. The first phase demands the availability of considerable technology-enabled personal computers in the government offices. This phase is followed by setting up a connection between different governmental units and organizations. This results in the smooth flow of governmental entities. Once the networking process between these governmental bodies is implemented, the phase of developing an online website is carried out to make their presence felt over the web.

Based on this review, the paper here tries to identify and conceptualize the important dimension that plays a major role in building a systematic and effective e-governance system (Figure. 1). The major dimensions are categorized in the form of SPOT framework representing the social, political, organizational and technological issues:

The Social Framework

Citizen Awareness

The need of knowing is a first step to its acceptance. Lack of awareness regarding the existence of e-governance facility among the general population of the nation prevents them to participate and get benefited from the system (Reffat, 2003; Al-Omari, 2006). In this rapidly changing technological era, it is generally the older people who lack behind and have little trust in technology (Morris & Venkatesh, 2000). Therefore this population need to be taken care by reminding and demonstrating them the government portals and websites. These governmental steps will help the segment to overcome the lack of expertise and motivate the usage of the facility (Fang, 2002). Along with this, to attract the other segments, apart from demonstration, a strong campaign through all the possible communication channels may help higher rate of citizen participation. Such campaigns can be in the form of mailing newsletters, advertisement in the news-papers, sponsoring workshops and seminars, displaying posters and banners, use of media services etc. These kinds of awareness initiatives would encourage citizen participation and involvement and thereby convince them for e-governance service usage (Choudrie et al., 2005; Weeakkody & Choudrie, 2005).

Citizen-centric Focus

One of the main concerned corner of e-governance is processing the customer insight and identify the major influential factors that affect their behaviour, belief, experience, need and desire (Undheim & Blakemore, 2007). Therefore, construction of e-governmental activities need to be placed in a way that focuses mainly citizen's requirement and thereby delivering value added services accordingly (Parent et al., 2005). It should mainly focus on the ease of access and usage that enables the citizen to get benefited from such facility (Al-Shehry et al., 2006). Study done by Misra (2007) also emphasized and identified importance of citizen-centric government to provide unique service delivery to the nation. He specifically stated that "it is necessary to define e-government afresh and propose a citizen-centric criteria-based definition of e-government as a lodestar to guide the efforts of e-government policy makers and implementers".

Citizen Training and Education

Training and educating the citizens is one of the complex tasks which require the periodic demonstration and workshops. This concept is followed by the extended awareness among the citizens. In India, a considerable population represents a lower or

no understanding of ICT. To attract this segment, government need to organize camps providing computer literacy education to ensure the minimization of digital-divide (Ministry for Investment, Industry & Information Technology, 2006). However, several researchers have also pointed out that the lack of ICT education is also influenced by the factors such as gender, age, income, social status, economic opportunity, personal abilities and global pressure (Mossberger et al., 2003; Im & Seo, 2005).

The Political Framework

The Political/ Governmental Support

A continuous top management support with commitment is required to successfully implement information system with minimal resistance and smooth flow of communication among the different governmental entities (Chen & Gant, 2001). This requires a continuous co-operation, co-ordination and communication among the departments and people engaged at higher authority to make sure the continuation of the project implementation and diffusion. The top management need to understand the importance, objective, benefit, cost and time line associated with the ICT related project to systematically design the strategic plan (Weerakkody & Dhillon, 2009).

The Leadership

Leaders are those to whom others look upon when an important and challenging task is need to be upheld to meet the desired performance within a pre-decided time-frame and budget (Murphy, 1996). In the concept of e-government, leadership is closely related to the political context as the success of such projects is based upon the high level of commitment and positive attitude of the political party ruling at the time of the implementation of the project. Several other researchers have supported leadership as one of the important driving force that leads to the successful implementation and diffusion of e-governance system in society (Heeks & Stanforth, 2007; Elnaghi et al., 2007; Jaeger & Thompson, 2003). Zairi (1994) emphasised on the necessity of the leadership for the survival. Such leaders provide innovative solutions for the upliftment of the society.

Funds

The projects related to the e-government system are long-term projects and thus requires a long-term financial support from the government. Okiy (2005) argued that the funding is an process of providing financial support on the basis of cost-benefit analysis. It facilitates the occupancy of the infrastructure required for the implementation, diffusion and maintenance of the e-government plans. This facilitation is made available on the basis of the benefit, cost and time-line associated with the project. Eyob (2004) identified funding as a major challenge since the release of the funds becomes difficult when government is associated with the project. The decision is generally influenced and interfered by the political parties to suffice their own interest.

The government can also look upon public private partnership to raise the funds under the unavailability of required amount.

The Regulatory and Legal Issues

The implementation of the e-governance system is resulting in the change in the way the governmental process and activities are carried out- from procurement to service delivery (Heeks, 2001). This has resulted in the arousal of new legal and regulatory changes which includes electronic signature, preventing crimes related to computers and hacking data, public access as well as restriction to information available, protecting data and many more. New legislative acts related to e-services need to be form and updated periodically to protect public agencies from serious liabilities (Watts, 2001). Failure in this aspect may seriously hamper and hinder the progress and diffusion of the e-governance plan. For an example, in U.K, the progress of the e-government is delayed due to the unfavourable laws related to the data protection and privacy laws (Bonham et al., 2003).

The Organizational Framework

Employee Training

Along with the citizen education and training, employee training and education is a major requirement for the proper functionality and qualitative quick response to the citizen. In this aspect, the governmental bodies need to get familiar with the ongoing technological work and get updated with time (Zarei et al., 2008). Heeks & Davies (1999) quoted that generally senior public officials (both managers and politicians) often lack IT skills and awareness, which is the major cause of the inefficient status of the e-governance in major countries. Read & Kleiner (1996) emphasised on official training and education of the employees for the successful implementation of the e-governance system. Later, Grieg (1997) stated types of training (externally, internally or equally externally and internally in the organization) that can be implemented on the basis of the e-governmental objective, employee requirement and the associated cost (Heeks, 2001)

Organizational Structure

Organizational structure refers to the allocation of administrative activities and defining the work role to create a controlled co-ordinated organisational work activity (Jackson & Morgan, 1978). Public sector agencies like e-government demands a radical change and re-engineering with constant up-gradation to keep pace with the technological innovation (Weerakkody & Dhillon, 2008). However, such changes will include both internal and external re-engineering (Layne and Lee, 2001) and might also raise some challenging situation like resistance to change as public employees become suspicious about the threat to their jobs by the use and adoption of these technologies (Al-Shehry et al., 2006).

Power Distribution

The implementation of organizational change due to the introduction of ICT may also results in shift of power within the governmental entities (Weerakkody & Dhillon, 2008). The implementation of new information system may also cause the shut-down of traditional business processes and this might also result in the shift of authority and power among the employees. Following such situations, the employees resist to the implementation of e-governance system to secure their position and power (Doherty & King, 2005). Therefore, government need to understand the distribution of power among the employees before moving to the planning of organizational structure. Understanding the skills and thereby training the employees will help to lower the employee resistance. Also, retaining the maximum positional advantage in the organization will also induce the job satisfaction among the employees.

Human Resource and Building Manpower

According to Sachdeva (2003), ICT have failed to obtain desired results in facilitating the governance system due to organizational, technical and human resource. Few scholars have pointed out that lack of positive attitude, lack of skill, motivation and official mismanagement has greatly affected the accomplishment of e-governance implementation (Curely & Gremillion, 1983; Biscon & Gutek, 1984; Joshi, 2001). For example, a study conducted in Gujarat reveals that innocent truck drivers are harassed at the check-point by the officials' in-spite of complete computerized system (cited in Sangita & Dash, 2005). Study conducted by Sreekumar (2002) pointed out that fractured relationship between governmental agencies and citizens acting as a de-motivating factor to participate in such governmental job activities. Similary Sangita & Dash (2005) also pointed out that generally the civil society remains unaware of the projects, services and requirements made avail by the government. Also, unavailability of personnel at the kiosk site results in the dis-functionality of the system. The government need to recruit the capable and desired number of candidates and provide training for imparting skills and inculcating motivation. Such capacity building training programs need to cover interdisciplinary areas related to technology assessment, information analysis, change management and project management.

The Technological Framework*Technological Infrastructure*

With the growing economy, changing societal behaviour, introduction of newer technology and its application in almost every field, a sustainable e-infrastructure is the major demand for the success of the e-governance project across the country. The emergence of e-readiness among the government system is required to effectively introduce the social and economic advancement via ICT networks (Budhiraja & Sachdeva, 2003). According to the World Economic Forum Consultation Report, e-readiness refers to the effective adoption and usage of ICT networks to create societal awareness. Comparing the infrastructural developments with other countries, India, being a technological hub, lacks fairly behind in the tech-infrastructure set-up. The rural

population which comprises of considerable mass of the total nation population are the area of concern to implement and diffuse the e-governance system. Lack of ICT investment, computer literacy and internet usage are the area of concerns in the development of e-infrastructure in rural area. The rural-centric e-governance projects require an extra focus by the governmental entities since their needs and requirements differ with the urban population.

Concern Associated with Security and Privacy

Security and privacy are the major concerns that hinder major citizen participation and smooth functioning of the e-government portals. It is one of the key challenges for the implementation of the information system (Wilford, 2004). The issues mainly comprised of the confidentiality of the data, both for the government entities and the citizens (Al-Khouri & Bal, 2007). Any unauthorized access to the data affects the trust on the technology and hinder e-governance system usage. Providing seal of high-technology-oriented data privacy and online authentication security, trust over both the parties can be built. According to Kaliontzoglu et al. (2004), US government considers security and privacy as one of the important major issue of concern and includes PKI (Public Key Infrastructure), electronic signature, policy enforcement regulation, password system and biometrics to minimize the issues related to security and privacy.

System Integration

Integrating the system demands a holistic integration of both internal and external functionalities of the government system. Baum & Di Maio (2000) also emphasised that “complex and transformational e-governmental developments requires both internal and external integration”. Al-Khouri & Bal (2007) stated that overall information system integration is one of the major challenge faced during the implementation of the e-governance system. Layne & Lee (2001) gave the classification of the system integration and explained its two types: vertical integration and horizontal integration. In vertical integration, the local systems are connected to the higher functioning systems with smaller functionalities. In contrary, horizontal integration includes systems integrated across different functions, providing a complete one-stop-shop. Later, several researchers supported the vertical and horizontal integration of the e-governance system for its successful implementation and working to provide one-stop service delivery to the nation (ElSheikh et al., 2007; Weerakkody et al., 2007; Kamal et al., 2009).

Implementation and Diffusion of E-governance Portal

A website with an easy access is the foremost step for the front-end governmental organization. The speed of access, 24/7 days of availability, transaction security and mode, citizen grievance and speed of response play a vital role in the successful implementation of such portals. Also the website services should be designed in a way that they can be accessible from anywhere in the world. Such facility mainly plays a

major role in activities related to financial services. A person under the availability of such service can pay their bills from any corner of the world, exchange currency and also apply for their visas and passport and other types of governmental identity card. However, along with the accessibility, availability of the service also plays a vital role. Absence of computer systems and technological infrastructure hinders the growth of the e-governance system. Therefore, government can identify and build kiosks at several locations along with the technological infrastructure, especially in the rural areas to make the service easily available and accessible.

CONCLUSION

Currently, India is launching several e-governance related projects to improve governmental operational activities, establishing government-citizen relationship and promoting socio-economic development (Table: 2). The progress survey of these projects are acknowledgeable and has out-casted the traditional governance system (Tr. Gov.). However, analysis through SPOT and thereby rectifying the issues might boost the diffusion of e-governance system with a faster pace.

Implementation of e-governance projects at several locations in India has already proved the effective, efficient and responsible potentiality to serve the nation. With an ease of access, availability, transparency and speed, the system has benefited both the parties' viz. users and providers. In spite of providing numerous benefits, there are some issues associated with its implementation resulting in slow diffusion across the nation. Even though the introduction of IS in governance system has greatly optimized the efficiency of the system, reducing cost and manpower, the governmental officials need to understand the initial requirement of fund to raise infrastructure, skilled man power and organizing training programs both for the employees and citizens. Reducing resistance and conflict among the governmental employees will indirectly support the growth of the e-governance system diffusion. Apart from this, the officials also need to focus over the regulatory and legal issues and developing fruitful relationship with the citizens. It is required to understand the basic need and requirement of the citizen and linking it with the objective of the e-project.

TABLE 2: STATUS OF E-GOVERNANCE PROJECTS IN INDIA

1	Type of government application	Efficiency (time/effort/money to get the job done)		Accountability (transparency/speed money/wastage/ harassment)		Empowerment (participation/ accessibility)	
		Tr.Gov.*	e-Gov.**	Tr.Gov.	e-Gov.	Tr.Gov.	e-Gov.
CARD, AP/Kaveri in Karnataka	Valuation of property	Few days	Few minutes	Middleman, harassment from Rs. 50-500	minimized	Secrecy/ discretion	Information access
CARD, AP/Kaveri in Karnataka	Land registration	7-15 days	2-3 hours	2-5% of the value	Minimized	Ambiguity	Display

Table 2 (Contd.)...

...Table 2 Contd.

Bhoomi, Karnataka	Obtaining Land title certificates	3-30 days	5-30 min.	Rs 50-500	Rs. 15	Complexity /secrecy	Transparency
Inter-state Check post, Gujarat	Collect fines for over-loading	30 min.	2 min.	Harassment, corruption	minimized	Discretion	Penalties are displayed
Mandal Computers, AP	Issue of caste certificate	20-30 days	15 min.	Rs. 50-100	Rs. 10	Discretion	Transparency/ citizen charter
FAST, AP	Issue of licenses/ vehicle registration	delays	Stipulated time	Rs. 50-300	Reduction of speed money	Discretion	Transparency/ citizen charter
SKIMS, AP	Networking of secretariat department	Red tapism/ delays/ tedious procedure	Speedy communication/ reduction of cost, staff, time, paper	Absence of accountability	Transparency accountability/ accessibility of information for quick monitoring and actions	Complexity / secrecy	Transparency/ access to information for quick action
E-seva in AP, FRIENDS in Kerala, Lokmitra in Rajasthan, Gyandoot in MP	One-stop service kiosk	Several dept., long waiting time, queue	Eliminating long queue and waiting time	Absence of accountability	Little scope for corruption	Complex process	Transparency

*Traditional Governance System,

**e-Governance System

Source: Sangita & Dash (2005)

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Towards Understanding e-Government Application Development

Shawren Singh¹ and Dan Remenyi²

¹University of South Africa

²University of the Witwatersrand, South Africa

E-mail: shawren.singhs@gmail.com

Abstract—One objective of e-Government applications is to reduce or eliminate the strict silos of government policy creation and service delivery. Information and Communications Technology (ICT) has been suggested as the primary tool to enable this goal. ICT has become critical, not only to how business and government are conducted but also the way life is led in the developed and to some extent in the developing world. Currently, due to the complex nature of e-Government applications, they appear to suffer some sort of perceived failure. This paper outlines some of these perceived challenges.

Keyword: e-Government, Design and Development, Benefit realisation

INTRODUCTION

E-government is one of the rapidly growing sector of ICT with an investment of \$3.94 trillion in 2010 (Daly, 2010; McGee, 2010). Yet there is a high incidence of ICT implementation not resulting in success with some sources claiming that more than 70% of ICT systems do not deliver within the timeframe required or within the budgetary constraints (Al-Ahmad *et al.*, 2009; Robertson, 2008). Some ICT investments do not lead to the functionality and thus improvement of processes which was sought by the sponsor whereas few applications lead to serendipitous results but in general there is far more wastage of resources in projects than unexpected benefits. This study proposes ICT failure as an ICT system which does not achieve its stated objectives.

There are numerous causes of ICT failure which include technology, hardware and software issues, employee problems, complexity and organisational problems (Al-Ahmad *et al.*, 2009; Janssen & Klievink, 2010; Robertson & Williams, 2006). One of the primary causes which contribute to ICT failure is gaps in understanding between the expectations of the major stakeholders and not technology, staff skills and attitudes or organisational problems. There are several potential gaps in understanding in an ICT project. These gaps in understanding refer to how the different groups of stakeholders perceive the requirements and the deliverables from the application. For example, the gaps in understating may arise from vague systems requirements (Pressman, 2009).

A gap in understanding may be defined as a difference between senior management's intentions and or potential customer's intentions and the way in which those intentions are received and acted upon by ICT professionals. The problem of understanding gaps in the perceptions related to investment in ICT systems between stakeholders is a feature of both the private and public sector. It is well established that in ICT development problems often stem from the original challenge or opportunity not being adequately defined (Murer, Bonati, & Furrer, 2011; Pressman, 2009). This in turn may be seen as a result of an inadequate corporate communication of what is required.

ICT understanding will results from a product of systematic research into business processes and practices. It has been suggested that one way of improving this situation is to employ an IS/IT benefits realization process (Lin, Pervan, & McDermid, 2007). Carcary (2010) argues that a continuous participative approach such as Remenyi *et al.* (1997) suggest Active Benefit Realisation (ABR) will promote stakeholder involvement, motivation and commitment as well as improve ICT decision-making through establishing dialogue with all affected parties. Remenyi *et al.* (1997) define ABR as a non-traditional approach to information systems conceptualisation and development which continuous formative evaluation may therefore be seen as an on-going co-development and joint learning endeavour. The essence of the ABR approach is that the key stakeholders of the information systems are identified at the onset and that they accept and agree their continuous involvement and co-development in the application.

Customer-orientation has been proposed as a way in which governments have attempted to improve the quality of services offered to business and citizens (Bannister, 2000; Helbig, Gil-García, & Ferro, 2009). There is a debate in the literature as to which is the most appropriate term to use in describing the individuals who obtain the direct benefits from ICT systems in the e-Government environment and the terms customer or citizen are used (Brewer, 2007; Mintzberg, 1996). The term customer suggests a number of issues, one of which has to do with the organisation satisfying a particular need and service. The term customer also suggests the possibility of the person receiving the service has some degree of freedom to choose the service provider. In the majority of e-Government systems the person who utilises the service does not have any choice. The current researchers argue that the term customer is inappropriate and the term citizen serves to better describe the relationship between the provider and the user of the service. Currently we have adopted the term citizen-oriented.

Agarwal (2007) point out that a top-down approach has been followed by several e-Government applications which has often not worked and the resultant system has not been able to fulfil the needs of the citizens despite the cost of these applications. Using the top-down approach the managers have a particular understanding of the goals of the systems and the users may have a different understanding of the goals of the system. This introduces an understanding gap. Worldwide there are numerous e-Government applications in different phases of implementation. Despite various claims of success there is a lack of sharing of information on successes and failures of these e-Government applications (Agarwal, 2007).

Governments are experiencing budgetary constraints and e-Government applications are being subjected to a higher degree of scrutiny to evaluate whether they are delivering the benefits which they have promised (Gupta, Bhattacharya, & Agarwal, 2007).

Sarantis, Askounis, and Smithson (2009) argue that some of the project management approaches that are proposed for e-Government application implementation are more suited to the management of the overall development of information systems, rather than being directly targeted to a specific e-Government need. The resulting effect of this is a poor understanding of the key issues required to make e-Government a success and it also detracts from the ability to be able to conceptualise what the benefits may be. These inappropriate project management approaches may under-prepare the stakeholders to receive the benefits of the new system. Inappropriate project management approaches further complicates and already complex ICT project. As stakeholders are both internal and external to the project, it becomes a difficult task to ensure that the project satisfies the various need of the community of stakeholders (Juciute, 2007; Kamal, Weerakkody, & Irani, 2011).

In the next Section the background of the research is discussed. Sections 3 the motivation for this research is outlined while Section 4 sets the scene. In Section 5 the research problem is stated while in Section 6 the research questions are proposed.

BACKGROUND

The appropriate application of ICT may be a key component to the solution of problems that organisations face. ICT requires motivated people, data, processes, information presentation, corporate policies, information technology and accepting citizens.

Avison, Vidgen, and Wood-Harper (2004) point out that the process of information systems development is a formal, step-by-step, almost 'scientific' process that does not coincide with practical experience. This is an interesting point of view which is not fully supported by members of the IS community (Pressman, 2009). Information systems development is a process of discovery. The process of information systems development is not a linear waterfall type process in which each step is completed and regarded as finally finished before the next step is taken. It is rather an iterative process which calls upon the type of thinking that involves and is associated with object-orientation. This type of thinking is a formative learning process, where the developers and the key stakeholders continue to learn about the potentials challenges inherent in the technology as they proceed with the project. Avison, Vidgen, and Wood-Harper (2004) further argue that if the stakeholders are not actively involved in the implementation of the solution, the problem will not be solved. The responsibility of articulating the specifications of the application is not that of the developers or analysts¹, but mainly that of the key stakeholders affected by the information system. Information systems development by nature is subject to evolving² (Turner, 2004). It is believed that there is

¹In some environments there will be several different levels of analysts, a business analysts, systems analysts, a process analysts, forensics computer analyst, computer security analyst.

²This is sometimes referred to as goal post changing which is seen as a negative phenomenon, but is in fact at the heart of business requirements. Business is never static and as new competitors come into the market with new products and new ideas, the needs of ICT will change and this is one of the reasons why it is necessary to have fast delivery and agile systems.

a high level of information systems failure, due to information systems development not always meeting citizens' expectations and/or requirements (Belardo, Ballou, & Pazer, 2004).

Pardo and Scholl (2002) reported that *"despite a growing body of descriptive, theoretical and practical knowledge about Information Systems Development, large-scale information system development and implementation projects still fail in high numbers."* Specifically focusing on e-Government systems, there is a body of research dealing with information systems failure (Dada, 2006). However there appears to exist gaps in the literature about how to design and develop different domain specific e-Government systems ranging from birth registrations, to passport issuing, to motor vehicle licensing. Each of these domain specific systems have special and unique requirements.

Defining E-government

In recent years there has been growing pressure to deliver services in a more efficient way. These applications have been referred to as e-Government. It is difficult to define e-Government (Joia, 2008; Kim & Kim, 2003), as it encompasses such a broad spectrum of activities. Currently, we have adopted the following working definition of e-Government as suggested by Grant and Chau (2005).

"A broad-based transformation initiative, enabled by leveraging the capabilities information and communication technology; to develop and deliver high quality, seamless, and integrated public services; to enable effective constituent relationship management; and to support the economic and social development goals of citizens, businesses, and civil society at local, state, national, and international levels".

It is a challenge to classify 'failures' in e-Government systems. For instance Heeks (2006a) argues that 60% to 80% of e-Government projects fail in some way. According to the UK government's chief information officer, *"Not many private sector projects have to deal with the number of requests and people that government schemes do, and those that do, often suffer the same problems when it comes to whether the system works and end customers can actually use it"* (NHS Modernisation Agency, 2004). The number of stakeholders appears to be higher and the negotiation process and outcomes are more complex in e-Government projects compared to commercial systems (Scholl & Klischewski, 2007). The reasons for this is sometimes referred to as 'turf wars' (Bannister, 2005), turf wars in e-Government projects cover issues relating to localised power plays in the project and territorial games.

Zuboff (1988) indicated that information systems could be used to *"automate"* which is defined as IT systems that are developed to replace manual activities (Remenyi, 1999), *"informate"* which is defined as IT systems that provide specific information to management, which allow them to make more insightful decisions and therefore use those organisations' resources more effectively (Remenyi, 1999) or *"transformate"* which is defined as IT systems that make a radical impact on the way in which the

organisation conducts its business, either by the transformation of its current activities and process, or by the introduction of new lines of business (Remenyi, 1999). These concepts has influenced thinking in government (Nygren, 2010). From empirical evidence Zuboff's first notion of *automate* is well established in government, where computers have been performing routine tasks, such as updating records starting with the Bureau of the Census in the United States (Agar, 2003). The idea of ICT for the purpose of providing information for managers has also been established in government for some time, and applications such as those employed in the South African Revenue Service have been in uses for the past 20 years. Data mining is used in the South African Revenue Services to identify anomalies in tax patterns and thereby identify individuals that are not fully complying with tax legislation in South Africa.

An Analysis of Some E-government Applications

In Table 1 (Appendix A), we extended Heeks' (2008) evaluation of e-Government applications. Each e-Government application was classified using Zuboff's (1988) notions of *automate*, *informate* and *transformate*. It is interesting to have these three categories, but any one particular system will have aspects of all three built into it, and it may be that a system is strongly "*automate*" with some minor implications of "*informate*" and "*transformate*" or it may be that the system is strongly *informate* with smaller implications for *automate* and *transformate*.

The table is constructed as follows:

- Location of the e-Government application.
- Type of e-Government application.
- Evaluation of the application. The evaluation criteria is as follows; largely successful, largely unsuccessful, partial failure, partial success, success, total failure and uncertain. This analysis provided by Heeks (2008) is interesting, however, there are a number of substantial problems with this analysis. For example, the semantic differentials that are used in the analysis is not clear.
- Where possible the estimated cost of the application.
- And finally a classification of the applications with reference to Zuboff's (1988) notions of *automate*, *informate* and *transformate*.

From the 68 different e-Government application, 38 were classified as *automate*, 30 as *informate* and there were no *transformate* systems, see Table 1.

Sarantis, Askounis, and Smithson (2009) report that an increasing number of counties are formulating ambitious action plans for implementing e-Government systems. From the significant number of partial failures and total failures shown in Table 2, it appears that e-Government application design and implementation face several challenges. Some of these challenges facing e-Government applications will now be discussed.

TABLE I: SUMMARY OF ANALYSIS

Automate 38	Evaluation		Total
	Uncertain		
	Largely successful		
	Largely unsuccessful		
	Partial failure		
	Partial success		
	Success		
	Total failure		
Informate 30	Evaluation		Total
	Largely successful		
	Largely unsuccessful		
	Partial failure		
	Partial success		
	Success		
	Total failure		

Problems Affecting e-Government Applications

Complexity in e-Government applications pose a particular challenge (Purao & Desouza, 2011) to designers and developers of e-Government applications. For example, Lips (2008) reports on the *Kafkabrigade* project in the Netherlands. This project attempts to tackle, what she refers to as, the 'wicked' problems or excessive administrative burdens from a citizen-centric point of view. The Netherlands national government has launched a website (www.kafkabrigade.nl) where Dutch citizens can post their problems regarding disjointed government departments. Relationships within e-Government structure are complex, for example government-to-citizen, citizen-to-government, government-to-government, government-to-business, business-to-government, government-to-employee, and employee-to-government (Annttiroiko, 2008). Government adopting other countries e-Government systems poses a problem in implementation. Heeks (2003) points out that e-Government system should be country specific and not an off-the-shelf system from another country.

Leadership and key stakeholders involvement affect the success of e-Government applications (Luk, 2009). E-Government is about transforming government to be more citizen-centred. To achieve e-Government success requires active partnerships between government, citizens and the private sector (Farelo & Morris, 2006). There exists a complex set of dynamics with citizens and how they use e-Government services. Heeks (2006a) reports that citizen contact with government is relatively rare. Millard (2006) found in Europe that e-Government citizens use government services on an average of 3.1 times a year compared with non-e-government citizens who only tend to use government services 1.5 times a year. In Africa there appears to be no reliable statistics on the frequently e-Government systems are used by citizens.

Maumbe *et. al* (2007) argue that e-Government applications can benefit from a comprehensive internal research program to address specific challenges to that application. Technological complexities, complex social processes and independent human agents according to Moodley (2005a) are not seriously factored into e-Government applications. Guanhua (2009), in a similar light, contends that e-Government applications are largely constrained within their social context. From a different perspective, the UK National Audit Office points out that "the ICT profession

across both private and public sectors is immature in comparison to traditional professions such as medicine, law or accountancy. There is no core set of recognised qualifications and a very wide variety of entry points into the profession. This has made it harder for those in the senior civil service without ICT experience to understand the full value that the profession can deliver." (National Audit Office, 2011). The National Health System in the United Kingdom (Brooks, 2007) illustrate the impact of the above mentioned problem on the success are failure of an e-Government system.

In government departments there appear to be internal inefficiencies in terms of ICT and human resources (Farelo & Morris, 2006). According to Abrahams (2009) e-Government applications face further challenges because of the fragmented nature of government administration and its communications processes. Emery *et.al* (2009) and Maumbe *et. al* (2008) points out that e-Government models are primarily developed within a western context. There appears to be a need for a more regional-centric e-Government model. Further, in light of scarce resources and the global financial crisis, government departments are experiencing increasing fiscal, public and political pressure to increase return of investment from their e-Government applications (Moodley, 2005a; Naidoo & Palk, 2010).

Another challenge that e-Government applications face is that of adoption, getting the new e-Government system implemented and used by the target audience (Heeks & Santos, 2009). Further, e-Government solutions are not a '*One Size fits All*' solution (Al-Eryani, 2009). Each application must take into account the variable factors influencing that application. Abrahams (2009) asserts that a significant number of e-Government initiatives are information based and only a few include interactive content. This is confirmed by Naidoo *et.al* (2011) that, for example, the South African government is predominantly concerned with efficiency improvement through information dissemination, rather than adopting a more comprehensive e-Government system. e-Government applications are also affected by digital divide issues (Guomundsdottir, 2005; Helbig *et al.*, 2009; Hossan, Habib, & Kushchu, 2006). An example of improper usage by stakeholders is the case of the Natural Resource Ministry's Scientific Information System (Heeks, 2002a) where all decisions made by senior officials and senior committees did not take into account the information provided by the system.

Yet another challenge that is faced by e-Government applications is the uses of inappropriate project management techniques (Sarantis *et al.*, 2009). Kaisara and Pather (2009) contend that even a well designed and developed e-Government systems has a latent defect. If policy-makers do not incorporate access and adoption strategies which take into account the environment that the e-Government system is designed in, the project will be faced with challenges. Further, a private sector solution cannot be imposed as an e-Government solution (Heeks, 2003). The National Data Bank (NDB) project was planned to provide a broad range of data and information support users inside and outside Bangladesh (Heeks, 2002b). In attempting to satisfy multiple levels of stakeholders in different sectors the project did not meet user's expectations.

From an Africa perspective, Mutula (2008) points out that providing an accurate status of e-Government applications in sub-Saharan Africa is not easy because the major studies on e-Government do not fully cover all countries in Africa. Specifically focusing on South Africa, the Internet user base is growing year by year at a very slow rate (Internet World Stats, 2011b). From this slow growth in the Internet user base we can conclude that there are several challenges facing the growth of the Internet in South Africa. Despite South Africa being ranked fourth on the continent for Internet usage (Internet World Stats, 2011a).

South African e-Government applications face other sorts of challenges. Moodley (2005b) claims that exclusive emphasis is being placed on ICT applications, *"at the expense of careful analysis and consideration of the broader economic, social, and political elements that interact to improve the lives of individuals."* Moodley (2005b) and Singh (2010) further claim that there are significant gaps in policy, gaps in understandings of ICT, gaps in understanding social process, bureaucratic incompetence, and gaps in understanding "independent human agency".

Moodley (2005b) points out that South African ICT government programs are adopted and implemented in a top-down approach. The top-down approach tends not to focus on the needs of the citizens. Singh (2010) argues that ICT is a tool to achieve a particular desired objective, it is not the objective. This misunderstanding affects the e-Government application.

Finally, we have analysed several United Nations e-Government surveys (Hafeez, 2003, 2004, 2005; Hafeez, Kerby, & Roy, 2008; Kerby *et al.*, 2010) with special focus on South Africa. In Table 2, we present South Africa's e-Government development ranking. This ranking encapsulates South Africa's performance in the field of e-Government.

TABLE 2: SOUTH AFRICA'S E-GOVERNMENT DEVELOPMENT RANKING (HAFEEZ, 2003, 2004, 2005; HAFEEZ *ET AL.*, 2008; KERBY *ET AL.*, 2010)

Year	Ranked	Trend
2003	45	
2004	55	↓
2005	58	↓
2008	61	↓
2010	97	↓

TABLE 3: SOUTH AFRICA'S E-GOVERNMENT DEVELOPMENT RANKING EXPANDED (HAFEEZ, 2003, 2004, 2005; HAFEEZ *ET AL.*, 2008; KERBY *ET AL.*, 2010)

Years	2003	2004	2005	2008	2010
Rank	45	55	58	61	97
Online Services	0.539	↓ 0.515	↑ 0.5692	↓ 0.5518	↓ 0.3079
Infrastructure	0.126	↓ 0.125	↓ 0.1234	↑ 0.1752	↓ 0.0476
Human Capital	0.88	↓ 0.83	↔ 0.83	↓ 0.8061	↑ 0.8432

The overall trend is that South Africa is falling lower in the ranking. The development ranking is composed of three subcomponents: **Online service**-this is the number of e-services available on a government website, **Infrastructure**-this

component is a summary of the ICT infrastructure of the country, and **Human capital** - this is an index of the literacy of the citizens in the country. In Table 3 there is a closer analysis of these subcomponents. Both online services and infrastructure are on a downward trend, and human capital seems to be marginally increasing.

We finally look at South Africa's e-participation rating. E-Participation focuses on the use of the Internet to facilitate provisions of information by government to citizens, interaction with stakeholders, and engagement in decision-making processes. From Table 4 we can see that South Africa is again falling lower in the ranking.

TABLE 4: SOUTH AFRICA'S E-PARTICIPATION RATING (HAFEEZ, 2003, 2004, 2005; HAFEEZ ET AL., 2008; KERBY ET AL., 2010)

Year	Ranked	Trend
2003	22	
2004	31	↓
2005	25	↑
2008	49	↓
2010	64	↓

Finally, Figure 1 depicts the South African government structure (Cape Gateway, 2011). This government structure is based on three levels, these being national, provincial and local government. This is a complex hierarchy with several subcomponents. Policies are designed and developed at national level; it is then communicated down the structures. It is not unreasonable to assume that as the policy message is filtered down the structures, the message is diluted.

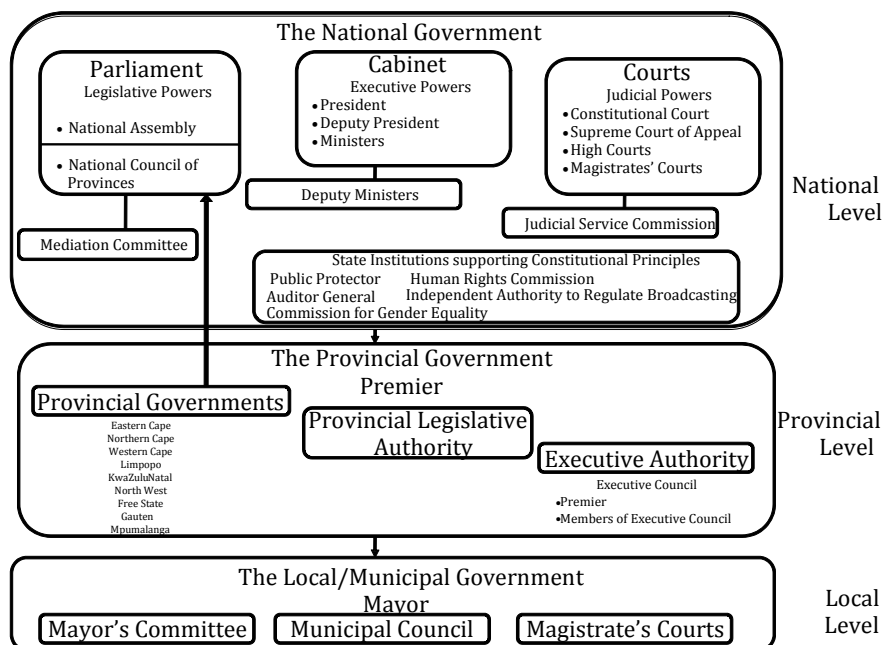


FIG. 1: THE STRUCTURE OF THE SOUTH AFRICAN GOVERNMENT (ADAPTED FROM UNIVERSITY OF JYVÄSKYLÄN)

The Focus of this Research

Based on the above arguments, it seems reasonable now to assume that there is a problem with e-Government applications in South Africa. The current researchers postulate that e-Government applications fail, or go over budget, because the actual problem that the e-Government application is meant to address was never well described or well defined, or the e-Government applications is seen as the solution to the problem and not as a tool to assist in the solving of the problem. The current researchers further argue that the ABR approach (Remenyi *et al.*, 1997) may reduce that gap between success and failure. We propose using a grounded theory type approach to investigate the problems. Grounded theory allows one to build theory around the data that has been gathered from knowledgeable informants (Charmaz, 2006).

MOTIVATION FOR RESEARCH

When e-Government systems appear to fail it results in the loss of large amounts of money and considerable organisational trauma. The organisational trauma caused by the malfunctioning e-Government systems can result in frustrated citizens, high turnover in staff and sometimes even disruptions to the country's economy.

Why such failures occur in the 21st century with more than 50 years experience behind the information systems community is difficult to understand. Research has not adequately delivered with regards to being able to identify e-Government applications which have high risks of failure, nor has research provided insights as to how to manage such applications when they start to go wrong. In addition there is inadequate research on the topic of how e-Government applications are articulated and the problem solved.

THE OPERATING ENVIRONMENT: SETTING THE SCENE

The traditional approach to eliciting information in an organisation (Figure 2), was that a citizen would request specific information from the IT department and the IT department would deliver the information as per request.

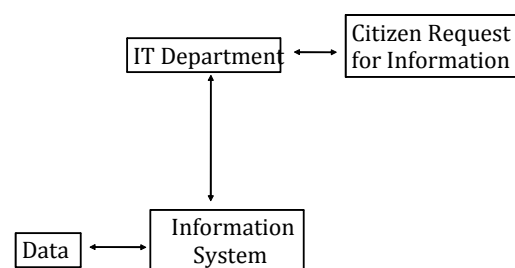


FIG. 2: TRADITIONAL APPROACH (SHELLY, CASHMAN, & ROSENBLATT, 2003)

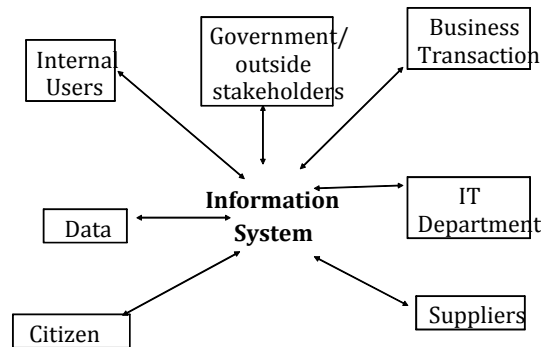


FIG. 3: CONTEMPORARY APPROACH (ADAPTED FROM SHELLY ET. AL (2003))

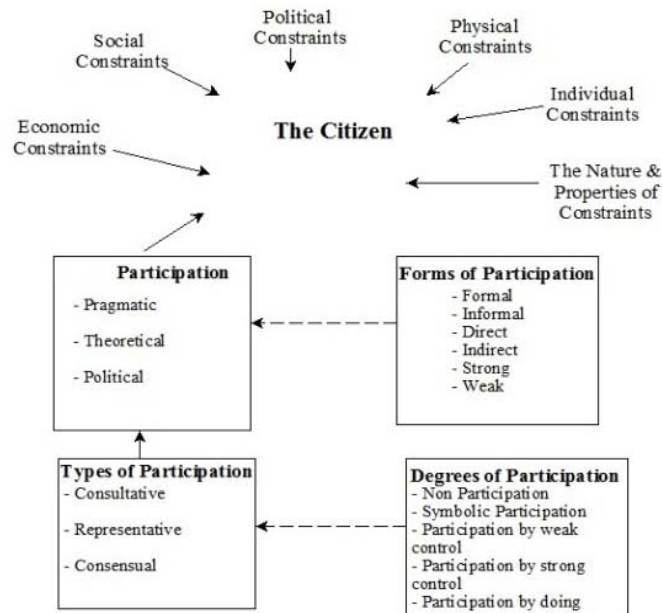


FIG. 4: THE PLAYERS IN THE PROCESS (ADAPTED FROM SINGH (2009))

This system is inflexible and largely closed to citizens and the world. In this model, the IT people are viewed as the 'knowledgeable elite.' IT-staff is responsible for finding the information and delivering the information to the respective citizen. In the context of e-Government systems, a citizen requests information via a public servant. The public servant relays the request to the appropriate governmental system. Assuming the public servant understands the request; the relevant governmental system may or may not be able to process the request. This traditional approach typifies governmental information systems, for example in the South African content, citizens still queue in long lines at governmental departments to process documents.

The more contemporary approach is that the system is opened up to the world, and all key stakeholders can interact with the system (Figure 3). The system and all key stakeholders interface with each other. The domain of information systems development and implementation is still that of the IT department. This more contemporary approach adds a new level of complexity to the systems development and implementation. For example, understanding the particular need of the citizen is an important aspect in developing functional and usable e-Government systems. In related research, we proposed a model of the different factors influencing citizens (Figure 4). The citizen is affected by various factors and can participate in several different roles. By understanding the needs of citizen, the current researchers argues that more efficient e-Government applications can be developed. Figure 4 demonstrates the landscape of 'opportunities' in attempting to understand the need of citizen.

STATEMENT OF THE RESEARCH PROBLEM

The literature highlights that e-Government applications face several challenges. e-Government applications are conceived, designed and developed in a dynamic and complex environment (Abrahams, 2009). No current theory or model adequately explains or outlines how large e-Government systems can be successfully designed and successfully developed (Purao & Desouza, 2011) in the context of the various stakeholders that have an investment in the e-Government application. Some authors are arguing that e-Government applications are not being optimally designed and developed. This calls for a better understanding of how e-Government applications are designed and developed. In order to optimise the acceptance of e-Government applications, it is required that the design and development of these applications be evaluated.

THE RESEARCH QUESTION

The preceding discussion helps link the research question. There exists a lack of a well-founded, coherent understanding of the concepts associated with e-Government development. Without the conceptual basis for understanding e-Government development, the implementation of any e-Government system would prove problematic. The issue of e-Government development will be examined through case study research. Thus the main research question is:

How can the development processes of South African e-Government applications be improved to deliver required benefits?

This question can be devolved into the following sub-questions:

- How can appropriate e-Government applications be identified?
- How can the objectives of key stakeholders be appropriately articulated?
- How can e-Government systems be commissioned so as to optimise potential benefits? and
- How can e-Government systems be assessed?

CONCLUSION

E-Government applications appear to be faced with several challenges; the manner in which these challenges are managed may affect the outcome of the application. Stakeholder involvements appear to be one key factor in the success of an e-Government application. The purpose of this research is to understand how e-Government applications are conceived of, designed and developed in the context of key stakeholder involvement.

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APPENDIX A

TABLE 1: SUMMARY OF E-GOVERNMENT PROJECT

Appendix A				
Location	Type of e-Government Project	Evaluation	Estimated cost of Project	Classification
Eastern Europe	A Web portal and Web-enabled communication platform for local governments in Turkey	uncertain		automate
South Asia	The creation of Pakistan's National Database and Registration Authority.	* uncertain		automate
South Asia	Web-enabled citizen services.	* uncertain	+ - US\$3,000	automate
South Asia	Web-enabled portal for information and services relating to the government-citizen interface.	* uncertain	US\$100,000	automate
Central Africa	A Web-based mechanism for publishing to, and interacting with, Cameroon citizens and businesses.	* uncertain		automate
South Asia	A participatory information system.	largely successful	US\$171,000	informate
Southern Africa	Use of information and communication technologies (ICTs) to manage the electoral process	largely successful		automate
South America	Web-based e-procurement system.	largely successful	US\$7m	Informate
Central America	Web-based e-procurement system.	largely successful		Automate
South Asia	Electronic Birth Registration Information System	largely successful	US\$20,000	Automate
South Asia	FRIENDS (Fast, Reliable, Instant, Efficient Network for Disbursement of Services) centres offer a one-stop, front-end, IT-enabled payment counter facility to citizens to make all kinds of government payments.	largely successful	US\$80,000-worth of capital investment (including software).	Automate
Eastern Europe	A pension payment and contribution collecting system.	largely successful		Automate
East Africa	The Fisheries Scientific Information System is part of its home Ministry's overall management information system.	largely unsuccessful		Informate
Southern Africa	Community Information Link was a project initiated by Durban Metropolitan Unicity Council.	largely unsuccessful	Hardware and licence costs were US\$170,000; software costs under US\$5,000; telecom line rental costs were about US\$90 per month per library	automate

Table 1 (Contd.)...

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West Africa	Computerising all of Ministry of Foreign Affairs internal services, creating an intranet, and creating Web-enabled citizen services.	largely unsuccessful	excessive	automate
West Africa	A management information system (MIS) to assist with management of the university sector in Nigeria.	largely unsuccessful	US\$1.4million	informate
Caribbean	Decision support system - budget preparation system, Ministry of Finance	partial failure		informate
Caribbean	Management information system - student performance reporting system; state high school	partial failure		informate
Caribbean	Basic data system - planning application tracking system; Planning Department	partial failure		automate
Caribbean	Functional information system - health accounting and budget; Ministry of Health	partial failure		automate
Caribbean	Document management system - file tracking system; Registry, Ministry of Finance	partial failure		automate
Caribbean	Management information system - human resource management; Ministry of Planning	partial failure		informate
Caribbean	Decision support system - debt management system; Ministry of Finance	partial failure		informate
Caribbean	Management information system - expenditure monitoring and control; Ministry of Finance	partial failure		informate
Caribbean	Decision support system - budget preparation system, Ministry of Finance	partial failure		informate
Central America	Functional information system - budgeting and accounting; municipal government	partial failure		automate
East Africa	Decision support system - budget; Ministry of Finance	partial failure		informate
East Africa	Decision support system - child-related data; government parastatal	partial failure		informate
East Africa	Decision support system - IS for managing aid budget; Ministry of Finance	partial failure		informate
East Africa	Project management information system - Ministry of Environment	partial failure		informate
East Asia	Functional information system - human resource management; Ministry of Finance	partial failure		automate
East Asia	Intranet - Law Department	partial failure		automate
Eastern Europe	Intranet - Department of Statistics	partial failure		automate
Eastern Europe	Management information system - aid funds management; Ministry of Trade and Cooperation	partial failure		informate

Table 1 Contd....

...Table 1 Contd.

Eastern Europe	Management information system - computerised property register, Housing Ministry	partial failure		informate
South America	Decision support system - for ministerial council decisions; Office of the President	partial failure		informate
South-East Asia	Management information system - budget, Provincial Department of Health	partial failure		informate
South-East Asia	Management information system - management of schools, Ministry of Education	partial failure		informate
Southern Africa	Functional information system - inventory; Government Computer Centre	partial failure		automate
Southern Africa	Functional information system - human resource management; Department of Public Administration	partial failure		automate
Southern Africa	Management information system - Ministry of Trade and Industry	partial failure		informate
Southern Africa	Management information system - health data; Ministry of Health	partial failure		informate
Southern Africa	Decision support system - project budget and planning; Ministry of Planning	partial failure		informate
Southern Africa	Management information system - monitoring departmental performance; Government Performance Unit	partial failure		informate
West Africa	Database management system - drug information; health parastatal	partial failure		automate
South Asia	A combination of MIS and delivery of services to citizens, via the Internet.	partial success	US\$600,000	automate
South America	Social investment funds (SIF) are new institutions that conceive, finance and manage large numbers of small-scale community projects.	partial success	US\$75,000	automate
Central Africa	The Cameroon Department of Tax's Web-based mechanism for publishing to, and interacting with, Cameroon citizens and businesses.	partial success		automate
Central Africa	An automated transaction processing system that links together key activities in the operations of the port.	partial success	US\$1.5m	automate
South Asia	Citizen Facilitation Centre is a one-stop service centre for citizens who have to visit government offices for various official documents.	partial success	US\$41,000	automate
Caribbean	Operational support system - automated radio play and billing system; state radio station	success		automate
Caribbean	Basic data system - handling customs data; Customs department	success		automate
Caribbean	Basic data system - planning application tracking system, Planning Department	success		automate

Table 1 Contd....

...Table 1 Contd.

Central America	Management information system - community investment project management system, Central Fund Organisation	success		informate
Central Asia	Functional information system - health data; Department of Epidemiology	success		automate
East Africa	Management information system - debt management; Ministry of Finance	success		informate
Eastern Europe	Basic data system - refugee camp data; government committee	success		automate
Southern Africa	A decision support system, with a simple geographic information system interface.	total failure	US\$60,000	automate
South Asia	The National Data Bank project was planned to provide a broad range of data and information support to many levels of stakeholders both inside and outside Bangladesh.	total failure	US\$440,000	automate
Southern Africa	To provide public service employees with an affordable computer bundle.	total failure		automate
Caribbean	Basic data system - online national register; Registrars Department	total failure		automate
East Africa	Decision support system - natural resource strategic planning; Ministry of Natural Resources	total failure		informate
East Asia	Decision support system - regulatory control; Office of Regulation	total failure		informate
East Asia	Decision support system - city twinning projects; municipal government	total failure		informate
Southern Africa	Management information system - budget; Ministry of Finance	total failure		informate
Southern Africa	Management information system - land licensing system, City Council	total failure		informate
East Africa	A citizen service to take photographs of all citizens of voting age using digital cameras.	total failure	US\$22m	automate
West Africa	A computerised transaction processing and management information system for the Social Security and National Insurance Trust.	*uncertain		automate

E-Government Adoption Research: A Systematic Literature Analysis of Organizational Issues

Nripendra Rana, Yogesh Dwivedi and Michael D. Dwivedi

Swansea University, United Kingdom

E-mail: nrananp@gmail.com, ykdwivedi@gmail.com, m.d.williams@swansea.ac.uk

Abstract—Even after more than a decade of intensive research work in the area of e-government adoption and diffusion research, no study has examined the theoretical evaluation of technology users such as employees and organizations. The purpose of this paper is to investigate the existing body of research progress of all such studies based on employees and organization till date which are based on research models or use some constructs to reveal if there is a lack of theoretical development and rigor in the area. The findings indicate that some of the variables such as: perceived ease of use, perceived usefulness, intention to use, attitude, and satisfaction drive the research for employees. However, it was also seen that there is a lack of any such common constructs among the studies accomplished in context of organizational point of view. The paper also acknowledges the theoretical contributions, limitations and suggests further research directions.

Keywords: E-government, employee, organization, diagram, significance.

INTRODUCTION

Electronic government refers to the use of information technology (IT) to advance the competence, effectiveness, intelligibility, and accountability of public governments (Kraemer & King, 2003). The implementation of e-government systems has been attracting increasing amounts of research interest, and is believed to represent one of the most significant IT implementations and organizational challenges of the next decade (Marche & McNiven, 2003; Warkentin, Gefen, Pavlou & Rose, 2002). Over the past few years, although, a small but emerging body of scholarly literature on e-government has emerged (Norris & Lloyd, 2006), it appears to run the risk of not achieving its maturity (Gronlund, 2005b).

Despite the significant impact of e-government systems on public administrations, organizations, individuals, and society, to date, only a few methodical and comprehensive studies have been undertaken on this subject (Jaeger, 2003; Kraemer & King, 2003). Moreover, the research themes, as well as the research approaches and perspectives employed in the study of e-government implementations, exhibit significant diversity, making it difficult to reach conceptual clarity on the subject (Gronlund, 2005a). Although, the ongoing trends of different e-government applications being explored in various countries across the globe, the authenticity and consistency of the various theoretical approaches being used in the e-government research is yet to be investigated. No study has yet established the accumulative representation of the constructs to see the ongoing trend of the e-government adoption research in perspective of employees or organizations.

Hence, in order to understand the use and advancement of research models, the aim of this study is to undertake the theoretical evaluation of existing e-government adoption research by providing a combined diagrammatic representation of all the studies which have used constructs for their e-government adoption and diffusion research separately for employees and organizations to show the degree of their relationships. The aim of the study is achieved by representing the combined diagrammatic representations discretely for employees and organizations, finding the number of significant and non-significant relationships between the constructs for employees, gathering the sample size for all such studies, listing the country wise research methodologies, and investigating the theories and models used. Unless otherwise stated, both employee as well as organization related issues would be indicated as *organizational issues* for the remainder of this study.

The paper is structured as follows: In the next section we describe the methodology used, and follow this with a section presenting our findings based on the combined research models presented separately for employees and organizations. This is followed by presenting the country wise research methods, tabular representations showing the significant as well as non-significant relationships, and theories or models used across all these 23 studies. We then present a discussion of our findings. Finally, we present our concluding remarks, limitations and suggestions for future research directions.

METHODOLOGY

Our exploration began with a search for articles related to e-government - this was achieved by developing a relevant set of keywords and phrases such as “electronic government”, “e-government”, “e-gov”, “egov”, “digital democracy”, “online government”, “adoption”, “acceptance”, “usage”, “implementation”, “impact”, and “diffusion” in all possible permutations and combinations, (taking into consideration the logical AND, and OR as appropriate) and conducting a corresponding search of the online journal database *ISI Web of Knowledge®*. In addition to these, journals dedicated to e-government such as: *Transforming Government: People, Process, and Policy* (TGPPP), *Electronic Government, an International Journal* (EGIJ), and *International Journal of Electronic Government Research* (IJEGR) were also searched. The total 434 usable articles that include 234 from ISI database, 26 from TGPPP, 91 from EGIJ, and 83 from IJEGR were found to be relevant. It was further viewed that 112 articles used a range of different constructs to investigate e-government scenarios. It was also noted that 70 of them used various theories, models or frameworks either in their original structure or in the altered form to base their research models. However, we were aiming for only such articles which were used in the context of employees and organizations.

We then sorted out those studies which could help in establishing a combined diagrammatic representation sticking together the common constructs and leaving apart the discrete set of constructs and variables. The studies were categorized based on whether they were used for employees or professionals, and organizations. It was seen that majority of the studies were linked to some common constructs for studies which were based around employees' perspectives. It was visualized that there was a little cohesion in terms of common constructs for those studies which were based on organizational perspectives.

Some of such organizational studies (Das, DiRienzo & Burbridge Jr., 2008; Kaliannan & Awang, 2010; Liu & Lai, 2004; Norris, 2005; Seeman, O'Hara, Holloway & Forst, 2007; Srivastava & Teo, 2007) were based on the discrete variables and constructs which were not considered for showing in the diagrammatic representation for organization and hence discarded from using them in our studies. Similarly, some of the quantitative studies (such as Chhabra & Jaiswal, 2008; Kanat & Ozkan, 2009; Moynihan & Silva, 2008) even for professionals have not been included for our further analysis because of the fact that their constructs were not cohesive in nature to build up a combine diagram of the e-government adoption research. Considering all these aspects, we picked up 23 such studies which have relevant and cohesive constructs separately for employees and organizations.

FINDINGS

Figure 1 demonstrates the combined diagrammatic representation for all the constructs used in context of employee. It was found that "behavioral intention" or "intention to use" (N=72) was the most widely used dependent variable for this category. This is followed by "perceived usefulness" (N=31), "user satisfaction" (N=20), "attitude" (N=16), "perceived ease of use" (N=8), "perceived behavioral control" (N=7), and "actual use" (N=6) as some of the more frequently utilized dependent variables. However, the constructs such as "perceived ease of use" (N=25), "perceived usefulness (N=12)" and "perceived behavioral control (N=8)" were found equally good as independent constructs as well. In addition, some other constructs such as "perceived risk", "trust", "compatibility", "relative advantage", "job relevance", "subjective norm", "performance expectancy", "effort expectancy", "social influence", "facilitating condition", and "convenience to life" were found as some of the widely applied independent constructs in the context of employees. However, it was also marked that although some independent constructs such as "ease of work", "clarity of job sequence", "display speed", "adequacy of description", "optimism bias", "task variety", "assurance", "responsiveness", "tax equity", "social norms", "moral norms", "anxiety", and "top management support", were very much relevant in exploring the adoption and diffusion related aspects in the e-government adoption research, they were still found under-represented and were used only in a single study.

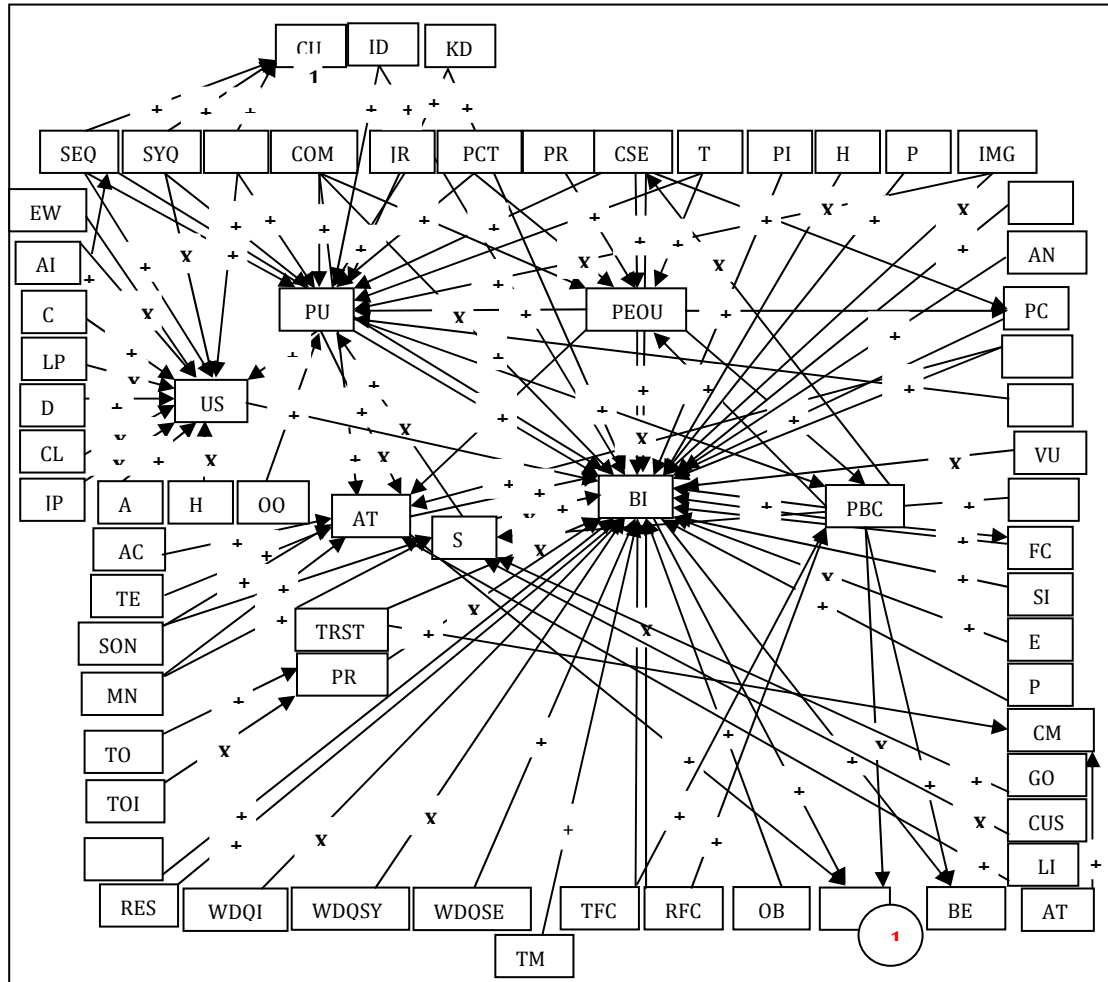


FIG. 1: COMBINED CONSTRUCTS' DIAGRAM FOR EMLOYEE/ PROFESSIONAL

[LEGEND for Employee Diagram: AC: Accuracy; AD: Adequacy of Description; AI: Adequacy of the amount of Information; ANX: Anxiety; ASS: Assurance; AT: Autonomy; ATT: Attitude; AU: Actual Use; BEH: Behavior; BI: Behavioral Intention; CL: Clarity of Job Sequence; CM: Commitment; CN: Convenience to Life; COM: Compatibility; CSE: Computer Self-Efficacy; CU: Continued Use; CUS: Customer; DS: Display Speed; EE: Effort Expectancy; EW: Ease of Work; FC: Facilitating Conditions; GOV: Government; HC: Helpline Competency; HS: Help Service; IDS: IS Department Support; IMG: Image; IQ: Information Quality; JP: Job Productivity; JR: Job Relevance; KDD: Knowledge about Digital Democracy; LI: Local Industries; LP: Layout of Pages; MN: Moral Norms; OB: Optimism Bias; OQ: Output Quality; PBC: Perceived Behavioral Control; PC: Perceived Credibility; PCT: PC Training; PD: Performance Dimension; PE: Performance Expectancy; PEOU: Perceived Ease of Use; PI: Personal Innovativeness; PR: Perceived

Risk; **PRE**: Prior Experience; **PS**: Perceived Strength of Control; **PU**: Perceived Usefulness; **RA**: Relative Advantage; **RES**: Responsiveness; **RFC**: Resource Facilitating Conditions; **SEQ**: Service Quality; **SI**: Social Influence; **SN**: Subjective Norms; **SON**: Social Norms; **SS**: Supervisor Support; **SYQ**: System Quality; **TE**: Tax Equity; **TFC**: Technology Facilitating Conditions; **TMS**: Top Management Support; **TOE**: Trust of the E-file System; **TOI**: Trust of the Internet; **TRST**: Trust; **TV**: Task Variety; **US**: User Satisfaction; **VU**: Voluntariness of Use; **WDQI**: Web Design Quality (Information); **WDQSE**: Web Design Quality (Service); **WDQSY**: Web Design Quality (System)] [**Types of Relationship Indicator**: +: Significant; and X: Non-Significant Relationship] [**Number Indicator**: 1: Indicates “Actual Use” and “Continued Use” as the similar constructs]

Figure 2 represents the combined constructs’ diagram for organizational variables used across various e-government adoption and diffusion research which fall under the boundary of organizational context. The diagram has not taken into consideration those studies (Khoubati & Themistocleous, 2007; McNeal, Schmeida & Hale, 2007; Prybutok, Zhang & Ryan, 2008; Serrano-Cinca, Rueda-Tomas & Poitillo-Tarragona, 2009; Tung & Rieck, 2005 etc.) which had a discrete set of constructs not matching with the common variables considered in the diagram. The diagram in consideration over here has been drawn by using three studies (Kim & Lee, 2006; Krell & Matook, 2009; Reddick, 2006) by incorporating some common factors such as “top management vision and goal”, “employees”, and their “education”. Analyzing the organizational constructs, it was found that there was a rare cohesion between the constructs across the various studies. There is no common agreement on some set of constructs which could have been evaluated with the appropriate distinguished constructs suitable for individual organization similar to what we have witnessed in the constructs in contexts of citizens and employees.

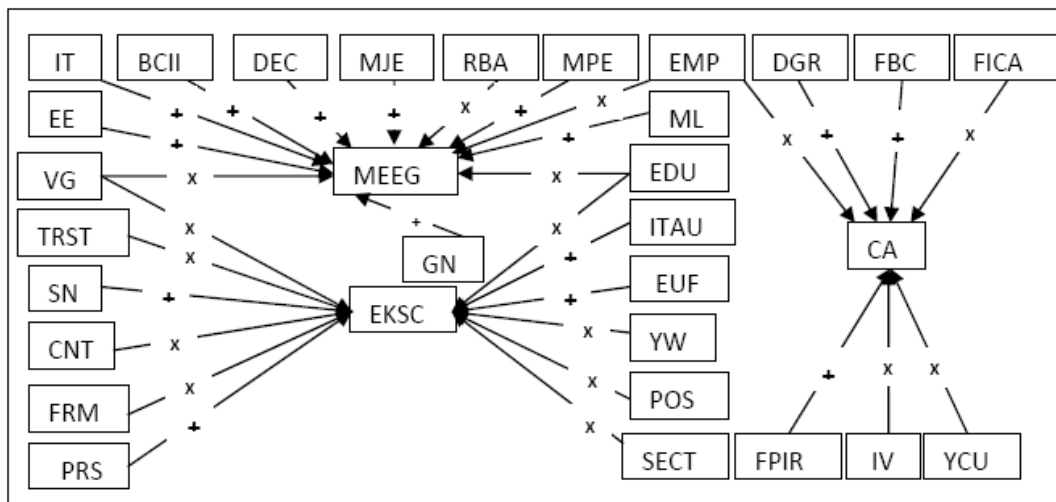


FIG. 2: COMBINED CONSTRUCTS' DIAGRAM FOR ORGANIZATIONS

There are certain dependent constructs such as “adoption decision”, “information quality”, “service quality”, “system quality”, “business competitiveness”, “external pressure”, “management readiness”, and “net benefits” to name a few but could not be incorporated in the diagram because of the lack of common constructs to show them all as a linked overall representation. All of these constructs were used only in particular studies even though they seem to be quite relevant in organizational context. Similar is the case for some of the independent constructs which were also used solitarily but hold a massive significance as far as the organizational quantitative studies are concerned such as “firm’s activity”, “municipal resources”, “citizen’s wealth”, “social influences”, “sensitivity to cost” and “e-government development” as some of them.

[Legend for Organization Diagram: **BCII:** Business and Citizen Interaction Increased; **CA:** Competitive Advantage; **CN:** Centralization; **DEC:** Deal more Effectively with Customers; **DGR:** Dominance of Government Regulations as an Investment Region; **EDU:** Education; **EE:** Empowered Employees; **EKSC:** Employee Knowledge-Sharing Capabilities; **EMP:** Employees; **EUf:** End-User Focus; **FBC:** Frequency of using Business Cases; **FICA:** Frequency of using Internal Contractual Arrangements; **FPIR:** Frequency of using Post-Implementation Reviews; **FRM:** Formalization; **GN:** Greater Need; **IT:** Increased Teamwork; **ITAU:** IT Application Usage; **IV:** Investment Volume; **MEEG:** Management Effectiveness of E-Government; **MJE:** Made Job Easier; **ML:** Male; **MPE:** Manual Process Eliminated; **POS:** Position; **PRS:** Performance-based Reward System; **RBA:** Reduced Budget Allocation; **SECT:** Sector; **SN:** Social Network; **TRST:** Trust; **VG:** Vision and Goals; **YCU:** Years of Computer Usage; **YW:** Years of Work]**[Types of Relationship Indicator: +:** Significant; and **X:** Non-Significant Relationship]

To represent a detailed account of significant and non-significant relationships between constructs across various studies for the employee and organization, the separate table for each of the categories employee was built upon, whereas the table for organization was not included as there are only a few variables available in that diagram. Looking at the space constraint of this paper, the table from the employee category contains the list of at least two studies with their significant and non-significant relationships.

Table 1 shows the summary of the country wise studies with the corresponding research methodology used for analyzing organizational issues. The analysis indicated Taiwan (N=5) as the leading country exploring the organizational issue followed by South Korea, India, Cambodia, and USA with two studies each. It was further found that survey used to be the most common method of data collection across majority of studies.

TABLE 1: COUNTRY WISE RESEARCH METHOD

Studies	Country	Research Methodology
Chu, Hsiao, Lee & Chen (2004)	Taiwan	Survey
Lu, Huang & Lo (2010)		
Fu, Farn & Chao (2006)		
Sun, Ju & Chen (2006)		
Wang (2002)		
Kim & Holzer (2006)	South Korea	Survey
Lee, Kirlidog, Lee, & Lim (2008)		
Kim & Lee (2006)		
Ojha, Sahu & Gupta (2009)	India	
Sahu & Gupta (2007)		
Sang, Lee & Lee (2009)	Cambodia	Case Study
Sang, Lee & Lee (2010)		Survey
Reddick (2006)	USA	Survey
Schaupp, Carter & McBride (2010)		
Floropoulos, Spathis, Halvatzis & Tspouridou (2010)	Greece	Survey
Gotoh (2009)	Japan	
Gumussoy & Calisir (2009)	Various Countries	
Lee, Kirlidog, Lee, & Lim (2008)	Turkey	
Lau & Kwok (2007)	Hong Kong	
Sambasivan, Wemyss & Rose (2010)	Malaysia	
Seyal & Pijpers (2004)	Brunei	
Pinho & Macedo (2008)	Portugal	
Vathanophas, Krittayaphongphun & Klomsiri (2008)	Thailand	
Krell & Matook (2009)	Australia	Questionnaire and Interview
		Survey, Secondary Data

Table 2 presents the list of relationships of the independent and dependent variables which were analyzed by two or more studies in the employees' context. The analysis indicates that the "perceived ease of use-perceived usefulness" (N=9) was the most explored relationship among employees. This is followed by "perceived ease of use-intention" (N=8), "perceived usefulness-intention" (N=7), "attitude-intention" (N=5), and "subjective norm-intention" (N=5) as some of the most frequently used relationships. Moreover, it was also found that out of 28 relationships examined, 12 were significant across all the studies.

TABLE 2: STUDY WISE CONSTRUCTS' RELATIONSHIPS AND THEIR SIGNIFICANCE FOR EMPLOYEES

Study	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Chu et al. (2004)					Y	Y	X															Y	Y					Y
Floropoulos et al. (2010)									X	Y															Y	Y		
Fu et al. (2006)	*					Y				*		Y	Y	Y									*				*	
Gotoh (2009)									X																			
Gumussoy & Calisir (2009)	X					X	X					Y	Y	Y							Y						Y	

Table 2 (Contd.)...

... Table 2 Contd.

Kim & Holzer (2006)						Y														Y	Y		Y					
Lau & Kwok (2007)					Y		Y													Y	Y				Y			
Lee et al. (2008)																									*			
Lu et al. (2010)					Y	Y	Y													Y	Y				Y			
Ojha et al. (2009)	Y		Y												Y													
Pinho & Macedo (2008)										X															Y			
Sahu & Gupta (2007)											Y										Y			Y				
Sambasivan et al. (2010)	Y	X									Y		Y									X						
Sang et al. (2009)	X	Y	X	X								Y			Y	Y	Y											
Sang et al. (2010)	X	Y	X	X		Y		Y				Y			Y	Y	Y											
Schaupp et al. (2010)											Y	Y										Y			X			
Seyal & Pijpers (2004)					X	Y	Y										Y	Y										
Sun et al. (2006)									Y	Y													Y					
Vathanophas et al. (2008)	Y			Y		Y						Y																
Wang (2002)	Y					Y						Y						Y	Y									
Total Relations Examined	8	3	3	3	4	9	4	2	3	3	3	2	7	2	2	3	2	2	2	2	4	5	4	2	2	2	5	2
# of Significant Relations	5	2	1	1	2	8	3	1	1	2	3	2	7	2	2	3	2	2	2	2	4	5	3	2	2	1	4	2

LEGEND: **Y**=Significant relation; **X**=Non-significant relation; *****=Both significant as well as non-significant relation. **01**=Perceived Ease of Use-Intention; **02**=Trust-Intention; **03**=Compatibility-Intention; **04**=Job Relevance-Perceived Usefulness; **05**=Perceived Usefulness-Attitude; **06**=Perceived Ease of Use-Perceived Usefulness; **07**=Perceived Ease of Use-Attitude; **08**=Subjective Norm-Perceived Usefulness; **09**=System Quality-Satisfaction; **10**=Service Quality-Satisfaction; **11**=Facilitating Condition-Intention; **12**=Social Influence-Intention; **13**=Perceived Usefulness-Intention; **14**=Compatibility-Perceived Usefulness; **15**=Compatibility-Perceived Ease of Use; **16**=Relative Advantage-Intention; **17**=Image-Perceived Usefulness; **18**=Output Quality-Perceived Usefulness; **19**=Self-Efficacy-Perceived Usefulness; **20**=Self-Efficacy-Perceived Ease of Use; **21**=Perceived Behavioural Control-Intention; **22**=Attitude-Intention; **23**=Perceived Risk-Intention; **24**=Information Quality-Satisfaction; **25**=Information Quality-Perceived Usefulness; **26**=Effort Expectancy-Intention; **27**=Subjective Norm-Intention; **28**=Convenience of Life-Satisfaction.

LEGEND: Y=Significant relation; X=Non-significant relation; *=Both significant as well as non-significant relation. **01**=Perceived Ease of Use-Intention; **02**=Trust-Intention; **03**=Compatibility-Intention; **04**=Job Relevance-Perceived Usefulness; **05**=Perceived Usefulness-Attitude; **06**=Perceived Ease of Use-Perceived Usefulness; **07**=Perceived Ease of Use-Attitude; **08**=Subjective Norm-Perceived Usefulness; **09**=System Quality-Satisfaction; **10**=Service Quality-Satisfaction; **11**=Facilitating Condition-Intention; **12**=Social Influence-Intention; **13**=Perceived Usefulness-Intention; **14**=Compatibility-Perceived Usefulness; **15**=Compatibility-Perceived Ease of Use; **16**=Relative Advantage-Intention; **17**=Image-Perceived Usefulness; **18**=Output Quality-Perceived Usefulness; **19**=Self-Efficacy-Perceived Usefulness; **20**=Self-Efficacy-Perceived Ease of Use; **21**=Perceived Behavioural Control-Intention; **22**=Attitude-Intention; **23**=Perceived Risk-Intention; **24**=Information Quality-Satisfaction; **25**=Information Quality-Perceived Usefulness; **26**=Effort Expectancy-Intention; **27**=Subjective Norm-Intention; **28**=Convenience of Life-Satisfaction.

The further analysis about the significance of relationships indicates that the number of non-significant (N=19) relationships is only 20% of the total number of significant (N=95) relationships for all those constructs which have occurred two or more times across the studies of employees. The few relationships such as “perceived ease of use-intention”, “facilitating conditions-intention”, “perceived risk-intention” and “subjective norm-intention” are shown significant as well as non-significant in a study by Fu et al. (2006) in its different models. For example, *perceived ease of use* has a positive impact on *intention* to use when the employees were asked to choose the tax filing system either as a manual or internet-based option whereas it shows the negative impact when they were asked to opt for two-dimensional (2D) barcode system.

Table 3 portrays the models or theories utilized while examining the organizational issues. TAM (N=11) was found as the most frequently utilized model for examining such issues. This is followed by TPB (N=5), DeLone & McLean IS success model (2003), DOI, and TAM2 with three studies each, and UTAUT (N=2). Moreover, the studies by Sang et al. (2009) and Wang (2002) used TAM and TAM2 and Sahu & Gupta (2007) used TAM and UTAUT together to represent their models.

TABLE 3: MODEL/ THEORY UTILIZED

Theory/Model	Studies
Technology Acceptance Model	Fu et al. (2006), Gumussoy & Calisir (2009), Kim & Holzer (2006), Lu et al. (2010), Ojha et al. (2009), Sahu & Gupta (2007), Sambasivan et al. (2010), Sang et al. (2009), Seyal & Pijpers (2004), Vathanophas et al. (2008), Wang (2002)
Theory of Planned Behavior	Chu et al. (2004), Fu et al. (2006), Gumussoy & Calisir (2009), Kim & Holzer (2006), Lu et al. (2010)
Innovation Diffusion Theory/Diffusion of Innovation	Gumussoy & Calisir (2009), Ojha et al. (2009), Sang et al. (2009), Sang et al. (2010)
IS Success Model (DeLone & McLean, 2003)	Floropoulos et al. (2010), Gotoh (2009), Sambasivan et al. (2010)
Extended Technology Acceptance Model	Sang et al. (2009), Sang et al. (2010), Wang (2002)
Unified Theory of Acceptance and Use of Technology	Sahu & Gupta (2007), Schaupp et al. (2010)
IS Success Sub-Model (Seddon, 1997)	Floropoulos et al. (2010)
IS Success Model (Myers, Kappelman & Prybutok, 1997)	Sun et al. (2006)
IS Planning and Investment Model	Krell & Matook (2009)
Decomposed Theory of Planned Behavior	Lau & Kwok (2007)
Trust Model	Sang et al. (2009)

DISCUSSION

Considering a fair number of studies in e-government adoption research analyzing the organizational issues and using constructs, theories, and models with proper quantitative justifications, it becomes very significant and appropriate to discuss their collective findings analyzed.

Employees' combined representation for constructs also entails "intention to use", "perceived ease of use", and "perceived usefulness" as the widely used dependent construct. The first logical reason for this is that TAM is a widely utilized model even in the perspective of analyzing the organizational issues. The other obvious reason for an employee also to use certain e-government applications or services after their positive intention involved toward using it as a simple human being and primarily as a citizen. Some of the under-represented independent constructs such as "ease of work", "clarity of job sequence", "display speed", "adequacy of description", "top management support", "anxiety", and "voluntariness of use" in context of employees also carry a greater value

and need some further exploration in the future studies. Moreover, the common outcome of any adoption and diffusion research ends with intention of using the technology and with actual use of the same therefore it is obvious in the case of e-government adoption research. Surprisingly, the intention to use to actual use mapping is not used by majority of the studies and needs a further investigation. As far as organizational diagram is concerned, there seems to be a lack of common constructs being used across various studies similar to the one used for citizens and employees. Moreover, the number of organizational studies is relatively much less. There is a need for some decent number of studies at organizational context as well to understand more about the implications of organization in e-government research. The researchers need to develop a common set of constructs which can highlight the generic organizational needs and can be implemented at that level. The studies presented in Table 1 were quantitative in nature and majority (N=21) of them used the survey approach as it is the most suited one for representing such quantitative analysis as it is also supported by Gable (1994) who referred it to a collection of methods which emphasize quantitative analysis where the data for a large population are collected through mail questionnaires, telephone interviews, or from published statistics that are analyzed using statistical techniques.

The Table 2 for employee's constructs revealed that "PEOU-Intention" relationship is almost equally balanced with its significant and non-significant impacts. It pointed out very clearly that ease of use of a certain e-government service does not necessarily a deciding factor toward the intention to use it. A study from Gumussoy & Calisir (2009) presenting the similar case where the people use e-reverse auction technology because of the functions it performs for them and not for the ease of use of the technology as a significant factor (Gumussoy & Calisir, 2009). A study by Sang et al. (2010) indicates the lack of support from the top management for the negative significance of intention to use a technology even if ease of use for it is acceptable. The further research studies should look into such aspects in details to draw some more accurate outcome. Moreover, it is also worth noting that relationships of TAM constructs found more frequently than other relations. This is mainly because TAM has been widely accepted as a common method to represent even the organizational issues.

Investigating the theories or models used by the studies in Table 3, it was seen that few studies used even three theories and models to present the proposed model. For example, studies by Gumussoy & Calisir (2009) and Sang et al. (2009) show the combination of three theories to put forward their research models with TAM and IDT/DOI as common theories for both of them. The theoretical models, in particular TAM and DOI, have overlapping constructs. The complexities construct from DOI is similar to the perceived ease of use construct from TAM. Similarly, some researchers have suggested that perceived usefulness and relative advantage are the same constructs (Carter & Belanger, 2005). Many empirical studies proposed the necessity to

assimilate TAM with other theories (for example, DOI, or DeLone & McLean's IS success model) in order to advance its individuality and illustrative power (Carter & Belanger, 2005; Legris, Ingham & Colletette, 2003; Wang & Liao, 2008). In addition, it was also suggested that complexity construct of DOI is frequently considered as PEOU of TAM (Agarwal & Prasad, 1997; Moore & Benbasat, 1991). That is why Sang et al. (2009) used relative advantage and compatibility constructs of DOI with PEOU and PU of TAM. But, combining similar constructs or models together raises the issues of repeating the similar variables or models and would make the resulting model less relevant and more repetitive in nature which may add minimal contribution to existing knowledge. Similarly models such as TAM and TAM2 used by Wang (2002) also bring up the similar question. Future researchers should consider these aspects in advance while presenting their research models on existing theories and models. Moreover, use of such diverse levels of theories and models various studies related to organizational issues indicates and there is a clear lack of some generic e-government research model and so is a need of some specific model in the area of e-government adoption and diffusion research to streamline it in a focused way.

CONCLUSION

The following prominent points were drawn from the findings and discussion of the study:

- "Intention to use" (N=72) was also found to be the most commonly used dependent variable in employee's diagram followed by "perceived usefulness" (N=31), "satisfaction" (N=20), "attitude" (N=16), "perceived ease of use" (N=8), and "perceived behavioral control" (N=7).
- The independent constructs such as "perceived ease of use" (N=25), "perceived usefulness" (N=12), and "perceived behavioral control" (N=8) were found as the most extensively used variables in the employees' perspective.
- There is a lack of common constructs at the organizational level e-government adoption research and only a few variables such as "top management vision", "employees", and "education" could bring in some diverse studies together for further analysis.
- Out of 23 studies investigating the organizational issues depending on some common constructs, 21 were based on the survey methodology.
- TAM (N=11) is the most utilized model followed by TPB (N=5), DOI (N=4), IS success model (DeLone & McLean Model, 2003) (N=3), and TAM2 (N=3) even in the context of analyzing organizational issues.
- TAM and TAM2 have been used together in studies (Sang et al., 2009; Wang, 2002) even though TAM2 is the extension of TAM and the latter contains all the variables of the former model.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The first limitation is in the terms of few more studies that could have been carried out on some research papers which were not accessible through the researchers' library. Secondly, this study considers only those articles which were based on the organizational issues and shared some sort of cohesiveness in their variables. Thirdly, keyword and demographic analysis were not performed which could have revealed some more directions toward the current trend and further research direction of e-government adoption research analyzing the organizational issues. The future research should look into all these aspects while systematically examining this study further.

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Management and Execution of the Impact of IT and e-Governance in Government Offices

Reena Sethi

Airports Economic Regulatory Authority of India, New Delhi

E-mail: reena.sethi@nic.in

Abstract—The purpose of this research is to study the management issues relating to impact of IT and e-governance. The study is based on survey of government officers, their tasks and functions in an e-governance environment. The researcher explores the organizational and management issues arising from the use of IT technologies. The strategic issues arising out of the study are resource management, right people, e-leadership, IT infrastructure, e-trust, pace with technology upgradation, security and disaster recovery, managing information overload, right incentives and motivation, project sustainability, accessing training needs, hiring consultants, building of congenial environment, business process re-engineering, prioritization of IT initiatives, capacity building, creating awareness, flexible information system, etc.

Keywords: *Impact, Information Technology, Management, e-Governance, Issues*

INTRODUCTION

During the past few years, there has been a marked increase in the number of government organizations that are making use of information technology and e-governance related computer adjudicated communications. The ease of duplication and transmission of data across the Internet has saved tremendous time of users. All e-governance applications use government-as-a-platform interacting with citizens. This has led to convergence between various information systems and, therefore, a need for uniform and coordinated sequences approach while dealing with different functions and departments. There is a need to circumvent gaps and avoid duplicate or ambiguous efforts. It is not as simple as going out and virtualizing a cluster of servers and altering organization strategy. Organization plans should be put around the strategies. The saga of implementation of any IT programme should begin with inspirations for the future. Various studies and reports have shown that e-governance has a positive impact, but research is required to find out as to how this impact can be managed successfully. The purpose of this research paper is to analyze the need for management and execution of the impact of IT and e-governance in government offices.

METHODOLOGY AND THEORETICAL FRAMEWORK

The research used both quantitative and qualitative methods. Data was collected through surveys, interviews and a literature scan. The impact management of IT and e-governance was studied theoretically through literature review as well as practically through a questionnaire given to 150 government employees from different cadres who came for various courses in a government training institute. Primary data were also gathered through informal personal interviews, focusing on employees' experiences. Action research was applied on the information received from the participants during

the 'real time' dialogue. This is not just a study of individual users but a focus has been made on the users' job tasks and functions in an e-governance environment. Occupation tasks were studied and information needs were derived.

KEY POINTS FOR FOCUS BY GOVERNMENT ORGANIZATIONS

The evaluation found that during the first few years of impact of e-governance, although efficiency and performance was improving, individual awareness was not very high. Employees did not appear to have a comprehensive knowledge of new techniques during the initial periods. Irrespective of their level of knowledge, the early stage was used to facilitate process changes. Some of the employees were not generally satisfied with the way e-governance was working. Employees faced no costs in implementing the provisions, and there are indications of cost savings from simplified processes in the long run. Managing impact of IT in traditional organisations is not an easy task. Major areas identified for focus by government offices during the research are given in the succeeding paragraphs.

Managing Resources

We are used to having to manage things to a "best effort" case. The need of the hour is to effectively manage internal government resources in driving or moderating IT initiatives. However, the IT resources are so tightly constrained that policy makers actually have to watch more closely and be able to answer to the needs very quickly. There is a need to be more thoughtful in use of the IT budgets so that there is no duplication and resources are evenly utilized. Equipment and network readiness is essential for every e-governance project for which huge resources are required. Management efforts should be directed towards reducing the cost and improving the reach and quality of e-governance services. Manpower costs and constraints are the essential obligations that need to be tackled.

Right People

The challenge of finding the right people to run and build the new operational and management systems are rising because the days of only having DBA's, network administrators and systems administrators are gone. Staffing the organisations with the right people will move the e-governance forward. For any institutional activities to be successful, besides adequate manpower; the competencies put together should be appropriate to the roles visualized. This aspect requires the utmost consideration.

E-leadership

Due to highly participative nature of the e-world between e-organizations and e-customers and the interconnectedness between leader and follower with invent of information technology systems, the need for transformed leaders is an utmost requirement today. E-leadership is a new concept which helps in tough times when the organizations are transforming. E-leaders create high performing teams and are

becoming very popular in developed countries which have completely transformed into paperless offices. David Segal (1999) the author of *Futurising Your Organization* says, "I have found that 90% of problems companies have on-line are created by management, not technology". (<http://www.metafuture.org/articlesbycolleagues/AlanFricker/eleadership.htm>) He emphasises the importance of e-leadership in the information age.

IT Infrastructure

The need is to understand the full gambit of IT infrastructure and being able to see, at one go, all networks, applications, systems, infrastructure, virtualization and storage systems. Connectivity to the remote corners along with essential equipments should be provided by Central Government or State Governments, as the case may be. Wherever required, assistance of NGOs and private sector may be obtained. Until the infrastructure is fast and secure, the trust of users will not be there and partial failures of e-governance projects will be a hurdle.

E-trust

Some studies found that government transparency increases trust in government as people feel that they have a stronger control over government. At the same time, other studies found that trust decreases in government services as more government failures are identified. The research found that confidence of users in using IT based systems is growing in developing countries also. However, it was observed that very few people submit the information on-line even after downloading the forms as they have more trust in the manual system. Legitimacy of transactions is a cause of concern. Individuals as well as organisations should understand that increasing trust in on-line transactions improves productivity. According to literature survey (<http://www.squidoo.com/e-commencee-business-and-e-Marketing>, "weaving the web throughout an organisation means improved productivity. For example IBM incorporated the web into every corner of the firm – products, marketing, and practices. The company figured it would save \$750 million by letting customers find answers to technical questions via its website. The total cost savings in 1999 alone was close to \$1 billion."

Cultural Dynamics

Cultural differences must be taken into consideration. What means nothing to one culture speaks volumes in another. Even the vernacular issues are very important in e-governance situations. There are challenges in backward areas as computerization and connectivity is poor in some locations. The way the bureaucracy works is well known in India. Typical bureaucratic culture needs to be changed from command and control to click and connect mode.

Keeping Pace with Technology Upgradation

There should be a consistent application of latest technology across the entire organization. Interoperability of systems is a primary task. Latest databases and

applications should be kept in a standard repository. Organisations should keep pace with up-to-date process and technology as shown in the figure 1 below.

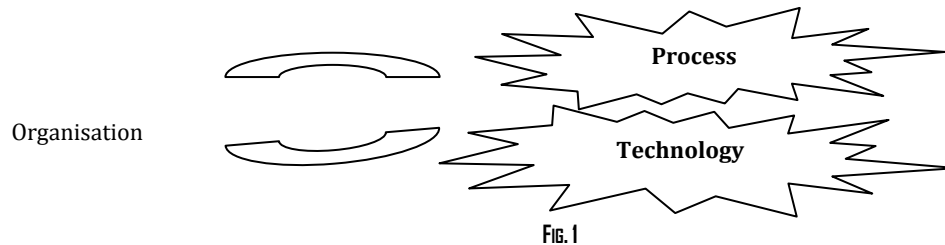


FIG. 1

Security and Disaster Recovery

Achieving impact of IT is not dependent upon computerization of data alone. The information that needs to be shared should remain secure as Government offices are dealing with sensitive data too. Data hacking makes the whole system corrupt and if there is no mechanism for disaster recovery, serious consequences can take place. Firewalls and latest antivirus softwares along with good quality backup arrangements is necessary for any online organization to survive. More than 50% of users mentioned that they had faced with situations where the whole system corrupted and the data had to be created again. Therefore, it is essential that users are trained to secure the systems and remain fully accountable for data security. Employees should be made aware of the risk management concerns so that they can make timely informed decisions about security.

Managing Information Overload

The new information is being produced at a rapidly increasing rate. An increase in the available channels of incoming information (e.g. telephone, fax, e-mail, sms, website, letter) etc. is reinforcing the information. As can be seen from Figure 2 below, information that needs to be shared can be sourced from different communication channels. Only that information needs to be kept live on the website which is up-to-date and vital. Rest of the material should be kept in the archives by the government organizations. However, it was noticed that most of the organizations are not in the habit of updating information on the website which results in information overload. The respondents who were interviewed admitted that it was not in their routine job to remove the irrelevant or obsolete information from the website. Contrary to the popular belief, the respondents mentioned that they took less time in searching useful information from manual sources rather than online material. Some respondents mentioned that reading from paper is efficient than reading from computer or SMS. This corroborates with a study (<http://www.psychcomp.com/>) That treading from paper is faster than reading from the iPad.

There is so much information on the internet that we have no idea if the source is authentic and honest. Knowing the credentials is important. Effective information retrieval and handling skills are important in the web age. As such, it is necessary to pay attention to where information flows fit in the project so that the insights gained can feed into timely decision making.

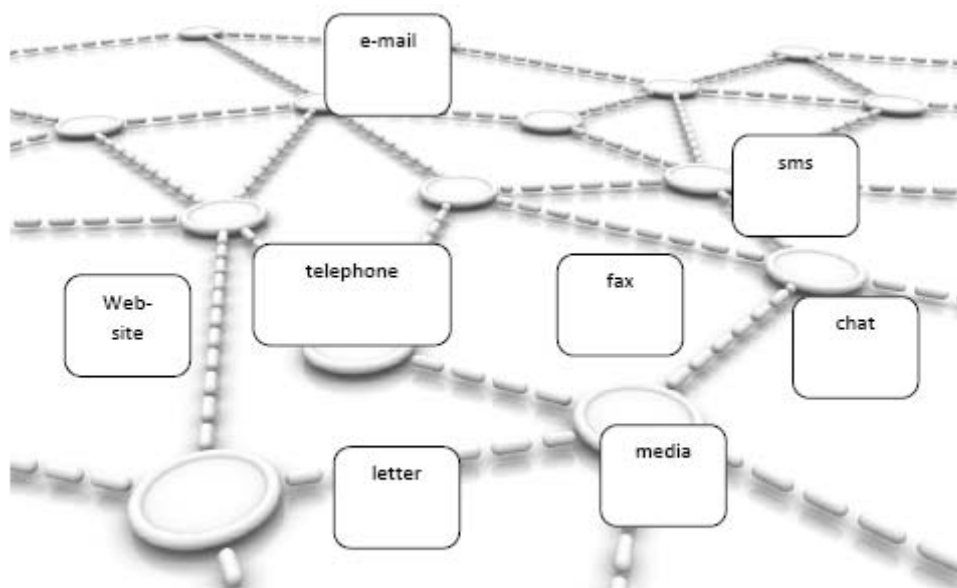


FIG. 2

Right incentives and Motivation

People need to be motivated to make them do a good job. Incentives are critical and come in many shapes and forms. There should be attractive incentive and reward system. Incentives can be the following:

- Financial awards.
- Activity support.
- Professional development.
- Outsourcing staff where expertise is required.
- Recognition: Listening to staff and acting on their recommendations.
- Performance appraisal process.
- Study trips and training courses.
- Ensuring everyone is clear about her/his responsibilities.

At the same time, following **disincentives** should be avoided

- Frequent rotating the staff.
- Staff feeling isolated or helpless.

- Low salaries.
- Focusing performance appraisal only on activities undertaken.
- Repeated complaints to staff about their incompetence.
- Posting demoted or unqualified staff.

Project Sustainability

The respondents gave the following views in the interest of project sustainability:

- Clarity of responsibilities.
- Changes in terms of attitude and organizational structure.
- Sufficient funding.
- On site monitoring.
- Training to the staff.
- Establish a feedback loop.
- Encourage participatory approach
- Accept and share the mission statement.
- Sportive, fair and inclusive leadership.
- Promoting team work.
- Focus on learning and improvement.

Accessing Training Needs

There is a need to access the training needs of the employees. Following steps were suggested in the survey:

- Identify skill gaps.
- Who should have the skill?
- When it is needed? (Month and year)
- Most appropriate training option.
- Where should the training take place?

Hiring Consultants

Government organizations are hiring consultants to enhance their capacity in dealing with high tech projects. However, they should work with consultants in a participatory mode. Following stages are suggested in hiring consultants.

- Identify the roles and models while outsourcing people.
- Hire consultants to develop computerized data bases.
- Screen biodata of potential consultants.
- Seek references.
- Ensure high quality work and integrate consultant output with traditional methods.
- Work with consultants in participatory mode.
- Train the staff through consultants before they leave the organization.

Building of Congenial Environment

Structuring a congenial environment is a sine qua non for effective implementation of IT initiatives. This should be achieved by:

- Make the staff comfortable in the transformed IT setup.
- Creating and displaying a will to change within the government.
- Providing political support at the highest level.
- Motivating and incentivizing IT and overcoming the resistance to change within Government.
- Creating awareness in the public with a view to generate a demand for change.

Business Process Re-engineering

For every function, service or information provided by a government organization, there should be a step-by-step analysis of each process to ensure its rationality and simplicity. It is essential to align management policies to the overall IT architecture of the organization.

Prioritization of IT Initiatives

Instead of implementing all such initiatives at one go, these should be implemented after prioritizing them on the basis of ease of implementation. However, suitable modifications in their prioritization may be made by organizations/departments on the basis of the organization needs and likely impact on citizens.

Respective departments of Information Technology at the Union and State Government levels should coordinate and provide technical support, in the task of identification and prioritization of IT initiatives.

Capacity Building and Creating Awareness

There is a need to redefine the roles and functions of the employees while transforming organizations in the e-governance set up.

Following suggestions came up from the respondents:

- Capacity building efforts must focus organizational capacity building as also the professional and skill upgradation of individuals associated with the implementation of e-governance projects.
- Every department should formulate a roadmap for enhancing the capabilities of their employees and the organizations.
- There is a need for significant increase in the drive for capacity building both at the individual as well as institutional level. The requirements of resources for capacity building should be an integral part of every project outlay. To achieve desired outcomes, there is a need to have focused teams who can be selected through a competitive process either from inside the Government or open market.

- A dispersed learning process is required between stakeholders emphasising upon local capacity-building and creating learning process with local resources and structures.
- A network of training institutions needs to be generated in the States. The Administrative Training Institutes (ATIs) in various States should take up capacity building programmes in e-governance, by establishing strong e-governance group. ATIs need to be strengthened under the NeGP.
- Education learnt from previous successful e-governance initiatives should be assimilated and discussed during the training programmes.
- The recommendations made by the Administrative Commission in its Second Report entitled 'Unlocking Human Capital' should be adopted for creating awareness among people with regard to e-governance initiatives.

Flexible Information System

Mahinda and Whitworth (2004) have defined flexibility as adaptability, tailorability, and customizability and recognized it as an important component of information system (IS) success. People can implement IT better with an appropriate and flexible information system that provides easy access for data entry, analysis and retrieval. Endeavour should be to establish innovative and viable technology integration solutions for flexible information systems.

CONCLUDING REMARKS

Many policy makers recognize that managing impact of e-governance in specific sectors or organizations remains lacking in our country. Impact studies at both the macro and micro levels suggest proper management of critical issues. Various studies use different indicators to estimate the economic impact of IT. More research is needed in order to place a focus on policy, decide on the use of certain applications and reach the desired impact. There is a need to learn from achievements and problems, and agreeing on how to improve both strategy and operations of e-governance programmes. Issues such as cost, portability and reliability will have to be resolved for successful implementation of e-governance programmes.

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e-Governance at Blocks with Pension Schemes a G2C Application at Grass Root Level Benefiting the Rural Mass

Ganesh Khadanga, Brijesh Kumar Srivastava, Vinay Thakur and D.C Misra

National Informatics Centre, New Delhi

E-mail: ganesh@nic.in, brijesh.srivastava@nic.in, vinay@nic.in

Abstract—NIC in collaboration with MoRD has implemented a MIS for capturing the details of a beneficiary related to Indira Gandhi Old Age Pension Scheme (IGNOAPS), Indira Gandhi Widow Pension Scheme (IGNOWPS) and Indira Gandhi Disabled Pension Scheme (IGNODPS). Through this MIS the sanction letters of pensioners and the scroll for disbursement of pension to beneficiaries at Block level for all Panchayat is generated. The sanction letter is authentic information and guarantees the beneficiary as proof of getting pension under the scheme by the Govt. The pension disbursement at specified frequency by various States and the generation of the scroll indicating the list of beneficiaries, amount and the mode of disbursement like cash, bank, post office MO and Money Order at the Blocks through this MIS is a milestone in achieving the penetration of e-Governance at the grass root level in India. The MIS is workflow oriented and available online. It uses postgres database with JBOSS application server.

INTRODUCTION OF NSAP

The National Social Assistance Programme (NSAP) which came into effect from 15th August, 1995 represents a significant step towards the fulfillment of the Directive Principles in Article 41 of the Constitution. The programme introduced a National Policy for Social Assistance for the poor and aims at ensuring minimum national standard for social assistance in addition to the benefits that states are currently providing or might provide in future. NSAP at present comprises of IGNOAPS, IGNWPS, IGNDPS, National Family Benefit Scheme (NFBS) and Annapurna.

The intention in providing 100 percent Central Assistance is to ensure that social protection to the beneficiaries everywhere in the country is uniformly available without interruption. Further the States are also expanding the schemes as per their own rules and provide the social assistance to eligible beneficiaries.

CRITERIA FOR SCHEMES

Different criteria is adopted to facilitate the weaker section under the each schemes and eligibility criteria is also set by the Ministry of rural development. The criteria details are shown below.

TABLE I: CRITERIA DETAILS

NSAP Scheme	Age	BPL Status	Annual Income
IGNOAPS	60 Years and above	For new cases, name in BPL is mandatory where as for old legacy data, name in BPL is not mandatory	Annual income for the BPL status varies from State to State
IGNDPS	Age >= 18 and Age <= 59	Name in BPL list is mandatory	Annual income for the BPL status varies from State to State
IGNWPS	Age >= 18 and Age <= 59	Name in BPL list is mandatory	Annual income for the BPL status varies from State to State

IDENTIFICATION OF BENEFICIARIES

In rural area the Below Poverty List (BPL) as prepared by States on the basis of norms prescribed by Ministry of Rural Development is the key element in identifying a beneficiary. Similar lists prepared by States following norms by Ministry of Urban Development and Poverty Alleviation would be applicable in urban areas or any other norms set by States for Urban areas may also be followed. The Govt. of India reserves the right to review these criteria and suggest appropriate revised criteria for identifying whether a beneficiary belongs to a household below the poverty level or not.

Age indicated in birth certificate issued by Registrar of Births & Deaths, School Certificate, Ration Card and EPIC Card may be taken into account. In the absence of any valid document a medical certificate issued by a Medical Officer at least of the rank of Assistant Civil Surgeon or by the Revenue Authority may be taken as proof of age.

The widow status of a beneficiary will be certified by the Revenue Authority.

The identification could be based on (i) application by the candidate or (ii) From Gram Panchayat/ Gram Sabha or (iii) report of any other competent Authority. In all such cases the application form has to be filled up.

DISBURSEMENT OF PENSION THROUGH BANK/ POST OFFICE ACCOUNTS

Disbursement of pension under NSAP shall be made through bank/post office accounts, whichever feasible.

Accounts may be opened in the Post Office/ Bank by the beneficiary himself or at the behest of the State Government. The Application Form/ Sanction Order issued by the State Government may be taken as a proof for fulfilling knows your customers (KYC) norms.

Department of Financial Services, M/o Finance have issued instructions to all Nationalised bank to open no frill account for the beneficiaries of pension schemes. Further, Department of Economic Affairs, Ministry of Finance have amended post office saving bank rules permitting opening of zero balance account of pension beneficiaries

The spread of banks and post offices across the country is not even. Crediting the pension amount into the bank/ post office may not entirely serve the purpose as the old age pension beneficiaries and disabled beneficiaries may find it difficult to travel to the nearest bank/ post office branch. In order to deliver the pension at the door step, banking correspondent/ banking facilitator model may be adopted as per the instructions issued by the RBI.

FEATURES OF SAP-MIS**NSAP Website**

The NSAP website is available at <http://nsap.nic.in>. It comprises at present of MIS/ transaction-based software of three schemes of IGNOAPS, IGNWPS and IGNDPS.

The complete detail of State wise pensioners list is shown below as reported in the MIS is show below.

TABLE 2: BENEFICIARY LIST REPORTED AND DATA ENTERED

DATA GAP REPORT										
Sr No.	State Name	Reported by States to MORD (IGNOAPS)	Available on the NSAP - MIS (IGNOAPS)	Data Gap (IGNOAPS)	Reported by States to MORD (IGNDPS)	Available on the NSAP - MIS (IGNDPS)	Data Gap (IGNDPS)	Reported by States to MORD (IGNWPS)	Available on the NSAP - MIS (IGNWPS)	Data Gap (IGNWPS)
1	ANDHRA PRADESH	1011153	940150	71003	64595	16304	48291	303945	334404	0
2	ARUNACHAL PRADESH	14500	7793	6707	1945	0	1945	2535	0	2535
3	ASSAM	628949	539520	89429	26955	7611	19344	91326	44091	47235
4	BIHAR	2654193	1426588	1227605	7261	361	6900	235134	17238	217896
5	GOA	2734	97	2637	670	11	659	5101	142	4959
6	GUJARAT	291081	209152	81929	2549	1559	990	294	644	0
7	HARYANA	137666	107686	29980	15211	0	15211	31202	8163	23039
8	HIMACHAL PRADESH	91440	87643	3797	191	175	16	7957	7629	328
9	JAMMU AND KASHMIR	129000	50933	78067	4048	0	4048	4730	0	4730
10	KARNATAKA	817753	1017320	0	62251	0	62251	295476	58110	237366
11	KERALA	176064	156920	19144	39128	0	39128	109764	0	109764
12	MADHYA PRADESH	1061033	677514	383519	119898	31990	87908	230317	67560	162757
13	MAHARASHTRA	1086027	1072524	13503	125364	1046	124318	486058	3213	482845
14	MANIPUR	72514	60982	11532	1341	0	1341	4675	0	4675
15	MEGHALAYA	48112	47754	358	1341	1341	0	6749	6749	0
16	MIZORAM	23747	23756	0	587	589	0	1192	1192	0
17	NAGALAND	40462	39858	604	1386	0	1386	2551	0	2551
18	ORISSA	643400	626457	16943	125078	3608	121470	306923	14696	292227
19	PUNJAB	159792	158936	856	3375	2892	483	13672	14236	0
20	RAJASTHAN	550173	640955	0	12155	12036	119	69995	75069	0
21	SIKKIM	18531	16677	1854	241	0	241	326	0	326
22	TAMIL NADU	1014172	1011432	2740	34255	33859	396	367322	365459	1863
23	TRIPURA	136592	148207	0	981	676	305	10605	10605	0
24	UTTAR PRADESH	3300260	3246301	53959	261865	0	261865	584781	1	584780
25	WEST BENGAL	1252795	1551434	0	126457	13738	112719	393447	282740	110707
26	CHHATTISGARH	551562	388964	162598	27535	3011	24524	99010	14124	84886
27	JHARKHAND	676003	536012	139991	45398	5147	40251	182707	55756	126951
28	UTTARAKHAND	187147	169756	17391	2040	55	1985	11421	0	11421
Union Territories		Union Territories		Union Territories		Union Territories		Union Territories		Union Territories
1	ANDAMAN AND NICOBAR	861	65	796	446	4	442	1007	3	1004
2	CHANDIGARH	4357	4364	0	310	105	205	597	2986	0
3	DADRA & NAGAR HAVELI	944	1024	0	372	0	372	902	0	902
4	DAMAN & DIU	127	89	38	15	11	4	48	29	19
5	DELHI	200778	205368	0	11649	15202	0	28206	38815	0
6	LAKSHADWEEP	36	2	34	75	0	75	184	0	184
7	PONDICHERY	20757	13867	6890	1765	0	1765	6018	6812	0
		17004715	15186100	2423904	1128733	151331	980957	3896177	1430466	2515950

Beneficiaries Database

The States are required to maintain a database of eligible beneficiaries and upload it in the public domain. The beneficiary data should include all the details of the beneficiary including his/ her photograph. Since belonging to a BPL family and having a BPL ID is a condition for getting the pension for new beneficiaries, the proposed link with the BPL database would be used to avoid duplication of pensioners.

Legacy Data

This legacy database is required to be uploaded on the NSAP website. For this purpose, legacy data formats for IGNOAPS, IGNWPS and IGNDPS are placed on the NSAP website. Since legacy data is very large in number, it can be entered in the legacy data formats which are downloadable from the NSAP website and entered offline (without continuous use of internet) and sent to Ministry/ NIC Delhi for processing and uploading. The data should be complete in all respects and the mandatory fields must be filled. The new pensioners' data needs to be entered online.

Process Flow for New Beneficiaries

For new pensioners, the data entry should be made directly on the NSAP website, using the State/ District/ Sub-district logins. The identification form of a new beneficiary is filled by the 'application receiver', the verification is done by the 'verifying officer', the sanctioning and issue of sanction order is done by 'sanctioning authority' and disbursement is done by the pension disbursing authority (PDA). There are separate logins created for each role in the whole procedure.

TABLE 3: PENSIONERS' DETAILS

Applicant Details			
State *	DELHI	District *	--Select District--
Area *	Select Area	Sub District/Municipal Area *	-- Select --
Gram Panchayat/Ward *	-- Select --	Village*	--Select Village--
Habitation*	--Select Habitation--	First Name*	
Middle Name		Last Name	
Husband/Father Name*		Nominee Name	
Address		BPL Detail	
House No		Year	
Street		Location	
Contact Person Mobile Number		UID Number	
Locality		Family Id No	
Pincode		Member Id	
Gender	MALE	Age *	
Category	GENERAL	Date of Birth *	
Annual Income		Widow	No
Disability	No	Percentage of Disability	
Disability Type 1	SELECT	Disability Type 2	SELECT
Disability Type 3	SELECT	Disability Type 3	SELECT
EPIC No		Ration Card No	
Minority Status	No	Disbursement	BANK
Scheme	IGNOAPS	Application Date	15-07-2011
Certificate Details			
Date of Issue		Issuing Authority	
Age Certificate:			
Income Certificate:			
Residence Certificate:			
Disability Certificate:			
Husband's Death Certificate:			

Fund Flow

The fund flow contains the estimation of funds required, allocation and release. Estimation is done from bottom – up i.e, village to Ministry, as per number of beneficiaries and allocation and release is done from top to down i.e., Ministry to State to District, upto the level of the PDA, taking into account the fund available at each level.

Pension Disbursing Authorities

State Governments are required to appoint and indicate the 'Pension Disbursing Authority'. Depending upon the mode of disbursement, the PDA can be created at State/ District/ Sub-District/ Gram Panchayat level.

FIG. 1: WORK FLOW IN NSAP MIS

TABLE 4: SAMPLE SANCTION ORDER

Sanction Order		
Sanction Order and Sanction Date	DL-S-00405503	06/01/2010
Application Number and Application	DL-A-00405503	30/06/2011
Until further notice on the expiry of every month be please to pay SHRI SHAYAD, Father's/Husband's Name DALBIR Age 69 Ward Name MALVIYA NAGAR Municipality Name MALVIYA NAGAR ,village NA ,Area URBAN District SOUTH, Scheme IGNOAPS State DELHI, at the rate of Rs 1000 per month from January-2010		
PDA Name	PUNJAB NATIONAL BANK-SAFDARGAN	
SANCTIONING AUTHORITY: District Social Welfare Officer SOUTH		
Project Sponsored By Ministry of Rural Development, GOI Content/Data Managed By Government Of DELHI Software Developed By NIC		
15/07/2011 10.05.11		

TABLE 5: ECS LIST IS GENERATED FOR DELHI STATE

22	10	0	7077	BHANT	110001000	1103007	Dept Of Social	PJ-S-00142417	0000000090000
22	10	0	14141	KHARAI LAL	110001000	1103007	Dept Of Social	PJ-S-00142418	0000000090000
22	10	0	14145	HARBANS	110001000	1103007	Dept Of Social	PJ-S-00142419	0000000090000
22	10	0	14174	NASIB	110001000	1103007	Dept Of Social	PJ-S-00142420	0000000090000
22	10	0	14193	GURBACHAT	110001000	1103007	Dept Of Social	PJ-S-00142421	0000000090000
22	10	0	15097	GURNAM	110001000	1103007	Dept Of Social	PJ-S-00142422	0000000090000
22	10	0	14168	CHARAN	110001000	1103007	Dept Of Social	PJ-S-00142423	0000000090000
22	10	0	14167	MANGAL	110001000	1103007	Dept Of Social	PJ-S-00142424	0000000090000
22	10	0	14111	LALA WANTI	110001000	1103007	Dept Of Social	PJ-S-00142425	0000000090000
22	10	0	13062	KARTAR	110001000	1103007	Dept Of Social	PJ-S-00142426	0000000090000
22	10	0	14169	BUDH WATI	110001000	1103007	Dept Of Social	PJ-S-00142427	0000000090000
22	10	0	14139	DALIP	110001000	1103007	Dept Of Social	PJ-S-00142428	0000000090000
22	10	0	14119	DALIP	110001000	1103007	Dept Of Social	PJ-S-00142429	0000000090000
22	10	0	14131	RAM RAKHI	110001000	1103007	Dept Of Social	PJ-S-00142430	0000000090000
22	10	0	14154	SHANTI	110001000	1103007	Dept Of Social	PJ-S-00142431	0000000090000
22	10	0	14153	KARISHNA	110001000	1103007	Dept Of Social	PJ-S-00142432	0000000090000
22	10	0	14181	PIARO	110001000	1103007	Dept Of Social	PJ-S-00142433	0000000090000
22	10	0	14192	SAROOP	110001000	1103007	Dept Of Social	PJ-S-00142434	0000000090000
22	10	0	14143	RAM PIARI	110001000	1103007	Dept Of Social	PJ-S-00142435	0000000090000
22	10	0	1783	SURJIT	110001000	1103007	Dept Of Social	PJ-S-00142436	0000000090000
22	10	0	17978	MOHINDER	110001000	1103007	Dept Of Social	PJ-S-00142437	0000000090000
22	10	0	20342	MOHAN LAL	110001000	1103007	Dept Of Social	PJ-S-00142438	0000000090000
22	10	0	14264	RAM PIARI	110001000	1103007	Dept Of Social	PJ-S-00142439	0000000090000
22	10	0	8746	SHARIFA	110001000	1103007	Dept Of Social	PJ-S-00142440	0000000090000
22	10	0	14159	ANOOP	110001000	1103007	Dept Of Social	PJ-S-00142441	0000000090000
22	10	0	14200	GURMIAL	110001000	1103007	Dept Of Social	PJ-S-00142442	0000000090000
22	10	0	14152	SATYA	110001000	1103007	Dept Of Social	PJ-S-00142443	0000000090000
22	10	0	14198	GURDEV	110001000	1103007	Dept Of Social	PJ-S-00142444	0000000090000
22	10	0	14108	BACHAN	110001000	1103007	Dept Of Social	PJ-S-00142445	0000000090000
22	10	0	14196	SAVITRI	110001000	1103007	Dept Of Social	PJ-S-00142446	0000000090000
22	10	0	14142	RAM LAL	110001000	1103007	Dept Of Social	PJ-S-00142447	0000000090000
22	10	0	14262	SHANTI	110001000	1103007	Dept Of Social	PJ-S-00142448	0000000090000
22	10	0	14135	MAYA WATI	110001000	1103007	Dept Of Social	PJ-S-00142449	0000000090000
22	10	0	14157	SATYA BHARTI	110001000	1103007	Dept Of Social	PJ-S-00142450	0000000090000

TABLE 6: LEDGER UPDATION

User: DELHI IT NODAL OFFICER
Date/Time: 15-07-2011 11:19:21

[Logout](#) | [Home](#)
[Change Password](#)

Update Disbursement Ledger

State * District * Area *

Sub District/Municipal Area * Gram Panchayat/Ward *

Pension Amount Payable Up To: *

Mode Of Disbursement: * Pension Disbursement Authority: *

Available PDA Balance is 36000 ☐ Select

Sanction Order No.	Pensioner Name	Pension Payable Period	Amount Due	Amount Paid	Paid Upto Month	
DL-S-00405437	VIKRAM JIT M.	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405440	SUDARSHAN	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405447	MH.UMAR	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405485	SURJEET SINGH	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405557	RAJ ASYWAL	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405674	SHAHIDA KHATOON	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405745	BHAGWANTI	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405792	NOORJAHAN	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405822	GANESHI LAL	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405848	POONAM DEVI	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405911	SHANTI DEVI	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐
DL-S-00405955	RAM WATI	Apr-2011 to Jun-2011	3000	1000	Apr-2011	☐

TABLE 7: XML BASED PENSION SCROLL

Masters Identification Verification Sanction Disbursement Estimation Allocation Discontinue Reports

User: DELHI IT NODAL OFFICER
Date/Time: 15-07-2011 11:07:00

[Logout](#) | [Home](#)
[Change Password](#)

Print Pension Payment Statement

State * District * Area *

Sub District/Municipal Area * Gram Panchayat/Ward *

Pension Amount Payable Up To: *

Mode Of Disbursement: * Pension Disbursement Authority: *

TABLE 8: GENERATION OF PENSION SCROLL

PENSIONER ACQUITANCE FOR BANK DISBURSEMENT											
IGNOAPS											
State:			DELHI			District:			SOUTH	Area :	URBAN
Sub District/Municipal Area:			MALVIYA NAGAR			Gram Panchayat/Ward:			MALVIYA NAGAR		
Pension Amount Payable Up To:			JUNE 2011			Mode Of Payment:			BANK ACCOUNT		
Sr No.	Sanction Order No.	Applicant Name	Husband/Father Name	Gender	Age	Address	Bank/PO Account No	Last Pension Paid Month.	Pension Payable Period	Payment Due (in ₹)	Amount Paid (in ₹)
1	DL-S-00405437	VIKRAM JIT M.	SARDARI LAL	M	64	1/13BLK-JKHIRKI EXTN.GUPTA COL.ND	30070111750	Mar-2011	Apr-2011 to Jun-2011	3000	0
2	DL-S-00405440	SUDARSHAN	K P SHARMA	M	60	—	30598832728	Mar-2011	Apr-2011 to Jun-2011	3000	0
3	DL-S-00405447	MH.UMAR	ABDUL MAJID	M	65	—	1190015608	Mar-2011	Apr-2011 to Jun-2011	3000	0
4	DL-S-00405485	SURJEET SINGH	PURAN SINGH	M	73	—	30713450968	Mar-2011	Apr-2011 to Jun-2011	3000	0
5	DL-S-00405557	RAJ ASYWAL	NAND RAM	M	63	164-E/2KHIRKI VILLAGEND	30903107774	Mar-2011	Apr-2011 to Jun-2011	3000	0
6	DL-S-00405674	SHAHIDA KHATOON	SHARFUDIN	F	61	—	30700133907	Mar-2011	Apr-2011 to Jun-2011	3000	0
7	DL-S-00405745	BHAGWANTI	PHOOLWARI	F	60	—	01190010163	Mar-2011	Apr-2011 to Jun-2011	3000	0
8	DL-S-00405770	NOORJAHAN	IKRAMUDDIN	F	64	—	602610110004373	Mar-2011	Apr-2011 to Jun-	3000	0

Current Status of the MIS

All the States are using the NSAP MIS for online sanction of beneficiaries. The States those who have entered the data 100% like Tripura, Delhi, Maharastra, Tamil Nadu, Orissa is using the MIS for generation of the beneficiary list at the specified frequency of the disbursement. Apart from this soon the MIS is to be upgraded to capture the State level schemes prescribed by States.

CONCLUSION AND FUTURE DIRECTIONS

The pension disbursement process through core banking and thus updating the accounts with the pension amount directly online by the pension disbursement process is the key requirement of the present day. The MIS is currently being upgraded for Delhi State so that the pension amount will be directly updated to the bank accounts of the beneficiaries by Reserve Bank of India (RBI). The core banking facility for Madhya Pradesh and the inclusion of State level Schemes will be the new additions to this MIS.

REFERENCES

- [1] Govt. Circulars IGNOAPS
- [2] SRS and SDD of NSAP MIS, NIC
- [3] User Manual NSAP, NIC

e-Governance at Blocks Level for Managing Self Help Group: A G2C Application at Grass Root Level Benefiting the Rural Man

Ganesh Khadanga, G.V.S.N. Murthy, Vinay Thakur and D.C. Mishra

National Informatics Center, New Delhi

E-mail: ganesh@nic.in, gvsnm@nic.in, vinay@nic.in

Abstract—NIC in collaboration with MoRD has implemented a MIS for capturing the details of the Self Help Group (SHG) formed by rural poor man. The MIS captures the details of the SHG as formed at villages/ panchayats, the fund allocation and expenditure, details of the special projects related to training the rural youth and their placement and tracking the beneficiary to a limited period. The basic data is entered at block level offices. The MIS is workflow oriented and available online. It uses postgres database with JBOSS application server.

INTRODUCTION

The objective of the Swarnjayanti Gram Swarozgar Yojana (SGSY) is to bring the assisted poor families (Swarozgaries) above the Poverty line by ensuring appreciable sustained level of income over a period of time. This objective is to be achieved by inter alia organizing the rural poor into Self Help Groups (SHGs) through the process of social mobilization, their training and capacity building and provision of income generating assets. The SHG approach helps the poor to build their self-confidence through community action. Interactions in group meetings and collective decision making enable them in identification and prioritization of their needs and resources.

SGSY's approach to organize the poor stems from the conviction that there is a tremendous potential within the poor to help themselves and that the potential can be harnessed by organizing them. Social mobilization enables the poor build their own organizations (Self Help Groups) in which they participate fully and directly and take decisions on all issues concerning poverty eradication. Simultaneously, SHGs have the advantage the assistance – be it in terms of credit or technology or market guidance etc. – reaching the poor faster and more effectively.

SGSY MIS

In SHG module activities like Component wise funds allocation at MoRD, Allocation by MoRD to districts, corresponding allocations by states to districts, Releases of money by MoRD and State Departments to Districts, Online proposal management for 2nd installment release by MoRD, Funds expenditure planning at District level, Funds Expenditure details, Bank linkage details of SHGs, SHGs members Training Institutions details, Products details, Activity details, SHGs and its members details, Individual Swarozgaries details, Grading details, Revolving fund details, Loan Details, Loan Sanction or Rejection details, Loan disbursal schedule, Loans disbursed, Subsidy returned, Loan Repayment details, Federations details, Marketing Details, Sales outlet Details all are covered.

In Special Projects module activities like on line proposal entry at District/State/MoRD level, its approval, processing to higher levels, after final approval at MoRD Sanctioning and Releasing of funds to Routing agencies, Online generation of Sanction and release orders and Transferring of funds from Routing Agencies to Implementing Agencies, Funds receipt by Implementing agency, Funds Expenditure, Training Institution details, Beneficiaries Training details and finally follow-up details are covered.

The project is in the initial stages of implementation. In SHG module some states have created users and started populating Masters.

In Special Projects one live project details with around 250 original beneficiaries' details were entered. It's a fully security audited application.

It is a role-based application. In addition to System Administrator Role six different levels of users namely MoRD Level, State Level, District Level, Block level, Routing Agency Level and Implementing Agency Level can use this Application.

Interface Diagram

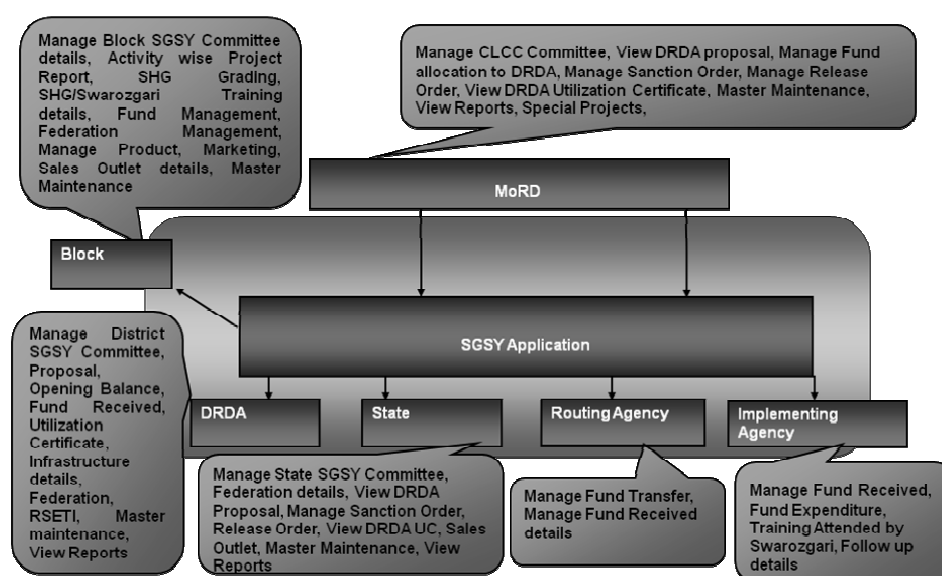


FIG. 1: DETAILS OF THE SGSY MIS

NRLM-A NEW DIMENSION IN SGSY

A systematic review of SGSY has brought into focus certain shortcomings like vast regional variations in mobilization of rural poor; insufficient capacity building of beneficiaries; insufficient investments for building community institutions; and weak linkages with banks leading to low credit mobilization and low repeat financing. Several

states have not been able to fully utilize the funds received under SGSY. Absence of aggregate institutions of the poor, such as the SHG federations, precluded the poor from accessing higher order support services for productivity enhancement, marketing linkage, risk management, etc. Several evaluation studies have shown that SGSY scheme has been relatively successful in alleviating rural poverty wherever systematic mobilization of the poor into SHGs and their capacity building and skill development has been taken up in a process-intensive manner. In other places, the impact has not been that significant.

The magnitude of the unfinished task is enormous. Out of the estimated 7.0 crore rural BPL households (2010 projections of BPL households), 4.5 Crore households still need to be organized into SHGs. Even the existing SHGs need further strengthening and greater financial support. It was in this background, Government has approved the restructuring the SGSY as the National Rural Livelihoods Mission (NRLM), to be implemented in a mission mode across the country.

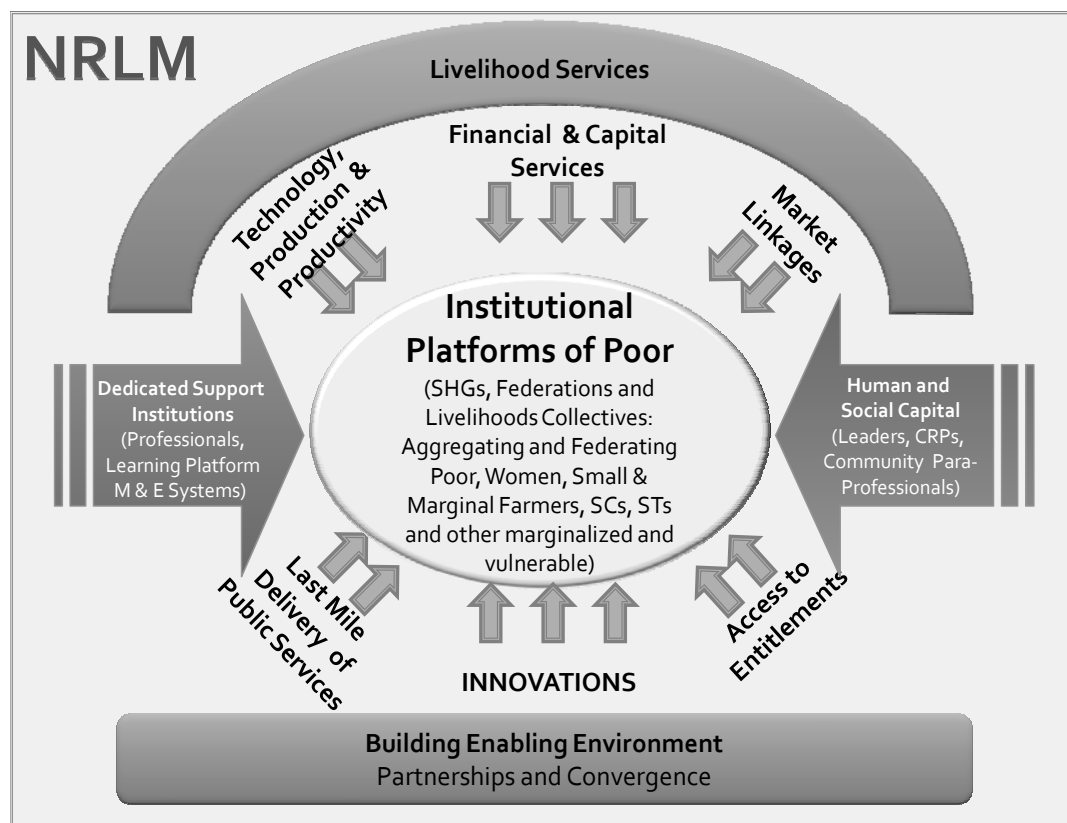


FIG. 2: NRLM DETAILS SCREENS

Source: NRLM Guidelines by Govt. Of India

Sample Screens of SGSY MIS

Through the SGSY MIS various States have added the details of the SHGs formed. UP has created the maximum number of SHG (1500). The other States have started entering the SHG details. A sample report of SHGs formed is shown below.



SWARNJAYANTI GRAM SWAROZAGAR YOJANA



Group Details			
Financial Year	State	District	Block
2010-2011	UTTAR PRADESH	BULANDSHAHR	DANPUR
SHG Individual	Type	Status	
BALA JI SHG BADAUR(311702412419)	GROUP	Active	
BISARE BABA SHG(311702412423)	GROUP	Active	
BISMILLAH SHG BARARI(311702412550)	GROUP	Active	
EESHA SHG DEYREE CHAHALA(311702412573)	GROUP	Active	
MANNEFY KASHI RAM SGH IN UMRARA(311702412421)	GROUP	Active	
PRAJAPATI ASHAV KALIYAN SHG(311702412415)	GROUP	Active	
RAJ HANS SHG DYORALI(311702412424)	GROUP	Active	
SAT SAU CHHIYASEE SHG MURADPUR(311702412814)	GROUP	Active	
SHANKAR SHG BADAUR(311702412540)	GROUP	Active	
SHIV SHG IN UMRARA(311702412422)	GROUP	Active	
SHRI GANGA MA SHG BHEEMPUR(311702412420)	GROUP	Active	

FIG. 3: SHG'S FORMED IN UP, BULANDSHAHR AND DANPUR BLOCK

TABLE I: DETAILS OF A SHG'S FORMED IN UP, BULANDSHAHR AND DANPUR BLOCK

State*	Uttar Pradesh				
District*	Bulandshahr				
Block*	Danpur				
Self Help Group*	Bala ji Shg Badaur				
Local Registration Number	188				
Date Of Formation*	21-11-2010				
Proposed Activity*					
Bank Name*	State Bank of India				
Bank Branch Name*	Sbi Debai Adb				
Bank Account Number*	7289372				
Date of Opening of Account*	23-11-2010				
Village*	Badaur				
Address Of Group*	Badaur				
Contact No. Of Group					
Name of Facilitator / NGO					

Village*	*Family Code	*BPL/APL	*BPL/APL Code	*Name	*Designation
Badaur	117874	BPL	88	Om prakash	President
Badaur	117977	BPL	68	Kailash	Treasurer
Badaur	117804	BPL	49	Praveen kumar	Secretary
Badaur	117793	BPL	61	Than singh	Member
Badaur	117791	BPL	46	Jasvant	Member
Badaur	117875	BPL	37	Vijay lakshmi	Member

Project Name	TALLYNORTH	State	HARYANA	District	BHIWANI						
Block	BHIWANI	Institute	NATIONALCOMPUTERTRAININGCENTRE	Batch	15-04-2010 to 14-07-2010						
Centre Name : NATIONALCOMPUTERTRAININGCENTRE,BHIWANI				Centre Director's Name							
Centre Number : 100				PIA Batch Code							
MoRD Batch Code			Start Date : 15-04-2010		End Date : 14-07-2010						
Candidate No	Name	Trade	Photo	Father's Name	Address	If NEGRA worker, workdays under NEGRA in last year	BPL Card No.	BPL Sequence No.	Date of Birth	Contact No.	UID
1213002037001-18911	ANIL KUMAR	TALLYERPOT9		BHOLA RAM	VILL-BADALA DISST-BHIWANI		18911		17-05-1990		
1213002002001-47896	ANITA	TALLYERPOT9		HAWA SINGH	VILL-BIRAN DISTT-BHIWANI		47896		24-05-1990		
1213002058001-32454	ASHA SHARMA	TALLYERPOT9		RAMESH SHARMA	VILL-PALUWAS DISST-BHIWANI		32454		10-07-1991		
1213002077001-1703	BAJRANG	TALLYERPOT9		NAGARMAL	VILL-SIWANA DISST-BHIWANI		1703		05-03-1992		
1213002003001-130593	BANITA DEVI	TALLYERPOT9		HAWA SINGH	VILL-TIGRANA DISST-BHIWANI		130593		03-04-1985		

FIG. 4: DETAILS OF A THE BENEFICIARIES TRAINED UNDER SPECIAL PROJECT

S.No	Name of the Beneficiaries	Member Photo	Date of Joining	Personal Details	Proposed Placement Details	Training Details	Name of the project
1	ADIL		02-08-2010	View	View	View	TALLYNORTH
2	AJAY KUMAR		01-05-2010	View	View	View	TALLYNORTH
3	AJAY KUMAR		30-07-2010	View	View	View	TALLYNORTH
4	AJIT SINGH		15-07-2010	View	View	View	TALLYNORTH
5	AMARJEET		16-07-2010	View	View	View	TALLYNORTH

FIG. 5: DETAILS OF THE BENEFICIARIES TRAINED UNDER SPECIAL PROJECT WITH PHOTO

Current Status of the MIS

Through the MIS the details of the SHG's are entered. In UP 1500 number of SHG's are currently formed. Other States are entering the data related to SHG. In view of the upgradation in the Scheme because of NRLM the details related to Rural Self employment Training Institutes (RESTI), Special projects are yet to be taken up by users. But as the SHG are the key element to NRLM, the details of the SHGs are now being entered by various States. This SHG information is also going to be used in NRLM. The MIS is also under up gradation to meet the IT requirements of the NRLM.

CONCLUSION AND FUTURE DIRECTIONS

The successor to SGSY is NRLM. The NRLM is a mission mode programme and has a wide spectrum to eliminate the poverty and treated as learning mission. It learns from all the best practices of poverty eradication and failures in the country. The details of the SHG will be a major contribution of SGSY to NRLM. Further we are planning to upgrade SGSY so that it would make extensive use of ICT to make knowledge dissemination and capacity building more effective and it will become an indispensable part of NRLM.

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Does ICTs Mobilize Participation in Election?—A Case from India

Sreejith Alathur¹, P. Vigneswara Ilavarasan² and M.P. Gupta¹

¹Department of Management Studies,
Indian Institute of Technology, New Delhi, India

²Department of Humanities and Social Sciences,
Indian Institute of Technology, New Delhi, India

E-mail: sreejith_sm@student.iitd.ac.in

Abstract—This study examines whether the Information and Communication Technologies (ICTs) mobilize people into exercising their right to vote. The study investigates the usage of election-oriented ICTs by citizens and its influence on voter engagement. The 2011 Assembly elections held in Kerala (India) have been examined for the purpose. Primary data for the study has been taken from face to face interviews with government officials, elected representatives, activists and the general public. Secondary data used for this study includes information collected from various government sources and from discussions on the elections in e-participation forums. The results indicate that ICTs do mobilize citizens for participation and are often influential in leader identification. The enablers of ICTs to mobilize the voters include i) electoral system support, ii) perceived social goodness concern of the ICT initiatives and iii) design & regional language presence in these initiatives. Hinders of ICTs mobilization are lack of support from inside the political party and the ruling party's intervention over the ICTs initiatives.

Keywords: ICTs, Mobilization, E-voting, Kerala Assembly Election, India.

INTRODUCTION

Researchers have discussed the importance of considering the voting process as a whole while interpreting the electoral process (Glasgow and Alvarez, 2005). Supporting this view Dudley (2001) explains 'voting process is more than a technological fix, and thus better understanding of how voters actually relate to the voting process is also important'. This indicates that the analysis of ICTs-enabled election process should also focus on how these voters were mobilized towards voting. Here the term mobilization is often identified as the deciding parameter of why some people participate in elections while others abstain (Verba et al., 1995). It is time to examine the role of ICTs in mobilizing voters as scholars have the optimistic view that political participation using ICTs can be more inclusive than the existing representative electoral government system. Research on ICTs-enabled participation is also inevitable due to the concern about the consequence of direct democracy (Dahl and Tufte, 1973) as well as other concerns such as voiced by Gibson, Lusoli and Ward, (2005) that online politics reinforces participation gaps. Here the factors that enable ICTs to mobilize and demobilize citizen participation in e-voting have gained attention in this paper. Motivation for this study is also due to the discussions that ICTs have now been recognized as a participation tool including in the social networks (Schmitt-Beck and Mackenrodt, 2010), For example, apart from being a medium of entertainment, ICTs are also gaining attention as facilitator for election-oriented activities (Schmitt-Beck and Mackenrodt, 2010). Thus ICTs-enabled participation opportunities are gaining a citizen perspective, which has rights and obligations to participate. Studies that address mobilization factors influencing e-participation in an electoral process are inevitable.

As mentioned this paper seeks answers to the question of how ICTs mobilize e-participation in the context of elections. Dalton (2007) argues that the ability to manage the complexities of politics without relying on the habitual party cues can influence political thinking, voting choice, and electoral change. Now the role of ICTs in mobilizing citizens and changing the pattern of their electoral behavior is of curious concern. To examine this influencing nature of Information and Communication Technology enabled voting process, this paper takes up a case of elections in the Indian State of Kerala. Focus group interviews, discussions in online forums and published documents are included as data for analysis in this study.

The paper is organized as follows. The introduction discusses the ICTs-enabled mobilization and citizen participation in the context of elections. The second section provides a theoretical background of mobilization. The case context of the Kerala election is discussed in the third section. The fourth section examines ICTs-enabled mobilization. The fifth section discusses the findings. The sixth section has the concluding remarks.

LITERATURE REVIEW

In India ICTs, specifically the internet is identified as a tool for campaigning and to measure the popularity of political parties (Mukherjee, 2009). However party-owned web pages have not yet got as much relevance as political activities in the physical world (Karandikar, 2009). Since political parties often act as a communication bridge between citizens and the government, their support for ICTs-enabled initiatives can be treated as crucial. Apart from gaining political support frequent ICTs-enabled citizen intervention is recognized as crucial in the Indian context due to the mismatch of vote-share, the ruling party wave, the scenario of no-party majority to form government and for anti-corruption activities. Now ICTs are expected to facilitate and ease the frequent participation process. Canon (1999) and Cox (1999) identified that the electoral system shapes party mobilization efforts and voter turnout level. Robbins (2010) also identifies that the electoral system is important for more voter turnout. Thus the ICTs-enabled mobilization of voters for e-participation requires multifaceted support. The following paragraphs provide the theoretical background of mobilization.

Theoretical Framework of Mobilization

Researchers describe that participatory citizenship can alter the existing relationship between the state and the vulnerable citizenry (Mohanthy and Tandon, 2006). The 'Zapatista effect' has prompted claims that access to ICTs will strengthen civil society by giving voice to the poor and marginalized, widening popular participation, and encouraging information-sharing and alliance-building (Mercer, 2004). However Vijaybaskar and Gayathri (2003) reveal that in the Indian context lessons from ICTs sector about the complexity of technological diffusion and social change are not

incorporated by public institutes for policy-making, i.e., often, 'ICTs are identified to bring out social changes and change in the nature of participation in a democracy even though the manner in which ICTs influence decision making in a democracy is yet to be explored'.

Turnout at polls is identified as the most significant form of democratic participation. Scholars of electoral turnout consider the mobilization of voters a crucial factor to explain why some people participate in elections while others abstain (Verba, et al, 1995). Mobilization models have tried to explain what makes citizens vote; they have often focused on the political and legal aspects. For example, Caldeira, Patterson and Markko (1985) consider that political mobilization is influenced by campaign spending, partisan competition, contestation of elections and incumbent presences. Brody (1978) as well as Katosh and Traugott (1982) consider that legal restrictions (model) have a strong influence on electoral turnout. Supporting the argument Mackerrasa and McAllisterb (1999) also observe that compulsory voting in Australia has made a major contribution to the long-term stability of the party system.

The influence of the media and personal communication in mobilization has been investigated by researchers. For instance Norris (2002) argues that the mass media often acts as a mobilizing source. Caldeira and Patterson (1982) say that media appearances by candidates can potentially mobilize voters. However a recent study conducted by Schmitt-Beck and Mackenrodt (2010) argues that mass communication through media is weaker than personal communication through social networks. The physiological impact of organizational resources discussed by Calhoun-Brown (1994) reveals that going to political churches is an influential indicator in elections even though it may not be a strong indication of political involvement.

Demographic characteristics and social well-being are identified to mobilize citizens for electoral participation (Caldeira, Patterson and Markko, 1985). Scholars identified that citizens with the least political interest are found to be mobilized by ballot initiatives (Dyck and Seabroo, 2008), but research on modern electoral behavior discusses party identification as the most important in mobilization (Dalton, 2007; Campbell et al. 1990, 1996). Factors like political efficacy, civic duty, interest in politics, concern about the election, and partisan attachments are often considered to influence citizens' intention for voting (Caldeira, Patterson and Markko, 1985).

Ability to handle information and public discussions is also found to influence mobilization. For example an alternative mobilization pattern brought out by Dalton (2007) reveals that early electoral scholars were critical of the conceptual abilities of the electorate (Campbell et al., 1960; Converse, 1964). This is often identified as the limited capability of the newspaper and radio to provide adequate quality information to citizens for developing their political skills. But Dalton (2007) argues that the public's ability to process political information has increased with education and political sophistication. The expansion of the mass media and other information sources has

helped in acquiring information at low cost. Researchers argue that social trends lead to cognitive mobilization and can overcome any limitations of partisan mobilization (Petersson, 1978; Dalton, 1984, 2007; Inglehart, 1990).

Above literature reviews suggest that mobilization for electoral turnout is often influenced by the political, socio-economic conditions and legal restrictions. The development in mobilization theory indicates the availability of quality information - including through mass media - and education help citizens in utilizing political information for better decision making. The opportunities for better personal communication through social networking sites are also identified to mobilize the electors. Since ICTs can offer more deliverable information gateways and interaction platforms the scope of influencing is even higher. Thus exploring the role of ICTs to mobilize the populations in a larger democracy like India is helpful for improving voter turnout. The following part discusses the methodology adopted for this investigation.

METHODOLOGY

Primary data for this study has been obtained through repeated in-depth interviews conducted in Kerala. In the month of January-February 2011, several Keralites including 3 officials in charge of ICTs-enabled election initiatives in Kerala, 2 directors of institutes focusing on decentralization policies, 5 political activists and 6 common citizens were interviewed. A focus group discussion was carried out with 19 Panchayat members who had been elected through the 2010 Kerala local body election. During the focus group discussion the elected representatives were encouraged to speak about the frequency and nature of their internet and other electronic devices usage. These members were quizzed about the ICTs-enabled empowerment activities in their Panchayat. Information collected through emails and telephonic interactions with the 3 non-residing Keralites who are office-bearers of Kerala communities abroad, was also included in this study. During election days in the week of April 13th, first author of this paper visited polling booths in Kerala and interacted with the voters; two party workers who were in charge of 'polling help booths' organized by their party were also interviewed. Various ICTs enabled activities to monitor and inform the voters, including the rush and queue status in polling booths, were also observed during this period.

Secondary data considered for this study has been gathered from online discussions in various news papers (including Mathrubhumionline¹) and from various published reports. The reports include The Census 2001 report (Department of Statistics, Government of India), Kerala Migration Survey 2007 (Zachariah and Rajan, 2008), India: E-Readiness Assessment Report 2006, (by Department of Information Technology, Government of India), Annual Report, Department of Telecommunications, India, 2009 – 10, election updates by newspapers, online election database provided by the web page of Keralaassembly and poll overview provided by IBN politics. Reports from the Election Commission of India and State Election Commission of Kerala about various years of polling were also consulted for this study.

¹Mathrubhumi: a Malayalam news paper. <http://www.mathrubhumi.com/index.php>

Case of ICTs-enabled Voting (Kerala Election)

Elections and the voter turnout are considered to be important components of a democracy (Robbins, 2010). Since 1950s the Election Commission of India (ECI) has been responsible for a free and fair election process in India (Schedler et al., 1999). During the first phase (late 1960s to late 1990s) of India's ICTs-enabled governance, the elections mainly utilized IT services for various data-intensive works (Gupta, 2011). Usage of Electronic Voting Machines (EVM) on an experimental basis started in 1982 in an election in Kerala. From 2004 onwards EVMs have been used extensively for election purposes (Election Commission of India, 2008). Kerala's State Election Commission was established in 1993. The State Election commission is responsible for preparing the voters list and conducting elections to local self-government institutions. Figure 1 gives the home page of the Chief Electoral Officer of Kerala.

Citizens can register their names in the electoral roll through this portal. This website has enabled citizen to access varied election-related information and to interact with officials. Endersby and Kriekhaus (2008) argue that the electoral system can have a strong and significant effect on turnout. Zelic and Stahl (2005) explain the need of transparency and trust-building initiatives of electoral system is crucial for higher turnout. In India various efforts have been made in this direction. For example the Election Commission of India has made mandatory the disclosure of every candidate's details including criminal antecedents, educational background, assets and liabilities through these portals.

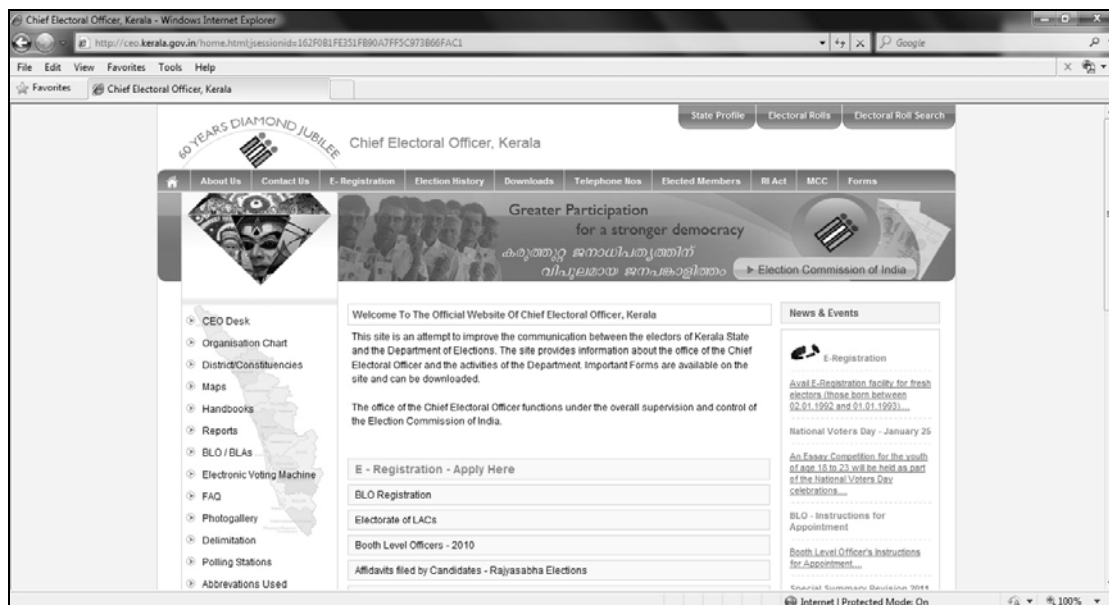


FIG. 1: HOME PAGE OF CHIEF ELECTORAL OFFICER KERALA

These mandatory reports were also made available in Malayalam (Kerala's official language) using the TREND², an election-oriented software. Figure 2 gives the interface of TREND. Citizens can access all manner of real time election information through this interface including the election roll. The TREND site received about 1.8 Cores hits on the 2010 Kerala local poll counting day.

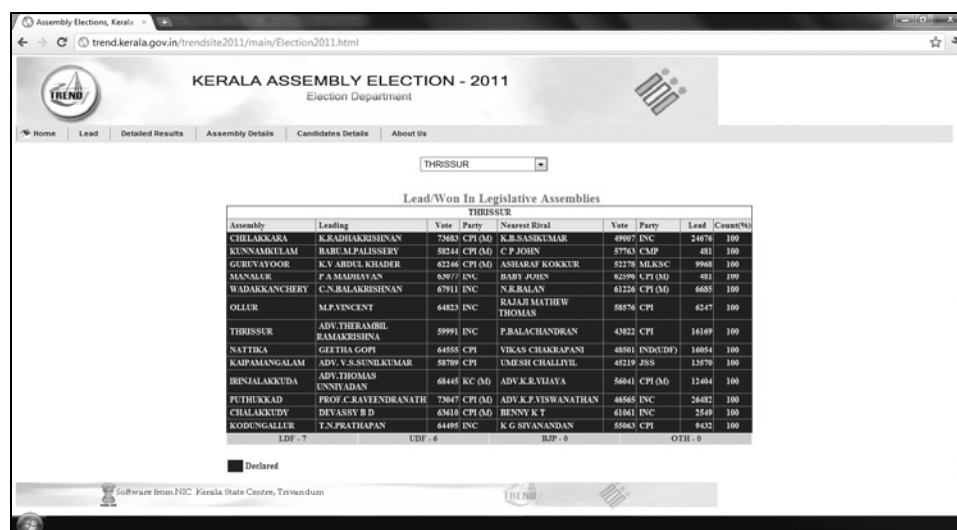


FIG. 2: WEB INTERFACE OF TREND THAT DISPLAYING THE INFORMATION OF 2011 KERALA ASSEMBLY ELECTION

Kerala's first Legislative Assembly election was held in 1957. People of Kerala now participate in electing their representatives through the Lok Sabha, the Assembly (Legislative) and the Panchayat (Local Body) elections. On 13 April, 2011, the thirteenth legislative assembly election was held in Kerala for its 140 constituencies.

Investigating the ICTs-enabled Participation in Kerala Elections

Researchers point out that in India the educated middle and upper classes often remain unregistered with ECI (Gowda and Gupta, 2010). The gap in the electoral roll exists due to unregistered citizens. However in Kerala this electoral gap is minimal. Figure 3 provides the demography of registered voters and the population in Kerala. The graph indicates that both the citizens who are above 18 years of age (people above 18 years of age have the right to vote) and the number of people who register to be on electoral rolls show a similar trend of increase. The latter indicates the citizens who get registered with the ECI. Various factors may be responsible for this improved level of voter registration in Kerala; the net migration has been showing a negative trend due to increase in presence of non Keralites and the population rate has been decreasing over the years in Kerala. Another factor can be the increasing number of non-resident Keralites.

² <http://trend.kerala.gov.in/>

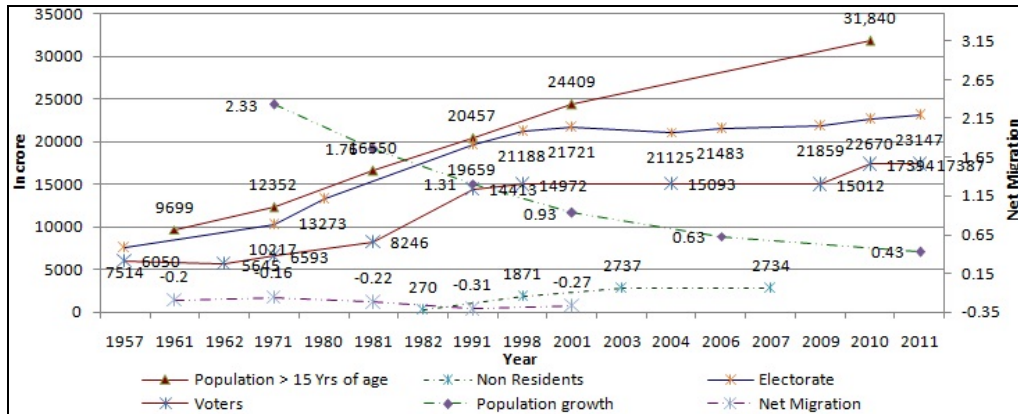


FIG. 3: REGISTERED VOTERS AND THE POPULATIONS IN KERALA

These emigrants from Kerala are found to have good educational levels. Reports indicate that 89.3% of emigrants have primary and above educational qualification (Zachariah and Rajan, 2008). Countries that become the primary destination of these emigrants are found to have higher internet penetration and usage. The prime destination, United Arab Emirates, has internet penetration of 79.5%. These non-resident Keralalites have a strong presence in Kerala's economy and life. The internet and e-learning activities in Kerala are also triggered by the presence of emigrants. For example, projects like Akshaya³ have reported that Internet-enabled kiosks are utilized by people to contact their relatives, specially in Gulf countries (Kumar and Ghatak, 2007). The nature of internet usage is found to enable serious interactions by both resident and non-resident Keralites. To quote a non-resident Keralite who serve as a Senior Project Manager in the software industry:

"....almost everyone in this software firm browse newspaper in hourly basis, this is same case for our other overseas development centers....it is noticed the employees prefer their local language newspaper than English online edition....there is offline discussions also often took place over the issues inside the office.....however we blocked the networking sites... earlier film pages were major attraction, now women and men also found to prefer the newspaper sites..."

The regional language is found to be crucial for online participation; a senior journalist from an English newspaper said: "....the discussion forums of xxx (English newspaper) don't have much serious comments, I have seen same people posting again, and often it is a platform for inappropriate contents... we usually do not publish email messages, unless it is supported with fax or hardcopy...". But the idea of accepting the internet as a serious communicating platform is expressed by working professionals. To quote a Technical Consultant from a Telecommunication firm:

³ <http://www.akshaya.kerala.gov.in/>

“....I usually prefers xxx online newspaper.... to read other newspaper sites often we need to install Malayalam font, most office system do not encourage personal installation....since most news papers have their own TV channels now the sites will serve the purpose of both TV and paper.... reading news channels is safe and is ‘status quo’ than browsing any compromising photo bearing sites ...in home television is mainly for watching films or the xxx music contest....”

The welcoming message for serious online deliberations is evidently supported by the election oriented online discussions reported from Kerala. For example Mathrubhumionline (Kerala’s leading daily) discussion forum marked 20918 followers (as of 15th March 2011) and is known to receive comments from non-resident Keralites over various election issues. Table 1 gives the category of comments received. Citizens have been found to participate more actively in local issues than in national or entertainment related issues.

TABLE 1: DISCUSSION TOPICS AND NUMBER OF COMMENTS IN MATHRUBHUMIONLINE (15th MARCH, 2011)

	Discussion Topics			
	2011 Election Oriented	State Issues	National issues	Other
Number of Discussions Held	6	11	5	4
Total number of comments initiated	3268	4888	1469	1347

It has also been noted that Mathrubhumi online discussion forum often receives responses in a short period of time after the launch of each new topic. For example the readers’ opinion about party decision to deny the seat for the Chief Minister of Kerala for 2011 election received 775 comments in one and a half day. The online discussions are often inclined to support the Left Front’s party leadership, even though this newspaper appears to possess a neutral stand in discussion topics and filters the comments that make personal attacks. Smith (2011) reported that ‘internet enables those with extreme political views’. But the nature of responses for both the Left and the Right Wing indicate that extreme political views are not necessarily the only factor that mobilizes election discussions. To quote from the non-residents:

“....I am not a follower of xxx party, however, in recent times xxx (leader) influenced me a lot and xxx (leader) proved how a politician can fight against rampant corruption... Wish him all success in the forthcoming state assembly election...”

Source: Mathrubhumionline

“...if xxx is the CM (Chief Minister) candidate we NRIs (Non Resident Indians) will come to Kerala to vote for xxx. We need xxx to continue for the betterment of Kerala development. xxx and xxx is comparatively low marked by us..”

Source: Mathrubhumionline⁴

⁴ <http://www.mathrubhumi.com/discuss.php?id=157145>

Recent reports indicate that social networking sites including Facebook are triggering social movements in Arab countries (Arab Social Media Report⁵, 2011). Schmitt-Beck and Mackenrodt (2010) also argued that social networking sites exert a strong influence as they can facilitate personal communication. Since non-resident Keralites also use social networking sites for communicating with their relatives, opportunities to influence elections exist. To quote some of the responses in the discussion forum:

“...I am a ordinary man, away from home working hard....coming Kerala is very expensive for me...however I will come and vote for xxx...and bring victory..”

Source: Mathrubhumionline

‘....new generation voters` is not driven by emotional attachment of family owned party leadership. They will communicate through the social medias. Independent youth movements can be visible in coming election...’

Source: Mathrubhumionline

These indicate citizens’ ability to access information from various sources and express their views before a larger audience and give positive indications for election-oriented citizen movements. The initiatives from organizations like Association for Democratic Reforms have also been found to attract online communities; the 2011 Assembly Election candidates’ details published on the National Election Watch website (<http://myneta.info/>) are frequently circulated in various email-groups.

Contesting elections can be considered as an indicative form of participation in election initiatives. The number of candidates has been found to increase over the years. For example 58089 candidates contested the 1995 Kerala Local Poll election and 107609 people contested the 2010 local poll election. Figure 4 gives the participation trends in Kerala elections.

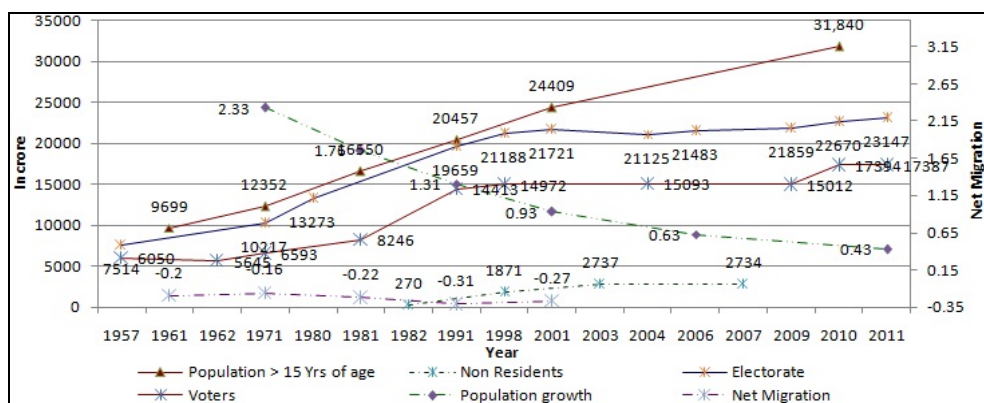


FIG. 4: CITIZEN PARTICIPATION IN KERALA ELECTION FROM 1951-2011

⁵ <http://www.newkerala.com/news/world/fullnews-143130.html>

In Kerala the voter turnout is found to be close to sixty percent and above for elections held since 1957 (See Figure 4). However the number of electors in 1957 was 7514626 and for the year 2011 the number reported is 22878767. Polling was reported to be 75.12% in the 2011 Kerala Assembly election (Chief Electoral Officer, 2011), an increase of 1.79% from the 2009 election of which the percentage of women voters was found to have increased by 2.34% and that of men by 1.19% compared with the 2009 election⁶, indicating that the number of people mobilized to vote during elections has increased. Electoral volatility such as a change in the ruling party is also thought to have influenced the 2011 election. In this election only 0.58% of difference in vote was reported between the major contesting parties; even though detailed political analysis is beyond the scope of this paper the data indicates people tend to vary in their habit of giving high success margin to opposition party. Education levels and use of sophisticated technology in processing information have improved over the years. In 1951 the literacy rate in Kerala was only 47.18% whereas the 2001 census reported Kerala's literacy rate to be 90.92%. Telephone density has also shown a marked improvement in Kerala; in 1995 telephone density was 8.97% whereas in 2002 it went up to 94.62%. It is possible that this ICTs-enabled environment supported by high literacy rate has resulted in Kerala showing a consistent poll percentage.

A favorable political environment for ICTs during elections also requires free political deliberations. And these deliberations are crucial since political parties are considered as the medium of communication between the government and the people. Robbins (2010) argues that democratic rights are desirable for higher participation. However Mather (2008) reveals that in India inner party democracy is quite in decay, which has resulted in declining of accountability. To quote an elected representative:

“...the party gave us the seat and the responsibility... when I approach my party leadership with the proposed plans from people side I got least welcome...even though I produced the online policy documents to support my arguments, the officials who responsible for funding raise number of objection”

Focus group interviews indicate that both party and officials do not give equal value to reports generated using ICTs. Of the 19 elected members who participated in the focus discussion, only 3 visited their constituencies' official web pages and of this only one member visited the site more than once. The rest of the elected members who participated in the focus discussion never visited the district webpage and were unaware of the planning proposals scientifically prepared by various agencies and reported through official web pages. Internet usage is found to be limited among other elected members as well. To quote the Director of a strategic institute:

“...All the M.L.As` are now provided with a laptop, I don't think it is using it effectively by our representatives.... I emailed to all the elected representatives soon after their election, even though most of them are my close friends none given me a replay through email.....”

⁶ Pseudopsepho, 2011: <http://pseudopsepho.wordpress.com/2011/04/> (Accessed online June 03,2011)

An official who was the Nodal Officer for ICTs-enabled election activities explained that concerned departments approached them for the recent facilities they had launched through mobile phone and internet; they did not undertake any public relation activities for it other than a one line newsletter about the link. However this time they were forced to use different servers for publishing election result to handle the web-traffic. Almost all media followed the same structure that they had displayed. Even though the search for the official webpage of Kerala indicates the presence of different versions of the official election webpage and demands considerable internet expertise from them, citizens are found to show interest in election results. To quote an aged activist:

“...the voting machine helped to reduce the fake votes, but it does not seem the reason for improving the participation rate as people do not expect any benefit by any party in power...however we vote as is our duty...”

To quote a VIP who was stopped by voters during the election while trying to bypass the voters queue in a polling booth “... morning I was not able to vote, later xxx informed me through my cell phone that there is less queue in the polling booth and I voted at the last minute.” After the election the chief minister whose government was elected with a narrow margin declared, in his 100 day programme, that to ensure transparency the assets of cabinet colleagues along with those of the bureaucrats would be declared in the respective web pages⁷.

FINDINGS AND DISCUSSIONS

The elderly activist's response indicates that EVMs helped to build trust in the electoral process. The above discussions also indicate that in India, Electronic Voting Machines were initiated in 1982 in a Kerala election, i.e. during the very first phase of ICTs-enabled governance. The Electronic Voting Machines were found to receive acceptance by citizens and became widely implemented, including in the 2011 Kerala election. The current study focuses on whether the acceptance of various ICTs -enabled initiatives mobilized the citizen into taking up election oriented activities. The election in Kerala reportedly has a consistent voter turnout irrespective of increase in population; there is an increase in the number of electors exercising their right to vote. There is also a shift in the nature of participation among citizens. For example The Hindu⁸ (a national daily newspaper) reported that the demand for opportunities for young people was predominant in 2011 Kerala election and people have expressed resistance towards conventional party leadership. The above data also shows a consistent increase in the number of people who contested the Kerala elections. Since the literature suggests that the election process should be considered as a whole, following section discusses various possibilities of the influence of ICTs on voter participation.

⁷<http://expressbuzz.com/states/kerala/transparency-will-be-trademark-chandy/280626.html>
(Accessed on 15 Jun 2011)

⁸<http://www.hindu.com/2011/03/03/stories/2011030360200600.htm> (Accessed on 21st March 2011)

Literacy rate is found to have improved over the years in Kerala and the emigrants' education level is also found to have a positive trend. The improved e-literacy of these non-resident Keralites has also influenced the trend favoring e-literacy in Kerala. Data indicates that non-residents use ICTs as a viable tool for communicating their political views and giving responses in various forums. The response from the Senior Project Manager and technical consultants indicates that the access frequency of internet, especially online newspapers, has increased over the years. Employees generally prefer newspapers in the Malayalam language. Senior journalists reveal that comments received through English newspapers' discussion forums are fewer. Responses also indicate that accessing political information and engaging through internet is considered a serious activity; apart from e-literacy the mother tongue too is found to have a positive influence in accessing information and participation in online election discussions.

The Malayalam language is found to have a significant influence on e-participation including for the purpose of news retrieval from mass media. An educated housewife said: "....during my childhood I usually watch TV where Hindi (India's official language) channels are predominant, Malayalam was available only for 2-3 hours in a day. And I had developed good communication skill over Hindi.....Now there is lot of Malayalam channels available in 24x7 basis in any country....due to this my kids know little Hindi, and they always watching Malayalam channels....". The newspaper sites are equipped with tools to support easy Malayalam type writing. Majority of comments received are also found to be in Malayalam; this is also true for Facebook discussion forums including 'Kerala Election 2011'⁹. The technical consultants' responses indicate that even the choice of web page is often influenced by easy access to the regional language.

The online discussions indicate that it is not just the extreme political views that influence election discussions. The online election discussion forums reveal that not just political influence but also the leader and government performance assessment is often reflected in various comments received. To quote : " xxx (leader) is the symbol of our aspirations and hope for unrelenting fight against atrocities against women, rampant corruption, nepotism, appeasement and more than all unselfish and clean commitment to ideals regardless of personal gains losses or power and positions.... xxx party have lost their credibility..." (Source: *Mathrubhumionline*¹⁰). The participants insist that the factors which bring welfare and reduce corruption should be reflected in elections. The ability to handle political information and process it for assessing the candidates and the government is found to be enabled by ICTs. Newspaper-owned TV channels have now made their presence through online streaming facilities. The technical convenience the site can offer predominates the choice of website visit, thus the chance for mobilizing the people to party or government is also influenced by design parameters.

⁹http://www.facebook.com/home.php?sk=group_191987057488488&ref=ts (Accessed on 21st March 2011)

¹⁰ <http://www.mathrubhumi.com/discuss.php?id=165593>

But in the case of government owned web-pages, the Nodal Officer's response indicates that despite limited public relations their site has had over 1.8 crore hits. The people have shown considerable expectations from election, even though the elderly activist opined that the turnout was more or less due to a feeling of right to vote. The telephone, mobile and internet penetration has not necessarily improved the citizen-party relationship. The use of ICTs by the elected members is found to be minimal and has less support from party leadership. The focus discussion with elected members reveals that the partisanship which mobilizes the electors is found to give way for more inclusive nature due to ICTs intervention.

The scope of the paper is limited to the 2011 Kerala Assembly election. ICTs diffusion in a developing country like India with differing ICTs consumption pattern and digital barriers might be time consuming. Thus the influence of mobilization factors in the Indian society is expected to only increase gradually. Even though people with extreme views and Left Front views are found to encourage online participation, the factors including conscious engagement by other parties might enable more rigorous citizen assessment. The ease and familiarity of ICTs and technological advancement may change with time. ICTs do help citizens to assess the party and leadership. Citizen will become more demanding depending on the users expectations including greater youths representation. Future studies can incorporate caste and cultural exposure through ICTs that might mobilize citizen in election.

CONCLUDING REMARKS

The paper attempts to identify whether ICTs can mobilize people. It takes the case of the 2011 Kerala Assembly Election. The history of Kerala elections and the voter turnout has been investigated. The study indicates that there is an increase in the number of people exercising their right to vote. People were mobilized into maintaining a consistent record of sixty and above percentage of vote. ICTs-enabled election initiatives have been reported from both the government and online news channels. Political parties too, to some extent, encouraged their MLAs to use laptops and other ICTs-enabled tools to communicate with the people.

Existing studies indicate various factors like political mobilization, cognitive mobilization, legal restrictions, socioeconomics characteristics, social-psychological attitude and economic conditions as influencing the voter intention to participate or abstain. ICTs are found to provide citizens with skills to communicate in the complex political sphere. Citizens' opportunities to carry out political communication with unknown audiences have improved, something that in earlier times was limited to party leaders. The election, especially the performance of party and leader is often assessed by citizens and presented in front of a larger audience through ICTs. This disclosure by independent political analysts can give more opportunities for mobilizing the common man. The number of people mobilized to contest in elections has also increased over the years. Increased number of contestants and increasing number of sub parties have

found their space on ICTs enabled platforms. The internet is increasingly being considered as a serious working tool, including for political dissemination by individuals. The social goodness factors communicated through ICTs mobilize citizens into e-participation. Results indicate the influence of regional language in online mobilization activities. Electoral system support in the form of online disclosures, details of affidavits filed by candidates, electoral roll, and the use of Electronics Voting Machines are all found to improve the trust in the process.

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New Information System Models for e-Gov 2.0

Anil Kumar Baranwal

National Informatics Center, New Delhi

E-mail: helloakb@gmail.com

Abstract—E-Gov 2.0 focuses on the Government transformation, particularly the *interactive components and behavioral framework of e-government*. This paper presents the dynamics of the governance in the existing Information System models along with social, political, ethical or cultural issues which despite having major impact on the implementation of the e-Government projects, are rarely considered during their conceptualization, design, development or implementation phases. This paper establishes the need of a Government Information System (GvIS) and presents several new Information System (IS) models based on the study of the branch of aquatic ecology (Limnology) and analogy between water and information. These new IS models called as InfoWell, InfoPond, InfoRiver, InfoStream, InfoCloud, InfoOcean and InfoVillage are conceived and explained to define the static and dynamic behavioral models in the government which are needed for the development of a government information system. This paper thus focuses on issues which separate the E-Gov 1.0 from E-Gov 2.0.

Keywords: Government Information System (GvIS), Limnology, InfoWell, InfoPond, InfoRiver, InfoStream, InfoCloud, InfoOcean, InfoVillage.

EXISTING INFORMATION SYSTEM MODELS IN THE E-GOVERNMENT PROJECTS

The author has been keenly studying the information system types being designed, developed and used in the government for more than last two decades, particularly under the e-governance projects during his engagement in designing, developing and implementing a number of information systems in the government at various levels of beaurocracy starting from the District Administration to State Government Departments and up to the Central Government Ministries as well as in the higher judiciary such as Hon'ble Supreme Court and various High Courts. These systems can be summarized with respect to the user levels and the types of problems being addressed in the government (including courts) etc. in the below Table 1.

NEED FOR THE NEW INFORMATION SYSTEM MODELS FOR THE E-GOVERNMENT PROJECTS

Whenever we try to conceive, design and develop an Information System (IS), especially in the government or public sector e-Government projects, it has been observed consistently that the system basically contains only the static aspects of the governance. This is a world-wide phenomenon. The dynamic aspects of the governance are surprisingly absent or silent and are not at all considered in its design and development stages. It is only during the implementation phase of the information systems that we realize the need of a better information system model. There are issues related with social, political, ethical or cultural which have major impact on the implementation of the e-Government projects but which are rarely considered during their conceptualization, design, development or implementation phases. It is for these reasons that the Information Systems (ISs) being used in the government are not sufficiently modeled to match the dynamics of the governance. Tackling the dynamic

aspects of the governance is to establish a balance between the democratic control of the beaurocracy and the discretion and choice that is so essential for the effective administration.

TABLE I

Information System Type	User level in the government	Some Examples	Problem Types being addressed	Assists in providing information for
Executive Information System (EIS) / Decision Support System (DSS)	<i>Strategic Level</i>	Annual Budget Projections, Future data Models, Court Cases Allocation System	Dynamic and Unstructured (Uses Intuition and Discretion)	Long Term Planning and Decision Making for Highly dynamic array of problems
Management Information System (MIS)	<i>Management level</i>	iE-Citizen Requests and Appeals Management System (RTI), Land Records Information System	Less Dynamic and somewhat Unstructured Problems	Short Term Planning and Decision Making
Office Automation Systems (OAS)	<i>Knowledge Level</i>	Word Processing, Document Imaging etc.	Less Routine and Semi-Structured Problems	Information manipulation or Dissemination
Transaction Processing System (TPS)	<i>Operational Level</i>	Payroll, Personnel Information System	Routine and Structured Problems	Carrying out daily necessary business functions

The second important reason for the need to develop new information system models is the fact that the existing information systems are mainly suitable for and guided by the profit making objectives of the organizations engaged in producing the goods and services. The goals and objectives in a government system are, however, different. It has much to do with the policy making and delivering services to the people than making profits. Hence, the aspirations and needs of a government system are not fully met in the existing information system types.

DEFINING A GOVERNMENT INFORMATION SYSTEM (GVIS)

The General Systems Theory defines the Information System (IS) in the following words:

“A system-automated or manual, comprising people, machines, and/or methods organized to collect, process, transmit and disseminate data and which represents information.”

It can also be defined as a set of interrelated components that collect, manipulate, disseminate data and information and also provide feedback to meet an objective.

Examples: Internet Banking System, Railway Reservation System, Airline Reservation System etc.

The components of an information system are *input, processing, output* and *feedback* as shown in the below Figure-1:

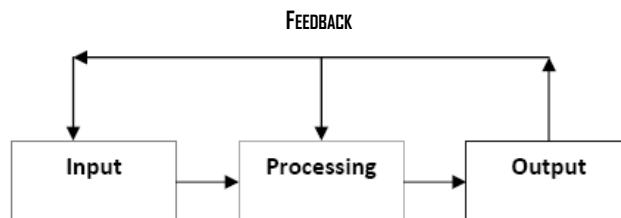


FIG. 1

Feedback is a critical factor for the successful implementation of an IS in the government which is often ignored. Having understood an Information System, now we shall first define the Government Information System (GvIS) as below:

“A Government Information System (GvIS) is an automated system of business processes or activities and computers meant for officials, citizens or other users, connected on a communication network along with their static and dynamic behavioral models which collects, stores and processes data to provide useful, accurate and timely information within the context of a government department or agency and also facilitates the feedback by the users to continuously monitor and improve upon the functioning and output of the system.”

The term “information system” refers to a system that includes computers and communication networks like NICNET, SWAN etc. in India. The users of a GvIS may be within the government, e.g. the government officials or outside the government, e.g. the people, businesses, NGOs, media etc.

It shall be the endeavor of the new Information System (IS) models to address the governance issues not merely at the business process level but at the entire structure of the government, starting from the policy making to citizen-centric service delivery with the feedback looping back in the system for its sustained growth and improvement. Therefore, Government Information System shall also describe and address the static and dynamic behavioral models in the government.

The static and dynamic behavioral models in the government describe the overall behaviour of a system and hence both are needed for the development of a government information system.

The static behavioural model is the data processing model that shows data processing steps as it moves from one process to another process throughout the government system and the dynamic behavioural model is the government machinery model that shows the systems response to events. Since these two models show different perspectives so both of them are required to describe the system’s behaviour in the government.

Data flow diagrams (DFD) are used to model the data processing in the system. DFDs model the system from the functional perspective and are also capable of showing the data exchange between the government system and other systems in its environment. This is precisely what is known as “The Systems Thinking” approach.

The government machinery models the dynamic behaviour of the government system in response to external and internal events. They can be used for modelling real-time systems as they also show the system’s responses to stimuli.

System users, senior government officials and information system professionals need to collaborate and work together to identify the major steps of the systems development process including the system behavior produced due to interactions between various objects, in order to build a successful government information system.

The main characteristics of a government system are its complexity, dynamics, non-adaptability and the resultant stability. A government system has many elements and thus the interconnectivity and the relationship between these elements make it very complex. Besides, the dynamics of the governance make the system undergo rapid changes over time. Perhaps due to this reason, there is an element of non-adaptability as the system is not able to change or adjust with the changes in the surrounding environment. This non-adaptability tends to develop certain stability in the form of governance. We, therefore, also need to explore how far the ICT can indeed have a deciding impact on the government information systems.

Keeping above facts and observations in mind, the author has made an endeavor to develop some new information system models for the government. These models are abstractions to represent the reality from different perspectives. It is essential to understand that the moment we speak of a system, we create a boundary.

Hence when modeling a system, the boundary is added to the already existing four components of an information system, i.e. input, processing, output and feedback. Having a system boundary definitely has some advantages as it clearly defines certain parameters and variables. The system parameters are fixed values and hence cannot be controlled. However, system variables can be controlled by the decision makers with the active participation of the information system professionals.

While the essential characteristics of a Government Information System have been enumerated above, the author feels that the new Information System types should be developed using the various characteristics of water, particularly with reference to the well, river, stream or rivulet etc. to suit the dynamics of the governance. For this purpose, it is further required to understand the attributes of water and information as well as the various water reservoirs. Hence in the following paragraphs, these concepts are discussed and new concepts of InfoWell, InfoPond, InfoStream, InfoRiver, InfoOcean, Infocloud and InfoVillage are explained for their development in the new Information System types in the proposed new discipline of Government Information System (GvIS).

WATER AND INFORMATION—AN ANALOGY

Water and information, both, have lot in common. Both are necessary for our lives. Some of the major common characteristics of Information and Water, conceived by the author, can be summed up as below:

- Water is everywhere. So is information.
- Life would be impossible without either of two.
- Without water, all plants and animals would be lifeless. Without information, all lives and organizations would be equally speechless and appear lifeless.
- Both by nature are liquid in the sense that both are characterized by the attributes of storage and flowing.
- Both have force.
- Both affect the people and the environment through its enormous volumes that flow through a chosen medium, e.g. a river or an information system.
- There is a definite Life Cycle for water as well as for information.

Water takes various shapes and sizes on the earth. It may take the shape of a pond, rivulet or stream, river or even a dam on the river by artificial means. By taking such shapes and sizes, ecosystem boundaries are imposed in an attempt to define distinct units that can be easily manipulated to our advantage. As an informatician, we should be able to see the differences between these types of environments. There are times of flood (excess of water) and draught (lack of water). Paradoxically, there is a problem of both information overload and lack of information in the government.

To understand the body of knowledge with the studies on the freshwater environments, it is needed to study the branch of aquatic ecology known as *Limnology*. Limnology is the study of flowing waters, known as *lotic* and still waters, known as *lentic*. Let us elaborate this concept a little more. An ecological study of a community is concerned with the interactions between the living things and their environment. Better understanding of this branch will help us create a better information system in the government.

Presented below are some new models of Information Systems (IS) based on the above discussed limnology studies and comparison. These IS models shall help grasp the problem of dynamics of governance, information overload as well as lack of information in the government, its relevance, accuracy and timely availability during the decision making processes, socio-technological impacts as well as implementing various government programmes and providing services to the citizens including providing information as per the request of the citizen under the RTI Act, 2005. As a matter of fact, all human endeavors involve information and all social discourses involve communication. Thus, we can say that the information and its communication are the two essential parts in any information system (IS). The proposed new IS models or types are explained below:

InfoWell

A Well is a very small unit of water reservoir which is being used by very few people, may be by an individual or by the immediate family members or a couple of families only.

Therefore, InfoWell would be an Information System type where an individual or a couple of people alone can specify their own technological requirements, are responsible for the management of their own information and where little need exists to share that information or draw it in from elsewhere whenever needed. *A simple Personal Computer (PC) along with necessary Operating system, Office Suite applications and a few software serving limited goals and objectives would be appropriate for an InfoWell.* These software packages would be defined by the tasks to be performed and goals to be achieved serving the cause of a few people only. Learning here would be a quite personal and highly motivated task. Information access is not very structured and communications would be limited to one-to-one communication.

Example: A self employed person, a journalist, a small businessman, a doctor, an advocate with a PC might fall into this category.

InfoPond

To understand the concept of an InfoPond, the main characteristics of a Pond are explained here. Pond is a distinct and isolated ecological unit located within a small area, with a shallow body of water and a muddy bottom. A pond is not very deep though it is bigger in size than a well. Another important characteristic of a pond is no two ponds are alike. These are the four major characteristics of a pond. There are several other attributes of a pond but we are mainly concerned with these four here so that a concept of InfoPond can be developed. We are always in the process of creating new ponds so as to provide water supplies to animals, irrigation supplies for crops etc.

It is, therefore, deduced that an InfoPond is a distinct Information System having characteristics like shallow body of information about an organization located within a smaller geographical location and which has lot of muddy information at its bottom. By muddy information, we mean the unorganized and equivocal information contents while some of the information will be formalized into datasets like payroll etc. Information sharing and distribution is limited to very few people, say limited to just few hundred or thousand people. Information access is somewhat structured and communications would be either one-to-one or one-to-many.

A few Personal Computers (PCs) including a Server along with necessary Operating systems, Office Suite applications and a few software packages like payroll, serving goals and objectives of a small organization would be appropriate for an InfoPond. These PCs may or may not be networked.

Example: An isolated Gram Panchayat Information System in the village which is limited only to its geographic boundary.

An InfoPond and an InfoWell can co-exist. The InfoPond can be found in an InfoVillage or even can be surrounded by an InfoRiver.

Networking and communication among people are needed in a very limited space in InfoWell and InfoPond Information System models. It is the convergence of computing and telecommunications which leads us to move on to the networks. It has changed the relationship of space and time as far as information is concerned. The networking has fundamentally changed the concept of the communication of information because of bringing together computers, telecommunications and people located in many different places over space and time. This convergence has led to the development of various Information System models like InfoStream, InfoRiver etc.

InfoRiver

Before defining an InfoRiver, let us see how a river is defined. A river has been defined as the course of flowing water. It usually grows in volume between its source and the point of its entry into a sea, a lake or another river. Rivers change as it moves from its source to mouth. Rivers are complex *lotic* systems of flowing water. They drain specific land surfaces known as watersheds or catchment areas. The major advantages of *lotic* systems are that there is no gravity and there are no waste disposal problems. However, cleanliness of rivers is vital to the aquatic life and much of the cleanliness is dependent on land use activities in the river catchment area.

A large river is usually fed by smaller rivers and streams and increases in size as it travels from its origin. A flowing river provides water to drink, removal of wastes and transport for goods. The great rivers of the world have been very influential in human history. The bountiful supply of freshwater in flowing rivers is one of the primary reasons for the rapid growth of settlement, industry, and agriculture in the various countries. The characteristics of rivers change as stream order changes. Carrying capacity of a river depends on the velocity of the current and the geology of the terrain. The upper tract or mountain tract transports the largest quantity of material while the rivers flowing in the lowlands or plain tract carry the least material. However, reaching upon the lower tract or plains, the river water gets mixed with pollution. The quality of the water and its value for municipal, industrial and recreational uses shall increase only with the decrease in the water pollution level.

Likewise an InfoRiver also starts with a mountain (high) tract or high level authorities in the country, like the PMO or the Ministry. Thereafter, it flows through all the middle course or levels like all its connected offices in the government and finally reaches its lower course or plain tract where interaction with maximum citizens is made possible. An InfoRiver is also joined by one or many InfoStreams. The contents in the

InfoRiver increases during its flow from the mountain course to the lower course. However, the information that reaches here has the potential of getting polluted with all sort of information pollution. Less is the information pollution; more is its value for the people.

Example: Any Nation-wide or State-wide information system like “Railway Reservation System”, “INDIA CODE INFORMATION SYSTEM (INCODIS)” or “JUDGEMENT INFORMATION SYSTEM (JUDIS)” or the “COURT INFORMATION SYSTEM” are the examples of an InfoRiver.

InfoStream

A stream or a rivulet is a smaller river and its volume involved is not defined closely. Stream flow varies considerably from year to year. An InfoStream can end into another InfoStream or an InfoRiver.

Example: “District Courts Information System” which can end into High Court Information System etc.

InfoOcean

InfoOcean – Ocean is the reservoir of water on the earth. Similarly, the internet itself is an InfoOcean, a true and the biggest reservoir of information.

Example: The internet.

InfoCloud

It is important to understand the way clouds are formed in the surrounding atmosphere. As we know, the water is constantly circulating through the atmosphere and falling to earth. The sunlight and the wind cause water to evaporate into the gaseous state and then the water vapors are lifted up into the atmosphere on the warm air currents which rise from the surface of the earth. When this air reaches the cooler upper layers then the water vapors condenses onto dust, pollutants, pollen grains kind of fine particles in the air. There it forms a cloud.

The clouds contain pure water but when it falls on the earth, it mixes with mud and gathers impurity, thereby completely losing sight of its original purity. However, due to the energy in the sun rays, it rises as vapor and merges again in the cloud. The sun’s energy evaporates water, creates clouds and carries water around the globe. The rains fall down upon the high peaks of mountains and in the low lying valleys, replenishes the water store on the earth in the form of ponds, streams, rivers etc. and finally run down in the oceans through various rivulets and rivers etc.

This same process is used in the formation or creation of information in the internet. Every computer system connected on the internet can be said to be a cloud of information containing some kind of (pure form of) information on it. When some

internet searches are performed or some such computer(s) is linked, then the information contained there reaches us through our systems' browser and gets mixed up with the contents in our system. Thus, the InfoClouds are the systems connected on the internet which are constant source of information in our world and they provide our computers with all kinds of information.

Example: The individual computer system on the internet.

InfoVillage

An InfoVillage can have one or many InfoWells or InfoPonds, one or many InfoStreams (usually one InfoStream) while an InfoRiver can also pass through an InfoVillage.

CHARACTERISTICS OF THE NEW MODELS OF INFORMATION SYSTEM IN THE E-GOVERNMENT

The proposed new models of the information system should define the characteristics of the e-Governance in terms of not only technology but also the informatization, socio-technological impacts as well as the various attributes of the social behaviors observed in the system.

The new models viz. InfoWell, InfoPond, InfoRiver etc. shall be identified by their Geographical dispersal, i.e. the area geographically covered by the implementation and impact of the Information Systems. So if an information system is spread and implemented only for an office within a small building, then it can well be termed as an IS of "InfoWell" type. Similarly if an IS is implemented in a location within a city or town then this IS can be termed as of "InfoPond" type. Thus the impact of this type of IS is also limited to that Geographical dispersal. Therefore, the aspirations of the people and the motivations of the officials in the government agency or department shall also be different accordingly. Some of the important characteristic of these new IS models are:

- Geographical dispersal
- Locality of impact or User base
- Networking,
- Boundary design issue
- Technological architecture, Internet connectivity
- Working environment of the Agency
- Abstraction level
- Change in balance of power
- Focus of the service
- The uneven problem
- Socio-technological impacts

The Table-2 below presents the comparative attributes of the above stated characteristics (attributes) in some of the newly developed IS models:

TABLE 2

Attributes	InfoWell	InfoPond	InfoRivulet	InfoRiver
Geographical Dispersal	Small Office	Big Building, Village, Town or City	Across Cities in a state, Block or District	Nationwide
User base	In Hundreds	In thousands	In few hundred thousands	In millions and billions
Networking	Network not necessary	Intranet	LAN, SWAN, Extranet	LAN, WAN, Extranet
Technology Architecture	Stand alone Desktop PCs	Client-Server or 3-tier architecture	SOA or 3-tier architecture	SOA or 3-tier architecture
Boundary design issue	Simple	Simple	Complex	Much complex
Internet Connectivity	On Demand (Dialup)	On Demand (Leased Line)	Always on	Always on
Working environment of the Agency	Highly Centralized	Less Centralized	Somewhat Decentralized	Highly Decentralized
Focus of the service	Individuals	Individuals, Communities	Government agencies, Individuals and Communities	Government agencies, Individuals and Communities
Abstraction Level	Simple and need based	Simple and well described	Complex and less detailed	Very complex and insufficient generality
Change in balance of power	No Change	Little changes	More changes but less turmoil	Great changes and more turmoil
The uneven problem	No such problem	Very little problem	Problem starts surfacing clearly	Perceivably highest uneven problems
Socio-technological impacts	Increased awareness and participatory nature	Improved service delivery, less corruption and more collaboration	Improved delivery of services, decreased corruption and increased collaboration	Improved policies, programmes and schemes formulations, Change in ethical behavior, highly collaborative

The author feels that the new Information System models conceptualized above need to be elaborated further and therefore, urges the informatics community, particularly in the public sector, to have deliberations over these models so that they can be further evolved to get their well-defined boundaries, roles, characteristics and benefits.

The government, particularly the Department of Information Technology, National Informatics Centre or other such government organisations or the universities or the other higher centers of learning like the IITs, IIITs etc. should establish a *Centre of Excellence for Govinformatics* where all such issues and conflicts, if any, could be resolved through systematic discussions and deliberations. The *centre of excellence for Govinformatics* should address the various informatics issues in the government

information system by applying the components of the Govinformatics like the Systems Thinking, Cybernetics, Social Informatics, BPR etc. and guide the government in the development of an efficient and effective Government Information System (GvIS) as well as collaborative and participatory form of governance E-Gov 2.0. Information systems in the government can be best described through these newly suggested models or information system architectures.

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Computer Pornography—A Criminological Study

Aishwarya Padmanabhan

Student, The WB National University of Juridical Sciences, Kolkata,

E-mail: aishwarya_p@hotmail.com

Abstract—The aim of this paper is to provide a detailed study of the serious issue of computer pornography. This research has attempted to explore a range of issues relating to illegal, harmful, hateful and offensive content online including the criminological issues related to computer pornography. It has also attempted to understand the other incumbent issues of child pornography and online paedophilia – phenomena that has been disturbingly growing with the rapid increase in usage of internet in the world. The paper further looks at the policing measures as carried out in the US and the UK and tries to draw comparisons so as to form a model for the Indian context to follow suit. In addition, it studies the liability befalling the Internet Service Providers (ISPs) in this respect and as to what extent they can be deemed responsible or liable for such cyber crimes.

Keywords: Pornography, Online Paedophilia, Sexual Content, Internet Service Providers (ISPs), Policing Measures, Liability

INTRODUCTION

From its earliest days, the Internet has been used for the display and transfer of pornographic and other forms of unsavoury material. Its status as a communication channel largely outside existing schemes of broadcasting and publishing regulation has made it attractive to those whose activities operate on or beyond the edges of legality. In 1995, at the meeting of the British Association for the Advancement of Science, estimates were put forward to the effect that almost half of all searches made using Internet search engines were seeking pornographic material¹. Although there is no doubt that much material on the Internet is unsavoury in nature, the view that the Internet constitutes no more than a 'heavily used red light district appears somewhat exaggerated.² The Internet is fast becoming the melting ground for distributing violent pornography and helping organise paedophile rings.

Cyber pornography is a difficult problem especially due to the difference in the acceptable limits of morality in different countries. Some of the implications of cyber pornography on the Internet are distinct from other cyber crimes as hacking, cyber frauds, implanting virus' and theft of IPRs. Unlike the latter cyber crimes which threaten the very credibility of the Internet, cyber pornography promotes the use of the Internet.

The reasons why cyber pornography has become so big in the industry are multifarious.

It includes the easy, free, efficient, convenient and anonymous accessibility to material relating to pornography through the Internet.

¹Cyber Crime and Society (2006), Majid Yar, First Edition, Sage Publications, UK, 2006

²Perritt, H.(1996). *Law and the Information Superhighway* First Edition, Aspen Law Publishers, USA Retrived from <http://www.2000.ogsm.vanderbilt.edu/cyberporn.debate.cgi>,

- The anonymity of the cyber pornography industry, global accessibility, problems of jurisdiction, different laws and standards of morality in different countries, which have made a mockery of laws in their enforcement.³

The aforesaid reasons have led to the attractive profitability of the cyber porn industry and thus its growth. The power of the Internet and the pornography has fuelled each other. Pornographic material in the pre- Internet era was not so freely or easily available.

Attempts to control, restrict, and regulate cyber pornography have completely failed in the past. The cyber porn industry has, instead, become extremely profitable and lucrative for a lot of people from around the world to indulge in. This has also started involving the illegal, indiscriminate and ruthless employment of children in this industry to serve the prurient and abnormal carnal desires of the voyeurs around the world.

CRIMINOLOGICAL ISSUES RELATING TO INTERNET PORNOGRAPHY

There are many difficult (and implicitly moral) questions surrounding the issue of pornography. The crucial criminological issue here to be addressed relates to the shifting and contested boundaries between pornography and obscenity online. Also the question facing those confronted with the prevalence of pornography online tends to centre on determining which kinds of representation cross the threshold in to being obscene and thus appropriate targets for legal action.

A representation that is in a more liberal legal regime may be considered permissible may fall foul of obscenity laws in another country. This issue is of particular relevance when considering the material on the internet, given the medium's transnational, border-spanning character. In British law (following the Indecent Publications Act, 1959) states that 'an article shall be deemed to be obscene if its effect...is, if taken as a whole, such as to tend to deprave and corrupt the persons who are likely, having regard to all relevant circumstances, to read, see or hear the matter contained or embodied in it'.⁴ The 1994 Criminal Justice and Public Order Act updated this legislation to take account of such material in electronic information. Two problems are readily apparent when considering these provisions. First, terms such as 'deprave' and 'corrupt' are highly ambiguous and indeterminate, and subject to a wide array of judgments. Second, the attempt to extend the British definition of obscenity to encompass the online content is inherently problematic, given that it may be 'published' in other countries with significantly different legal provisions relating to obscenity⁵.

In the US, obscenity is limited to sexual material, and requires the material to appeal to the prurient interest as defined by reference to the standards of the local community, and to depict sexual conduct defined by the applicable state law. The three part test set out by the Supreme Court in *Miller v. California*⁶ is

³Miller, L. (2002) *Management and E-Commerce : Online Legal Environment*, , Thomson Learning Publishers, USA

⁴See Indecent Publications Act, 1959

⁵Forder, J (2011) *Electronic Commerce and the Law*, First Edition, John Wiley and Sons, Singapore

⁶ 413 US 15 (1973)

- a) Whether the average person, applying contemporary community standards, would find that the work, taken as a whole, appeals to the prurient interest,
- b) Whether the work depicts or describes, in a patently offensive way, sexual conduct specifically defined by the applicable state law;
- c) Whether the work, taken as a whole, lacks serious literary, artistic, political or scientific value.⁷

This test is not based on the potential effects of the material, but on whether it contravenes locally determined standards of acceptable sexual depiction. This leads to the somewhat unfortunate result that material which is unobjectionable in one US State may be viewed as obscene in another, with potentially deleterious effects for the publishers. In the traditional media, publishers can largely avoid falling foul of locally determined standards, by adjusting their distribution networks accordingly. For an ISP or other II, this distribution control approach may simply be untenable, as those might be based anywhere in the US.⁸

Under US law, there is a distinction between obscene, indecent, and offensive speech. The latter two enjoy constitutional protections under the First Amendment. There have been attempts by both social conservatives and radical feminist campaigners to remove the constitutional protections traditionally granted to indecent and offensive pornographic materials.⁹

On other hand, in the UK, by contrast, the term is not limited to sexual material, but applies to any material which, 'if taken as a whole tends to deprave or corrupt persons.'¹⁰ Thus, while the depictions of sexual acts in pictorial or textual form is the most obvious form of potentially obscene material, UK case law shows that action can also be taken against pamphlets and book about the use of drugs and material showing scenes of violence.

CHILD PORNOGRAPHY

A further issue, one which has been of great public and political concern, is a fear that minors will be exposed, either wittingly or unwittingly, to sexually explicit adult content online. It has been noted that even the most seemingly innocuous web searches often return results containing content deemed unsuitable for children. Moreover, the practice of mass direct marketing emails (so called 'spam') exposes children to a range of offers for highly explicit sexual content when checking their inboxes, often disguised

⁷Ibid

⁸This problem was clearly seen in the case of *United States v. Thomas* (74 F 3d 701), cert. denied, 117 S Ct 74 (1996), where a bulletin board operator was extradited from California to Tennessee for criminal charges. It was stated in the argument, which was stored in a computer in California, was not obscene by Californian community standards, but the court determined that the appropriate standards by which to test for obscenity were the standards of Tennessee, the place in which the materials was reviewed and received.

⁹Perritt, H.(1996). *Law and the Information Superhighway* First Edition, Aspen Law Publishers, USA

¹⁰Obscene Publications Act of 1959 (s.1)

under seemingly innocent headings. It is feared that children will be inadvertently exposed to such material which fuelled what has been described as 'The Great Cyber Porn Panic of 1996', when mainstream media produced a slew of articles about the danger posed to children by online pornographic material. Concern over this issue continues to run high; for example a 2001 survey of parents of 10-14 year olds in Ireland found that the 44 per cent believed that children's access to pornography was the greatest downside of the internet.¹¹

It would be fair to say that no other cybercrime issues have elicited the degree of anxiety as that over the circulation of sexual images of minors on the internet. The very idea of such images provokes revulsion among the overwhelming majority in society. It also produces fear: fear that children are inevitably being coerced and abused in the production of such images, and fear that the availability of such material will stimulate or encourage viewers to seek out children for sexual gratification. However, the migration of such material onto the Internet presents a whole range of new problems for law making and law enforcement.

Gauging the precise extent of child pornography online is itself a difficult task, as a large portion of such material is likely to be hidden from direct public visibility, given its illegal nature.¹² However, a further dimension is added to this debate when we consider the extent to which minors engage in active and deliberate search for such content.¹³

LEGISLATIVE AND POLICING MEASURES TO COMBAT ONLINE CHILD PORNOGRAPHY

Historically speaking, the problem of child pornography and sexual abuse has been grossly neglected. The past few decades have seen concerted legal efforts to address child pornography in general and Internet pornography in particular. In the UK, the 1978 Protection of Children Act makes it a criminal offence to 'take, distribute, exhibit, or possess even one 'indecent' photograph of a child. In the USA, federal statutes prohibiting child pornography were introduced in the form of The Protection of Children against Sexual Exploitation Act of 1977 and the Child Protection and Obscenity Enforcement Act of 1988. Specific provisions relating to the Internet were introduced by the Communications Decency Act of 1996 and the Child Pornography Prevention Act of

¹¹Forder, J (2011) *Electronic Commerce and the Law*, First Edition, John Wiley and Sons, Singapore

¹²An early study conducted in January 1998 found that 0.07 per cent of 40,000 new groups examined contained 'child erotica' or pornography; in addition, the study found 238 'girl-related child pornography or erotica' WebPages. A more recent study claims that in the period between 2002 and 2004, the number of child pornography and pedophile websites doubled to 19,246. This same study found that over half of reported websites were hosted in the USA, with Americans being the largest number of visitors which constitutes a 32 per cent of global users. The majority of such sites were commercial in nature and it has been estimated that the online trade in child pornography is worth some \$3 billion per annum.

¹³According to research by the Internet Filter Review (2004), the largest consumers of online pornography are the 12-17 year old age group. A UK based survey of 9-19 year olds found that 10 per cent of this age group admits to deliberately visiting pornographic websites.

1996. While the CDA¹⁴ has had some of its provisions declared unconstitutional by the Supreme Court, those components of the Act dealing with obscene material (as opposed to merely 'offensive' adult pornography) stand; consequently, online child pornography (which has been ruled obscene) is effectively prohibited by this law. Similarly, while the CPPA has run in to difficulties with some of its provisions (such as those relating to so called 'pseudo-photographs'), the general prohibition of pornographic representations of children stands.

Concerns about minors' access to sexually explicit content have inspired a number of legislative attempts to curtail children's exposure to pornography, especially in the US like the Communications Decency Act (CDA).¹⁵

The online adult pornography industry has also involved itself in efforts to eradicate child pornography. The ASCAP (Association of Sites Advocating Child Protection), for example, is an alliance of US based adult pornographic content providers that undertakes measures such as self-regulation through approved membership and certification of legitimate adult sites, informing member providers about child protection laws, engaging in educational and outreach activities directed toward government and the public, and providing a hotline through which both adult content providers and consumers can report child pornography identified on the Internet.¹⁶

However, there are a number of obstacles facing attempts to curtail online child pornography, especially given that the production, distribution and consumption of such material often span national territories. First, even when there are provisions in place, there may be significant differences in definitions as to what actually constitutes child pornography. The UK's PCA (1978) for example, prohibits 'indecent' images of children,

¹⁴However, in June 1997, the US Supreme Court ruled that the CDA was unconstitutional, since the banning of any online service that displayed 'indecent content' that may be accessible by under - 18s amounted to a denial of access to that same material by adults, hence breaching their First Amendment rights. The CDA having been at present been struck down, Congress tried again the following year to introduce the Child Online Protection Act or COPA in 1998. This Act was less sweeping than the CDA, and made prohibiting: 'any communication for commercial purposes that is available to any minor (those under 17) that includes any material that is harmful to minors'. It is hope that this new legislation, focused more precisely upon specific commercially available content directed towards young people, could succeed where the CDA failed. However, COPA was also deemed unconstitutional by the Supreme Court in 2004 since it 'a potential for extraordinary harm and a serious chill upon protected speech'. The government did finally score a victory when the Supreme Court upheld a third piece of legislation, the Children Internet Protection Act (CIPA) in 2003. The Act requires 'public libraries that rely on federal funds for Internet use to install filtering devices on library computers to protect children from...pornography and obscenity'. However, the remit of this law is so limited that it leaves the majority of avenues by which children might access adult pornographic material untouched and leaving only to those which use federal (rather than local, state, private or charitable) funds for private use).

¹⁵In the US, Congress passed the Communications Decency Act or CDA. Among the Act's provisions were measures to criminals whatever: "by means of a telecommunications device, knowingly...makes, creates or solicits, and initiates the transmission of, any comment, request, suggestion, proposal, image or other communication which is obscene or indecent, knowing that the recipient of the communication is under 18 years of age." It further criminalizes "the use of 'an interactive computer service' to 'send' or 'display in manner available' to a person under 18, 'any comment, request, suggestion, proposal, image or other communication that, in content, depicts or describes in terms patently offensive as measured by contemporary community standards, sexual or excretory activities or organs, regardless of whether the user of such service placed the call or initiated the communication."

¹⁶Peritt, H.(1996). *Law and the Information Superhighway* First Edition, Aspen Law Publishers, USA

yet what precisely constitutes indecency is left vague and up to the courts to decide¹⁷. This raises the very real possibility that what in one country may be deemed to fall within the bounds of anti- child pornography laws will in another be deemed legally acceptable. Similarly, different national legal regimes may prohibit different specific pornography related practices. For instance, while the UK prohibits possession of child related materials, others (such as Japan) only prohibit commercial production, publication and distribution but not possession¹⁸. There are also analogous pattern of national differences which also arise when we consider the legal punishments laid down for child pornography related offences. To take an extreme cross national divergence, in the USA the Child Protection and Sexual Predator Punishment Act of 1998 prescribes 10-20 years imprisonment for a first time offender, 15-30 years for a second time offender and 30 years for to life for a third time offender¹⁹ while under Greek law, the punishment for the same production and distribution offences comprises a fine not more than one month in prison²⁰. These differences in the definition, scope and treatment of child pornography offences make it particularly difficult to establish an international basis for acting effectively against online pornography involving children. Moreover, even where legal provision is in place, the lack of technical expertise, funding and police responsiveness to internet crime may seriously hamper efforts to combat child pornography.

A further issue, and one which deserves close attention in its own right, is the problem of divergence as to who exactly counts as a 'child' for the purposes of anti-pornography legislation. Under UK law, following the Sexual Offences Act of 2003, a child is defined as any person below the age of 18 years of age (this replaced the previous provision of the PCA, 1978 in which a child was legally defined as a person under the age of 16).²¹ This legal definition of children under the 18 years is common to anti- online pornography laws in many countries, including the USA. However, in other countries like Austria, Australia, child pornography covers only those materials involving depiction of less than 16 years old²².

This problem is further exacerbated by the fact that producers, distributors and consumers of such material may not be aware of the true age of those shown. A final and controversial issue related to child pornography that must be addressed is that relating to the so-called 'pseudo-photographs'. It is widely acknowledged that 'in most cases, child pornography is a permanent record of the sexual abuse of a child. However, this is not the case with 'pseudo-photographs'; these comprise one or more non-obscene images that have been digitally manipulated to produce a pornographic representation

¹⁷*Frontiers of Electronic Commerce*, Fourth Edition, Pearson Education Asia, Delhi, 2000

¹⁸Reed, C. (2002) *Computer Law*, Fourth Edition, Universal Law Publishing, Delhi

¹⁹Walden, I. (2007) *Computer Crimes and Digital Investigations*, First Edition, Oxford University Press

²⁰*Ibid*

²¹See Sexual Offences Act, 2003

²²Peritt, H. (1996). *Law and the Information Superhighway* First Edition, Aspen Law Publishers, USA

involving a minor. These, for example, may take the form of a child's face transposed on to the image of a naked adult performing a sexual act. They may also comprise of digital images which have been computer-generated from 'scratch' and thus no image of an actual child has been used in creating the representation.

Under UK law, following the Criminal Justice and Public Order Act (1994), such pseudo photographs are prohibited alongside real pornographic images of actual children²³. However, the situation in USA is different. The CPPA also introduced such a prohibition, but in 2001 this provision was overthrown by the US Supreme Court. In the USA the traditional justification for excluding child pornography from the First Amendment guarantees free expression has been the harm committed against a child during the production of such images, that is, the child pornography is a permanent record of the sexual abuse of an actual child, and as such the production of such images entails a direct violation of criminal law against child sexual and physical abuse.²⁴

However, since no harm need be committed to an actual child for the production of a pseudo photograph, this justification does not apply. Nor is it possible under the US Federal law to appeal to the harms that might ensue against children, in that pseudo images may encourage viewers to subsequently commit abusive acts against real children, the harm criterion is justifiable grounds for prohibiting speech only if 'it is directed to inciting or producing imminent lawless action or likely to incite or produce such action'. In the absence of any concrete evidence that exposure to pornographic pseudo photographs of children directly contributes to such actions, it cannot be exempted from First Amendment protection.

The overall failure of statutory regulation in respect of children's access to sexually explicit content has led to an emphasis on voluntary regulation, especially the use of Internet filtering software (of the kind prescribed in CIPA) by ISPs and/or parents. There now exists a wide range of commercially available filtering packages such as *Cyber Patrol*, *X Stop*, *Cyber Sitter*, *Net Nanny*, *Child Safe*, *Cyber Sentinel*, *Content Protect* and *Winguardian*²⁵. Such software contain databases of adult oriented sites, and parents can use them to 'lock' web browsers access to such sites, consequently, parents can allow their children to surf the Internet with the reassurance that the youngsters will neither be unintentionally exposed to pornographic material, nor will they be able to access to such content should they deliberately go looking for it.

However, web filters have come in for considerable criticism as child protection tools. First, studies of filters in operation have shown that they block as little as 75 per cent of the content that they ought (that is, the material of an objectionable nature)²⁶. Hence, use of filters may give parents a false sense of security as they will not shield

²³See Criminal Justice and Public Order Act (1994)

²⁴Forder, J. (2001). *Electronic Commerce and the Law*, First Edition, John Wiley and Sons, Singapore.

²⁵Ibid

²⁶Supra at n. 16

children from all sexually explicit content. Second, and just as seriously, studies have shown that the filtering software typically 'over-filters' and thereby blocks access to socially acceptable, socially available and non offensive content.

Recently, particular concern has been raised over findings that popular filters block access to many adolescent health information sites, misrecognising the discussion of sexual health issues (such as safe sex) for pornography. Third, while filtering software is at least partially effective against sexually explicit content Internet websites, it has proven to be completely ineffective in blocking access to explicit content via other means such as peer to peer file sharing systems such as Gnutella²⁷. Many such file sharing services provide unrestricted and free access to large quantities of pornographic material; a study for the US Congress undertaken in 2001 found, for example, that a search for 'porn' on the Bear Share file sharing system made available 25,000 items, of which more than 10,000 were video files²⁸. All of the foregoing limitations suggest that neither technological nor legislative 'fixes' are likely to address parental and political concerns over children's access to online pornography, and that it may be time to reconsider some of the prevalent assumptions about the inherently harmful nature of exposure to such content.

All of the foregoing serves to illustrate the problems encountered when trying to find nationally based legal solutions to what are inherently global and transnational problems: as with some other forms of child pornography related activities, the divergences over whether or not pseudo images are to be prohibited creates a situation in which producers, distributors and consumers of the same images are subject to different legal treatment according to the country in which they are located. This inevitably obstructs attempts to generate a unified and effective strategy to remove child pornography from the Internet.

ONLINE PAEDOPHILIA

Concerns about online victimisation of individuals have been most pronounced where they deal with the sexual victimisation of children. Since the 1980s, the US and the UK in particular have seen intense anxiety about the problem of child abuse through the internet. This heightened in the 1990s.

The problem of internet-oriented abuse is often discussed in tandem with the circulation of obscene images of children; indeed, the two issues are frequently treated as different facets of the same problem. It is claimed that many of those investigated for child pornography offences have also participated in the actual sexual abuse of children.²⁹

²⁷Yar, M. (2006) *Cyber Crime and Society*, First Edition, Sage Publications, UK.

²⁸Jain, A. (2005) *Cyber Crime: Issues, Threats and Management*, Volume I, First Edition, Isha Books, Delhi

²⁹For example, British police estimate that some 35 per cent of those targeted by Operation Starburst for possession of child pornography had also physically abused children.

Online child sexual abuse can be differentiated between that which remains 'virtual' (restricted to communicative abuses committed via the Internet) and that which serves as a preparatory method for later physical contact and abuse (so called 'grooming'³⁰ of potential physical abuse victims).

There have been many instances of a wide range of 'cyber sexploitation' practices taking place in Internet chat rooms. In such cases, adults or older adolescents with a sexual interest in young children use online communication in order to identify, deceive, coerce, cajole, and form friendships with and also to abuse potential victims. This may entail, first, adults engaging children in sexually explicit conversations. Second, such behaviour may entail the 'fantasy enactment' of sexual scenarios through online conversation with a child. Third, it may entail what is described as 'cyber -rape', in which coercion and threats are used to force a child in to acting out the sexual scenarios proposed by the abuser.³¹

The UK's Sexual Offences Act (2003) makes it a criminal act to incite a child to engage in sexual activity, such as 'for example, persuading children to take their clothes off, causing the child to touch themselves sexually, sending indecent images of themselves, etc.' Thus those online child- adult interactions in which the child may be encouraged to engage in sexual acts is defined as 'non contact abuse' and punishable by up to 10 years imprisonment.

ISP LIABILITY

If one were to take media about Internet information content at face value, one might be justified in believing that the primary activity on the Internet is the provision, distribution and downloading, of obscene and indecent materials, notably pictorial pornography³². Whilst it is certainly possible to locate such material with relative ease, media statements as to its prevalence usually considerably overstate its role and status on the Internet. Despite this, the result of the extensive coverage that the topic has received has placed the question of ISP liability for its possession and transmission firmly on the political agenda³³. There are a number of difficult issues to address when considering the issue of liability. To begin with, there is no international understanding or definition of the type of material that would be considered 'obscene', 'indecent' or even 'pornographic'.

This plethora of laws and approaches to obscene and indecent material can place ISPs and IIs in a difficult position with regard to its possession and transmission, especially where those ISPs have an international presence, such as AOL and

³⁰Miller, L. (2002) *Management and E-Commerce : Online Legal Environment*, Thomson Learning Publishers, USA

³¹Forder, J. (2001). *Electronic Commerce and the Law*, First Edition, John Wiley and Sons, Singapore.

³²M. Rimm, (1995) 'Marketing Pornography on the Information Superhighway', 83 Georgetown Law Journal, (Retrieved from <http://TRFN.pgh.pa.us/guest/mrstudy.html>)

³³Yar, M. (2006) *Cyber Crime and Society*, First Edition, Sage Publications, UK.

CompuServe³⁴. They may find themselves being held liable in one jurisdiction in which they operate, for activities that may be fully legal in their other jurisdictions of operation.

POSSESSION BY AN ISP

In principle, in most jurisdictions mere possession of an obscene article will not constitute an offence. That having been said, some jurisdictions, such as the United Kingdom, do make a distinction between child pornography and other indecent or obscene material, with the possession of the child pornography constituting an offence in and of itself.³⁵ Where mere possession is not criminalised, prosecutors must normally show that some further element of intent is involved, this normally being an intent to distribute or exhibit the article. Sometimes that intent alone is sufficient to ground a criminal action³⁶, whereas in some jurisdictions a more specific intent, that if distribution for gain must be proven³⁷. Where child pornography is at issue, possession with intent to distribute is normally regarded as a more serious offence than mere possession.

In circumstances where the basis of liability is possession, ISPs will only run the risk of liability for third party content if they host or cache the offending material on their servers. In this situation, the act of possession will be committed in the jurisdiction where the server is physically located. It is possible that there may be a further risk involved where the ISP controls a server from a different jurisdiction, if the determination as to the jurisdiction in which the material is held is made by reference to the place of control, rather than the physical location of the data. As yet, however, this type of issue does not appear to have arisen in any legal proceedings.

If an ISP is found to be in possession of obscene or indecent material, a prosecutor may also then have to additionally prove that the ISP knew that the file held on its server was unlawful. Proving this with regard to an ISP's hosted and cached resources might very well prove difficult as it would, in most cases, almost certainly be uneconomic for an ISP to check all its files for obscene content. Under the UK Obscene Publications Act of 1964, it is a defence for the accused to show that he has not examined the article and thus has no reasonable grounds for suspicion that his possession of it amounted to an offence. Whether this suggests that UK ISPs should simply abdicate any responsibility for checking of content is a moot point, for a criminal court might take the view that a deliberate policy of not undertaking any scrutiny of content negated the defence of lack of reasonable grounds for suspicion.

³⁴Ibid

³⁵UK Criminal Justice Act, 1988 (s.160) as amended by the Criminal Justice and Public Order Act of 1994 (s.84)

³⁶California Penal Code (Para 311.2a and 311.2b where possession with intent to distribute for gain, where the subject is a minor, is a more serious offence.

³⁷UK Obscene Publications Act 1964 (s.1(2))

It could be argued that, as an ISP will, at the very least, have electronic records of the titles of files it is hosting, and the domain names of sites from which information is cached, it should be capable of identifying at least some suspicious files and domain names. An alternative approach, and one favoured by UK ISPs has been the combination of hotlines for people to report illegal materials, and other self-regulatory mechanisms such as Codes of Conduct for their clients, with coordination through a UK self-regulatory body for ISPs, the Internet Watch Foundation.³⁸ Whilst this approach almost certainly cannot totally prevent the storage and transmission of illegal material via on ISP's servers, it would appear to have reduced the amount of such material on UK ISPs to a level which the authorities and law enforcement agencies are willing to live, while not imposing too rigorous an economic burden on the ISPs themselves.³⁹

Where intent to distribute is required for liability, the issue of whether an ISP, whose primary role is the transmission of data packets, has the requisite intention by virtue of possessing a copy of the file arises. This issue was handled in the UK law by amendments to the Obscene Publications Act of 1964, S. 1 (2). But, since the s.1 (2) offence is only committed if the intention is to distribute for gain, a website host will only be criminally liable under this section if it has paid subscribers and possibly only if access to the offending website requires a separate subscription.⁴⁰

TRANSMISSION BY AN ISP

It is clear that the primary purpose of most obscenity laws is to prevent the distribution of pornographic material, presumably on the ground that if individuals are prevented from distributing it, at least some of the motivation for producing it in the first place will be lost. As such the laws clearly target distributors over the possessors.⁴¹ This is where the aim of the legislators and the courts clash most obviously with the role of the ISPs, as the primary purpose of ISPs' point of view, and depending on their particular business model, the more people sending and receiving information, or the more information that is sent, the better, regardless of the content of that information. Legal measures that slow the flow of information, dissuade people from using the medium, or impose higher costs on the service are all undesirable.

For the lawmakers' point of view, for national content laws to have any meaning, they must be applied to all media, or the distributors of undesirable content will simply shift their focus to the weakly regulated medium. The difficulty lies in determining what constitutes reasonable regulation within a new medium and in ensuring that the financial burden of any regulation does not destroy the growth of that medium.

³⁸<http://www.iwf.org.uk> for Internet Watch Foundation

³⁹Supra at n. 17

⁴⁰Yar, M. (2006) *Cyber Crime and Society*, First Edition, Sage Publications, UK.

⁴¹Miller, L. (2002) *Management and E-Commerce : Online Legal Environment*, Thomson Learning Publishers, USA

Three different approaches to that dilemma can be ascertained from existing laws. The first approach criminalises the knowing distribution of obscene material.⁴² This approach allows ISPs to plead ignorance of the content of the material that they host or re-transmit, providing that they do not monitor the contents of their servers. Problems may arise, however, if the relevant law defines knowledge to include constructive knowledge.

The second approach criminalises distribution of obscene material for gain, subject to a defence of lack of knowledge or reasonable suspicion of contents. This would potentially catch ISPs who carries the Usenet newsgroups and websites, but would seem to permit ISPs not to have to filter the files, on and transmissions to and from, their systems. The third approach criminalises knowing distribution of obscene material, but provides a specific exemption from liability for intermediaries who merely provide access to other servers without participating actively in the production or distribution of the material.⁴³

Some jurisdictions impose criminal liability for the transmission of obscene, indecent or other unlawful material through their national telecommunications laws. Since internet communications are often carried across telecommunications networks, these laws will also be potentially applicable. Examples of such laws are 18 USC Section 1465⁴⁴ and the UK Telecommunications Act of 1994, s.43⁴⁵. Such offences are usually only committed by the sender of the material, which suggests that an ISP, which merely transmits packets originating outside its systems, cannot be liable. Matters become less certain when the ISP hosts a website – it may be perceived that the ISP does send the material, in that its software responds to requests for the obscene resource by transmitting it to the requesting user⁴⁶, although it would seem more logical to decide that the true sender is in fact the controller of the resource.

In general, it would seem that many ISPs are unenthusiastic about the storage and transmission of hard or soft core pornography regardless of their legal position. In countries like the United Kingdom, this may be partially over concerns about their liability, but may also be because the ISPs wish to avoid the service disruption that law

⁴²Tennessee Code (s.39-17-902) which provides: "It is unlawful to knowingly...prepare for distribution, publish, print, exhibit, distribute, or offer to distribute or to possess with intent to distribute or to exhibit or offer to distribute any obscene manner..."

⁴³See California Penal Code which provides in s. 312.6(a): "It does not constitute a violation of this chapter for a person to entirely solely to provide access or connection to or from a facility, system, or network over which that person or entity has no control, including related capabilities that are incidental to providing access or connection, this subdivision does not apply to any person or entity that is owned or controlled by, or a conspirator with, an entity activity involved in the creation, editing, or knowing distribution of communications that violates this chapter."

⁴⁴Offence of using a means of interstate commerce for the purpose of transporting obscene material.(See *Law and the Information Superhighway*, Henry Perritt, First Edition, Aspen Law Publishers, USA, 1996)

⁴⁵Offence of using a public telecommunications system to send grossly offensive, threatening or obscene material. (Walden, I. (2007) *Computer Crimes and Digital Investigations*, First Edition, Oxford University Press)

⁴⁶This may be the correct interpretation of the UK Indecent Displays Control Act 1981, s.1(1) which creates an offence of publicly displaying indecent matter in public or in a manner which permits it to be visible from any public place.

enforcement visits tend to cause, feel that association with pornographic material would be damaging to their potential client market, or simply find that the high rate of access to hosts that contain pornography tends to be disruptive to the operation of the computer on which the material is stored.

Legislative initiatives, of the type seen in the United States to regulate Internet content do not appear to have been seriously considered, the consensus being that a multi-level approach to content regulation would be a more effective way forward.

Where there has been any kind of legislative activity, it has more often had the aim of limiting the liability, if any, of ISPs, than of penalising IIs and end users. This is not to say that those providing or obtaining material considered illegal or harmful, via the Internet, may do so with impunity. As the recent case of *R v. Waddon* (1999) shows in the United Kingdom, national courts are perfectly able to use existing laws to cover Internet activities, even if some of the law has to be fairly liberally interpreted in the process.⁴⁷

CONCLUSION

This research has attempted to explore a range of issues relating to illegal, harmful, hateful and offensive content online. Debates in this area generate considerable controversy, as attempts to control online expression inevitably come in to conflict with the freedom of speech. The issues considered here are complicated, since what may be deemed 'offensive' may or may not be illegal depending on the kind of expression and the legal provisions in different national territories. A particular difference is notable between the US and the UK and other Western European nations. While the former places a premium on the preservation of individual freedom of expression, the latter tends to place a greater emphasis upon social harmony, cultural inclusion and the dignity of the minority groups.⁴⁸ Consequently, we can see a schism between American understandings of prohibit able representations, be they hateful or obscene and those prevalent in Europe. This 'legal pluralism' is also apparent within Europe itself, with significant differences on the prohibition of hate speech, the definitions of obscenity and the law concerning child pornography.

From media coverage, it is tempting to believe that Internet pornography poses massive challenges to the law. This is perhaps misleading. What has become clear over the past two decades is that it is difficult for nation states to enforce their own policies regarding what is or not acceptable. There is no doubt that a computer user in the UK can readily access material which could not be lawfully be purchased over a counter. There is very little law that enforcement agencies can enforce in this situation. Matters assume a different perspective when there is a commonality of approach between the

⁴⁷See also *R. v. Fellows*; *R v. Arnold* (1997) 2 All ER 548, CA

⁴⁸Perritt, H.(1996). *Law and the Information Superhighway* First Edition, Aspen Law Publishers, USA

jurisdictions where material is hosted and where it is accessed.⁴⁹ With all these laws in place, it is highly mooted as to whether there are still reliable ways of detecting or intercepting such messages or images to protect vulnerable users like children.

Some see the World Wide Web as an important step towards democracy, education and peace and of benefit to everyone from children to even nations in disseminating valuable information.

The reality is rather different from the vision⁵⁰. The greatest advances towards international harmonization and cooperation have emerged in relation to tackling child pornography, reflecting the greater degree of global moral consensus on this issue. Nevertheless, significant differences remain over issues such as what constitutes 'obscene' or 'indecent' image of a child, who counts as a 'child' and whether or not he artefacts such as computer generated images ought to be included within anti-pornography laws. These would continue to be the most debated and contested issues related to Internet crime.

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Section II

E-Governance & Policy Framework

Appropriate policy framework is a pre-requisite for E-Governance implementation in any country. This includes legal framework and necessary reforms in existing acts and procedures to conduct various government processes through innovative use of ICT as a medium. Every country has enacted laws to facilitate various G2G, G2C and G2B transactions, which got amendments at periodic interval.

Worldover, a large number of E-Governance projects have been conceptualized, designed, developed, implemented and maintained under the Public Private Partnerships (PPP) model. This model has gained fair amount of success too. However, managing such social projects through multiple vendors pose lot of challenges in terms of coordination, data security, privacy etc. This section includes such policy issues through a blend of theory and practices. In addition, it also covers contemporary aspects like assessment of Government Portals & Ranking and E-Governance & RTI.

There are mainly three types of challenges in every e-Governance project such as bureaucratic, developmental and implementation layers that drag the projects towards failure. Paper **“Evolving of a New Model for Development of e-Governance Applications”** proposes a model to meet these challenges along with their smart implementation. The paper on **“Online Participatory Government (OPaG or p-Government): Concept, Goals, Fears and Realization”** points out the principles, components, participation architecture along with major fears and obstacles of an online participatory government (OPaG) and explains steps for effective functioning of governance. The paper **“Inclusive Growth through E –Governance”** focuses on the role and significance of electronic and mobile Governance in achieving inclusive growth.

“Is Web 2.0 a threat to Representative Democracy? A Deliberation through the Australian Carbon Tax Debate” is an attempt to understand the influence of Social Media in Australia through the lens of carbon tax debate. The paper **“E-Government Procurement Implementation: Necessity of National Procurement Law”** studies various statutes, rules and government order governing public procurement in India, especially the successful e-procurement implementation by State Governments of Andhra Pradesh and Chhattisgarh. The study concludes that since ‘Procurement’ doesn’t figure in either State List or in Concurrent List, therefore Indian Parliament should make law on the subject for the entire country. It also brings out broad contours of a model procurement law. The paper **“Revisiting NeGP: eBharath 2020: The Proposed Future NeGP 2.0.”** gives a brief outline of e-Bharath 2020, future NeGP 2.0. (2012-2020) with emphasis on major reforms and reengineering of government processes using Lean and Six Sigma techniques.

Paper **“A Framework for Government Control over Sensitive information in Outsourced e-Governance Projects”** describes a framework to ensure that the government department retains control over sensitive information in outsourced e-governance projects and also introduces a mechanism to ensure traceability and accountability of users. The paper **“Guidelines for Indian Government Websites”** presents guidelines that have been developed through an extensive consultation process involving representatives from Indian Government departments, at the Centre and State levels. **“Service Level Management in e-Governance Projects”** describes the criteria and framework for designing, monitoring and managing SLAs.

Government websites often suffer from lack of standards, absence of information architecture, classification, citizen orientation, search engine optimization etc. Paper **“Issues of Information Access through Government Portals”** looks at the development of search platform supported by domain ontology to address the issues of information access in government portals. Paper **“E-Governance and RTI in India”** discusses the status of Freedom of Information (FOI) across a few countries and then examines the status of Right to Information Act (RTI) in India. It measures the performance of RTI based on Zifcak and Snell framework and compares it with the FOI status in other countries. It also tries to see what are the common issues and challenges regarding FOI across countries and especially in the Indian context.

The paper **“Citizen Participation for Successful e-Governance: A Case Study”** discusses how the participation of the citizens was actually useful in the successful implementation of a specific rural project in India, namely, the NREGS. The paper titled, **“e-Samadhan: A Successful Grievance Handling Project”** presents and analyzes a case e-Samadhan of Himachal Pradesh government through SAP-LAP method of inquiry. **“Efficiency and Transparency of E-Governance in Rajasthan Tourism: A Case Study of Rajasthan”** provides an empirical study of assessment of service orientation and effectiveness of Rajasthan Tourism and discusses the benefits, barriers and key success factors of tourism under E-Governance.

The paper **“Gujarat Model of TPDS Reforms”** narrates how the TDPS system in Gujarat empowers the beneficiary families through innovative use of modern ICT in governance processes and overcomes some of the issues commonly faced in such projects. The paper **“e-Governance in Rajasthan: A Critical Appraisal”** presents the critical evaluation of various e-Governance projects initiated by Rajasthan government from technological, marketing and HR perspectives. The paper **“A Case Study on Collaborative Government to Employee (G2E) Services in India”** explores the adoption of ICT to enhance Government-to-Employee (G2E) services in various states of India and proposes an Integrated Employee Information System (IEIS). **“Online System to Distribute Land Pattas to Schedule Tribes & Other Forest Dwellers”** provides a brief overview of the online Forest Right Monitoring System which takes care of receipt of claim applications, verification and approval of land title certificates to the Schedule Tribes and other traditional forest dwellers.

Evolving of a New Model for Development of e-Governance Applications

Ashis Kumar Mahapatra¹, Sukanta Kumar Sahoo² and Shuvam Mahapatra³

¹National Informatics Centre, New Delhi

²Gandhi Institute for Technological Advancement (GITA), Bhubaneswar, Odisha

³SAI International, Bhubaneswar, Odisha

E-mail: ashis.mahapatra@nic.in, sh_sknt@yahoo.co.in, 1999shuvam.svm@gmail.com

Abstract—e-Governance projects have been initiated to reduce the possibility of the corruption and have given a hope of transparent governance. All we need is to follow up a certain framework, guidelines or process flow which can lead us to a productive e-Governance project rescuing the investment from being sinking and can overcome all the challenges which may lead to failure of the project. e-Governance aims to make all the government activities Simple, Moral, Accountable, Responsive, and Transparent (SMART) through the esteem use of ICT.

There are mainly three types of challenges in every e-Governance project such as bureaucratic, developmental and implementation layers that drag the projects towards failure. During implementation the lack of infrastructure, maintenance of infrastructures and lack of willingness to adopt the new technology creates the real problem. This is the most crucial challenges faced in all the e-Governance projects which became the only reason for the failure of many well designed, smartly coded and strongly tested e-Government projects. At the time of development, developers use the SDLC models available that hardly addresses the challenges faced by the government and Implementing agencies. This model is specifically designed to meet the challenges faced during development of e-Governance projects along with their smart implementation.

Keywords: e-Governance, SDLC, Process Management, Resource Management, Software Development, SDLC Models, SDLC Phases.

INTRODUCTION

Today, in the era of ICT, e-Governance has changed the citizen's perspective towards the government. Many e-Governance projects have been initiated to reduce the possibility of the corruption and have given a hope of transparent governance. All we need is to follow up is a certain framework, guidelines or process flow which lead us to a productive e-Governance project rescuing the investment from being sinking and can overcome all the challenges which may lead to failure of the project.

With the development of the Information & Communication Technology (ICT) a new trend has started towards its innovative use in many sectors like Banking, Education, Transportation, Communication, Defense, Aviation, as well as in Government. e-Governance, as a tool for ensuring good governance aims at improving the quality, accessibility and effectiveness of Government services with the help of Information & Communication Technology (ICT).

CHALLENGES

Unlike any other enterprise solution, the e-Governance projects meet certain specific challenges in the entire category like G2G (Government to Government), G2C

(Government to Citizen), G2B (Government to Business) etc. There are mainly three type of challenges in every e-Governance project which can drag the project towards failure:

- Bureaucratic Layers
- Developmental Layer
- Implementation Layer

Bureaucratic Layer

Normally every kind of e-Governance project initiates from the bureaucratic level. They are the real people who start this herculean task to make the government smarter. Also, they are the policy maker and responsible for arranging funds for the project. Normally e-Governance projects leads to failure due the following reasons:

- Frantic effort to spend the fund at the end of the financial year without proper planning.
- Lack of technical knowledge and non-availability of expert panel at the bureaucratic level.
- More focus on G2C services without having proper G2G services at the back end, which are the stepping stone of those G2C services.
- Loose monitoring, lack of support to the implementing agencies
- Non awareness of the ground reality, lack of vision towards the infrastructure management on a long term basis.
- Lack of vision toward legacy system, future extensibility, integration to different government departments.

The above mentioned challenges affect implementation level more than the developmental stage and may collapse the entire process of the project development. As this is the decision making layer, so a dedicated team comprising of technical and domain experts must be formed from the beginning of the smart innovation.

Developmental Layer

Government process changes from time to time so if the changes occurred during the development of certain software system, it may become the headache for the developer team. For example during the development of holding tax monitoring system, if it has been finalized that to collect property tax instead of holding tax and calculation is quite different then it is a problem for the developer team to absorb this amount of change in their project. Change management is out of scope of this paper.

Maintaining a well balance between the legacy system and future extensibility of the project creates a problem for the software architect where as the technology used to find a middle way also becomes antiquated before the implementation of the project. For inter government operability it need to integrate applications of related departments, but those application may be developed by some other venders using some other platform so integrating with them creates the real problem as they may not be developed keeping in eye for the multi platform integration.

Implementation Layer

Technology has never been a problem for implementation of e-governance projects, given the country's pre-eminence in IT. However, the problem lies in understanding the intricacies of implementation of meaningful e-governance projects

In our country, the government is probably one of the biggest employers, and the biggest sector, from the economic point of view. The main problem is managing process change and change management within the government. Processes are very much linked to government rules and regulations. These need to be simplified for the smooth implementation of G2C services. But the process reengineering is always very slow, with long gestation period.

The first and the most important point is that the objectives, the milestones and the framework should be clearly articulated before we embark on any e-governance project. The evaluation of the project becomes very confusing due to the lack of measurable milestones, benchmarks or quantifying parameters. In this context, the emphasis should be on identifying quantifying parameters because, those things can't be measured can't be improved.

Implementation is also affected due to lack of adequate funding towards awareness program, maintenance of infrastructure and lack of client coordination.

PROBLEM STATEMENT

Every e-Governance projects have certain challenges and unsolved issues that are hardly addressed by any traditional or modern SDLC models. The challenging issues lies in Government Process Re-engineering (GPR), Change Management, Adoption Time, non consumption and G2G Integration.

The main objective of this research paper is to *develop a dedicated SDLC Model for e-Governance Applications*. As mentioned, clear specification of activities in the existing SDLC Models is missing and there is a lack of techniques that practitioners can choose from. There is no structure to the development of e-Governance projects. Hence, there is a need to develop a structured approach that clearly outlines the activities for development of the e-Governance Projects and suggests techniques or practices that can be used. Such an approach guides practitioners adopting development of e-Governance projects. To achieve clear specification of activities in developing the e-Governance projects, it must be structured. However, it is imperative that the impact on existing SDLC Models, the new approach should be soft structured in that it structures the development of e-Governance projects process without compromising existing SDLC Models. e-Governance project development and roll out must follow certain policy framework so that all the peculiar issues can be rooted out from the path of success. All we need to follow up is a dedicated policy framework, guidelines or process flow which can lead us to a productive e-Governance project rescuing the investment from being sinking and can overcome all the challenges which may lead to failure of the project.

THE RESEARCH OBJECTIVES

This research topic attempts to make an original contribution to Information System theory as well as reveal opportunities for future research. The research primarily aims to assist system development teams in their negotiating abilities in systems development. It will be used to apply negotiation skills to the systems development life cycle (SDLC) and ultimately produce benefits from these abilities, in terms of improved performance in system development.

A model will be presented in the research and aims to assist system development teams at each stage of the SDLC in developing e-Governance applications. It will be a model that will frequently be consulted, in order to facilitate negotiations within the SDLC team, and at what level to do so.

The objectives of this research work aims:

- To find out the Challenges faced in e-Governance Applications
- Development of a new Model to address the challenges of e-Governance Applications.
- To examine what factors play a role in the acceptance of the proposed frameworks
- To assess whether the proposed module will improve systems delivery

METHODOLOGIES

For this research, both Commercial Applications & e-Governance applications were chosen for an in-depth case study. Both Applications have produced several high-quality software products and finally a SDLC Model has been developed which implements a hybrid methodology of defined and empirical approach to address the challenges of the e-Governance projects

An exploratory research process using observations, surveys, documentation, and interviews was conducted for both Commercial Applications & e-Governance Applications.

REVIEW OF LITERATURE

There are many software development life cycle models available like *Waterfall*, *Iterative Waterfall*, *Prototype*, *Spiral*, *Extreme Programming*, *V model*, *Crystal Clear* but none of them are dedicatedly designed for e-Governance rather for commercial Software development. Individual companies pick the appropriate SDLC model, add or remove some features to suite their requirement. Every organization are using some kind of customized version of those base SDLC models depending upon their organization structure and nature of software they deal with. Change management, modular development, modular release approach, technology adoption time for the departmental users, complex work flow, e-Readiness are some of the challenging issues in any e-

Governance software development. In case of distributed and interoperable government services, it is very difficult to make a prototype at the early stage of the project. Every e-governance implementation needs extensive training on the modules to the departmental users. So, minor modification or extra features given in the software need to be communicated to the user in terms of hands on training, which is not always feasible.

LIMITATION OF EXISTING SDLC MODELS

E-Governance software development and rolling out is having many peculiarities which creates a question mark on all most all the defined SDLC models like “Waterfall”, “Spiral”, “Prototype” and empirical SDLC models like “Extreme Programming”, “SCRUM Methodology”, “Crystal Clear”. The linear approach of “Waterfall” model creates the risk of change of government during latter phase of the model. If during coding phase, the government policy has been changed then entire man hour on analysis, design phase have wasted. Although iteration has improved “Spiral” methodology but each iteration only addresses one set of parsed functionality. Due to the simplicity of “Prototype” model, it became very popular for the development of many e-Governance projects but it is limited to small scale projects and user interaction stays only during the mockup test or feed back. During each iteration of the “prototype” model, the prototype of the entire project need to be processed and it is possible only when the entire prototype design will be ready. In “Extreme Programming”, “SCRUM Methodology”, “Crystal Clear” models, the lack of modular release concept and GPR concept creates ambiguity for their success in e-Governance development.

OUR E-GOVERNANCE MODEL

The new model (Figure 1) provides the charm of simplicity of linear development and the flexibility of agile process development. In a *Jig Saw Puzzle* game, there are many small pieces, individually making no sense but combining them together gives a complete shape of a picture. Like that the new model defines four stages i.e. *presentation, model, assessment, and consumption*. But these stages are having very loose adhesion between each other and strong cohesion between the sub-processes of each stage and any stages can be started at any time irrespective of their order occurrence.

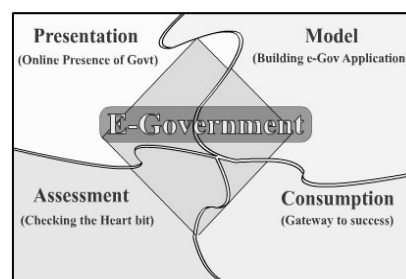


FIG. 1: PROPOSED E-GOV MODEL

Presentation (Online Presence of the Government)

As a basic step, an initiative can be taken up to show the online presence of the Government in a phase wise manner. Also there are no requirements to wait for the completion of other stages. It gives a primary boost towards next generation of Citizen - Government interaction.

Informational: Information about government & information compiled by the government are disseminated to the citizen as widely as possible by publishing departmental web sites.

Interacting: Development of two way communications through e-mail id of officers, phone numbers, feedback forms etc is done in this process.

Dynamic: Development of online grievance submission, suggestion box, blogs etc create a new generation citizen relationship management and creates a platform for efficient e-Government.

Model (Building e-Governance Application)

It is one of the most important stages in establishing effective e-Government. This involves process re-engineering of the government services, adopting modular release approach, concept of *Sprint Development* as well as *G2G interoperability*. The e-governance application can be modularized eying the different categories of users, i.e. Core User (Departmental User), Power User (Administrative User), End User (Citizen) to corresponding Core Module, Power Module and Citizen Module. These modules can be released in a linear manner but should also follow a certain developmental life cycle i.e. GPR, Sprint Planning, Iterative Sprint Development, G2G Integration and Release.

Government Process Re-Engineering

The traditional Government procedure to provide citizen services in India is very complex and it is a necessity to re-engineer the process so as to simplify it for easy transformation from Government to e-Government. The procedure of every G2C services like applying for passport, birth/death certificate, marriage registration, and arm license etc can be broken in to three phases and a common frame work can be evolved.

Sprint Planning

Sprint is a set of development activities conducted over a pre-defined period, usually one to four weeks. In simple words a project is combination of many modules and a module is combination of many sprints. In this sub process the user requirements are prioritized and broken in such manner to be completed within 1 to 4 weeks of time span in term of sprint.

Iterative Sprint Development with Critical Factors

Here a theoretical model has been provided to explain how agile methods can be adopted and utilized to effectively support the development of e-Governance projects.

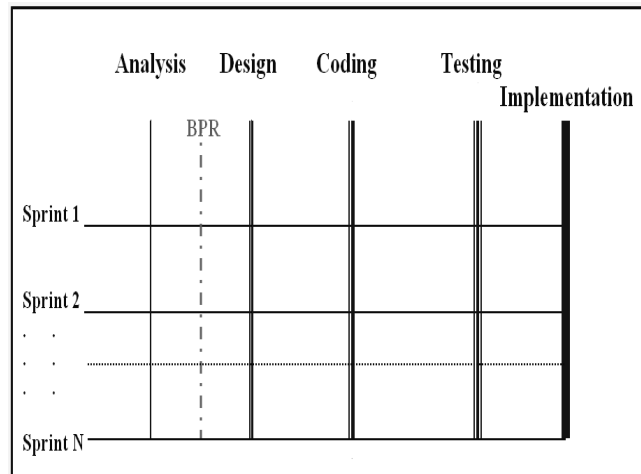


FIG. 2: ITERATIVE SPRINT DEVELOPMENT

The four factors are:

Human Resource Management

- Reflect the importance of the team composition, collaboration, training, accountability, trust and confidence and multiple responsibilities.
- Human resource management issues can directly affect the performance of scrum teams.

Structured Development Process

- Reflect the importance of the scrum framework, unit and integration testing, coding standards, security, documentation, formal code review, project estimation and planning and use cases.
- The organization should identify how much documentation is appropriate for each project based on the context of the development environment.

Environmental Factor

- Reflecting the importance of customer involvement, working environment, interdependency among modules, social loafing and common tools and problems.
- If the organization provides a way to accurately measure the individual's performance, a social loafing issue within a team might be diminished.

Information Systems & Information Technology

- Reflect the importance of communication system, information and knowledge sharing system, bug tracking system and management tools, and version control systems.
- Communication systems, bug tracking systems, and management tools are beneficial in the sense that they help developers visually see and remember what needs to be done on a daily and monthly basis.

As explained, all of the issues and challenges in each category should be resolved, or at least mitigated, and the four factors should be balanced and support each other to have success when Scrum is applied to e-Governance Projects.

As an empirical approach, the analysis, design and development process in this part of the model are unpredictable or uncontrolled. So, it requires external controls to be put on each of the iteration to avoid chaos while maximizing flexibility. Opposed to defined approach where the requirement being constant, in this approach it has been assumed that, the user requirements are changeable as well as open for improvements. The analysis, design, coding, and testing are applicable to each sprint and any change in requirements may become as upcoming sprint in the series. This provide two major advantages, i.e. one is effective change management with out huge cost overrun and the other is, project can be stopped when the major important features are done and running short of money.

G2G Integration

G2C Services can't be effective unless and until the backend government procedures are simplified, digitized as well as integrated.

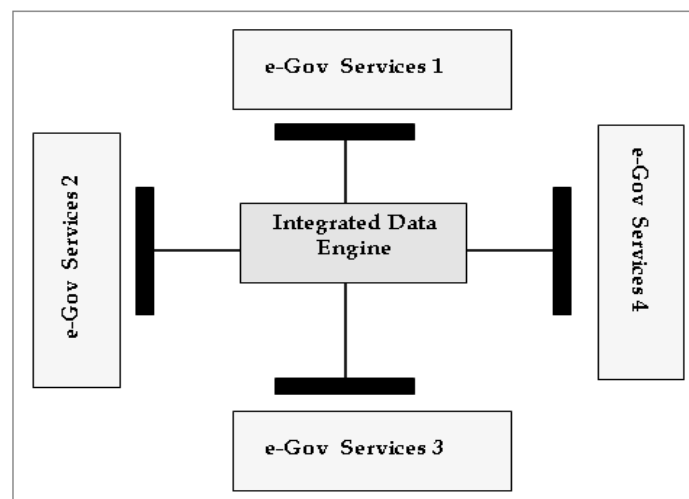


FIG. 3: IDE BASED G2G INTEGRATION

G2G integration is three types such as:

1. Data Integration
2. Process Integration
3. Communication Integration

G2G integration on architectural point of views many point to point but for large scale G2G Interoperability, it becomes very unmanaged and uncontrolled. So in this model, for large scale G2G integration, an “Integrated Data Engine” has been conceptualized.

Release

The requirements and change can be done during the *Iterative Sprint Development* phase but with the variable of time, requirements, Cost and quality concur for a new release to occur then a release can be done. Release should be done from the *Core Module* targeting *Departmental User* to *Citizen Module* targeting end user i.e. citizen through *Power Module*.

Assessment Methodologies (Checking the Heart bit)

When we discuss about the assessment stage of any project, then the first concept comes to mind that to check the quantifying parameters to the measure the success of the project. But the question is, after the completion of all the stages and then getting the assessment report is how much worth as the money & man hours already been invested. The assessment can save the tax payer money only if it can be done from the very beginning of the development.

Consumption

Non-Consumption leads to failure of the project. Consumption always does not mean to be started after the rolling out of the entire project. Consuming services are basically can be experimental before the release for assessment & implemental after release of the module. Implemental consumption can also be internal (Consumed by the Departmental User) and external (Intra Departmental User or Citizen).

CONCLUSION

The purpose of implementing e-governance is to provide good governance. As all e-Governance projects have certain common constraints, it was the need of software professionals from long time for the development of a specific SDLC model for e-Governance, which will meet all the constraints & Challenges. This new SDLC model, addresses all those challenges. Using this model rapid development lifecycle, fund optimization and utilization, interoperability in all e-Governance projects can be achieved successfully. This model provides a frame work to develop reliable, robust, extensible and pluggable e-Governance application. In addition, the developmental cost, and implementation costs can be lowered as well as services can be reached at the door step of the citizen providing more accessibility.

SCOPE FOR FURTHER STUDY

In e-Governance project, each parameter responsible to affect the project, changes so frequently that, it becomes necessary to adopt a specifically designed framework or model for successful e-Government roll out.

The dependent processes like security measures to be taken during development e-Governance applications could be explored within the scope of development and maintenance. Further one to one mapping between the phases of SDLC with these processes can be established.

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Online Participatory Government (OPaG or p-Government): Concept, Goals, Fears and Realization

Anil Kumar Baranwal

National Informatics Center, New Delhi

E-mail: helloakb@gmail.com

Abstract—This paper discusses the application of ICT in the administrative participation of the citizens in the online participatory governance (OPaG or p-Government), a technological artifact, resulting in the increased administrative efficiency and service benefits. ICT coupled with the citizens' participation in the online e-government services enables a 2-way flow of information along with improvements in the speed and cost of information delivery in an information and knowledge-based society.

The paper briefly presents the principles, components, participation architecture along with major fears and obstacles of an online participatory government (OPaG). The paper also explains the steps required to take in order to raise the efficiency, service and participation quality of the existing e-government as well as ensure the citizen participation in the p-Government and finally reveals the steps to implement the OPaG Plan that every Government agency need to take for the development and realization of the online participatory government (p-Government).

Keywords: Online Participatory Government, p-Government, OPaG, Participation Architecture, Online Communities

PARTICIPATORY GOVERNMENT

Participatory Government is a form of governance in which the broad participation of the citizens are ensured for the direction and operation of political systems. Citizen participation can be categorized in two types: (i) political participation such as voting in elections and (ii) administrative participation such as keeping a close watch on and participating in the administrative operations. We know that the ICT is capable of inducing meaningful changes in the way government functions. This paper discusses the application of ICT in the administrative participation of the citizens resulting in the increased administrative efficiency and service benefits, in an online participatory government (OPaG) or p-Government. ICT coupled with the citizens' participation in the online e-government services enables a 2-way flow of information along with improvements in the speed and cost of information delivery in an information and knowledge-based society.

p-Government: What and Why of the Online Participatory Government (OPaG)?

P-Government is a technological artifact where not only the application of ICT in the governance is conceptualized like e-Government but the participatory values and attributes are also included in it. It is, in fact, more about connecting the people and making the ICT more effective for the people. Facebook, Wiki, Blog, Myspace, Tagging etc. are the fine examples of connecting the people. Technologies are still important but more important are the social and participatory aspects of the technology involved. It is time to realize that in today's information and knowledge-based society information and

knowledge is truly the power which needs to be harnessed. Improving productivity or efficiency, increasing speed of the delivery systems and reducing the distance or time taken are nothing but the knowledge society terms used to describe the innovations in the government.

The government can do the following with the p-Government:

- Leverage the collective intelligence of the crowd
- Capture, share and analyze the wisdom of crowd
- Let people interact and help each other
- Rapid deployment of processes in response to emergency

What the e-Government provided was the websites with the features of information-driven, static, uni-directional communication and contents pushing from the content owners. The websites can be developed using Web 2.0 in the p-Government which shall enable and facilitate the users of the government websites, i.e. the citizens in the driving seat with the following features:

- User-centered and User-defined,
- co-producing the contents thus allowing citizen journalism,
- Social networking and participatory website,
- Dynamic and rich user experience,
- Harness the public opinion and collective intelligence,
- Usability defined by the users themselves,
- Multi-directional communication,
- Reach people where they are through SNS, Wiki, Twitter, Mobile, RSS feeds etc.,
- Enables solutions to achieve the government goals and objectives,
- Bookmarks available on web making them easily accessible and shared by others.

Components of the Online Participatory Government (p-Government)

The three principles which form the major components and cornerstone of an open and online participatory government (OPaG) are:

- Transparency,
- Participation, and
- Collaboration.

Transparency promotes accountability by providing the public with information about what the Government is doing. Major goals are:

- Work Openly
- Get information into the public domain
- Disseminate information effectively

The government agency's OPaG Plan should explain in detail how the agency will improve transparency. To enhance information dissemination, the agency should describe how it is currently meeting its legal information dissemination obligations as part of the Plan and how it plans to improve its existing information dissemination practices.

Participation allows members of the public to contribute ideas and expertise so that their government can make policies with the benefit of information that is widely dispersed in society. Major goals are:

- Make participation possible
- Make it happen on a relevant scale

To create more informed and effective policies, the Government agency should promote opportunities for the public to participate throughout the decision-making process. The government agency's OPaG Plan should explain in detail how the agency will improve participation, including steps it will take to revise its current practices to increase opportunities for public participation in and feedback on the agency's core mission activities. The specific details should include proposed changes to internal management and administrative policies to improve participation.

1. The Plan should include descriptions of and links to appropriate websites where the public can engage in existing participatory processes of the government agency.
2. The Plan should include proposals for new feedback mechanisms, including innovative tools and practices that create new and easier methods for public engagement.

Collaboration improves the effectiveness of Government by encouraging partnerships and cooperation within the Central/State Government, across levels of government(s), and between the Government and private institutions. Major goals are:

- Within the department/ agency
- With other departments/ agencies
- Outside government

The government agency's OPaG Plan should explain in detail how it will improve collaboration, including steps the agency will take to revise its current practices for further cooperation with other governmental agencies, the public, non-profit and private entities in fulfilling the agency's core mission activities. The specific details should include proposed changes to internal management and administrative policies to improve collaboration.

1. The Plan should include proposals to use technology platforms to improve collaboration among people within and outside your agency.

2. The Plan should include descriptions of and links to appropriate websites where the public can learn about existing collaboration efforts of your agency.
3. The Plan should include innovative methods, such as prizes and competitions, to obtain ideas from and to increase collaboration with those in the private sector, non-profit, and academic communities.

However, apart from the above stated three principles, two more components of the online participatory government (OPaG) are explained below:

1. **Flagship Initiative:** Each agency's OPaG Plan should describe, at least one specific, new transparency, participation or collaboration initiative that the government agency is currently implementing. That description should include:
 - An overview of the initiative, how it addresses one or more of the three openness principles, and how it aims to improve agency operations;
 - An explanation of how your agency engages or plans to engage the public and maintain dialogue with interested parties who could contribute innovative ideas to the initiative;
 - If appropriate, identification of any partners, external to the agency with whom it directly collaborates on the initiative;
 - An account of how the agency plans to measure improved transparency, participation, and/or collaboration through this initiative; and
 - An explanation of the steps the agency is taking to make the initiative sustainable and allow for continued improvement.
2. **Public and Agency Involvement:** The government agency's OPaG Plan should include extensive public and employee engagement during the formation of this plan, which should lead to the incorporation of relevant and useful ideas developed in that dialogue. Public engagement should continue to be part of the agency's periodic review and modification of its plan. The agency should respond to public feedback on a regular basis.

Participation Architecture in p-Government

3. instant connection between people for photos, videos, news etc. like in a Social Networking Site,
4. short notes (microblogging on twitter) via mobile or web,
5. public diary (blogging on wordpress),
6. sharing of web resources within a community of similar interests (on Tagging),
7. collaborative content management on a Wiki (like Wikipedia) etc.,
8. creation of new contents/ user experience by collecting and combining contents from
9. multiple data sources by Mash-ups through RSS or Atom feeds,

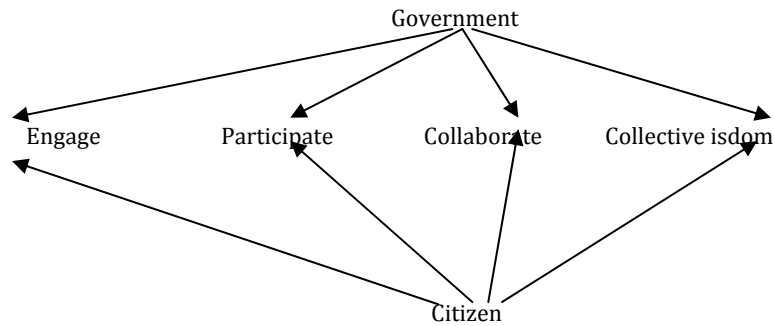


FIG. 1

Improving Government Services Delivery and Citizen Satisfaction through p-Government

To ensure the citizen participation in the p-Government, it is required to take the following steps in order to raise the efficiency, service and participation quality of the existing e-government:

1. Create an online or Cyber Identity for the Government agency or Head of the Government agency
 - Connect and Collaborate to Citizens Online
2. Develop Networking with Citizens (Online Communities)
 - Build a real and permanent audience for reaching across one / many channels
 - Build a networked community around various important issues like "Disaster management",
 - "108 Services", "Traffic Alerts for the Char Dham Visitors in Uttarakhand", "Environment", "Education", "Employment", "Transport", "RTI" etc.
3. Engage people
 - Reach more people faster
 - Address them and keep them informed about government work etc.
 - Deliver information directly to the citizen / stakeholder
4. Personalise
 - Get information to people that they want
 - Invite their Feedback online
 - Track results and interest over time
 - Address their concerns and issues
 - Let them know online the issues addressed for them

5. Channels

- Mobile / SMS–Connect immediately
- Email–Reach broadcast audience
- Social Media–Engage, Work together, leverage collective intelligence ; Social
- Media Tools like Twitter, Facebook, Wiki, Blogs etc.

6. Develop TWITTER, Wikis etc. applications for above communities

- Engage Citizens and Collaborate through Wiki etc.
- Leverage Collective Intelligence of the citizens

7. Develop Electronic Information Management System in the Government (EIMSIG)

8. Power of Citizen Networking (US President Barack Obama used this power extensively during the Presidential Elections in December, 2008 in USA)

- Power of addressing people through Online Communities / Mobiles etc.
- Power of Organizing and Fund-raising

9. Important Web 2.0 based Applications for the government

- Online Identity for the Government or its head
- Government SOA based Information Delivery Mechanism
- Twitter Channel for Disaster Management Services, 108 Services, Programmes Management, Traffic Alert for Char Dham Visitors in Uttarakhand State etc.

A. Major fears and obstacles

- Digital divide and increased information gap due to increased e-participation
- Feedback flow between the government and the citizens causing critical disagreement

B. Development and realization of the online participatory government (p-Government)

Every Government Agency need to take the following steps to implement the OPaG Plan:

1. Publish Government Information Online - To increase accountability, promote informed participation by the public, and create economic opportunity, each agency shall take prompt steps to expand access to information by making it available online. Timely publication of information is an essential component of transparency.
2. Each Department shall incorporate a mechanism for the public to:

- 1) Give feedback on and assessment of the quality of published information;
 - 2) Provide input about which information to prioritize for publication; and
 - 3) Provide input on the agency's OPaG Plan
 - 4) Each government agency shall respond to public inputs received on its OPaG Webpage on a regular basis
1. Improve the Quality of Government Information
 2. Create and Institutionalize a Culture of Online Participatory Government
 - 1) To create an unprecedented and sustained level of openness and accountability in every agency, senior leaders/officials should strive to incorporate the values of transparency, participation, and collaboration into the ongoing work of their agency to create and institutionalize a culture of Online Participatory Government.
 - 2) To provide a forum to share best practices on innovative ideas to promote transparency, participation and collaboration, including how to experiment with new technologies, take advantage of the expertise and insight of people both inside and outside the Federal Government, and form high-impact collaborations with researchers, the private sector, and civil society.
 3. Create an Enabling Policy Framework for OPaG

Emerging technologies, like Web 2.0 open new forms of communication between the government and the citizens. It is important that policies evolve to realize the potential of technology for online participatory government.

Realization of a seamless online participatory government or p-Government will eliminate the boundaries between the government and the citizens and lead to a more pragmatic and increased citizen participation, finally resulting in to the strategic improvement of the administrative participation allowing the citizens to express their views by online participation in the policy and decision making processes as well as in their day-to-day implementation.

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Inclusive Growth through e-Governance

V. Mary Jessica and B. Renuka

School of Management Studies, University of Hyderabad, Hyderabad

E-mail: vmjsun@gmail.com, rbacharaju@yahoo.com

Abstract—Government of India has made “inclusive growth” a key element of its policy platform, stating it as a goal: “Achieving a growth process in which people in different walks in life... feel that they too benefit significantly from the process.” (Ahluwalia, 2007). Inclusive growth as a strategy of economic development received attention owing to a rising concern that the benefits of economic growth have not been equitably shared. “The twin goals of Indian economic planning is to have overall economic development and equitable sharing of benefits of development to last mile civilian. Reaching the second goal has been more elusive in the Indian experience. Though not called by that name, the concept of Inclusive growth has been pursued for about 40yrs and various pro-poor policies were introduced by the Government of India. However, Indian society evidently, is still segmented and there are huge disparities between urban and rural populace, between castes, farm and non-farm, organised and unorganised sector employees, across gender and also between developed and under developed states. The important elements of inclusive growth such as Infrastructure, education, finance, economic and social benefits are not percolating to the masses. The study feels that corruption, lack of accountability, transparency, awareness of policies, passion etc are the main hindrances to inclusive growth. These hurdles can be overcome by e-governance and this paper mainly focuses on the role and significance of electronic and mobile Governance in achieving inclusive growth.

Keywords: Educational inclusion, Social inclusion, Financial inclusion, Infrastructure Inclusion, Transparency and Reliability, Inclusive growth.

INTRODUCTION

“A popular Government, without popular information, or the means of acquiring it, is but a Prologue to a Farce or a Tragedy; or, perhaps both.”

—James Madison

Inclusive growth by its very definition implies an equitable allocation of resources with benefits accruing to every section of society focusing on the intended short and long terms benefits and economic linkages at large on the basis of regional and population criteria. “Inclusive growth as the literal meaning of the two words refers to both the pace and the pattern of the economic growth. The literature on the subject draws fine distinction between direct income redistribution or shared growth and inclusive growth. The inclusive growth approach takes a longer term perspective as the focus is on productive employment rather than on direct income redistribution, as a means of increasing incomes for excluded groups. Inclusive growth is, therefore, supposed to be inherently sustainable as distinct from income distribution schemes which can in the short run reduce the disparities, between the poorest and the rest. Inclusive growth allows people to contribute to and benefit from economic growth”. (K.C.Chakrabarty, 2009). Hundreds of pro-poor policies were introduced and financed by both State and Central Governments in India. But it is strange to note that all the segments of inclusion have been out of reach for nearly 40% of the citizens. This paper explores the various reasons for failure of upliftment programs and the need of electronic and mobile governance for the smooth implementation of various pro-poor programs.

REVIEW OF LITERATURE

Ali and Hwa Son (2007) stated that Inclusive growth is 'growth that not only creates new economic opportunities, but also one that ensures equal access to the opportunities created for all segments of society, particularly for the poor'.

Birdsall, N., (2007) felt that Inclusive growth generally includes but extends pro-poor growth. The assumption is that growth which is beneficial for the large majority of people in developing countries is more likely to be economically and politically sustainable. It is observed that inclusive growth policies are strictly pro-poor and 'middle class' oriented. The sound fiscal and monetary policies that are framed for pro-poor are likely to also benefit the middle class as a whole. There may, however, be tradeoffs in some contexts in terms of specific tax, expenditure and transfer policies.

Chakrabarty, K.C. (2009) observed that economic growth in India has not been inclusive; unemployment and poverty remain high and a vast majority of the population remain excluded from health and education facilities. In order for growth to be inclusive, there needs to be not only the creation of economic opportunities, but also equal access to them. Inclusive growth can thus also contribute to poverty reduction by creating productive economic opportunities for poor and vulnerable groups.

Ianchovichina, E. and Lundstrom, S. (2009) observed that inclusive growth approach adopts a long term perspective and focuses on the generation of productive employment as a means of increasing incomes of excluded groups, rather than on direct income redistribution (although such schemes may be necessary in the short term). Inclusive growth analytics focus on ex-ante analysis of sources of, and constraints to sustained high growth for all groups in society; and on policies that should be implemented in the short run.

Arjan de Jager and Victor van Reijswoud (2006), E-Governance is a powerful tool for bringing about change to government processes in the developing world. E-governance operates at the cross roads between Information and Communication Technology and government processes, and can be divided into three overlapping domains: e-administration, e-services and e-society. In order to be successful, e-governance must be firmly embedded in the existing government processes, must be supported, both politically and technically, by the governments, and must provide users with reasons to use these on-line domains. In order to maximize the impact, process change needs to be considered part and parcel of e-governance.

OBJECTIVES OF THE PAPER

- To explore the various categories of inclusive growth and its significance.
- To understand the significance of e-governance in inclusive growth.
- To advocate the effectiveness of inclusive growth through e-governance.

METHODOLOGY

This paper is conceptual and descriptive. Each element of inclusive growth and the impact of e-governance on the same are examined. The data is collected from secondary sources mainly from authenticated websites, Journals and books.

CONCEPTUAL EXPLORATION

India's economy can primarily be categorized into three sectors, viz Agriculture, Industry and Service. India's large service industry accounts for 55.32% of the country's GDP while the industrial and agricultural sectors contribute 28.6% and 16.1% respectively. Agriculture is the predominant occupation in India, accounting for about 52% of employment. The service sector makes up a further 34% and industrial sector around 14%. One of the critical problems facing India's economy is that the sector which is depended upon by most of the civilians contributes lesser to the GDP. The gap between two sectors has risen because there is huge amount of *Infrastructure exclusion, education exclusion, financial exclusion, employment exclusion and social exclusion* in India.

India ranked 10th in international trade and its GDP was \$1.704 trillion by June 2011. The India's GDP growth rate is satisfactory @ 8.5% (2010-11). After having all the growth in GDP and economic development as already stated there are huge disparities between urban and rural populace, between castes, farm and non-farm, organised and unorganised sector employees, across gender and also between developed and under developed states. It is observed that population below poverty line stood at around 37% in 2010. In order to bring balanced growth among sectors and inclusive growth among citizens, the Government of India focused on 27 national targets at national level through various pro-poor policies.

The 27 national targets of the GOI have been categorized into 5 major categories in this paper.

- 1) Educational inclusion
- 2) Employment Inclusion
- 3) Financial inclusion
- 4) Infrastructure Inclusion
- 5) Social Inclusion

Education Inclusion

According to the Census figures of 2011, "every person above the age of 7 years who can read and write in any language is said to be literate". According to this criterion, the 2011 survey holds the National Literacy Rate to be around 74%, while male literacy is 82% and female literacy is 65%. Indian Government's allocation to National Education budget for 2011-2012, is ₹52,057 crore (US\$11.61 billion).

India has made huge progress in terms of expanding literacy to approximately three-fourths of the population. The right to education at elementary level has been made one of the fundamental rights under the eighty-sixth Amendment of 2002, and legislation has been enacted to further the objective of providing free education to all children. There are a plethora of programs and policies such as Sarva Shiksha Abhiyan, Mid-day Meal scheme, District Primary Education Program, Operation Blackboard, Mahila Samakhya, National Literacy Mission, to name a few. Government spent 151.20 crores in the first five-year plan, 43,825 crores in the 10th plan and proposed to spend 2.5 lakh crores for the 11th plan. Despite so many programs and huge budget allocation, India still faces the problem of educational exclusion. The drop-out rate is more than 50 per cent at elementary school level. Even as late as 2010, only 65 percent schools were housed in pucca buildings. More than 42,000 schools still function without a building of their own, while over one lakh schools have only one classroom. Only 5 per cent schools have separate lavatories for girls and only 8.7 per cent have separate urinals. A recent study by the World Bank found very high teacher absence rate in schools. National Knowledge Commission recommended that to achieve education inclusion, our country has to be provided with a minimum of 6,000 new quality schools, one in each block, 370 new colleges in low-enrollment districts, 30 new central universities, 5 new Indian Institutes of Science Education and Research, 8 new IITs, 7 new IIMs, 20 new Institutes of Information Technology, as well as 10,000 new vocational schools and 50,000 new skill development centers. (Shantha Sinha, 2011).

As against this by 2009, India had 20 central universities, 215 state universities, 100 deemed universities, 5 institutions established and functioning under the State Act, and 13 institutes of national importance. Other institutions include 16000 colleges, including 1800 exclusive women's colleges, functioning under these universities and institutions. However, the literacy rate of 74% is still lower than the worldwide average of 84% and the country suffers from a high dropout rate. Further, there exists a severe disparity in literacy rates and educational opportunities between males and females, urban and rural areas, and among different social groups.

Employment Inclusion

Unemployment in India is characterized by chronic (disguised) unemployment (which in recent decades have sent millions of poor and unskilled people into urban areas in search of livelihoods). Government schemes that target eradication of both poverty and unemployment attempt to solve the problem by providing financial assistance for setting up businesses, honing of skills, setting up public sector enterprises, reservations in governments, etc. The decline in organized employment due to the decreased role of the public sector after liberalization has further underlined the need for focusing on better education and has also put political pressure on further reforms. India's labour regulations are stringent even by standards of developing country and analysts have urged the government to abolish or modify them in order to make the environment more conducive for employment generation. The total labour force in India stood at 478 million by the end of 2010 and unemployment stood at 9.4% by the end of 2010.

Financial Inclusion:

Financial inclusion may be defined as the process of ensuring access to financial services and timely and adequate credit where needed to vulnerable groups such as weaker sections and low income group at an affordable cost. In India, while 59% of adult population has bank accounts, 41% remains unbanked. According to NSSO (National Sample Survey Organization, India) data in the situation assessment survey on "Indebtedness of Farmer Households" (2003), 45.9 million farmer households in the country (51.4%), out of a total of 89.3 million households do not have access to credit, either from institutional or non-institutional sources. Further, only 27% of total farm households are indebted to formal sources. This shows the need of speeding up the financial inclusion policy. (RBI report, 2009).

Infrastructure Inclusion

Government of India estimated that by 2009, 37% of the population of India lived below the poverty line and they are all away from various infrastructure facilities. Housing, transportation, electricity, communication, health care etc, are major infrastructures that are out of reach of around 40% of Indian population. According to The Times of India, a majority of Indians had a per capita space equivalent to or less than a 100 square feet room for their basic living needs, and one-third of urban Indians lived in "homes too cramped to exceed even the minimum requirements of a prison cell in the US. The average is 103 sq ft per person in rural areas and 117 sq ft per person in urban areas. All the government programs have relied upon the strategies of Food for work program and National Rural Employment Program of the 1980s, which attempted to use the unemployed to generate productive assets and build rural infrastructure. But, by the end of 2010 Indian Government estimated that 600 million Indians have no electricity at all. While 80% of Indian villages have at least an electricity line, only 44% of rural households have access to electricity. It is strange to note that the stolen electricity amounts to 1.5% of India's GDP. Substantial improvements in water supply infrastructure, both in urban and rural areas, have taken place over the past decade, with the proportion of the population having access to safe drinking water rising from 66% in 1991 to 92% in 2001 in rural areas, and from 82% to 98% in urban areas. However, quality and availability of water supply remains a major problem even in urban India, with most cities getting water for only a few hours during the day. India has the world's third largest road network, covering about 3.3 million kilometers and carrying 65% of freight and 80% of passenger traffic. Container traffic is growing at 15% a year. India has a national tele density rate of 67.67% with 806.1 million telephone subscribers, two-thirds of them in urban areas, but Internet use is rare—there were only 10.29 million broadband lines in India in September 2010. (www.gov.india.in)

Social Inclusion

Social exclusion is the denial of equal opportunities imposed by certain groups of society up on others which leads to inability of an individual to participate in the basic political, economic and social functioning of the society. (Sukhadeo Thorat, 2008). The vision of inclusiveness must go beyond the traditional objective of poverty alleviation to encompass equality of opportunity, as well as economic and social mobility for all sections of society, with affirmative action for SCs, STs, OBCs, minorities and women. There must be equality of opportunity to all with freedom and dignity, and without social or political obstacles. In 1960 a list identifying 405 Scheduled Castes and 225 Scheduled Tribes was published by the Central Government. An amendment was made to the list in 1975, which identified 841 Scheduled Castes and 510 Scheduled Tribes. The total percentage of Scheduled Castes and Scheduled Tribes combined was found to be 22.5 percent of total population. Scheduled Castes accounting for 17% and the Scheduled Tribes accounting for the remaining 7.5%. (www.gov.india.in)

CAUSES OF INEFFECTIVENESS

Despite this large number of policy initiatives and programs undertaken in this country over the last few decades with the basic objective of tackling the problems of the rapidly increasing poverty, unemployment, illiteracy etc, through a plethora of programs, policies and financial expenditure, 40% of the Indian population still remains excluded.

The main reasons for this state of affairs are:

- Lack of accountability and responsibility is an important aspect, wherein accountability means that governments need first to inform the public of their actions and intentions and, second, to offer mechanisms through which they can be punished for not being responsible. But even to date Government has not initiated any measures for its accountability on various issues.
- Transparency promotes accountability and provides information to citizens about what their Government is doing. Indian Government never felt that maintaining transparency would be a national asset, but rather treated it as a liability.
- Lack of awareness/information among public is also one of the main drawbacks of Indian economy. 40% of Indian population is unaware of financial issues, political issues, societal issues etc, not many initiatives were taken by the Government to make them aware of various opportunities, challenges and issues.
- Corruption: Most Indian politicians are corrupt and have no passion towards implementation of policies. Politicians would rather divert the funds for their own luxuries. Corruption has been one of the most pervasive problems affecting India. It is estimated by the Swiss Banking Association that India topped the worldwide list for black money with almost \$1,456 billion stashed in Swiss banks. This amounts to 13 times the country's total external debt by 2006.

The CNN-IBN & CNBC-TV 18 “State of the Nation Poll” conducted a survey through Centre for the Study of Developing Societies (CSDS) on current perception of people about the Government. The result shows the need for and significance of transparency, accuracy and responsibility for economic growth. This survey was done across the Nation in a total of 1300 randomly selected locations. A total of 39000 randomly selected names from the updated electoral rolls were approached for interview of **20,268** interviews were successfully completed. The following tables and paragraphs highlight the findings of the survey:

TABLE 1: TO A QUESTION WHICH READ “WHO IS THE MOST CORRUPT?” THE FOLLOWING WERE THE RESPONSES

Category	% of respondents
Government Employees	32%
Elected representatives	43%
Judiciary	4%
Business & Industrialists	3%
NGOs and media	2%
No opinion/ Not mentioned	16%

The elected representatives and government employees have been perceived as corrupt by most people. (75% of the respondents identifying them as the most corrupt). The perception is higher among the well educated. Yogendra Yadav, 2011)

TABLE 2: CENTRE IS MORE CORRUPT THAN STATE GOVERNMENTS

	Central Government is Most Corrupt (%)	State Government is Most Corrupt (%)	Local government is Most Corrupt (%)
All India	35	24	23
Bihar	48	14	37
Rajasthan	46	18	19
Delhi	46	20	10
Uttarakhand	44	19	17
Maharashtra	37	20	27
Gujarat	35	14	18
Madhya Pradesh	34	15	31
Punjab	34	28	11
Andhra Pradesh	32	39	14
Uttar Pradesh	32	30	18
Karnataka	26	52	14

When asked which Government was most corrupt – Central, State or Local, most people said that the Central government was the most corrupt. The perception of the Central Government being most corrupt is strongest in Bihar Rajasthan and Delhi. The perception of the State Government being most corrupt is strongest in Karnataka followed by Andhra Pradesh. The state governments of Gujarat and Bihar fared the best when compared to other levels of government. (Yogendra Yadav, 2011)

ROLE OF E-GOVERNANCE IN SOLVING THE ABOVE PROBLEMS AND ITS SIGNIFICANCE IN IMPLEMENTING PRO-POOR POLICIES IN ORDER TO ACHIEVE INCLUSIVE GROWTH

E-governance is about a process of reform in the way governments work, share information using Information Technology (IT) and deliver services to external and internal clients for the benefits of both government and the citizens and businesses that they serve. E-governments harness information technologies such as Wide Area Networks, Internet, World Wide Web and mobile computing by government agencies to reach out to citizens, businesses and others.

Significance of Electronic and Mobile Governance

- Improves delivery of services to citizens
- Improves interface with business and industry
- Improves the revenues and empowers citizens
- Offers greater convenience.
- Improves transparency, accountability and accuracy.
- Make the working of Government more efficient and effective.
- Provides thorough access to Information technology and controls corruption.

TABLE 3: THE FOLLOWING ARE THE 27 NATIONAL TARGETS SET BY THE GOVERNMENT OF INDIA

• Central MMPs	• State MMPs	• Integrated MMPs
• Banking • Central Excise & Customs • Income Tax (IT) • Insurance • MCA21 • National Citizen Database • Passport • Immigration, Visa and Foreigners Registration & Tracking • Pension • e-Office	• Agriculture • Commercial Taxes • e-District • Employment Exchange • Land Records • Municipalities • Gram Panchayats • Police • Road Transport • Treasuries	• CSC • e-Biz • e-Courts • e-Procurement • EDI For e - Trade • National e-governance Service Delivery Gateway • India Portal

Source: Department of Information Technology, Ministry of communication & Information Technology, Government of India. www.mit.gov.in/content/mission-mode-projects.

Government of India had allocated US\$ 4.92 billion in budget allocations in the Tenth Five Year Plan (2002-07) for implementation of e-governance (<http://www.egovonline.net>). Further India proposed the National E-governance Action Plan for implementation during the year 2003-2007 (though it got Cabinet approval on May 18, 2006). The Plan seeks to lay the foundation and provide the impetus for long-term growth of e-Governance within the country. Every government department is expected to invest 2% of its budget on e-governance. In order to expand e-governance initiatives in India, the National e-Governance Plan (NeGP) officially commenced in May, 2006. The NeGP has three tier functional models i.e. the whole work has been split into clearly delineated Mission Mode Projects (MMPs). Each MMP is designed and developed

as project mode on a mission basis as reflected in the nomenclature. It consists of three types of MMPs viz. Central Mission Mode Projects, State MMPs and Integrated MMPs. E-governance is connected in 28 states, 7 Union territories, 626 districts and 6,00,000 villages. Total estimated cost for e-governance is Rs.10699.2 crores.

TABLE 4: MMPs STATUS AT A GLANCE

Mission Mode Project	Status Update
Banking	Formation of National Payment Corporation of India, rollout of Interbank Mobile Payment Service.
National Citizen Database	Formation of Unique Id Authority: Enrolment crossed the one lakh mark
MCA21	Setting up of helpdesk at ROC: Show case facilitation centers at metros continue: 200 CFCs in operation
Automation of central excise and Service tax (ACES)	Setting up of www.aces.gov.in: national rollout in 2009
E - Office	Roll out in Kerala NIC
Passport seva project	Setting up of passport Seva Kendras in Bengaluru
e-district	West Bengal rolled out in Bankura & Jalpaiguri: Tamilnadu Government implemented in Krishnagiri, Coimbatore, Thiruvavur & Nilgiris districts: Maharastra selected Pune, Nagpur & Latur for pilot phase.
Gram panchayats	A total of 97,392 village panchayats broadband enabled Gujarat the only state to connect all 13,716 village panchayats.
Land Records Management	Punjab investing Rs.115 crores and looking to computerized all 153 Tehsils, Maharastra Government extended the scheme to municipal Corporations of Mumbai Sub- urban, Kolhapur, Nagpur, Raigadh, Nasik and Latur in addition to Pune. An online facility for 7*12 extracts and property cards of 7 districts has already been launched in Pune, Orissa too has joined the league with on line registration of land records earlier this year.
Employment exchange	In Tamil Nadu, 4 exchanges have gone online using a centralized online service.
Treasuries	Envisages computerization of 625 state treasuries: Jammu & Kashmir government has decided to computerize 11 treasuries - 6 in Kashmir & 5 in Jammu division in this fiscal.
Commercial taxes	Tamil Nadu has initiated the project: Chandigarh too has followed suit, to be implemented in next 2 years.
Police	The criminal tracking and network system(CCTNS) – A central Sector Scheme with 100% funding by the central Government, The planning commission Had approved an outlay of Rs. 2000 crore in the 11 th 5 year plan for covering 14,000 police stations, 6,000 higher officers, National Crime Records bureau(NCRB) , and state Crime records bureaus(NCRB) during the plan period.
e-biz	In 2009, Rs. 15 crore scheme was rolled out: in pilot phase spanning over 3yrs, the scheme will cover Delhi, Haryana, Andhra Pradesh, Maharastra and Tamil Nadu offering 50 services: When completed in 2019, the portal will offer 205 G2B services.
e-Procurement	Last year DGS&D launched live opening of e-bids for DGS&D rate contracts: Indian railways using e-procurement for reducing the procurement and advertisement cost by approximately 30%.
e-courts	Karkardooma court in Delhi becomes first district court to become e-court: cabinet committee on economic affairs revised the allocation to Rs. 9.4Billion up from Rs.4.4 billion allocated in 2007.

Table 4 (Contd.)...

...Table 4 Contd.

India Portal	Functional in 5 regional languages – Gujarathi, Assamese, Tamil, Oriya and Bengali: A web based secured content management system and an external website opening in a new window has been developed.
National e-governance Service Delivery Gateway	Went live on August 2008: fully integrated with MCA 21: Systems integration with India portal, trademarks, PAN, e-districts, e-forms and state portals is in progress: testing with e-biz for NSDG 2.0 is underway: application security testing for NSDG version 2.0 completed at both the DC and DR site.
EDI for e-trade	All 12 major ports identified for connecting electronically with PCS like Kolkata, Paradip, Visakhapatnam, Chennai, Ennore, Tuticorin, Kochin, New Mangalore, Mormugao, Mumbai, Jawaharlal Nehru port trust and Kandla.
Municipalities	The Rs.787 crore project under the Ministry of Urban Development proposes to offer services like registration, issue of birth/death certificates: payment of property taxes: Payment of utility bills; grievance and suggestions and building plan approvals.
Common Service Centers	More than 85K CSCs rolled out; 3i Infotech & Comat Technologies pulled out: Target of 1 lakh CSCs to be rolled out by March 11.
IVFRT(Immigration, Visa and Foreigners Registration & Tracking)	To be implemented between April 10 th to September 14 th for connecting 169 Indian Missions, 77 Immigration check posts.

Stuti Das (2010), "Status of e-Gov Projects, e-Gov projects, e-Governance, Mission Mode Projects, e-Services, UID (Aadhar)", Data Quest, The Business of Infotech, Friday, December 10, 2010.

TABLE 5: STATE LEVEL BEST PRACTICES-SAMPLE EXAMPLES

Andhra Pradesh: E-Seva centres have been established in over 200 villages and towns delivering services to citizens based on a low-cost networking model. Of the 46 bigger e-Seva Centres at mandal headquarters, 16 are headed by MACTS (Mutually Aided Cooperative Societies) which are led by women and have at least 2,000 women members. Bhu Bharati, an integrated land information system, has been piloted in Nizamabad district. e-village Chiluvuru in Guntur District with Wi-Fi connectivity, e village web site and databases MPHS (Multi Purpose House-hold Survey), Land Record Management System and Pattadar Pass Books, Ration Cards Management System, Cooperative Bank Loans Management System, System for School Children attendance and mid day meals on net, health records, crop marketing and counseling for farmers, e-commerce including insurance and transfers etc. Andhra Performance Tracking System for improving delivery of services and infrastructure.
Assam: Web portal for agriculture business in partnership with farmers and producers organizations, financial institutions and community information centres (CICs), localized content with value added services like insurance, credit, trading etc. - Project SANWAD offering citizen oriented services like certificate (income, caste, domicile, land records etc.) and online grievance redressal system. PPP Business Model for kiosks
Delhi: 23 departments and 104 services have been identified to be brought under the "Jeevan" project which planned a roll out of 'Government to citizen kiosks'. Services include payment of utility bills, getting licenses or certificates, issue of forms etc on a single online platform. under the Delhi Government's Department of Information Technology, the number of services that would be offered through each of the 300 centres working under it has gone up to 73.

Table 5 (Contd.)...

... Table 5 Contd.

Gujarat: The One-Day Governance model provides eight citizen services across the counter in one hour. These eight services are income certificate, domicile certificate, addition/deletion/modification of name in ration card etc based on business process re-engineering and set procedures. 125 out of 143 municipal centres and all 225 talukas have these One Day Governance Centres or Jan Seva Kendras. - Computerized Interstate Check-posts in Gujarat. - The Chiranjiv Yojana for controlling maternal mortality. - Nirmal Gujarat Project for cleanliness. - Municipal Reforms in Surat where decentralization freed the municipal commissioner to focus on policy issues and empowered zonal commissioners to deal with a fast-changing situation. - Swantah Sukhay – Every District/Taluka level officer selects a project, with quantifiable targets and specific deadlines with freedom and flexibility to implement one project in a campaign mode for services to general public. Projects include 24X7 days medical facilities in rural areas, model fair price shops, telemarketing of rural produce incorporating ICT, biometric attendance, citizen centres etc. - Power Sector Reforms for reliable rural power supply. - Vat Information System - Gujarat was awarded-Excellence in Government Process Reengineering Category Award 2007-08 (silver).
Karnataka: Has opened 800 Citizen Service Centres offering an integrated range of services like certificates, pensions, social security payments and special packages like Bhoomi and Kaveri registration as 'one stop shops'. • Bhoomi allows computerized easy access and facilities for 'mutations and updating of 20 million land records belonging to 6.7 million farmers in an efficient and transparent way based on a self sustaining business models.' - The State is now developing procurement reforms linked with e-GP state wide end to end program from indent to payment with e-tendering, electronic submission of bids, contract management and e-payment integrated with the treasury system in a phased manner. 265 - VAT Processing System obtained the Exemplary Horizontal Transfer of ICT based Best Practice category 2007-08 (bronze) • Other successful initiatives are khajane (online treasury project), Gram Swaraj Project to improve service delivery and management of public resources at the Panchayat level etc.
Haryana: Best Practices on 'Integrated Workflow System for Paperless Admission' with online off campus counseling for all technical courses including post graduate, undergraduate and diploma education has obtained Central award for Exemplary Horizontal Transfer of ICT based Best Practice category 2007-08; - Mustard Procurement management System has obtained an award in the Special Sectoral Award Category, 2007-2008. - Janani Suvidha Yojana for maternal health care.
Kerala: Successfully piloted Rural ICT access points Akshaya with e-payment facilities. The SWIFT pilot program provides one point solution for 25 types of certificates. - PEARL for administration of registration laws and documents, Agriculture management Information System, etc. - Asraya a community based initiative to remove destitution.
Madhya Pradesh: Gyandoot Community-Owned Rural Internet Kiosks in Dhar where the entire expenditure for the Gyandoot network has been borne by Panchayats and the community with no expenditure burden for the state or national government. - Decentralizing Teacher Management in MP lowered teacher absenteeism and reinforced accountability. Use of Para-teachers made it possible to extend a decentralized model of teacher management in MP that boosted school enrollment in a fiscally constrained setting. - Rogi Kalyan Samitis with autonomy to charge user fees and deploy them for purchase of equipment and maintenance' are other important experiments.
Maharashtra: Has introduced special legislation, the Maharashtra Government Servants Regulation of Transfers and Prevention of Delay in Discharge of Official Duties Act, 2006 for improved public service delivery with time limit of seven days for pendency with any government servant and overall time limit of forty-five days for clearance of the file. Appropriate disciplinary action has been taken against defaulters. The Act also prescribes delegation with up to a maximum of three levels of submission before final decision. - It has also impressive best practices including Koshvahini or e-treasury package, e-registration etc.

Table 5 Contd....

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Rajasthan: Has set up over 500 e- mitra service centres on PPP basis in 31 out of 32 districts with services including certificates, payment of bills, transport ticketing, ration card etc with business process reengineering in linked departments. SARATHI (Stamp and Registration Automation with Technology and Information) e-registration in an hour.
Tamilnadu: E- Registration Star and Reginet on a self sustaining basis, SARI Project Madurai District pilot phase services include farming advice by the Madurai Agricultural College & Research Centre; applications for government loans; e-mail, chatting and voicemail; eye care and treatment; income, caste, birth and death certificates; old age pension; computer education etc. - Universal Public Distribution System using ICT for online PDS system with smart cards and biometrics.
Tripura : E Suvidha Kendras or service facilitation centres in all SDM offices providing 22 citizen services with tracking.
Uttar Pradesh: The Lokavani pilot of Sitapur District incorporated franchisee e-kiosks which offer services related to grievances, land records, employment services, tender services, court information system etc 15 services on a self-sustaining basis. The program allows for registration and tracking of applications. Has been rolled out in 21 districts with over 398 kiosks, pilots in land records, e-registration etc underway. Over 16000 Common Service Centres are proposed.
West Bengal: Gram Panchayat Accounts and Management in 400 panchayats with total coverage by 2009; GIS based information system at GP level. Pilots for Citizen Service Centres ongoing. Tele-medicine projects linking Referral and District Nodal Centres or Hospitals providing tele consultation with referral centres. 6697 Citizen Service Centres for delivery of various services planned.

Source: www.india.gov.in

It may thus be seen that e-governance and mobile governance can go a long way in improving the services rendered. The measures undertaken above show that e-governance has the potency to improve transparency, accountability and also ability to scale down corruption. On the other hand it also empowers the citizens thereby enabling them to participate, which is the very essence of inclusive growth.

CONCLUSION

Despite all the necessary initiatives taken, India is still plagued by exclusion in various spheres. As it is said, “an ounce of perspiration is better than a tonne of inspiration”, or “the proof of the pudding is in the eating”, India now deserves effective implementation, rather than a thousand well - intentioned policies or programs. The common man needs to be empowered through awareness, enabled through knowledge, included through accountability in Governance. It is necessary to make all Government services accessible to the common man in his locality through common service delivery outlets and ensure efficiency, transparency and reliability of such services at an affordable cost to realize his basic needs. Reforming cumbersome regulatory procedures, improving rural connectivity, establishing law and order, creating a stable platform for natural resource investment etc, will bring about equitable economic and social balance in the country. E-governance is one of the most potent weapons which controls corruption, enhances transparency, accountability and awareness. Therefore Government of India has to concentrate more on ICT that bridges the gap between Government and the governed.”

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Is Web 2.0 a Threat to Representative Democracy?

A Deliberation through the Australian Carbon Tax Debate

Bardo Fraunholz and Chandana Unnithan

Deakin University, Australia

E-mail: bardo.fraunholz@deakin.edu.au, chandana.unnithan@deakin.edu.au

Abstract—*The influence of Social Media is intensifying in global societies. As the technologies become cheaper and the acceptance of Web 2.0 becomes widespread, the power of social media on citizens, particularly the integrated influence of Facebook, Twitter, YouTube and Blogs cannot be underestimated. In this paper, we attempt a deliberation through the lens of carbon tax debate in Australia where the influence of Social Media has perhaps begun to portend the role of elected representation in this representative democracy.*

Keywords: Representative Democracy, Web 2.0, Facebook, Carbon Tax, Australia

INTRODUCTION

We live in a globalized world where democracy is an accepted and popular form of governance. As the protuberant philosopher Dahrendorf (2004) writes, “*Democracy is an ensemble of institutions aimed at giving legitimacy to the exercise of political power by providing a coherent response to three questions: (1) How can we achieve change in our society without violence? (2) How can we, through a system of checks and balances, control those who are in power in a way that gives us assurance that they will not abuse it? and (3) How can the people – all the citizens – have a voice in the exercise of power?*” (Dahrendorf, 2001: p1). While democracy continues to remain a trendy form of governance that can either foster a cohesive political structure by engaging citizens or destabilize ephemeral societies by dissolving accord and fuelling differences (Hay, 2005), the notion of democracy itself has been changing by countless stimuli such as ideologies, politics, religion and more significantly, technological evolutions (King, 2006) and the rise of Web 2.0 in recent times (Fraunholz and Unnithan, 2010).

The focus of this paper is on the representative democracy of Australia. Seminal allusion (Norris, 2003) argues that theoretically, citizens are allowed to choose candidates to represent their opinion in this form of democracy. Information is communicated to citizens, so that they are sufficiently informed to cast a vote in favor of a suitable candidate. The elected representatives then collect citizen referendums on behalf of the citizens, to debate and agree upon in the governmental institutions (Norris, 2003, p4). Underlying principles of representative democracy is that governance is kept accountable as an opportunity is provided to the citizens to have their preferences weighted equally in their choice of leaders, through elections. However, as we have argued previously, the concept of democracy itself is no longer synonymous with a united understanding of the citizen objectives, due to apathetic voters (Fraunholz and Unnithan, 2008). In modern times, there is increasing advocacy for *participatory democracy* (Kramer, 1972), a process that highlights broader participation of

constituents in governance processes or rather strives to create opportunities for all citizens to make equal and meaningful contributions. And in the last decade, this process has been facilitated by e-governance.

The use of ICTs and Web 2.0 in combination to facilitate governance by engaging citizens in democracies is commonly referred to as e-governance. Since 2001, e-voting, weblogs, YouTube, Facebook, Twitter etc has been deployed in e-governance in the process of transitioning democracies into *e-democracies* or *cyber democracies*. Good governance is often visualized as the engagement of citizens in public policy-making via e-Forums, e-Consultations, e-Referenda, e-Voting, and other forms of e-Participation (Gupta, 2006). The use of Internet is emphasized for typical enhancements such as making processes more accessible, extending citizen participation in public policy making so that the broader influence will result in smarter policies, increasing accountability and political legitimacy.

Representative democracies depend on informed and engaged citizen votes. Traditionally, the print media and lately the television were protagonists in informing citizens. The newspaper had been the most powerful medium in stirring public debate and influencing voters for decades. As the television era progressed, the information that was originally provided to citizens via the print media, became more thought provoking. For example, instead of passively watching news, today, we have debates, or even question time where real people pose questions, which is then to be answered by a potential candidate. This discussion is telecast to wider audiences. In a representative democracy, these forums enabled a better conduit for casting the informed vote, to elect a representative.

Nonetheless, as a corpus of research indicates (Putnam, 2000) these traditional forms of media were still not rousing a reaction from the disinterested common man, resulting in a steady decline from mid 20th century until present, in civic engagement. At this juncture, scholars concerned with the future of democracies had begun turning their attention on to the potential of Internet-based social practices to perhaps assuage this trend (Freelon, 2010). Today, online social media is powerful and pervading daily life. Unlike the other forms of media, online media prompts interaction and it can be integrated well with other different types of media.

In recent times, there has been a shift towards integrating various forms of media in an effort to merge citizen views. For example, the Australian Broadcasting Corporation has varied channels for informing citizens, such as radio, television, YouTube, Facebook, Twitter. A news item can be commented upon and debated via Facebook page or as a comment if it is available via YouTube. Taking a cue from this integration, the Australian government has attempted to reach out to citizens via direct mail to households, which not only informs the citizen of a particular issue, but also seeks opinion from them, which can be provided via online channels such as a website or Facebook page. This seamless integration gives rise to constant feedback directly from citizens, raising interesting challenges to the role of the elected representation in this democracy. Our paper is set in this premise, and focusing on the carbon tax debate.

Our earlier research on presidential elections in 2007 (Fraunholz and Unnithan, 2009) revealed an increased citizen-to-citizen engagement including Internet based debates, speculation and partisan opinion exhibited via Blogs. Nevertheless, the question remained as to whether Web 2.0 tools, while engaging citizens, had also manipulated public opinion to an extent, and is so, how? In this continuum, we explored the carbon tax debate in Australia, which has perhaps not only swayed public opinion, but also threatened the role of elected representation in this representative democracy.

The rest of this paper is organized as follows. Section 2 offers the background on carbon tax. The subsequent section offers taxonomies that are relevant in this research followed by a section on theoretical lens used for analysis. Consequently, in section 5 and sub sections, we deconstruct the carbon tax discourse in Australia via Web 2.0 and conclude with rhetoric.

BACKGROUND—THE CARBON TAX

Preservation of environment is on the agenda of every nation today. The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, produced the United Nations Framework Convention on Climate Change (UNFCCC or FCCC), an international environmental treaty in 1992 (Hoeller & Wallin, 1991). The objective of this treaty is to stabilize greenhouse gas concentrations in the atmosphere at a level that could prevent dangerous anthropogenic interference with the climate system (Hoeller & Wallin, 1991). National science academies (Climate Change at the national academies, 2009) and the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC, 2007) have pointed out the potential impacts of human-induced climate change. Conversely, scientific accord worldwide is that human-induced greenhouse gas emissions are the main cause of global warming and carbon dioxide is one of the most vital of the many heat trapping greenhouse gases. It is estimated that 27 billion tonnes of carbon dioxide are produced annually by human activity.

Carbon taxes are one of the policy measures that can be used in reducing greenhouse gas emissions from fossil fuels (Hepburn, 2006). A carbon tax is essentially an environmental tax that is levied on the carbon content of fuels. It is an indirect tax, which is a tax on a transaction, which is opposed to the direct tax that taxes income. A carbon tax can be implemented by taxing the burning of fossil fuels—coal, petroleum products such as gasoline and aviation fuel, and natural gas—in proportion to their carbon content. Carbon taxes are a regressive tax, in that they disproportionately affect low-income groups. The regressive nature of carbon taxes can be addressed by using tax revenues to favour low-income groups (IPCC, 2007). However, there is substantial opposition to such taxes in most countries of the world, especially those countries which rely on coal as a major generator of low cost power, and which are among the biggest emitters of carbon dioxide. Prices of carbon (fossil) fuels are expected to continue increasing as more countries industrialize and add to the demand on fuel supplies (International Energy outlook, 2010). In addition to creating incentives for energy conservation, a carbon tax would put renewable energy sources such as wind, solar and geothermal on a more competitive footing.

Many OECD countries have taxed fuel directly for many years for some applications; for example, the UK imposes duty directly on vehicle hydrocarbon oils, including petrol and diesel fuel (OECD, 2008). The duty is adjusted to ensure that the carbon content of different fuels is handled with equivalence. While a direct tax should send a clear signal to the consumer, its use as an efficient mechanism to influence consumers' fuel use has been challenged in some areas (OECD, 2008):

- There may be delays of a decade or more as inefficient vehicles are replaced by newer models and the older models filter through the 'fleet'.
- There may be political reasons that deter policy makers from imposing a new range of charges on their electorate.
- There is some evidence that consumers' decisions on fuel economy are not entirely aligned to the price of fuel. In turn, this can deter manufacturers from producing vehicles that they judge have lower sales potential. Other efforts, such as imposing efficiency standards on manufacturers, or changing the income tax rules on taxable benefits, may be at least as significant.
- In many countries fuel is already taxed to influence transport behavior and to raise other public revenues. Historically, they have used these fuel taxes as a source of general revenue, as their experience has been that the price elasticity of fuel is low, thus increasing fuel taxation has only slightly impacted on their economies. However, in these circumstances the policy behind a carbon tax may be unclear. Some also note that a suitably priced tax on vehicle fuel may also counterbalance the *rebound effect* that has been observed when vehicle fuel consumption has improved through the imposition of efficiency standards. Rather than reduce their overall consumption of fuel, consumers have been seen to make additional journeys or purchase heavier and more powerful vehicles (OECD, 2008).

CONTEXTUAL TAXONOMIES

Media in the context of this paper refers to all forms of media, including print, radio, television, Internet and Web 2.0 based social media. However, the focus is on Internet and Web 2.0 integration with other media formats. We have considered a few of the social media that has been found relevant for this deliberation, in this taxonomy, which is not an exhaustive list.

Blogs which are a shortened version of web logs, a form of micropublishing, have become an established way of citizen participation on the Web (Williams & Jacobs, 2004). Blogging as a concept began with publishing online diaries. From then, building on the power and capacity to engage people in collaborative activities, debates and sharing knowledge and due to the ease of use from any Internet connection point, they have become an established web based communication tool. Many Blog clusters have formed links according to common interests. Among these, political Blogs seem to be the fastest growing in the past few years. The term *Blogosphere* is often used to denote the collection of Blogs, as they exist in communities.

YouTube is a company founded in February 2005 (YouTube, 2011) which has become the world leader in online video provision, and the leading platform to watch and share videos globally through the web. It has become a forum for people to connect, inform and inspire others and acts as a distribution platform for original content creators and advertisers. It allows easy upload and sharing of video clips on www.YouTube.com and across the Internet through linked websites, mobile devices such as the iPhone, blogs, and email.

The highlights of this venture are that it enables presentation of first hand accounts of current events and sharing of quirky/unusual video clips. It empowers people to become broadcasters, involving them in events. In November 2006, YouTube was purchased by Google Inc. and has since developed numerous partnership deals with content providers such as the BBC, Universal Music Group, Sony Music Group, Warner Music Group, NBA, etc. In 2008, the Interactive YouTube feature Annotations was launched and Sony Bravia television sets integrated YouTube. In 2009, YouTube Auto-Share to social networks and Webmail were launched. The same year, the first major network deal was signed for catch-up TV on YouTube: Channel 4 (YouTube, 2011).

Facebook is a social networking service and website launched in February 2004, privately owned by Facebook, Inc (Facebook, 2011). The name originated from the colloquial name for the book given to students at the start of academic year by university administration in the United States, to help students understand each other better. Initially, the facility was limited to Harvard students, later extended to Boston, Ivy League and Stanford and eventually to anyone 13 years and older. In July 2011, Facebook had more than 750 million active users. Users may create a personal profile, add other users as friends, and exchange messages, including automatic notifications when they update their profile.

A January 2009 Compete.com study ranked Facebook as the most used social networking service by worldwide monthly active users (Kazeniak, 2009). In the context of this paper, it is worth considering that over a million people installed the Facebook application "US Politics" in order to take part and the application evaluated user responses to specific comments made by debating candidates (Goldman, 2007). This debate showed the broader community what many young students had already experienced i.e. Facebook was an extremely popular and powerful new way to interact and voice opinions. An article in Uwire.com illustrates how the *facebook effect* has affected youth voting rates, support by youth of political candidates, and general involvement by the youth population in the 2008 election (Sullivan, 2008). In February 2008, a Facebook group - *One Million Voices Against FARC* organized an event in which hundreds of thousands of Colombians marched in protest against the Revolutionary Armed Forces of Colombia, better known as the FARC (from the group's Spanish name) (Brodzinsky, 2008).

Twitter is an online social networking and micro-blogging service that enables its users to send and read text-based posts of up to 140 characters, informally known as *tweets* (Twitter, 2011). It was created in March 2006 and has 200 million users as of 2011 generating over 200 million tweets and handling over 1.6 billion search queries per day (Rocket News, 2011). It is sometimes described as the SMS of the Internet.

THEORETICAL LENS

In the last decade past, analyzing online political forums has become a major research topic that intersects politics of communication and online communication (Freelon, 2010, p1). While researchers interested in online political discussions have contributed to an understanding of how the online spaces influence politics, the approaches were narrowly focused on deliberative features or applied ad-hoc and difficult to generalize multiple sphere conceptualizations (Freelon, 2010, p5). To advance theoretical understanding of the cluster phenomena of analyzing divergent forms of political discourse, this seminal author introduced a new integrative framework, of three models of democratic communication, which we have based our analysis. The three models are explained as follows.

The *liberal individualist* model is characterized by monologue of self interest, personal revelation in public forums, personal showcase or advertising and *flaming* or rather showing hostility. The *communitarian model* features ideological homophile or the proposition that citizens tend to assemble themselves into politically homogeneous collectives that rarely include outsiders, focused on mobilizing action, with strong community identification, with intra-ideological response and questioning. The third model, known as *deliberative*, features rational critical argument capability for common good, public issue focus, sense of equality, discussion topic focused, and inter-ideological response and questioning.

We have attempted to use this pivotal and modern framework, to analyze the online political discourse on Web 2.0 to find meanings from the integrated media perspective.

FINDINGS AND DISCUSSION

In this section, we provide a synopsis of the background in order to emphasize the issue and then provide revealing examples in the following section to illustrate the viewpoint.

Australia and the Carbon Tax—A Synopsis

In recent years, as a response to environmental protection and climate change adaptation, Australia has considered both cap-and-trade schemes and a carbon tax (Age, 2007; ABC, 2009). Chronologically, on 30 April 2007, the State Labor Governments in Australia commissioned the Garnaut Climate Change Review, whose sponsorship was joined by the national Labor government, lead by Kevin Rudd soon after taking office in December 2007. The resulting report, delivered on 30 September 2008, recommended an Emissions trading cap-and-trade system. Subsequently, the National Labor Government proposed a Carbon Pollution Reduction Scheme, which after much criticism, was voted down in the Australian Senate for being too ineffective by the

Australian Greens Party, and the for the effect on key economic sectors, by the conservative Coalition of Australia, as well as independent Senators and climate change skeptics. As a result, in April 2010, the proposal was withdrawn at least until 2013 (Taylor, 2010).

In February 2010, the Australian Greens proposed an interim carbon tax of AUD 23 per tonne for two years (Taylor, 2010). In April 2010, academics from the Australian National University published a proposal for a carbon tax on major polluters (such as coal-fired power stations and oil companies) that would provide increased funding for Australian public hospitals and other health costs associated with climate change (Macintosh & Faunce, 2010). On February 24, 2011, Australian Federal government announced a framework to implement a Carbon Tax from July 1, 2012. It was set up to be implemented over a 3–5 year period upon which it will switch to a cap and trade system. The announcement came after an agreement between the Federal Labor government, the Greens and two Independent MPs and included commitments to ensure all funds collected go back to homes and businesses to assist in the transition to renewable (Leslie, 2011).

This led to accusations that Prime Minister Julia Gillard had breached a pre-election promise not to introduce such a tax where she stated to Network TEN: "There will be no carbon tax under the Government I lead". The Leader of the Opposition, Tony Abbott, called for a 'referendum' (rather a plebiscite) over the issue (Hudson, 2011). On June 5, 2011, the Say Yes demonstrations were held in most major cities in support of a price on carbon pollution (ABC/AAP, 2011). Many demonstrations have also been held around the country and in regional towns against the proposed Carbon Tax. Nonetheless, on July 10, 2011 the Gillard lead federal Government announced publicly that the 500 largest polluters in Australia would be taxed at AUD23/ton of carbon emission, effective from July 1, 2012 (Farr, 2011).

During anticlimax, over 6000 protesters gathered on the lawns of Parliament House in Canberra, Australia, to send a message to the Prime Minister and the Greens/Labor Government. Protesters called for the carbon tax to be scrapped and for a new election. A Ford F650 four wheel drive delivered a coffin to the rally, a symbol of the *death of democracy*. The coffin was carried by pall bearers and was filled with the Government's Carbon Tax brochure and delivered to the steps of Parliament House. Meanwhile, workers inside the building sorted through thousands of Government propaganda packs that outraged householders had sent back (NoCarbonTax, 2011). While the issue continues to be debated, we now focus on the Web 2.0 in this climate.

Web 2.0 in the Milieu

From the time of the first proposal regarding carbon tax, and the information that came through via different forms of media including print, radio and television, the issue had been in focus in the online media as well. In the forefront have been Facebook, where several groups that directly and indirectly influenced and mobilized public opinion.

Carbon Tax Know the Facts

<https://www.facebook.com/groups/carbontaxfacts/>

Establishing the facts in the "CO2 tax" debate: The "CO2 tax" in Australia have potential to affect millions of lives. 'Carbon tax! Know the facts' is dedicated to uncovering the facts about CO2 tax. This page will function in the form of a debate to which everyone is welcome to provide evidence for their argument. NO slander or unjustified personal criticisms will be tolerated.

Australians against an ETS

<https://www.facebook.com/group.php?gid=112819729599>

This group is not about the debate surrounding the ever doubtful global warming. This is not a group nit picking between Liberals, Labor, Greens or Independents. This is a group for people who do not want yet another tax being placed on them, for something that is still being debated about. The pro-ETS people preach about doing 'something' before it's too late. I agree, lets clean up the environment, lets lower pollution, lets re-plant forests, let's do what we can - but DO NOT TAX US.

The ETS works on business level, taxing them for using 'carbon'; this can be traded between businesses. End user pays - which means everything from your milk to your petrol and your bread will cost you more. No alternative has been looked at by ANY political party. Governments all of a sudden care about our environment, and about being 'world leaders' in climate change. You want to change things? The aim of this group is nothing dramatic, perhaps to raise a bit of awareness - in my ideological thinking I would love for this to lead to a referendum, give the people of Australia their power back.

Say No to the Carbon Tax in Australia

<https://www.facebook.com/pages/Say-NO-to-the-Carbon-Tax-Australia/127056357373178?sk=info>

If you care about the environment, but think the Carbon Tax is the wrong way to go about it; this is the page for you. A page for those who care about the environment but think the Carbon Tax in Australia is the wrong way to be going about it. If you agree please 'Like' the page and share with your friends. Note: Whether you believe in man - made Climate Change or not is not the point of this page; rather you think the Carbon Tax is not a workable solution and you care about the environment

A Million Aussies against Carbon Advertising

<https://www.facebook.com/groups/213422425366568/> (18 members)

Members of this group are opposed to the use of advertising - by government and industry bodies - used to debate the need, or otherwise, for a carbon tax or carbon

trading scheme in Australia. We will act by boycotting media channels that accept such advertising. Our aim is to reach one million signatories, from both sides of the carbon debate, who do not want to see democracy abused in this way. With such a tide of support we aim to stop all advertising on this issue and encourage diverse treatment of the matter through more balanced channels.

TABLE I: AUSTRALIAN CARBON TAX ON FACEBOOK

Australia is not an actual democracy, Gilliard Agrees (176 members) Open Group. https://www.facebook.com/groups/169427363124561/ This is a page dedicated to restoring the rights of ALL Australians. That is that despite good or bad policy, right or wrong decisions, the decisions are no longer being made by the public and we are being forced to accept things we have no say in and never did. It has become apparent that Australia is no longer an actual democracy, and the Prime Minister agrees: "Democracy is not one long opinion poll-democracy is making the right choices for the nation's future, I'm determined to build a clean energy future for this country and I'm happy to be judged on it." Julia Gillard - 11/jul/11 Well Julia, a democracy is actually where the public have some, if not all of the input as to who runs their country and what changes occur. Whether in our best interests or not, decisions so overwhelmingly against public opinion are not yours to make. Right or wrong, the decision is not yours, it's the public's. In summary, we are being given something we didn't ask for by someone we didn't vote for. (ON THE CARBON TAX...YES, SOMETHING NEEDS TO BE DONE. YES, THE ENVIRONMENT IS IMPORTANT. THAT'S NOT THE POINT. THE POINT IS WE ARE BEING DENIED THE CHOICE, IT IS BEING FORCED ON OUR COUNTRY!) Please have your say on this page, that is why it's here, add your friends and other lovers of freedom and democracy. Australia is no longer the lucky country and everything previous generations of Australians have lived for and previous/ current generations of soldiers have DIED FOR is being thrown in their/ YOUR FACES.

Stop Gillard's Carbon Tax (Community Page)

While Table I illustrates the typical group pages carrying the debate on Facebook, Table II demonstrates the integration from the Facebook to Blogs, Twitter, and YouTube. It may be noted that most of the television news is also broadcasted via the Web, and many are re-telecast via YouTube. There is seamless integration of all the online social media. Conversely, we considered the print media. The issue of carbon tax was presented in brochures and directly mailed to households from the federal government. What was the aftermath? The brochures contained a website where people could provide their feedback on the system. While many citizens did resort to this site to provide feedback, the others rallied in protest on August 16th at the parliament house, mobilized through protest sites, Facebook Pages and others. Outraged householders had sent back the propaganda – or rather informative brochures – sent by the governance. The debate now threatens the whole existence of the representative democracy, as protesters call this issue 'the death of the democracy'.

TABLE 2: ILLUSTRATING WEB 2.0 INTEGRATION

http://www.facebook.com/l.php?u=http%3A%2F%2Fwww.stopgillardscarbontax.com%2F&h=LAQA2znyg In the leadup to the 2010 election, Prime Minister Gillard swore a solemn oath to the Australian people – that she would never introduce a carbon tax. On 23 February 2011 she broke this promise. In a deal with the Australian Greens, Prime Minister Gillard announced a multi-million dollar tax on carbon, with no offset in other taxes. This is a tax that will hurt every single Australian: electricity bills alone for the average family will go up by over \$300 a year. But the real cost will be far greater than just electricity prices. The price of everyday day items will increase as the costs on doing business – transport, production and so on – rise. This is simply another grab for cash by a wasteful government that will do hardly anything to address climate change. SIGN OUR PETITION AND HELP SEND CANBERRA A STRONG MESSAGE: AUSTRALIA DOES NOT WANT MORE TAX! Authorized by Natalie Keys, 130 Fig Tree Pocket Road, Chapel Hill, QLD 4069 Links to this website: http://www.stopgillardscarbontax.com/ Welcome to Stop Gillard's Carbon Tax - the central portal and information resource for Australians opposing Julia Gillard's destructive Carbon Tax. We are supported by a broad coalition of organizations, a full list of which you may find here. You can download the Open Letter to Julia Gillard signed by 22 Organizations here. Furthermore, it goes to "On our website you will find campaign material, media clippings, rally lists and a petition to oppose this destructive new tax - <i>which has already been signed by over 20,000 Australians!</i> You may also find us on Facebook, and follow us on Twitter! Make no mistake: is a tax that will hurt every single Australian: electricity bills alone for the average family will go up by over \$300 a year. But the real cost will be far greater than just electricity prices. The price of everyday day items will increase as the costs on doing business – transport, production and so on – will rise. This is simply another grab for cash by a wasteful government that will do nothing to address climate change.SIGN OUR PETITION AND HELP SEND CANBERRA A STRONG MESSAGE: AUSTRALIA CAN NOT AFFORD THIS TAX!" From here it links to blog site, www.nocarbontax.com.au. It features YouTube videos, chronological order, and links to Facebook, twitter etc. On Twitter: <u>NO CARBON TAX</u> SAY NO! CARBON TAX SIGN OUR PETITION : AUSTRALIA CAN NOT AFFORD THIS DAMAGING CARBON TAX! http://www.gopetition.com/petitions/australians-say-no-to-carbon-tax.html   Follow NoCarbonTax Stop Gillard's Tax Your number 1 source for news and information about the unnecessary and destructive gillard-brown carbon dioxide tax

Analysis through the Theoretical Lens

If the discussions on Facebook, YouTube, Twitter and Blogs were to be closely analyzed, features of the three models of communication are apparent in this debate. If the *liberal individualist* model is to be considered, there is monophony, as there are individuals who dominate without really exchanging arguments on different websites, blogs and even Facebook. To certain extent, there is personal revelation and showcasing on Twitter. Flaming is apparent, where hostile intentions have been characterized by insults. However, if the Facebook pages were to be considered as a metric, this model of online communication would be considered a minority, which cannot be given much relevance in this debate. For example, there are 18 members in one community page, which may not be significant.

In the communitarian model, is ideological homophile apparent? We contend that there is a proposition that citizens assemble themselves as homogeneous collectives and to an extent, it may also be true that engagement with outsiders range from optimistic to hesitant in the case of an average Australian. Political insularity is also visible to an extent, as the community forums are aimed at mobilizing citizens for protests and campaigns. There is a sense of community identification as the participants view themselves as members of a community or other. In other words, there is 'face validity' on Facebook forums. Conversely, intra-ideological responses seem to be strong with intra-ideological questioning. Members of the groups have conversational type of responses as well as engaging questions that tend to persuade members to engage with other participants.

The final model is deliberative which focuses on rational-critical argument. While the other two models are significant, the rational-critical argument is central to this model. Is this feature apparent in this debate? We find that, in analyzing the conversations, there is reflection of this feature, but it may not be the central theme that drives the communication. There is definitely the public issue focus – as the debate has now turned political and questions the validity of democracy itself. From carbon tax, it has lead to the validity of the current federal government and its representation of the people, to sustain a democracy. Every forum also features equality between discussants and every discussion focuses on the topic. Is inter-ideological responses and questioning visible? In other words, is there a cross-cutting deliberation? We would say affirmative as this is also visible in the debated forums.

CONCLUSION AND THE RHETORIC

Carbon Tax is an environmental tax, which globally, all nations are contemplating on, in the recent years. In this context, Australia had taken a step ahead to propose a carbon tax scheme, although it is new to its people. When it was first proposed in the government, via the elected representation of the country, the federal opposition voted it down. It was then shelved for at least few years. At this stage, we felt that the representative democracy of the nation had undertaken its role.

In the second avatar, the Australian Greens made a carbon tax proposal, which was then debated upon furiously in the parliament, as well as many a forum online. To an extent, as the proposal progressed, the online forums became rampant. The mobilization of public opinion went outside of the elected representation, into the hands of the citizens. As it seem to be apparent, via providing a feedback loop i.e. a direct mail to household brochure that offered a website to post comments, the citizens became interactive, but to an extent had taken the governance out of the hands of its elected representatives. It reveals lack of confidence in elected representation and the power of online media to churn this sentiment.

When the proposal passed, the citizens are enraged that their opinions albeit through e-governance channels no longer hold weight. As apparent in Table I, *"a democracy is actually where the public have some, if not all of the input as to who runs their country and what changes occur. Whether in our best interests or not, decisions so overwhelmingly against public opinion are not yours to make. Right or wrong, the decision is not yours, it's the public's. In summary, we are being given something we didn't ask for by someone we didn't vote for"*, Australians are protesting, as they feel their views are not considered by their elected representatives. While the channels of information became more interactive, is the elected representation in this democracy becoming futile? Is the very notion of representative democracy under threat from the pervasion of social media?

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e-Government Procurement Implementation: Necessity of National Procurement Law

Prabir Panda, G.P. Sahu and Pramod Gupta

Motilal Nehru National Institute of Technology, Allahabad, India

E-mail: mail2prabir@gmail.com, gsahu@mnnit.ac.in, pramod004@yahoo.com

Abstract—*The benefits of e-procurement implementation for public procurement is a well research area. The adoption of e-procurement results in cost savings to exchequer by increasing operational efficiency, transparency, competition among bidders and organizational effectiveness through automation of manual processes. The review of contemporary research literature brings out procurement process engineering, change management and top management support as some of the critical success factors for e-procurement project implementation. It is also well known that NeGP project was launched in 2006 with e-Procurement as integrated Mission Mode Project. A recent review of the e-procurement implementation by DIT, Ministry of Communication & IT brought out that the progress in this area has been dismal. Barring few states like Andhra Pradesh, Chhattisgarh etc, the project has not taken off. This lack of progress (when seen in the light of rampant corruption in India) becomes a cause of serious concern. In this backdrop we undertook study of various statutes, rules and government order governing public procurement in India. In order to develop better understanding of the research domain we undertook template analysis of successful e-procurement implementation by State Governments of Andhra Pradesh and Chhattisgarh. In addition, we interacted with some of the stakeholders to elicit their views on how a legal framework could help in smoother and faster roll out of e-procurement projects in public sector. The research methodology followed included analysis based on an elaborate study of various government policies and guidelines and their impact. Fact-findings are provided through journal articles, information hosted on government portals, statutes, rules, regulations and government resolutions relating to e-procurement and government purchasing. The study concludes that since “Procurement” doesn’t figure in either State List or in Concurrent List, therefore Indian Parliament can make law on the subject for the entire country. However, no separate law governing public procurement has been enacted in India. Finally, the paper brings out broad contours of a modal procurement law that would expedite the e-procurement implementation in India in an optimal manner.*

Keywords: *Public Procurement, e-Procurement, Legal Framework, Procurement Law, Government Orders.*

INTRODUCTION

Clausen, Kraay and Nyiri (2009) in their report titled “Corruption and Confidence in Public Institutions Evidence from a Global Survey” (undertaken on behalf of World Bank) bring out that in order to operate effectively, public institutions must also inspire confidence in those they serve. The authors use data from the Gallup World Poll, a unique and very large global household survey, to document a quantitatively large and statistically significant negative correlation between corruption and confidence in public institutions. Therefore, the necessity of adopting e-Procurement for public procurements becomes acute when seen in the light of multiple incidences of possible

fraud, corruption, bid rigging and collusion between suppliers being reported in Media on regular basis. Various sting operations have also indicated that bureaucrats / politicians can influence the procurements/award of contracts for their personal gains. This prevalent corruption in the country is also indicated in “Global Corruption Report 2009” which places India at 85th out of 180 countries rated on Corruption Perceptions Index.

The contemporary research which shed light on the state of affairs in India is summarized below:-

- a) India is ranked 51 out of 139 on “Global Competitive Index” due to red tapism and prevalent nepotism and corruption (World Economic Forum, 2010).
- b) India is ranked 119 in the recent United Nations’ e-Gov Rankings due to poor performance in implementation of e-government projects which includes e-procurement as a G2B service (UNPAN, 2010)
- c) A recent survey brought out that about 30% of Indian Union Budget is spent on provisioning of goods / services (OECD, 2010). Therefore, any optimization of expenditure would have significant impact on overall efficiency in government spending.
- d) A savings of upto 25% has been reported in the e-Government Procurement implementations in India (Panda and Sahu, 2011, <http://www.eprocurement.gov.in/>).
- e) Research indicates that any e-Gov Project has 70% chances of failure (Gartner, 2000; DMR, 2003; Vaidya et al., 2004). This aspect holds good in case of India also as there have been very few successful e-GP implementations in India. Some of them are GoAP, GoCG, IR, MCD, DGS&D, MSTC, Karnataka, Kerala (NISG, 2010; CeG, DIT, 2011)
- f) NeGP was launched in 2006 to promote e-Gov within the country with e-GP as an Integrated MMP. Not much progress has been made since then. Various Govt Orders on the subject issued during 2006-07 still remain unimplemented (DIT, 2011).

RESEARCH QUESTIONS

In the above background, this paper examines following research questions pertaining to implementation of e-Procurement system for public procurements in Indian context:

- a) How is the public procurement regulated in India? Are there any laid down statutory legislations, guidelines etc., governing them and are these policies uniformly applicable across various procurement agencies namely Central Govt, State Govt, PSU etc.?
- b) What are tangible benefits of migrating public procurement system to e-Procurement?

- c) Review progress of e-Procurement implementation in India as a part of Integrated MMP of National e-Government Plan.
- d) To study whether e-procurement implementation in India can be expedited and made effective by necessary legislative interventions? If yes, then what should be the contours of the legislation?

PUBLIC PROCUREMENT PROCESS: AN INDIAN PERSPECTIVE

The funds are allocated to every Ministry / Department for meeting their plan and non-plan expenses by MOF as approved by Parliament in Union Budget. The funds are allotted financial year wise (01 April to 31 March, next year). The public funds so entrusted, are to be spent following a uniform, systematic, efficient and cost effective procedure, in accordance with the relevant rules and regulations of the Government.

Procurement as a subject does not figure in Union List, State List, and the Concurrent List that govern legislative functions in India. Therefore the Union Parliament has the exclusive power to make any laws on the subject of procurement. However, Parliament has not enacted any specific legislation on the subject. Therefore, in the absence of dedicated law governing public procurement, the procurement functions are affected in terms of detailed rules and instructions contained in General Financial Rules (GFR), 2005 and Delegation of Financial Powers Rules (DFPR) 1978 (as amended from time to time) issued by MOF. Further, the Indian Contract Act, 1872 and Sale of Goods Act 1930 also govern contract of sale/purchase of goods by the Government. They all regulate public procurement system. Additionally, to encourage development of Handloom Sector, Cottage and Small Scale Industries and Central Public Sector Undertakings, the government provides various facilities to them from time to time. Further, the Central Vigilance Commission has recommended various steps to increase transparency in public buying. These aspects are also kept in view while making public procurement (Manual on Policies and Procedures for Purchase of Goods, Para 1.2). Rule 135 of GFR 2005 permits Ministries and departments to formulate detailed procurement procedures, which are to be in conformity with GFR and DFPR. In pursuance of the rule, major Ministries and departments have issued detailed purchase procedures for their internal use such as MoD (Defence Procurement Procedure 2008, Defence Procurement Manual 2009), Director General Supplies and Disposal (DGS&D Manual), Railways, Public works etc. The basic guidelines contained in GFR and DFPR are also followed by State government though some state government have enacted statute dealing with public procurement like State of Karnataka.

The procurement process across various ministries and departments of central and state governments is regulated using the basic guiding principles of public procurement. OM No. 8(3)-E.II (A) 0-02 states that these principles, inter alia, include the following:

- a) Maximizing economy, efficiency and effectiveness in procurement. This would mean purchasing of goods/services of required specifications for the intended purpose in a required time frame at the most economical price.

- b) Fairness, i.e. providing fair and equitable treatment to all prospective suppliers / bidders.
- c) Competitions among suppliers for supply of goods/services to be procured so that efficiency can be rewarded and procurement can be made at the most economical price.
- d) Achieving transparency in the procedures relating to procurement.

The underlining factors for similarity in public procurement principles emanate from:

- a) Various central statutes such as Competitions Act 2002, Government Accounting Rules 1990, Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 which are equally applicable to state governments.
- b) International guidelines such as UNCITRAL Model of Law of Procurement, EU guidelines, World Bank guidelines, WTO agreement on government procurements etc. which are to be followed in case of projects funded by these agencies.
- c) All e-Procurement solutions have to be technically vetted by DIT thereby they all must pass the same benchmark (directed by CVC vide circular NO. 23/06/010 dated 23 Jun 2010).

DIFFERENCE BETWEEN GOVERNMENT AND CORPORATE PROCUREMENT

While procurement as a function exists both in public and corporate sectors, the considerations and the approach for the procurement in these two differs significantly. Purchasing and procurement have more of a strategic character in the private sector than in the public sector. This is primarily due to:

- a) Managers in private firms are more involved in major organizational activities than the public procurement managers. The procurement managers in private sector are normally involved in all major organization activities like planning, formation of strategic partnership etc unlike Govt sector where these roles are vested with different functionaries (Johnson, Leenders & McCue, 2003).
- b) The major procurement decision may be made in the private sector on a financial basis alone (Smeltzer, 1998) without regard to other parameters which weigh equally in public procurements; and
- c) Non monetary factors such as equity, competition, transparency limit the discretion of public procurement officials, thus inhibiting their abilities to operate at strategic levels (Matthews, 2005).

E-PROCUREMENT: COST EFFECTIVE, EFFICIENT AND CORRUPTION FREE PROCUREMENT

E procurement has been classified and defined by many authors. E-procurement is an "internet-based purchasing system that offers electronic purchase, ordering processing and enhanced administrative functions to buyers, suppliers (Panayiotou, Tatsiopoulos,

& Gayialis, 2004) and management” (Atkinson, 2007). In basic terms, e-procurement can be defined as “using Internet technology in the purchasing process” (Boer, Harink, & Heijboer, 2002). Some of the examples are e-MRO, web-based ERP, e-Sourcing, e-Tendering, e-Reverse Auctioning, e-Informing.

With web enabling one of the critical areas of their business, government departments can access new strategic partners, uncover new suppliers and streamline purchasing processes while simultaneously lowering costs. Adopting an e-procurement solution could save on the money, time and labour that are normally wasted on sieving through reams of paper. The opportunity to conduct online transactions with the government reduces red tape apart from simplifying regulatory processes.

Public procurement specifically revenue procurement is undertaken in decentralized mode within the powers delegated to the departments in terms of DFPR. In some cases the procuring government agency deals with a couple of thousand suppliers and an average of five to six contracts per supplier. The major challenge to government procurement remains in providing a level playing field between competitors. It is often achieved by use of the sealed competitive bidding and awarding bids to the lowest bidder meeting specification (in case of purchase) or highest bidder (in case of auction). It is therefore required that e-procurement solution brings in quantum improvement in the procurement cycle without upsetting the government policies and procedures. Various researches underlining benefits of implementing e-procurement is tabulated below:

TABLE I: BENEFITS OF ADOPTING E-PROCUREMENT

	Benefits of e-procurement	Literature
a	Reduces procurement cost	Hiller and Belanger (2001), Neef (2001), Boer et.al (2002), Davila et al. (2003), Moon (2003), Panaiotou et al. (2004), Gansler et al. (2003), Croom and Brandon-Jones (2005), Barbieri and Zanoni (2005), Vaidya et al. (2006), Gil-Garcia (2006), Zaharah (2007), Maniam et al (2007)
b	Electronic transactions offer improved efficiency for both the supplier and government (procurement office)	Henriksen and Mahnke (2005), Callender and Schapper (2003), Callender and Matthews (2002)
c	Increases accountability and transparency	Jones (2002), Henriksen and Mahnke (2005)
D	Improves G2B collaborative relationships	Dyer (2000), Tang et al. (2001)
e	Improves the internal service and purchasing function	Stanley and Wisner (2001), Croom and Brandon-Jones (2005)
f	Efficiency gains and price reductions	Boer et al. (2002), Panayiotou et al.(2004)
g	Increases customer satisfaction	Thai and Grimm (2000)

Source: Kailannan et al., 2009

E-Procurement is performed with a software application that includes features for supplier management and complex auctions. The new generation of E-Procurement is now on-demand or a software-as-a-service.

REVIEW OF E-PROCUREMENT IMPLEMENTATION IN INDIA

The status and progress of the e-Procurement MMP was reviewed in the Apex Committee Meeting chaired by the Cabinet Secretary, held on 29th Jun 2010, wherein it was felt that there is an urgent need to accelerate the implementation of the e-Procurement MMP through regulatory interventions in the form of directions from the Ministry of Finance by laying down thresholds and timelines for mandatory adoption of e-Procurement system for government procurements. Therefore the e-GP MMP strategy has been further refined on the Directions of the Apex Committee involving a three pronged implementation approach, wherein, all Ministries/Departments/Organizations/State Governments will have the choice to either (DIT, 2011):

Use the e-Procurement Solution Developed by NIC (GePNIC)

NIC has developed its own e-Procurement software solution namely GePNIC to cater to the procurement/tendering requirements of the Government Departments and Organizations. The functional model developed by NIC is generic in nature and covers activities relating to e-tendering but not those pertaining to pre-tendering or post award of tender. The GePNIC solution has been implemented by NIC in 7 States (Haryana, Tamil Nadu, Uttar Pradesh, Orissa, West Bengal, Punjab and Himachal Pradesh) and 3 other Government organizations, for the past two and half years.

Use DGS&D's e-Procurement Portal

For procurement of common use items through Rate Contracts. DGS&D is also enhancing the system to make available an end to end e-Procurement platform which will be available to other Ministries/Departments/Organizations/State Governments on their requests. DGS&D has developed an end-to-end e-Procurement Portal for procurement of common user items through Rate Contracts. The e-Tendering modules were developed in PPP mode through a Service Provider, the contract for which has since expired in March 2010. The remaining modules were developed with the assistance of NIC. DGS&D is in the process of empanelling Application Service Providers (ASPs) to make available an e-Procurement platform which can be made use of by willing Central Ministries /State Government/ PSUs. The writ petition (WP(C) No.9342/2009) filed in this matter also stands disposed by the Hon'ble Delhi High Court vide its judgment dated 08/09/2010. While disposing the petition, the court has noted the submission made by the ASG on behalf of the Government that it will not impose its e-procurement solution to any other Ministry of Central/State and other Govt. agencies, PSUs etc. and other PSUs/Departments/Ministries, shall have the choice to devise their own e-procurement solutions.

Use any other Third Party e-Procurement Solution Preferably on a PPP Model

As has been done by Karnataka and Andhra Pradesh subject to certification by DIT regarding security and transparency.

CRITICAL SUCCESS FACTORS FOR E-PROCUREMENT IMPLEMENTATION

Rockart (1982) first used critical success factors (CSF) in the context of information systems and project management. A number of researches have been subsequently reported in this field. OGC (2007) believes that CSFs are limited in the number of areas that, if fully addressed, would ensure the successful completion of the programme. Identifying and communicating the CSFs ensures that everyone in the programme team is focused.

Pinto and Slevin (1987) defined a model of a project implementation success as $S = f(x_1, x_2, \dots, x_n)$ where S is project success and x_i the critical success factor i . Consequently, a large number of studies have been conducted to identify critical success factors for e-procurement implementation both for implementation by corporate sector as well as for government entities. The number of CSFs identified and their attendant nomenclature in these studies vary. We present below a well accepted modal on e-procurement implementation. The CSF model also augers well for identification of areas of concern and thereafter suggesting their remedies:

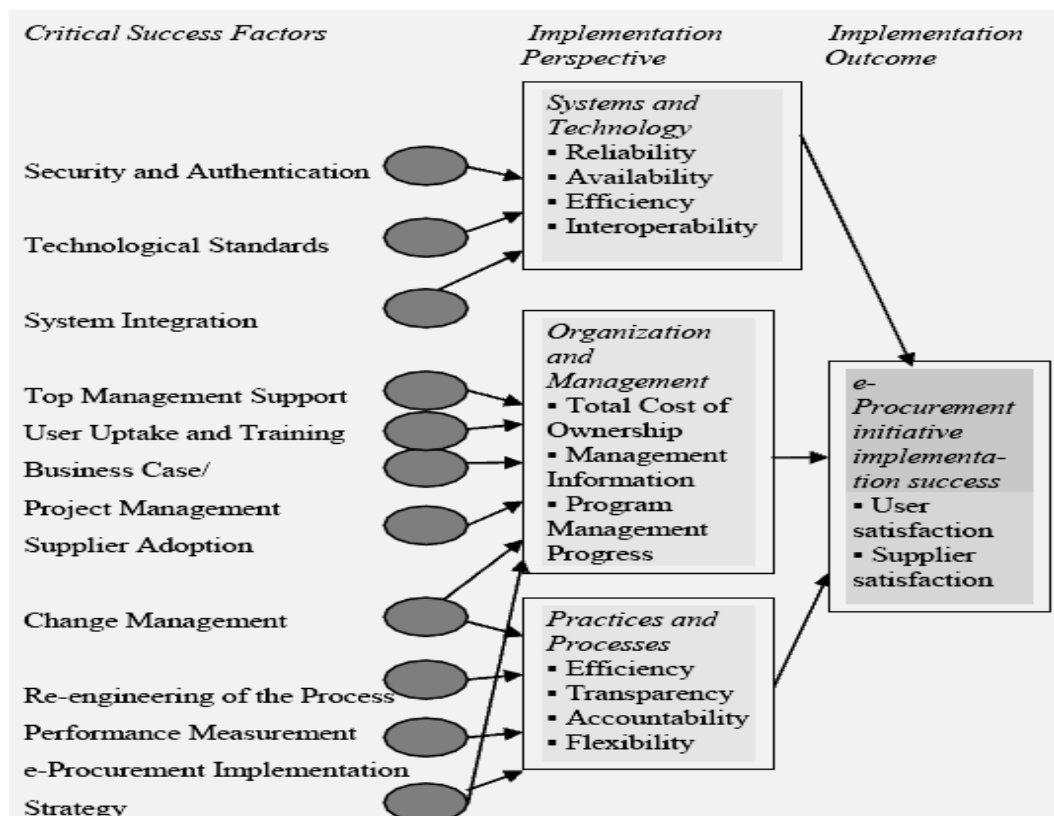


FIG. 1: CSF FOR E-PROCUREMENT PROJECTS

Source: Vaidya et. al, 2006

DISCUSSIONS AND FINDINGS

The importance of enabling legal framework has been underlined by various researchers. We cite some of the important ones below.

A framework for evaluating a developing country's public procurement system has been devised by the Development Assistance Committee of the Organisation for Economic Cooperation and Development (OECD), together with the World Bank. The aim has been to develop an integrated set of tools and good practices to improve procurement systems and the outcomes they produce and to assist in the periodical assessments of the domestic legislation. Various benchmarks establish whether the elements of a well-functioning public procurement system are in place. The benchmarks are based on four pillars. The pillar I of the OECD-DAC assessment methodology assesses the existence, availability, quality and use of the legal and regulatory framework from the highest level (Act and Regulations) down to the more detailed operational procedures, guidelines, model tender documents, and standard conditions of contract.

The issues in application of legacy laws in net-centric operations have been brought out by Pastor, Gautam, Gaur & Singh (2010). They brought out that the new dispensation of e-governance requires new set of laws. Physical laws have limitations because they are uni-dimensional in application and meant to govern the physical world, which is static, defined and incremental, whereas e-governance represents new form of governance, which is dynamic, and exponential. These are technology intensive laws to control and safeguard electronic transactions in the electronic medium. They underline that the success of e-government initiatives and processes are highly dependent on government's role in ensuring a proper legal framework for their operation. The introduction and uptake of e-government services and processes will remain minimal without a legal equivalence between digital and paper processes.

OECD governments are aware of the need for a framework to provide for enforceable electronic transactions, both in the e-government sphere and for electronic commerce, and have taken action. Clearly, e-government will affect the existing legal framework. But to what extent, and does it necessarily implies that applicable rules have to be changed because they are not fit for the new technological developments in the public sector? A glance at the country reports shows that the most persistent legal issues that arise in relation to e-government are: privacy, the absence of paper-based documents and signatures, confidentiality and reliability and, finally, access to and the reuse of public sector information. Several of these issues resemble those faced in the e-commerce domain (e.g. security, e-signatures, and authentication). It could thus be argued that in dealing with them, an approach from one single 'online' perspective would be the obvious route to take.

Jha, Srivastava, Bokad and Kuchar (2010) brought out there is an urgent need to take measures to dissolve compartmentalization of e-governance practices so that it serves its purpose in true sense. They recommend evolving uniform technology supported by uniform legal framework and procedural format and a unified approach. Akampurira, Root, & Shakantu (2009) in their studies brought out that legal and regulatory framework is considered to be conducive for private sector participation while corruption has been suggested as a significant constraint to the development and implementation of public private partnerships. Somasundaram, & Damsgaard (2005) brought out that a part of the government has to take proactive efforts for encouraging the diffusion of e-procurement in the public sector.

The importance of WTO Government Procurement Agreement (GPA) has been underlined by Anderson (2007). He has brought out that the GPA is broadly consistent with and reinforces the values and objectives of other important international instruments and work in this area such as the United Nations Convention Against Corruption, UNCITRAL Model Law on Procurement, relevant guidelines of the World Bank and the OECD's work on prevention of corruption. He postulated that the need to have a clear, simple and efficient procurement procedure would gain importance over time, with the increasing focus on good governance internationally and the growing recognition of the contribution of efficient and competitive procurement regimes to development and growth.

Cimander, Hansen and Kubicek (2009) studied the problems of cross-border e-procurement within the European Union. They bring out that due to lacking technical interoperability and legal harmonisation in particular concerning the use of e-signatures within EU countries is hampering cross-border e-procurement. In fact a number of countries have implemented national procurement law like Uganda (Public Procurement and Disposal of Public Assets Act 2003), Paraguay (Public Procurement Act [2051] 2003) to name a few.

After critical analysis of prevalent socio-politico scenario in India which affects implementation of e-procurement solutions in India, we conclude that implementation of a national procurement act would enable faster and smoother roll out of e-procurement solution for public purchases:

TABLE 2

	CSF	Status	How Central Procurement Act would be beneficial
a	Security and Authentication	To ensure interoperability among e-Gov applications, GoI has setup an institutional mechanism for formulation of standards (http://www.egovstandards.gov.in/). In addition, DIT has established “Centre for e-Governance (CeG)” which would act as a showcasing platform for various e-Governance applications and technologies being deployed across the country including demonstration of tested and futuristic technology solutions (http://mit.gov.in/). DIT issues various standards for ensuring security of e-gov applications. In addition, each state/govt department specifies its own set of standards for e-procurement implementation. In addition, various PPP partners like M/s Wipro, C1 India etc have their own framework for e-GP projects.	The institutional mechanisms set up by GoI would have their specific role and authority be legally backed. They would have authority to enforce standards even in case of PPP projects. The standardization would ensure interoperability of various e-procurement solutions.
b	Technological Standards		
c	System Integration	The respective state/govt department takes care of these issues by way of notification / policy directive. Normally, a government agency is nominated for undertaking the e-procurement implementation. This independent agency (like CHiPS in case of GoCG and APTS in case of GoAP) is responsible for formulation of project requirement, floating of tenders for e-procurement implementation, inter –departmental coordination, implementation of BPR through empowered committee and also would act as interface between vendor and government agencies.	The roles and responsibility of implementation agency (i.e. NIC/DGS&D/PPP Partner) and Sponsoring dept (Govt Agency) would be clearly and inviolably laid down.
d	Project Management		
e	User Uptake and Training		
f	Top Management Support		Since the roles and responsibilities would be covered in detail in the Act, the attendant criminal liability for the lapses would ensure all stakeholders take their job seriously.
g	Supplier Adoption		Since by way of legislation, the central government could make registration of suppliers a centrally facilitated activity. This would preclude entry barriers as well would ensure that each supplier is required to complete the formality of registration only once. This streamlining of procedure and attend ease would definitely improve supplier uptake of e-procurement solutions.

Table 2 (Contd.)...

...Table 2 Contd.

h	Change Management		Since the e-procurement would be made mandatory by law, this would minimize resistance to change. The act would ensure that adoption of e-procurement solutions is not stalled due ulterior motives of some stakeholders.
i	Procurement Process Re-engineering		The changes in procurement processes hitherto undertaken by state governments by way issue of Govt Orders, would get streamlined. Issues like EMD deposit, Payment gateway etc could be solved in a go thereby eliminating avoidable delays encountered in each e-procurement system implementation.
j	Performance Measurement	This normally forms part of the project evaluation. The PPP partner is given a target to be met with specific timelines.	An independent body could be established to audit the performance and utilization of e-procurement solutions. Alternatively, C&AG could be tasked to audit these systems and render status report to the parliament.
k	e-Procurement Implementation Strategy	Normally, Public Private Partnership model is followed.	The roles, responsibilities and compensation modal for PPP partner could be well defined in the Act. This would bring in much needed transparency in the outsourced deployment of e-procurement solutions. This would also provide a level playing field to all prospective PPP partners by way of eliminating subjectivity in the whole process of outsourcing.

The “National (e) Procurement Act” should aim to create a single, modern legal framework for all procurement processes conducted by government entities through e-procurement portal. The Act should streamline and simplify procurement laws. It should additionally lay down a cut-off date by which the procurement processes should be migrated to online portal. The law should include detailed procedural rules or:

- Centralized registration of suppliers/vendors, process for verification of their credentials, issue of digital signature etc. The payment should be mandatorily through national payment gateway operated by RBI. This would make payment transparent and the income of the suppliers could be taxed appropriately at source. The grounds and process of blacklisting a supplier should also be laid down in the Act.

- The technological and security framework to be used for development of e-procurement systems should be clearly laid down. The interfaces for lateral, upward and downward flow of information from the individual portals to national portals should be specified in the form of Service Oriented Architecture. A national procurement repository should be established under the aegis of NIC which would receive procurement information from various e-procurement portals and make the data available for data mining functions. This database should be made available (through appropriate interfaces) to all e-procurement systems for querying for last purchase price, supplier details for a particular item etc.
- The reformed process for implementation in e-procurement solutions for various stages like pre-tender, advertising and public display of bid opportunities, notices of best evaluated bidder and contract award should be clearly laid down in the Act. The procedure for bid challenge supported by an enforcement system that allows dissatisfied suppliers to seek administrative review and provides for suspension of providers for offences and disciplinary measures to be taken against public officers who commit malpractices.

The Act should define the role and functions of each agency related with public expenditure like:

1. The Bureau of Indian Standards could be suitably involved in certifying the products for government purchases. Similarly the role of inspecting agency like DGAQA should be clearly defined.
2. The role and responsibility of Ministry of Environment and Forests could be involved in environmental clearance for the products to be purchased by Government entities.
3. The role of DGS&D in finalization of rate contracted items. More and more number of items could be brought within the ambit of rate contracts by virtue of data regarding consumption patterns being available through national procurement repository.
4. Central Vigilance Commission could look after bid-challenge in modified scheme
5. Competitions Commission could investigate suspected cases of cartelization in a deal in terms of Competitions Act 2002.
6. Comptroller and Auditor General could look after post audit and invoke penal provisions pertaining to transparency declaration of a deal in case kickbacks are uncovered during post audit.
7. Police / CBI should take to initiate legal proceedings against corrupt officials without requiring prior permission of central/state government. The Lokpal bill as and when comes through should look into the corruptions in higher echelons.

CONCLUDING REMARKS

The challenges like BPR, resistance to change, ulterior motives have stalled the progress of e-procurement implementation in India. The lack of an enabling national legal procurement law has allowed interpretation of government policies by corrupt officials for vitiating public procurement process. The number of cases reported by media regarding Commonwealth games, 2G spectrum allocation underline the ease with which corrupt people can bend the rules to benefit themselves at the cost of national progress and pride. These issues could be addressed to a large extent by promulgating a central statute standardizing procurement process across the country. The statute could cement the roles and responsibilities of various agencies and enabling acts like CVC Act, Prevention of Corruption Act, Competitions Act etc. The availability of such an act would also facilitate standardization of e-procurement solutions to be implemented by various government entities and would enable data sharing. The National e-Procurement Act should incorporate salient provisions of WTO GPA, OECD EU and World Bank guidelines.

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Revisiting NeGP: eBharath 2020: The Proposed Future NeGP 2.0.

C.S.R. Prabhu

Deputy Director General, National Informatics Center, Hyderabad

E-mail: ddg@ap.nic.in

Abstract—The present National e-Governance Plan (NeGP) has been partly completed but has certain fundamental gaps and important omissions in its conception and planning. These omissions and missing aspects are critical for the full success of NeGP in future. Even though the IT Act 2000 and Electronics Services Delivery Act 2011 provide the necessary background and motivation for reengineering of government processes, they do not make major process reforms compulsory. e Bharath 2020 is a vision of the future NeGP 2.0. (for the period 2012-2020), succeeding the current NeGP. In this Paper, a brief outline of e-Bharath 2020, future NeGP 2.0. (2012-2020) is being attempted to be provided with emphasis on major reforms and reengineering of government processes, systems and procedures using Lean and Six Sigma techniques with the provision of the proposed e-Governance Act 2012 for building large scale mobile cloud applications for appropriate m-governance citizen services delivery.

INTRODUCTION

The National e-Governance Plan (NeGP)¹ of Government of India aims to “make all government services accessible to the common man in his locality through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man”. The “basic needs” of common man identified were limited to certificates delivery and all other needs were ignored.

India has a very strong presence in the IT sector globally, yet the benefits of the IT revolution have not truly percolated into the everyday life of the common man, particularly in rural areas. Experiments in IT based service delivery had started early in the last decade. Some of these, such as e-Seva, e-Panchayat and Bhoomi, were more successful than the others. These early successes as well as failures showed that online services served citizens better by reducing the burden of physically visiting separate agencies, making contact with public officials and be subjected to their discretion. While computerisation or online delivery of certificates was partly enabled, corruption continued as transparency was not brought on and the need to visit government offices or contacting of public offices or officials by the citizens was not prevented.

NeGP is a major initiative of the Government of India, under which a concerted effort is being made to take information technology to the masses in the areas of concern to the common man. It aims to make most services available online, ensuring that all citizens would have access to them, thereby improving the quality of basic governance on an unprecedented scale. This goal was partly achieved.

NeGP¹ has a three tier architecture. The Common Service Centres (CSCs) are the front-end delivery points for a range of citizen services. The common man feels empowered when he is able to get a service in a transparent manner, at a convenient location and at an affordable cost. These centres also provide employment to the

entrepreneurs running them, besides being useful in rolling out all kinds of governmental schemes such as those for financial inclusion, enumeration of data, insurance and IT education. However, in some cases the financial viability of the CSC was in question and some were finally closed, indicating the need for a sustainable revenue model.

The second tier is of the common and support infrastructure that can allow information to be shared electronically between different agencies of the government and with citizens. Included in it are the State Wide Area Networks (SWANs) which form the converged backbone network for data, voice and video throughout a State/UT and the State Data Centres (SDCs) which can provide common secure IT infrastructure to host state-level e-government applications and data. In this tier also, there were significant delays resulting in older technology deployment (e.g., low speed of SWANs).

The third tier comprises the 27 Mission Mode Projects (MMPs) which will transform high priority citizen services from their current manual delivery into e-delivery. Each MMP is owned and spearheaded by the relevant ministry/agency of the national government or by a state government and is called “mission mode” because it has a definite time table, service levels, project implementation team and process reengineering plans. Many of the MMPs have been successful and were partly implemented. No large scale project planning was done for them with due interoperability arrangements. The major telecom revolution resulting in the penetration of the mobile phone into all areas of life, both urban and rural, in the country was not considered for services delivery of e-governance and other value added services.

WHAT WAS MISSING?

However, the NeGP can be examined to find the missing gaps, omissions and discrepancies. The following are the main discrepancies found upon the examination of the current NeGP:

1. Natural Law- Citizen life cycle approach- all events of life from birth to death (through education , health, marriage, employment, retirement and pension) to be considered for identifying processes for e-governance service delivery based on citizen needs analysis. Till now all the projects are based on ideas and proposals and not field survey for needs analysis. The real needs of the stakeholders are to be ascertained by survey.
2. Legacy government processes continued without change-colonial/historical government processes were originally designed for control/red tape and not for freedom of citizens essential for e-governance participation. The colonial mindset was not fully changed and modernization was not done in comparison with other advanced nations.
3. 27 MMPs have no interoperability or integration amongst or across themselves and no process level/data level/service level interoperability or integration envisaged

4. No information exchange across the Federal Structure of Central/ State/District/Local Government bodies.
5. No mandatory Enterprise Architecture (EA) envisaged for each MMP or its components.
6. No major process reform / re engineering envisaged except minor optional reengineering possibilities in systems and procedures.
7. Global best practices not identified and recommended for replication
8. Local best practices not identified and recommended for replication.
9. National CIO/ State CIO/ Local CIO hierarchy not envisaged even though in some States, Departmental CIOs are appointed.
10. New e-governance Act not envisaged (in the lines of USA). Even though IT Act 2000³ and Electronic Services Delivery Act⁴ were separately provided, they do not make reforms compulsory.
11. Low speed SWANs with obsolete technologies due to delays in execution.
12. Latest technology trends such as mobile, grid and cloud technologies not envisaged (only older gateway concepts brought into NSDG and SSDG). Digital Signatures to ensure secure transactions for all citizens not envisaged.

PROPOSED FUTURE NEGP 2.0.: EBHARATH 2020

Step 1: Performneeds Analysis and Survey for

- a. Needs of citizens at rural & urban areas
- b. Needs of businesses (SMEs & large industries)
- c. Needs of govt. employees at state and central levels.

Step 2: Based on the above Survey

Perform needs based large scale e-governance project planning for service delivery through mobile phones, making the mobile phone, the centre of service delivery given the great revolution in telecommunications resulting in large scale penetration of the mobile phone in rural areas and urban areas. Following can be possible applications:

- M-biometric identity authentication (along with digital signature and Unique ID integrated into mobile phone)
- M-health (mobile based tele medicine and health consultancy)
- M-education (mobile based virtual education classrooms in local languages at all levels)
- M-agriculture (mobile based agri extension advice and monitoring, management and sale)
- M-elections (mobile based online voting based on authentication)
- M-rural development (various rural development projects based on mobile)
- M-panchayat (panchayat services delivered on mobiles)
- M-gram bazaar (linking rural producers with urban consumers using mobiles)

The ubiquitous mobile phone will have to be made the centre point of delivery of all Services—not just e-governance certification services but services which impact daily life as health, education, commerce, etc., have to be developed.

- Step 3:** Enact the dedicated e-governance Act, with compulsory process reform and reengineering with maximum efficiency using Lean Six Sigma processes (most efficient) involving principles of justice, equality, transparency, accountability and responsiveness to citizen needs.
A ‘Think Tank’ advisory group and R&D centre/Institute comprising government, judiciary, academia and industry can be formed to give advice to help formulate this Act.
The present Electronic Services Delivery Act needs to be expanded towards these ends
- Step 4:** A composite team comprising members from NIC, DIT, Six Sigma Consultants (including BPR specialist) along with line Ministry/Department of Government may drive the process reform and reengineering) (The present reengineering/reform provisions of Electronic Services Delivery Act 2011 are required to be made compulsory). Also enhance the land reforms with geospatial mapping of the entire country.
- Step 5:** Perform Re-engineering of judicial processes based on the above, using lean Six Sigma Principles. The scope of terms of e-committee of Judiciary may be enhanced to include process reform towards efficiency and integration of Judiciary with jails, transport and police systems.
- Step 6:** Perform Re-engineering of election process on compulsory basis based on the above, using Lean Six Sigma Principles.
- Step 7:** Perform Re-engineering of legislature process on compulsory basis based on the above mentioned principles. The internal Secretariat of Parliament and State Legislature bodies may execute process reforms with help of NIC, DIT and Six Sigma Consultant.
- Step 8:** Identify Processes (after reengineering as above) for all sectors and identify services using Service Oriented Approach(SOA) for entire life cycle of citizens-different services for life as Birth, Education, Employment, Marriage, Health, Retirement and Pension.
- Step 9:** Develop Web Service repositories according to the above for Central, State and District levels government as well as for Judiciary and Legislature.
- Step 10:** (a) Implement the e-governance Grid/Cloud Architecture 5,6 at IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and SaaS levels using SOA (Service Oriented Architecture), with web service repositories.
(b) Implement EA (Enterprise Architecture) for SaaS (Software as a Service) layer with single window for all Government Services (e-sarkar).
- Step 11:** Plan and implement integrated e-governance (e-sarkar), e-Judiciary (e-nyaya), e-legislature (e-vidhan), e-democracy and participation, e-elections (e-nirvachan).

Step 12: Finally fully integrated single window e-Bharath covering all areas as above.

CONCLUSION

The National e-Governance Plan (NeGP) is being implemented for several years all over the country. The NeGP 1.0, the current version has its own strengths as the first well organized plan of the Govt. of India for both Central and State level e-governance Projects. 27 MMPs of NeGP have seen their partial successes. However, many omissions such as needs analysis, process reforms can be identified, especially in the context of technology developments such as the ubiquitous mobile phone penetration calling for mobile engineering applications and new technologies such as SOA, Grid and Cloud and Enterprise Architecture, all of which have to be deployed in e-governance also.

In this Paper, we have proposed the future NeGP 2.0. as eBharath 2020, comprising of 12 steps. The proposed new NeGP 2.0 gives a vision as eBharath 2020 comprising important steps as needs analysis, based on survey, followed by large scale project planning for m-governance and m-services all based on the ubiquitous mobile phones in all service sectors and commerce as m-Health, m-Education, Rural e-Commerce as m-Gram Bazaar. An e-governance Act may be enacted towards major process reforms. The central theme of future NeGP 2.0. will be process reform and reengineering of govt. processes which have been kept untouched for over sixty five years. After major process reform, SOA based web services can be identified for life cycle events of citizens which can then be implemented as the future e-governance grid and cloud of India, deploying the enterprise architecture for all major initiatives. Similar exercise of process reforms in judiciary, legislature and education followed by SOA based web service repositories on grid. Cloud will result in a modern systemic environment in India which can be integrated with the final NeGP 2.0 as e-Bharath 2020, which will be comparable, (if not better) with the most advanced nations, in the delivery of e-governance services and m-governance services to the citizens.

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A Framework for Government Control over Sensitive Information in Outsourced e-Governance Projects

Raghu Ramakrishnan and Gopal Sharma

Tata Consultancy Services

E-mail: raghuramakrishnan71@gmail.com, gopalsharma1972@gmail.com

Abstract—The effective implementation of e-governance projects in India is being brought about by partnering with private organizations under the public private partnership mode. This model in turn has thrown up a number of challenges related to misuse or accidental disclosure of information to an unauthorized party. This paper describes a framework to ensure that the government department retains control over sensitive information in outsourced e-governance projects. The framework also introduces a mechanism to ensure traceability and accountability of users.

Keywords: e-Governance, Strategic control, Service provider, Mission mode project

INTRODUCTION

Government services in India are being offered in electronic mode as a part of the national e-governance program [1]. The proposed National e-Governance Plan (NeGP) comprises of a wide range of citizen services under the umbrella of 27 Mission Mode Projects (MMPs). The transformation of government service delivery is not only a good option to reach the public but an essential requirement for driving the overall socio-economic growth.

The e-Governance program include documents, forms, instructions, general information and services provision by government departments at the central and state level over the Internet. The government paper on guidelines, for strategic control in outsourced projects, looks at a larger industrial role for faster and effective implementation of e-governance projects [2]. This involves engaging private organizations (referred to as service providers) in activities like:

- Preliminary data collection and processes related to service requests
- Setting up and maintaining the Information Technology (IT) infrastructure

This growth in involvement of private players in Public Private Partnership mode (PPP) and extensive use of IT for providing timely, easy and transparent service delivery to people has thrown up new security challenges.

The smooth functioning of the complex IT setup requires specialized roles like network service provider, system integration team, administrators in the area of storage, server, network, middleware and databases. These critical roles are usually staffed by engineers of the service provider. This has led to an increasing need of ensuring the sensitive information provided by people does not fall prey to misuse or accidental disclosure to an unauthorized party. Examples of sensitive information include personal particulars, financial information, criminal data etc.

It needs to be realized that the primary role of any government department is service delivery to people with reference to ration card, license, passport, registration of a company etc. IT is purely an enabling activity. The program management organization of the concerned government department often faces issues like continuity and shortage of technically skilled personnel to effectively exercise control over the service provider. This in turn may lead to the dilution of strategic control of the government department over the information assets.

This paper describes a technical framework for enabling the government department to exercise strategic control over its information systems and assets in e-governance programs executed using the public private partnership model. The framework consists of a set of controls which can be implemented in the area of information storage and processing. Though strategic control is to be exercised over the entire life cycle of the project, the specified controls become more applicable during the operations and maintenance stage.

TYPICAL E-GOVERNANCE PROJECT LANDSCAPE

E-governance projects implemented in PPP mode involve multiple stakeholders, applications and IT infrastructure as shown in Fig. 1.

Government Department

The primary Government Department owns the data and services that are be used by citizens, internal users or other government departments. These government departments may be Income Tax, Police, and Passport etc.

Other Government Departments

Other government departments may access services or data provided by the primary Government department or vice versa. For example the retrieving details about a PAN (Permanent Account Number).

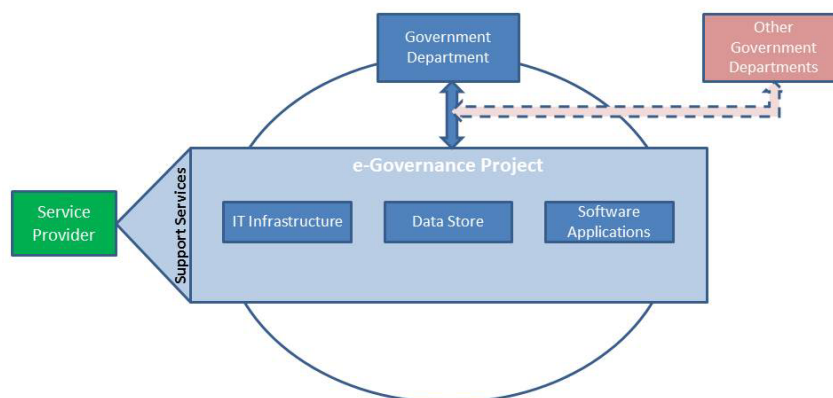


FIG. 1: THE LANDSCAPE OF A TYPICAL E-GOVERNANCE PROJECT LANDSCAPE

Service Provider

An organisation or a group of organisations that possess resources and expertise to provide the required services to the primary Government department or its users within the given framework. The Service provider provides support services such as business operations, call center, helpdesk, technical support, application support and database support etc.

IT Assets

Information Technology assets enable the government department to render the necessary services to its users or other departments. The department may own the assets or use a shared platform. These are also referred to as part of strategic assets which require control by the Government department [2]. IT assets may include the following:

IT Infrastructure

The IT infrastructure may include the data center, disaster recovery center, servers, storage, network and networking devices, workstations, peripherals etc.

DATA STORE

The data store may contain databases and document repositories.

SOFTWARE APPLICATIONS

It may include the middleware and off-shelf or custom developed application software providing the necessary services.

Such a landscape which includes a private service provider poses multiple challenges related to maintaining privacy of data related to people and effective control of the government department over the activities of the service provider which deals with such data. This is to ensure that such data does not fall prey to misuse or accidental disclosure to an unauthorized party.

PROPOSED TECHNICAL CONTROLS

The objective of the proposed framework is to provide a set of well-defined technical controls at the data tier for ensuring,

- Effective control of the government department over the integrity and confidentiality of sensitive data.
- Traceability and non-repudiation of actions carried by users of the system.

The framework is based on principles of minimum privileges and trust, traceability and accountability of actions. Fig.1 shows the scope of this framework.

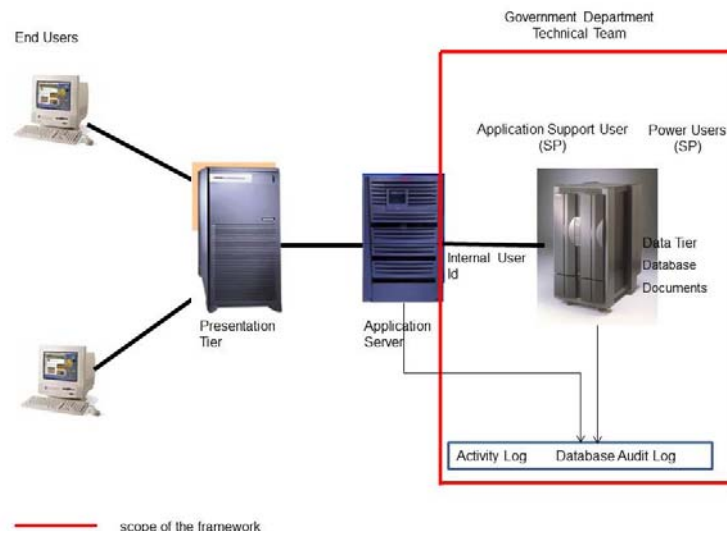


FIG. 2: THE SCOPE OF THIS FRAMEWORK IS RESTRICTED TO THE DATA TIER, ACTIVITY AND DATABASE AUDIT LOG

Controls on the Database

Business applications use database in their data tier for storing information. This database may contain sensitive information submitted by people or created as part of the processing by the government department. Controls are required to ensure that access to such sensitive information in the database is available to authorized roles only. The database users can be classified under two classes – Basic and Power Users.

Basic Users include user ids used internally by applications to connect to the database (a JNDI configuration used by a J2EE application for accessing a database is an example of a user id used internally by a web application) and application support users. The application support users are users performing production support activity. These users have read permission on one or more tables in the database and access the tables using the SQL prompt or a tool like Toad for Oracle.

Power Users include database instance owners and database administrators. Power users carry out following types of activities on a database.

- Monitoring the database health or maintenance like updating statistics, backups, generating an SQL statement plan for optimization etc.
- Changes to structure or content of data like creating/modifying a database object, assigning/removing permissions, data fixes (which are typically required to correct incorrect data resulting from an application defect), upgrades etc.

The application or power users (during data fixes) insert, delete or update data in database tables. Therefore it is essential to retain a pre-image of updated or deleted data to ensure traceability of changes to data.

The framework proposes adherence to the following technical controls at the database tier.

- Control 1:** All SQL statements executed by application support users and power users must be recorded in the database audit log.
- Control 2:** The passwords of the user ids used internally by applications and power users shall be in split mode – part of the password shall be with the service provider and the other part with the personnel of the technical team from the government department.
- Control 3:** All critical tables shall have a shadow table (called audit table) which captures the pre-image of a record using an update and delete trigger.
- Control 4:** Use a database view to control access of the application support users to columns of a table [3].

CONTROLS ON THE DOCUMENTS

E-governance projects have people submitting forms and scanned copies of documents like date of birth, address proof, education proof etc. These documents are archived in the system as a record. Business processes rely on these documents which contains personal and sensitive information.

Adequate controls are required to protect the submitted documents in storage. Digitally signing a document can ensure its integrity (the document has not been altered), authenticity (the source of the document) and non-repudiation (the signer of the document cannot deny the signature) [4].

Control 5: All users who have worked on a document shall sign the document using his/her digital signature certificate. For example, if an officer U worked on two documents D1 and D2, he/she shall digitally sign the documents as $DS_U(D1)$ and $DS_U(D2)$. The notation $DS_U(D)$ represents the digital signature of user U on document D [5].

Table 1 shows an example where a user of the service provider has uploaded the document and a user of the government department has approved the same.

TABLE 1: A DIGITALLY SIGNED DOCUMENT TRAIL

User	Document	Digitally Signed Document
SP (Service Provider)	D1	$DS_{SP}(D1)$
	D2	$DS_{SP}(D2)$
GU (Government Department User)	D1	$DS_{DU}(D1)$
	D2	$DS_{DU}(D2)$

Activity Log

The activities carried out by the end users of the e-governance application must be recorded in an activity log. This is to ensure traceability and accountability (a user cannot disown an action at a later date). Examples of such activities include uploading a document, approvals in a workflow.

Control 6: All critical actions carried out by a user shall be signed using his/her digital signature certificate. The activities shall be recorded in the activity log. For example, if an officer has approved a service request, he/she shall digitally sign the action as $DS_U(A)$. The notation $DS_U(A)$ represents the digital signature of user U on metadata A. A may include the action name, service request number etc.

Control 7: Use a digital signature based authentication system for accessing the application to perform critical roles. The authentication shall be recorded in the activity log. For example, during authentication, the system can send a challenge C which can be digitally signed as $DS_U(C)$ and returned back to the server for verification. The notation $DS_U(C)$ represents the digital signature of user C on challenge C.

Table 2 shows an example where a user of the service provider has carried out three activities.

TABLE 2: A DIGITALLY SIGNED ACTIVITY TRAIL

User	Action	Digitally Signed Action
SP (Service Provider)	A1 (uploading of documents)	$DS_{SP}(A1)$
SP (Service Provider)	A2 (collection of fees)	$DS_{SP}(A2)$
SP (Service Provider)	A3 (send to the government department)	$DS_{SP}(A3)$

Securing the Logs

The database audit log and activity log have to be stored in a secure manner. The same must be periodically moved to a tamper proof archival device which is under the control of the government department. A tamper proof archival device can be a separate server which is controlled by the government department.

Control 8: Use of scheduled script to move new entries in the database audit log and activity log to a tamper proof archival device.

Audit Tool

A utility must be available for use by the government department to verify the effectiveness of their control. This utility can provide a consolidated activity report for a specific service request

Control 9: Develop an activity report showing the changes in data, integrity of documents and activity carried by various users on a service request.

CONCLUSIONS

Public Private Partnership model has not only helped Government departments leveraging the best practices and learning from the service providers and reduce its investment in core IT infrastructure, but has also made effective use of their technical and non-technical skills to service the internal and external customers. However,

retaining control over sensitive information is an important challenge being faced by the government departments while executing large e-governance projects with involvement of a service provider.

The implementation of proposed technical controls in such projects can improve the quality of control exercised by the respective government departments without either getting deeply involved in the day to day IT operations or controlling the freedom required by the service provider in architecting an efficient system.

With increasing adoption of such PPP models, the controls described in this paper can be set as standard guidelines to ensure smoother operations.

ACKNOWLEDGMENT

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Guidelines for Indian Government Websites

**Neeta Verma, Durga Prasad Misra,
Lokesh Joshi and Shashi Kant Pandey**

National Informatics Center, New Delhi

E-mail: neeta@nic.in, dpmisra@nic.in, lokesh@nic.in, sk.pandey@nic.in

Abstract—Guidelines for Indian Government Websites (GIGW) have been formulated to assist Government departments, organisations to improve upon the quality of Information & Service delivery through the electronic media, making the websites & web enabled applications Usable, Universally Accessible and Citizen Centric. By complying with these guidelines, departments would be able to ensure high degree of standardisation & uniformity across the Government web space apart from enhancing the user experience.

These guidelines have been formulated through an extensive consultation process involving representatives from Indian Government departments, at the Centre and State levels. Established and recognized guidelines of other countries as well as International bodies like ISO and W3C have also been referred to, while drafting these guidelines. Guidelines address the entire lifecycle of websites, web portals and web applications from its conceptualization to designing, development, maintenance and management. Compliance with these guidelines shall make Government Website & Portals Usable, Universally Accessible, Citizen Centric & Up-to-Date.

These guidelines address common policy issues and practical challenges that Government departments face during development and management of their websites. The guidelines aim to assist the departments in ensuring that their website conforms to a consistently high standard. This is expected to enhance the trust level of the citizens while accessing Government information and availing services online. These guidelines are further supplemented with a website <http://guidelines.gov.in> to extend ongoing guidance and support to Government departments. This website shall also act as a good source to collect the feedback from the departments who would be using these guidelines during their web based initiatives, a very valuable input during the next revision of guidelines.

Guidelines have received an overwhelming support from all levels in the Government. These guidelines have also been included in the Central Secretariat Manual of Office Procedures (CSMOP), Department of Administrative Reforms & Public Grievances (DAR&PG), Government of India. The guidelines are quite generic in nature and should therefore be adopted by the State Governments as it is. Guidelines also form the basis for obtaining Website Quality Certification from Standardization Testing and Quality Certification (STQC) Directorate, Department of Information Technology, Government of India. In the long run these guidelines are expected to raise excellence in the Indian Government Web space.

Keywords: Guidelines for the Indian Government Websites, Web Guidelines, GIGW, Government Guidelines, Website Development, Portal Development, Universally Accessible, Accessibility, Usability, Manageability

INTRODUCTION

"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect. "

—Tim Berners-Lee, W3C Director and Inventor of the World Wide Web

e-Government in simple words can be defined as using Information Communication Technology (ICT) for hassle free access to information and services which overpower the physical bounds of traditional paper and physical file movement based systems. It is

one of the modes that enhances the access to, and delivery of Government, services to benefit citizens, businesses, employees and other stakeholders through the use of ICT. There are more than 7000+ India Government websites in the vast web-space and are delivering information and services to the Indian citizen and stakeholders and thus strengthening the bond between them.

However, with the challenges outlined in the existing delivery mechanism of Government information and services in compliance with the National e-Governance Plan (NeGP) of Indian Government. It also needs to address the needs of a significant section of the society with various types of disabilities such as differently abled, senior citizens and people with learning disabilities.

Hence the need to build a pragmatic solution across the challenges and ensure an effective best practice for the delivery of information through the websites was felt and in pursuance with the same, these guidelines were developed for Indian Government websites with an objective to make the Indian Government websites comply with the essential pre-requisites of UUU Trilogy i.e.; Usable, User-Centric and Universally Accessible.

During development of these guidelines the authors (with wide range of expertise in web technologies) and reviewers (from central/state Government, industry and academia) also referred to the internationally accepted best practices for web development. The policies laid down by other countries were also studied and comprehended so as to relate them well with the Indian context. Relevant common look and feel standard for the internet (<http://www.tbs-sct.gc.ca/clf-nsi/index-eng.asp>, January, 2007), W3C's Web Content Accessibility Guidelines 2.0 (December, 2008, <http://www.w3.org/TR/WCAG20>) and ISO standard (International Standard ISO 23026, Software Engineering – Recommended practice for the Internet–Website Engineering, Website Management and Website lifecycle, http://www.iso.org/iso/catalogue_detail?csnumber=41294) were also referred, thereby, forming a solid foundation for the guidelines.

E-GOVERNMENT INITIATIVES IN INDIA

Worldwide nations are striving hard to enhance access to and delivery of Government services to benefit citizens and its stakeholders. In India the National e-Governance Plan (NeGP) was formed with 27 Mission Mode Projects under it by the Government of India to establish web as the prime mode of interaction between the citizens & the Government. The foremost aim of NeGP was to help strengthen Government's drive toward effective governance and increased transparency to better manage a country's social and economic resources for development.



FIG. 1: INDIA.GOV.IN, THE NATIONAL PORTAL OF INDIA

One of the biggest accomplishments of NeGP is the india.gov.in “*The National Portal of India (NPI)*” a mission mode project under NeGP, an official gateway to more than 7000+ Indian Government Websites in the vast web space. The NPI was launched during November 2005 and it marked a successful step in India’s awakening in the genre of ICT and e-governance. The main aim of NPI was to make the life of the common man easy by bringing various services to his doorstep. The NPI also ensured that common citizens get equal right to be a part of decision-making processes which affect them directly or indirectly, and influence them in a manner which best improves their conditions and the quality of lives.

The NPI is playing a very significant role in influencing the process of governance in various ways and in varying degrees, from improving the current mechanisms of delivery of services to transforming the entire mechanism and the nature of services themselves.

Since its launch the NPI has not only benefiting the end-users or common citizens immensely, but has also gained significant ground when it comes to fulfilling the other basic objectives of e-governance such as enhancing transparency, increasing efficiency in service delivery and encouraging effective citizen participation in the process of governance.

UNIVERSAL ACCESSIBILITY

Though information technology has benefited our society to a large extent, but the fact is that still a major part of the society e.g. physically challenged or learning disabilities are deprived of its benefits. Like millions, these sections of the society also need accessibility

to technology. However unfortunately, their needs are often underestimated as designers and developers do not follow the basics while striving to meet deadlines and ignore accessibility requirements.

Moreover, inclusive governance is one of the priorities of the Government and India and it is envisioned to be a major power of ICT sector in the world. Hence, virtual face of the Government – its websites must be in synchronization with the Government's inclusive agenda. There is no doubt about the importance of a well managed website is an effective mechanism to connect with the citizens and to put across about Government information, schemes, programs and services. It is of utmost importance for the Government that websites must be usable and universally accessible.

Hence, it is the responsibility of every web site owner and developer to design 'Barrier-Free' websites to ensure that people with hearing, visual and other disabilities have equal access to public information that is available on the Internet and the World Wide Web. It is therefore the agency and its developers to become familiar with the guidelines for achieving universal accessibility and to apply these principles in designing and creating websites.

Worldwide, there are more than 600 million people with various kinds of disabilities. Hence it has become an important task for every website/portal owner to advise its designers and developers to follow common guidelines and checklists right from its construction.

The term 'Universal Accessibility' refers to making a website accessible to ALL irrespective of technology, platforms, devices or disabilities of any kind. In other words, departments should consider the need for considering a broad spectrum of visitors such as specialised audiences, people with disabilities, those without access to advanced technologies, and those with limited English proficiency apart from others. Guidelines for Indian Government Websites (GIGW) addresses the need for the differently abled and are in synchronization with W3C Web Content Accessibility Guidelines (Level A and majority of AA).

OBJECTIVES OF GIGW

It is an accepted principle both in theory and practice that ICT is making a significant contribution to the achievement of national development goals. Government departments especially those with extensive public interface are increasingly using websites as a tool to reach out to the citizens. With digital penetration increasing in India, websites are considered to be the preferred mode of contact for a majority of the citizens with the Government departments. The "**Right to Information Act**" has further given an impetus to the Government departments to develop their websites to conform to the proactive disclosure requirements under the Act.

The first step in providing an effective solution, based on the best practices on various aspects of the website design, development, hosting and management, was to understand the expectations of both stakeholders namely the Government departments and citizen.

Expectations of Government Department

- To establish an Identity of the Government of India over the vast web-space.
- To enhance the confidence of the citizens over this newly formed delivery of information and services.
- To take measures so as to assure authenticity, quality and veracity of services and information.
- To institutionalise concrete operations and management policies.
- To maximise the reach of the information and services.

Expectations of Citizen

- Availability of reliable and up-to-date information and services.
- Requirement of an enhanced citizen centric user experience and availability of universal access to the information and services over a varied strata of the citizen space and coverage towards various devices
- Availability of a single window interface to the various Government information and services.
- Adopting inclusive approach by addressing needs of the specially abled

In view of the above, the objective was to provide guidelines for maintaining a consistent identity of the Indian Government websites, allowing proper policies and disclaimers in place to enhance the trust levels of the citizens, devising a structured approach towards maintaining the quality and scope of content, utilising good design features to enhance the user experience and above all confirming to effective management towards website hosting and website promotion.

The GIGW advocates policies and guidelines for Indian Government Websites and Portals, at any organisational level and belonging to both Central Government as well as State/UT Governments (including District Administrations to Village Panchayats) for making Government websites citizen centric and visitor friendly. Compliance to these guidelines ensures a high degree of consistency and uniformity in the content coverage and presentation apart from promoting excellence in the Indian Government web-space. The GIGW also form the basis for obtaining Website Quality Certification from STQC (Standardization Testing Quality Certification) an organisation of Department of Information Technology, Government of India.

These guidelines are based on International Standards including ISO 23026, W3C's Web Content Accessibility Guidelines, Disability Act of India as well as Information Technology Act of India. Further, the longstanding experience of the authors, the

working group and the reviewers in design, development and management of Government Websites as well as their knowledge of the ground realities and challenges faced by the Government departments in developing and managing their websites have helped significantly in drafting these guidelines.

PRIORITIES AND FOCUS AREAS

One of the key focus areas requiring attention was in relation to web content. It was necessary to understand the scope of content before framing these guidelines for the same. Websites at all levels in the Indian Government web space have been classified and listed in the directory of Government websites (<http://goidirectory.gov.in>). Out of the total of 7000+ websites, a sample set of 500 websites across all levels in the Government was taken for in-depth study and a generic content structure so prepared can serve the needs of any Government website. This exercise provided a clear picture of the various probable content heads those could present in any website in the Indian Government web space.

The second area of focus was to provide equal access to all irrespective of technology, platforms, devices or disabilities of any kind. It was understood that websites could maintain veracity of information and services but at the same time it should be universally accessible. The major impediments towards access to web information are from visually challenged, motor disability, hearing disability and aged. Guidelines pertaining to meet these challenges have been framed by W3C and adopted by many countries as part of their web accessibility policies e.g. Section 508 in USA (<http://www.section508.gov>). It was decided to adopt W3C Web Content Accessibility Guidelines as the foundation for Indian guidelines (Initially these guidelines were confirming to WCAG 1.0 however after the release of new version WCAG 2.0 in December 2008 the guidelines were updated to align with these).

The third key focus area was the requirement of guiding principles towards the management and maintenance of websites. This involved formation of website management team with designated roles and responsibilities and framing of proper policies to provide a clear roadmap to ensure quality and continuity of information and services. The guiding policies were related to following domains:

- Legal issues
- Content lifecycle
- Strategy and operations

These guiding policies are not general but specific to each department and hence, had to be framed by the departments depending on their requirements. However it was imperative to define the scope of these policies as a part of the guidelines along with samples to provide a clear understanding of their applicability.

On the issue of Government identity study of international scenario shows that some countries like Canada have gone in for structured common look and feel standards Common Look and Feel Standards for the Internet, (January, 2007, <http://www.tbs-sct.gc.ca/clf-nsi/index-eng.asp>) but its viability in the Indian context required a diligent study. Taking into account the wide diversity of websites in Indian Government web space flexibility in terms of look and feel was considered desirable, however, minimum requirements for Government identification and positioning had to be established. Also, proper use of Government identifiers had to be ensured in keeping with the established laws.

Another area of concern relates to security and technology issues. It is important to use the right kind of tool and technologies to ensure interoperability, accessibility and security of websites. Security guidelines have already been framed by CERT-in (Computer Emergency Response Team India – <http://www.cert-in.org>) and made mandatory for Indian Government websites. It was also necessary to ensure that the guidelines framed were practical and achievable. Of all the guidelines formulated only those considered absolutely necessary to achieve the objectives had to be designated as a mandatory (an essential requirement to achieve compliance). The others could act as advisories to be adopted by departments if considered suitable.

As mentioned above, GIGW embrace and comply with W3C standards of WCAG 2.0 level A and majorities of AA. The WCAG describes a set of recommendations for making HTML pages viewed in web browsers more accessible to users with disabilities and has been a boon in designing 'Barrier-Free' Websites.

Some of the key points of WCAG that GIGW fully incorporate with is the concept of the

- User adjusting the timing of viewing or reading Web site content,
- Stressing upon the importance of identifying and describing any element whose meaning,
- Position or location is transmitted non-textually,
- Introducing navigability as an essential element of web accessibility,
- Recognising the link between usability and accessibility,
- Stressing the importance of the semantic structure of content in order to help users to understand the structure of the Web page and
- To locate the content that interests them more easily.

GIGW ensures interoperability and uses best technical approach like use of mark-up language cascading style sheet, use of scripting languages etc. GIGW are a starting point on the path towards accessibility and real web-friendliness can only be achieved by observing users and knowing their needs.

REVIEW PROCESS

Keeping the focus areas in mind the first draft of GIGW was framed. In order to provide key inputs and amending the draft prepared, the document underwent a review process by a six member review committee. Suggestions by the members were deliberated upon and those found appropriate were incorporated in the document. The final version was approved by the Content Advisory Committee (CAC), of the NPI, comprising of senior officials from various Government departments and states. Information on the committees can be obtained from the print version of the document available at <http://guidelines.gov.in>.



FIG. 2: HOMEPAGE OF [HTTP://GUIDELINES.GOV.IN](http://guidelines.gov.in)

OUTLINE OF THE GUIDELINES

Guidelines address the entire lifecycle of a website, a web portal or a web application right from its conceptualisation to design, development, maintenance and management. These guidelines are divided into three categories:

Mandatory

The usage of term '**MUST**' signifies requirements which can be objectively assessed and which the departments are supposed to mandatorily comply with without any exceptions for the web-pages/websites under its ownership. These requirements also form the basis for auditing process for the purpose of quality certification.

Advisory

The usage of term '**SHOULD**' refers to recommended practices or advisories that are considered highly important and desirable but for their wide scope and a degree of subjectivity these guidelines would have otherwise qualified to be mandatory.

Voluntary

The usage of the term '**MAY**' refers to voluntary practice, which can be adopted by a department if deemed suitable. These have been drawn from best practices and conventions that have proved successful and can help a department achieve high quality benchmarks for their web endeavours.

The guidelines are divided into nine Key Domains that map well with major objectives. A broad overview of the key domains is outlined below:

Government of India Identifiers

This section pertains to the expression of "Identity" in the websites. It guides over the approach and the methodology to be adopted to ensure the veracity and authenticity of the official status of the websites. In order to maintain the same this section flows through the following touch points:

- Ownership of Indian Government is to be represented visually by the use of National Emblem of India on the homepage of websites.
- States may use their own emblem in case they have one and Public Sector Undertakings and autonomous bodies must use their official logo.
- Ownership of the website is to be further consolidated by presenting the complete lineage of the department at the footer of the home page.
- All subsequent pages of the website should also display the ownership information in a summarised form.

Building Confidence

Trust is an essential element to build the relationship between the Government and the citizens and stakeholders. To uphold the same this section lays stress on framing of proper policies and disclaimers to protect the interest of both the department and the user of the website. This section deals with the issues ranging from the department's policy towards the usage of content present on the website, the responsibility of department towards externally linked site, legal aspects and the terms and conditions of use of the website. Sample policies and statements have also been provided for ready reference.

Scope of Content

This segment relates to the content framework that should be followed in a Government website. It categorises the content as that in the

- Public domain (meant for the consumption of citizen)
- Content for the internal use by the department and
- Content that should be avoided in a Government

Content in the public domain that forms the basis of this framework has been further categorised as Primary, Secondary and Tertiary content depending on the purpose it fulfils. Illustrative list of the contents heads in all the three categories have also been specified along with the guidelines pertaining to the compilation of content under each of these heads. The section also proposes the availability of certain minimum content elements on the homepage and subsequent pages. While the whole gamut of the content has been discussed including information that should be avoided, departments may choose the elements that fulfill the content requirements for their website.

Quality of Content

This section provides guidance on various indicators to look at when exercising quality along with necessary inputs on various fronts such as content authenticity, accuracy and currency. The section also guides well in terms of the quality of language considering multilingualism as a prime factor. In the same lines this section provides awareness on the methodology to ensure consistent terminology. One of the strengths of this section is the guidance on Information Architecture which entrusts ideally on the organisation of information, structuring the information, labelling and access to the information with minimum effort.

Design

This section of the document stresses on increasing the usability quotient of the website. Good design ensures enhancement of the user experience by presenting the content in a form that is easily understandable, navigable and searchable by the user, in addition to being visually appealing. This chapter in the guidelines also accentuates on minimal use of frames as many search engines do not index framed web pages properly, however if frames are used each frame must be titled to facilitate frame identification and navigation. The branding of a website can be established by incorporating common design elements such as colours, logos, styles, etc., into every page. This section of the document covers various areas involved in the design of the website like page layout, graphic buttons, typography, colour, images, audio, video, animation and also provides guidance on achieving consistent navigation across the website. Navigational aids such as site search and sitemap that are the key to ensure an effective usability function have also been discussed in this section.

Development

Developing a website involves use of technologies and tools in order to ensure interoperability and universal accessibility of websites. This part of document provides technical details on the approach to the use of mark-up language, cascading style sheet, use of scripting languages and also provides guidelines on various file formats to be used in the website. The section also provides a ready reference to guide the developers during the development process which involves two significant areas i.e. Validation/Testing and Web Application Security.

Website Hosting

Anywhere, anytime delivery of information and services to the citizens and other stakeholders is one of the primary objectives of a Government website. While it is extremely important to develop websites using state-of-the-art technologies, hosting infrastructure plays a crucial role in the performance, availability and accessibility of these websites. Hence, review of hosting server infrastructure as well as facilities at Data Centers is important prior to hosting. This section details the kinds of facilities and services that the department should expect from their hosting service providers. It touches upon the important aspects like:

- Presence of security both at physical and network level,
- Provisioning for regular backups
- Presence of redundant server infrastructure for fastest restoration of website in case of any eventuality

Departments are advised to have a contingency plan ready in event of any unforeseen event like defacement, in this segment of the guidelines.

Website Promotion

Website promotion is a critical component in maximising reach. The ultimate objective of any Government website is to provide information and services to as many citizens and stakeholders as possible. In other words the websites should be accessible to ALL irrespective of technologies, platforms, devices or disabilities of any kind. This fulfillment of this objective will ensure maximum usage and participation by the citizens, thereby, assuring inclusive Governance.

To relate to an effective promotion strategy this section provides guidelines on the approach towards search engine registration and optimisation and stretches to the efficacies of various promotion techniques. This part of the document also suggests on the usage of advertisements, public messages, press releases, tender notifications as a means to promote the website.

Website Management

The website management needs a blend of technical and managerial skill sets. This section provides an insight to understand and incorporate the correct practices required for the management of websites. The critical areas in concern are the need to appoint Web information Manager whose responsibilities are to:

- Formulate the policies with regard to the website
- Ensure the quality control and compliance to the guidelines
- Maximise the reach of the websites through various promotional strategies.
- Monitor the website for issues related to performance & functionality

- Use traffic analysis tools and monitor feedbacks to assess the needs and expectations of the citizen

In case of a large website the guidelines suggest a formulation of a team which includes a Technical Manager as well. To ensure the compliance with the guidelines and standards the section discusses the tools required for website maintenance and monitoring. Website review and enhancement at planned intervals to ensure that the website lives up to expectation of the users have also been proposed.

The section also stresses on the availability of different website policies to give a clear roadmap to management team and help them to take important decisions.

COMPLIANCE MATRIX

The last section lists all the mandatory guidelines in the form of checkpoints. This forms a matrix against which the websites, portals and web applications may be tested for compliance. There are 115 mandatory checkpoints covering the nine domains that have been discussed above.

As a test case for the guidelines the mandatory checkpoints outlined in the guidelines were incorporated in National Portal of India (<http://india.gov.in>). The portal was evaluated by STQC, a body under Department of Information Technology, Government of India, and was found to be compliant across all the 115 mandatory checkpoints. This ensured that the parameters for compliance are achievable and practical. Consequently a website quality certification scheme has also been launched by STQC against compliance to the GIGW.

Later few of the Government websites got the quality certificate from STQC. These guidelines are generic in nature so these can be adopted by any organization as it is to offer high quality web service to its stakeholders and the citizens.

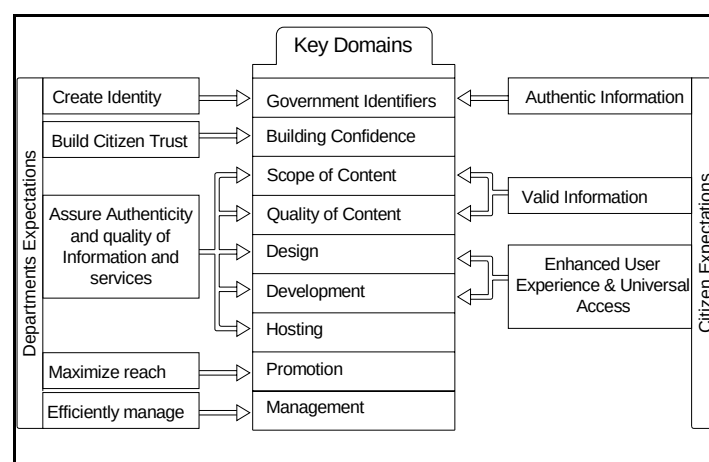


FIG. 3: RELATIVE MAPPING OF THE OBJECTIVES AND THE KEY DOMAINS OF THE GUIDELINES

FUTURE WORKS

In order to take this initiative further by establishing a mechanism of regular reviewing of feedbacks received online through the website <http://guidelines.gov.in>, where the user can avail the guidelines online and share their experience while complying their websites with the GIGW. Provision for online consultation is also facilitated through this website. Visitors can give their suggestions on specific sections of the guidelines using this website. The authors are committed to bring about changes in the document in keeping with the technological changes and the suggestions/feedback of the users. The website as of now has more than 10,000 registered users.

With the generic content structure in place, a way forward is the development of GIGW complaint web templates. Government departments can customise these templates according to their requirements to generate standard compliant websites. Related content management systems can be provided to ensure ease of maintenance and compliance throughout the entire lifecycle of the websites.

Success of these guidelines depend on their effective implementation which necessarily includes plans for developing programs related to capacity building, training, handholding and towards sensitisation of the departments in the adoption and implementation of these guidelines.

ACKNOWLEDGMENT

We would like to express our sincere gratitude to all the committee members for providing valuable inputs to build these guidelines. We would especially like to acknowledge Chairman of the Content Advisory Committee (CAC), The Additional Secretary, Department of Administrative Reforms and Public Grievance (DARPG) and Department of Information Technology (DIT) for their advice and support in formulation of these guidelines. We also recognise and appreciate the efforts of DARPG in adopting these guidelines and including them as an integral part of Central Services Manual for Office Procedures (CSMOP). This has been possible with the continuous support of all the members of Data Centre and Web Services Division of National Informatics Centre especially the National Portal Team. We thank one and all who supported making of the 'Guidelines for Indian Government Websites' a successful endeavour.

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Service Level Management in e-Governance Projects

N. Vijay Kumar

Principal Technology Architect, Infosys Limited, India

E-mail: vijaykumar_n@infosys.com

Abstract—E-governance initiatives are progressively replacing traditional and manual way of transacting business with government agencies. It is not just a computer application, but developing and implementing a service for consumers. With governments seeking to maximize footfall and enhancing customer satisfaction, one of the key factors that would attract consumers is the quality of service and service levels offered. Increasingly, governments have started to commit service timeframes. For e-governance projects to be successful, it is highly imperative that suitable service levels be framed, implemented and a process for monitoring and managing SLAs be defined, rolled out. It is a practice in e-governance initiatives that agencies involved sign a Memorandum of Understanding (MoU) which includes amongst other things, service levels and timelines expected for each of the services being offered. This article describes the criteria and framework for designing service levels, mechanisms to monitor and manage the same.

Keywords: e-Governance, Service Level Management, Benchmarks, Metrics

INTRODUCTION

Governments are being perceived as unresponsive, in-efficient, slow and with no accountability to stakeholders. Transparency and good governance are considered to have taken a backseat. Amidst all politicking, public services and its implementation are seen as ineffective, haphazard. Traditional methods of service delivery, systems and processes are inadequate and often cumbersome to meet increasing citizen needs and are bound to face stiff challenges in a global economy. On the face of it, e-governance is being viewed as a public administration mechanism to enhance delivery and access of government services to end consumers – citizens, businesses and other government agencies, the objective of which is to ensure that transactions are transparent, efficient and benefitting consumers. It aims to provide highest standards of service to consumers and easy access to government services and information.

Worldwide, e-governance initiatives are gaining momentum. Driven by advances in information & communication technologies (ICT), federal and local governments are driving towards rolling out e-governance projects. However in spite of the thrust, acclaimed benefits of such initiatives have not fructified fully nor has desired results achieved, both in developing and developed countries. A key reason being, service levels not defined and implemented nor managed well; with business process and program management failures are being other. “The clear focus is on improving service levels and not on procurement of hardware and software”, Sanyal (2009). This article describes why service levels are critical to success and a framework for implementing and managing service levels in an e-governance project. The focus of this article will be primarily on e-governance initiatives in India.

IMPORTANCE OF SERVICE LEVELS IN E-GOVERNANCE INITIATIVES

The ways in which government services are provided and consumed have undergone transformation in last few years. Moving away from manual process to more automated

and technology oriented, the trend is to be consumed as a “service”. E-governance is no more seen as just an electronic way of doing business, but within committed timeframes, response levels and desired outcomes. Evolution of government services from manual to automated and self-service manner is shown in Figure-1 below.

Applying for an industrial license a few years ago, for instance, would need an entrepreneur to be physically present in the concerned department, filling out a bunch of application forms and wait endlessly for a response. Manual way of doing things was first automated, with software applications used to process forms, within the department. Yet, the wait was endless with no timeline being specified for completion of transaction. E-governance aims to change this situation, by designing services with “service oriented” approach, with target timelines and service quality attached to transactions. “Increasingly, e-Government projects are being designed on a service oriented approach. This is in strong contrast to the situation a few years ago when e-Government projects were being designed on the basis of a bought- out concept...” Satyanarayana (2008).

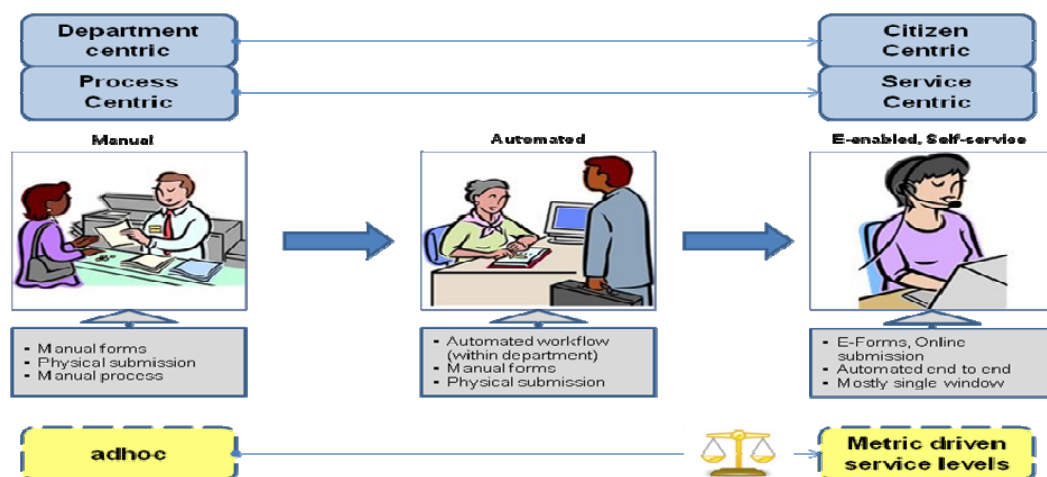


FIG. 1: HOW E-GOVERNANCE HAS EVOLVED OVER TIME

Service levels focus on “people-side” of delivery and governance and are important for a number of factors. Traditionally, departments operated at their own convenience with not much importance for committed timelines and services quality. The transaction, though completed, was left to the whim and fancy of the personnel in departments and agencies concerned. This might have worked well in past, but in modern times, tends to decelerate growth. Secondly, with increasing growth and demand for government services, manual process tends to be inefficient, leading to mal-practices and corruption. Thirdly with growth of ICT and advent of Internet, it is now possible to transact online rather than queuing up in government offices. And this list only grows bigger. In order to have good governance, transparency in transactions and efficient delivery of public services; 3 main criteria have to be met.

- Simplify existing business processes
- Automate process workflow and e-enable (both within government departments and to end consumers)
- Frame service levels, implement and monitor them for effectiveness and fix accountabilities

For instance, e-District project providing generic citizen services (like issuance of domicile certificate, marriage certificate), guarantees that “any transaction requiring document verification will be completed in less than 5 working days”. Whilst it is not difficult to guarantee and deliver committed service levels, a combination of business process and application of technology will help governments to achieve the same.

CHALLENGES IN IMPLEMENTING SERVICE LEVELS IN GOVERNMENT SERVICES

E-enabling government service processes alone do not guarantee timely and effective completion of transaction. There are numerous other intrinsic and extrinsic challenges that need to be overcome, some of which are:

- Current business processes have to be simplified, which have been in use for long periods of time in past. Changing them is laborious. Moreover some processes span across multiple agencies / departments and are all the more difficult to change, but not impossible
- Committing to service levels requires change of attitude on part of employees and officials. Change management is the biggest challenge
- Removing red-tapism inherent in government structure is a herculean task
- Middlemen (or agents) play a very important role in government service ecosystem. There could be vested interests aiming to scuttle simplification and resurgence of IT driven processes
- Single window system spans multiple departments and agencies. An application passes through many departments (and multiple iterations as well). Most of the times, there are dependencies between various departments. In such a situation, framing an overall service level for such services are practically difficult
- Above all, political will to change is a must. Only a change in political mindset will drive changes to governmental processes

SERVICE LEVEL AGREEMENT FRAMEWORK

Defining service levels for government services is challenging and tricky. It is an iterative process and continually refined over a period of time. Figure 2, suggests a framework for implementing and managing service levels for government services. This is an indicative and conceptual model that enables agencies to design, implement and manage SLA's effectively in e-governance projects. A framework is the starting point for SLA based implementation and management, which governs the processes throughout project and SLA lifecycle. This framework considers available capacity and limitations

for designing service levels, and is applicable across all variants of e-governance projects –G2B, G2C and G2G. It also considers relevant stakeholders and their interests. And most importantly, it should be aligned with core business objectives of the service.

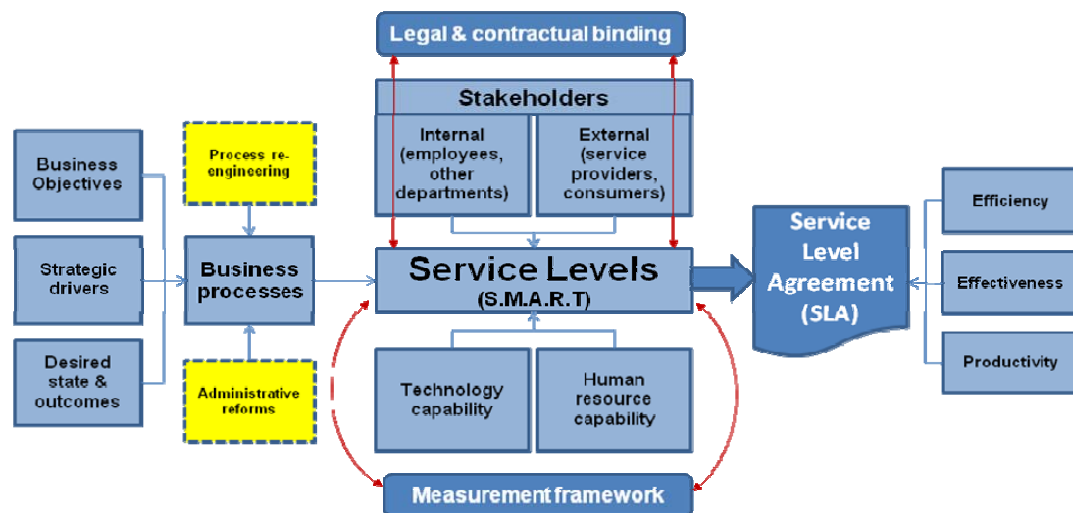


FIG. 2: A CONCEPTUAL FRAMEWORK FOR SLA MANAGEMENT

The framework leads to defining service levels for individual services and/or transactions. There are cases when multiple or composite services are combined together to form a “bouquet of services” (ex. Single window service) and SLAs can be either defined for a single service or for the overall set of services. The guiding principle is that the service metrics should be tangible (SMART). The nature of service level varies from project to project, service to service or even based on location. Hence a “one-size-fits-all” approach will not work for service level definition. Service level definition is a key activity that needs to be carried out with critical care, by taking into consideration business and technical aspects of the service, capacity and desired outcome. This assumes more significance that SLA will be contractually and legally binding both, department and consumers.

SERVICE LEVEL MANAGEMENT

In line with philosophy of e-governance, where focus is on assured service delivery, it is essential that required service levels be defined prior to start of actual implementation. And along with service levels, a measurement criteria and measurement model has to be defined. This forms the service level management (SLM) framework, which monitors service delivery, measures actual / delivered SLA metrics vis-à-vis what is committed and takes further corrective, preventive actions. Monitoring and measurement are the key requirements of SLM framework (and solution). “You can only control what you measure”. Hence the framework, mechanism and tools designed to manage service levels should be precise, accurate and more importantly, consistent, in order to be

effective. Figure- 3 indicates a high level SLM framework that can be customized for use in e-governance projects.

It is highly essential and important that the framework has to be highly objective and developed to be adopted across a plethora of services and service platforms. Unambiguous, clarity of scope (of interpretation) are the key features of both SLA and SLM frameworks and Key Performance Indicators (KPIs). Most government departments have defined metrics for services and transactions to an extent. (A look of department or service manual, service handbook will reveal some of the existing metrics). But in most cases, measurement is rudimentary and they are not tracked and enforced. But with changing scenarios, many e-governance programs have started to offer such service metrics to consumers.

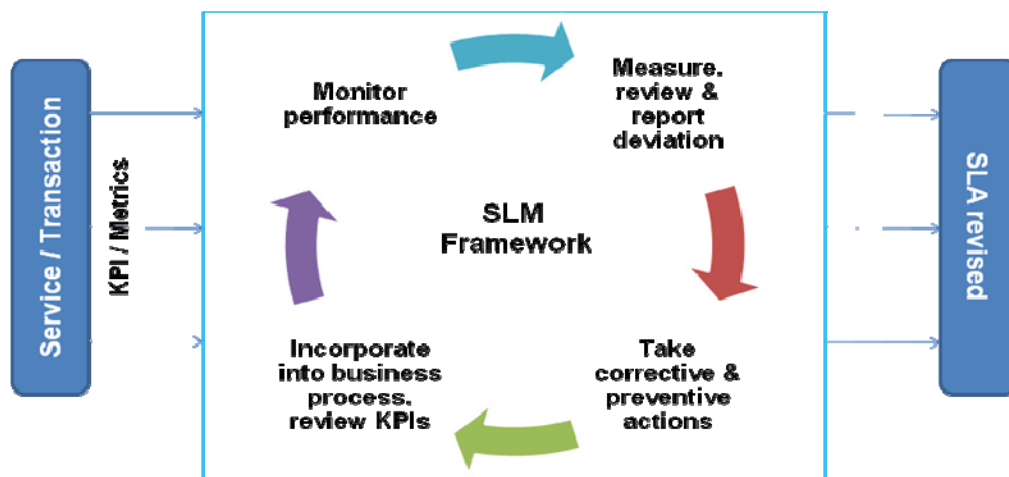


FIG. 3: SLM FRAMEWORK

In a competitive world, managing service levels will be difficult without a proper monitoring tool. With e-governance platforms being built around technology components, there are multitudes of options for a SLM tool. A simple transaction portal, for instance, which is implemented using J2EE or .Net platform and based on standard 3-tier architecture, can support custom-built tools or even 3rd party COTS product to track, monitor and measure service levels. For instance, a tool can track exact date and time when an application for a particular service was submitted in the portal. All subsequent approvals and actions taken by various department users / agencies can also be tracked. This provides vital information on whether service levels, as committed by various departments, have been adhered to or not. Also systems are capable of supporting a workflow and escalate SLA deviation to department heads / ombudsmen for further action. End users or consumers are also able to view the status of submitted application online. Detailed audit trails are maintained to enable future auditing or even an investigation in case of any dispute / litigation. E-biz, India's proposed G2B portal is in process of implementing SLAs for services provided to business organizations.

In the Indian context, with e-governance initiatives being recent phenomena, committing SLAs for services and transactions are in a nascent stage. Though there has been a plethora of e-governance projects that have been rolled out in recent past, only a handful of them offer service level based commitments. Frequently, it is the quality of service that is of great concern rather than timelines. Non availability of complete information about a service or transaction, often leads to a bad end-user experience. For instance, the information handbook might not provide all necessary information about a particular service and consumers might have to visit the nearest office to obtain information. Information retrieval is complex, as information is spread across multiple sources and locations.

Often quality, and not quantity, is the determinant factor in service level adherences. And in such circumstances, a tool might not be able to capture quality of service. Obtaining feedback from consumers will serve to capture end user experience and which can be used to gauge quality and effectiveness of service delivery. Also a live audit of the service delivery process will help to gauge quality levels. These might provide vital and business-intrinsic inputs to business process re-engineering (BPR) and administrative reforms.

CRITICAL SUCCESS FACTORS FOR SERVICE LEVEL MANAGEMENT

For service level management to succeed, some parameters are very essential

- Service levels defined in concrete terms and be objective, and more importantly aligned with business processes
- A process to monitor and measure service levels has to be defined (SLM Framework)
- Necessary tools and technologies to be implemented, that will help to monitor service levels
- A performance reporting mechanism – that will serve as a dashboard to be implemented, with relevant escalation matrices
- A Program management framework to execute SLM process
- And on top of all, necessary buy-in from relevant stakeholders is essential for service based delivery to be successful

You cannot win in today's marketplace using yesterday's processes.

—Dr. H. James Harrington

MONITORING AND MANAGEMENT

While it is relatively simpler to define KPIs and metrics, implement SLA based transactional models; real challenge lies in actual monitoring and management. Who is a better authority to manage service levels in an e-governance project? Can it be department managers? Can it be an independent government agency? Can it be a third party? There is no single and straight forward answer to this. Depending on the project

and criticality, it could be either of them. Typically in India, large e-governance projects rolled out by departments are monitored internally by service ombudsmen, who are tasked with monitoring service delivery. Alternatively, external Program Management Units (PMU) who is responsible for program rollout will monitor. In either case, neutrality and objectivity will have to be the key criteria for judging quality levels.

Another upcoming trend in e-governance project delivery is the PPP (Public-private partnership) model, where private organizations are selected as partners to deliver e-governance service. PPP models come in various flavors (BOT, BOOT) where private organizations not only build platform but also operate the service. Business dynamics change drastically as private players are roped in as professionalism, competitiveness; that leads to increased quality are being seen as key ingredients of PPP model. Most of these initiatives are long term and provide necessary incentives for private organizations to ensure services quality. In many initiatives, both technology platform and business operations are being implemented by 3rd party organizations. For instance, Tata Consultancy Services (TCS) is entrusted with running Passport Seva Kendra (PSK) project while Infosys is contracted to execute Income Tax Department's Central Processing Center (CPC). Service levels in such initiatives are managed by service providers, tightly overseen by respective departments, to provide necessary checks and balances. In most cases reimbursements to vendors are tied to service levels.

A professional program management approach is needed for implementing and managing service levels. While adopting a service oriented approach, departments and agencies have to interweave planning, implementation and operationalization across entire lifecycle of the e-governance initiative. One key reason of failures (or major delays) of e-governance projects is that the implementation commences before planning could be completed. Due to various factors (ex. urgency and political considerations), programs launched without proper planning and stakeholder management, often leads to delays and imminent failures. Performance reporting of service levels has to be done periodically, which provides vital inputs to managing service delivery. Amongst others, a performance report captures committed vs. delivered service quality levels, root cause analysis for performance shortcomings and action plan (with responsibility and accountability) to achieve them in future. Making reports public and to relevant stakeholders, strive to increase transparency, accountability on the part of government departments and agencies.

ROLE OF INFORMATION & COMMUNICATION TECHNOLOGY

Growth of information and communication technology (ICT) has been tremendous since early 1990's and this has helped to accelerate growth and adoption of e-governance in India. It all started with office automation, when manual processing of applications (for a service) was computerized with simple workflow process within departments. Approvals (and rejections) were performed using computer software that was designed to "move" applications along the "official-chain". Subsequently applications were web-

enabled with user-friendly web portals for online access and self-service. Growth and penetration of internet even to remotest areas has propelled growth of e-governance, helping citizens and businesses to transact online. Free and Open Source Software (FOSS) has fuelled this growth further.

ICT has become the driving force behind today's e-governance projects, aiming to provide competitive advantage. Speed and reliability are two key characteristics of e-governance service delivery, which ICT provides. ICT plays a very key role in monitoring and managing service levels. COTS products from technology vendors as well as open source tools help to perform monitoring and management. These tools help in creating workflow automation, monitoring and reporting, which are integrated with e-governance platform.

National e-governance Plan (NeGP) of Indian government has ICT as the mainstay of e-governance delivery. Chandrasekar (2010) "National e-Governance Plan aims to employ ICT to empower people at the grassroots level". Cloud computing is becoming next big force in IT and is being seen as the future service delivery vehicle for e-governance projects. Unique Identification (UID), the largest of e-governance projects in India, is all poised to go live on cloud computing platform.

BENEFITS OF SERVICE LEVEL MANAGEMENT

Transparency, good governance and accountability are 3 key pillars on which e-governance initiatives are based on, supported by speed, efficiency and effectiveness. All these characteristics can be imbibed into e-governance initiatives and executed in "spirit" only when service levels are formalized and made binding amongst all stakeholders. Some benefits of implementing SLM are:

- Helps to determine relevance of objectives, efficiency and sustainability of service processes, that can be improved over period of time
- Helps in assessing "where we are" and "how to proceed"
- Supports better and informed decision making process
- Creates a performance culture in public service driving towards "*outcome based*" approach
- Increases accountability of public service employees
- Helps in providing performance reports, so that performers can be incentivized
- Strategic interventions (ex. Training, funding) can be planned based on SLM data
- Most important, makes various government departments competitive (and driving them to provide better services)

CONCLUSION

Citizen-centricity has been the key focus in implementing e-governance services. While such initiatives reflect a reformist and progressive culture, it is imperative that such

services be implemented with same true sense and spirit, on which they were envisioned and formulated. A key tenet of e-governance is the manner in which services are delivered to consumers and more importantly, measuring service parameters to constantly improvise processes and delivery mechanisms. In this context service levels and measurement assumes a greater significance and forms a key feature of an e-governance service design. Competitive advantage is a key parameter that will determine success or failure of an initiative and SLA, SLM are bound to provide that advantage.

Framing SLAs and implementing SLMs is a difficult task in any government enterprise. Resistance to change and various other challenges are bound to impede growth, but proper change management processes, political re-assurance and will, an attitudinal change for good, are needed to ensure success of such initiatives. ICT can be used as an enabler to accelerate such change. In short, e-governance is here to stay and service level assurance is a key driver to sustain and succeed in such initiatives

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Issues of Information Access through Government Portals

Neeta Verma¹ and M.P. Gupta²

¹National Informatics Center, New Delhi

²Department of Management Studies, IIT Delhi

E-mail: neeta@nic.in, mpgupta@dms.iitd.ernet.in

Abstract—Governments all over the world are increasingly establishing their presence in cyber space. Information and services are being delivered through portals and websites of different departments across different tiers of governance. With increased awareness and experience of using internet for communication and entertainment, citizens' expectation from government websites has also increased manifold. Government websites however have not been so successful in meeting these expectations. Citizens find it difficult to locate and access the information from government websites. Even when they are able to locate the information, its comprehension is generally difficult. Government websites often suffer from lack of standards, absence of information architecture, classification, citizen orientation, search engine optimization etc. Formulation of guidelines, standards is one way to address these problems. Here we propose to address this from a different perspective. Development of search platform supported by domain ontology can address the issues of information access to a great extent

Keywords: Government Websites, Information Access, Information Quality, Ontology

INTRODUCTION

The Internet has conditioned itself as the most powerful and popular means of delivering e-Government to its various stake holders (Vincent, Dombey & Huisman, 2011). Visiting e-Government websites, citizens can conveniently access government information and services and gain greater opportunities to participate in democratic processes as they can access government information and services anywhere and anytime. Citizens expectation for the service levels from government websites has also increased considerably (Barnes & Vidgen, 2006). Government authorities face the challenge of fulfilling new needs & expectations of the citizens & reality of reduced budgets (Bertot & Jaeger, 2008).

GOVERNMENT WEB SPACE

Governments all over the world are increasingly establishing their presence in the cyber space. Right from simple websites highlighting basic information about a ministry or department to variety of special purpose portals are being launched from time to time. Programme specific, scheme specific to event specific websites are sprawling in the government web space. Subject/ sector specific portals are also being launched by government departments for the benefit of citizens, non government agencies working for social development of the country, business, planners as well as academia and research community.

Besides delivering information, government is leveraging this medium for interaction with its stake holders, listen to their grievances, seek their participation in policy formulation, improvement in service delivery etc. (Saebo, Flak & Sein, 2011).

Internet as medium has a strength to enable government to large number of citizens, in a convenient and cost effective manner. Opinion poll, discussion forums, e-consultations are some of the commonly used instruments for citizen participation in governance. Online Grievance redressal is a popular application available on government websites. In fact governments often have exclusive websites for citizens to submit their grievance and track its status.

Many of the countries have also established a single entry portal in some form or other to provide aggregated information about government and services (Verma & Mishra 2010, Wimmer 2002). Though generally these portals are design with a lot of care and planning and provide a good user interface. But most of them after 1-2 levels of navigation lead to individual websites of the government. While it is important and useful to have such portals but they are no substitute for individual websites. Ease of access and quality of information on these individual websites is therefore pertinent.

Government websites have a unique set of stakeholders. Theoretically speaking almost all people, communities, businesses, academicians and government themselves use government websites for varied purposes. Citizens of the country are a however primary stakeholders of government websites to access information & services. Citizens of country span across very vast range of demography (Carter & Weerakkody, 2009), which makes it quite challenging to design a website or compile or present a content which provides ease of use, convenience & time saving for all.

INFORMATION & SERVICES BEING DELIVERED

The Government offers a wide variety of information and services through its websites its portals. Information about various acts and policies of the government is generally available on government websites. Information about government schemes for the benefits of citizens along with procedure to avail the benefits is also made available on government websites. Various documents which the government releases from time to time be it its annual report, guidelines, rules & regulations, etc. are generally available from government web services.

Besides delivery of information to citizens and other stake holders, governments have also begun to deliver services online. Application for birth certificate, marriage registration, caste certificate, passport to voter's id card are some of the services available online to the citizens. While on the business end- use of government websites for registration of companies, submission of wide range of taxes online have begun. Overseas communities access these websites from tourism or business purpose be it obtaining visa, travel reservations or rules for establishing business in the country.

Government information and services online could be generally availed only from government websites. Therefore citizens have to access these websites to avail variety of information & services. Many studies have however, shown that citizens often find it difficult to access information from government websites. It has also been observed in surveys & studies on government websites that their usage is often much less than expected.

So what are issues of Information access on government portals is the research question for this study.

RESEARCH METHODOLOGY

To understand the various issues of information access on government websites, we have taken the approach of Literature Review followed by Expert opinion.

Government exerts significant influence on the social factors that affect the development of legal, political and economic infrastructure. Electronic government spans many sectors and factors of society and has potential to transform its citizen's perception of civil and political interactions (Barnes, Vidgen 2006). Efficient public service is critical to a national competitiveness. To improve the delivery of public services, countries throughout the world are promoting establishment of e-government. For e-government initiatives, governments aim for good quality and usable websites. For a successful government website however, users should be satisfied with their use of the site and revisit as frequently as they need to. Navigation, effective readability, Utilization of multimedia technology, site structure and information search capability were found to be major factors affecting usability of e-government websites. Findings of a study in South Korea also suggested that the usability strongly affected both user satisfaction & intention to revisit (Byun, Finnie 2011). Information on government websites is designed to cater to need of experience users who are well verse with domain. (Cheng, Lau, Law, Pan & Jones 2009) thus making it extremely difficult for novice users. Accessibility of government websites is also an important issue of concern. During a recent survey it was found that out of 100 US Federal Government home pages only 4 were free of Accessibility violations (Olatere & Lazar, 2011).

Mandates of e-government can only be achieved if a large range of government services and processes are delivered seamlessly to citizens and stakeholders (Vincent, Dombau & Huisman 2011). By and large, the citizen's attitudes towards the government are not too positive. The government needs more efficient mode of communication in order to better address the information needs of citizens. Citizens feel that the information given by the government as incomplete, unclear & unreliable. Government must become more user friendly and take into account the different needs of its citizens (Verdegem & Verleye 2009). During a survey of Australia & New Zealand citizens, it was found that majority of respondents were reluctant to use e-government system and less than half had even visited a government website (Gauld, Goldfinch & Horsburgh 2010).

Leveraging on the experience of reviewing and consulting large number of Indian government websites, and combining with the outcome of literature review, we have tried to classify these issues in four categories of Information Organization, Classification, Quality and Search Engine Friendliness.

ISSUES OF INFORMATION ACCESS

INFORMATION ORGANIZATION

Government websites are often rich in content. They act as huge repository of information. However information is often not well organized. Layout of information on web pages is not consistent (Chatfield & Alhujran, 2009). While some links are placed on left side of the page and then on right side on some other pages. Some pages may not link to all the sections of the portal and some pages may not have any navigation link at all, often called orphan pages. If the visitor happens to directly land on one of these orphan pages through search engines, he just gets stuck. Inconsistent navigation and organization of the information on a website makes it extremely difficult to browse through and access desired information. Accessing information becomes further complex as the information grows on the website.

Commonly used instruments which help visitors easily navigate through the website such as Sitemap, Local Search, Most often viewed Pages are generally missing on these websites. This makes access of information on government websites all the more difficult.

INFORMATION CLASSIFICATION

Generally government websites do not follow any standard classification or nomenclature for information owned by them and published on the websites for the benefit of citizens and other stakeholders. Same type of information is referred by different names by different departments, thus making it very difficult for citizens to access information. It practically amounts to learning fresh every time they visit different government websites thus making the process of accessing tedious and time consuming. Often citizens are not able to access information despite it being there. Classification is also missing on the government websites, different nomenclature and different classification schema are used by different websites, thus making the process of accessing information cumbersome, inefficient and often confusing. Content layout and classification (Cho & Park, 2001) is one of the primary factors to determine the usability of the website (Misic & Johnson, 1999).

Information Quality

Quality of Information on government websites is another major concern. Quality of information is determined by relevance, timeliness, and accuracy of information (Delone & McLean, 1992). Usability, authenticity, consistency, and comprehension are some of the other characteristics of Information (Barnes & Vidgen, 2006). Considering the socio economic diversity of the audience, semi literate, literate to highly literate citizens, IT savvy; speaking 22 different languages, coming from different socio cultural backgrounds packaging information for easy and efficient access is a challenge with government websites in India. Quality and style of language is also one of important characteristics of information quality on websites

Citizens look for high quality, easy to access and usable information from government websites. Government websites, however, often fail to meet these expectations (Olaire & Lazar, 2011). Discoverability of information is itself challenging, as has been discussed in detail in previous sections. Having located the information, often we find outdated information on websites. Information does not carry any time stamp as a result it becomes difficult for citizen to assess whether information is up-to-date or not. Most of the content of government websites in Indian context is in English (URL, 16) while large segment of population is non-English speaking. Some of the State government publishes large part of content on their websites only in their regional language which becomes totally inaccessible to citizens from rest of the country as well as for people all around the world.

Often the language used in government documents is not simple. It also needs one to have basic understanding of the government and its functioning, this itself acts as big barrier, thus despite having large number of websites in cyber space having whole lot of information, its accessibility & usability to common man is pretty low (Detlor, Hupfer & Ruhi 2010, Carter & Weerakkody 2009),

SEARCH ENGINE FRIENDLINESS

Search Engine Optimization (SEO) is the process of improving the visibility of a website or a web page in search engines. It's a discipline in itself and a large number of tools and techniques are prescribed to achieve search engine optimization of a website. Website owners use variety of techniques to improve the ranking of their websites in popular search engines. Today there are professionals specializing in this domain of SEO.

Many studies in the past have indicated that people often visit the web space not by directly landing on individual websites but through search engines. Search engine optimization of government websites is not very high primarily because there is no competition and therefore need is not felt for SEO of web pages. As a result ranking of government web pages despite having lot of valuable content is not very high in search engines. Therefore people are often not able to even get to the right information. So despite government departments putting in so much of effort in digitization of a large number of documents, converting in web friendly formats, maintaining the websites, keeping them up-to-date, citizens as well as other potential users are not able to access them or even get to know about this (Chatfield & Alhujran, 2009).

SEMANTIC WEB, ONTOLOGIES & GOVERNMENT WEB SPACE

The Semantic Web is a "web of data" that facilitates machines to understand the semantics, or meaning, of information on the World Wide Web. (URL, 26). It extends the network of hyperlinked human-readable web pages by inserting machine-readable metadata about pages and how they are related to each other, enabling automated agents to access the Web more intelligently and perform tasks on behalf of users.

The semantic web uses ontology as a tool to capture concepts for specific domains. As a result, computers can deal with the data of those domains semantically. An ontology language can be used to generate class and property descriptions based on their names, along with some axioms about them. (Crichton, Davies, Gibbons, Harris & Shukla, 2007). Ontology is becoming an important area in Information System research. It cuts across wide range of disciplines right from artificial intelligence, software engineering, information architecture, e-learning, the semantic web. Ontologies capture the concepts, their properties, and their relationships. They represent the domain data in a semantic way and define the knowledge that is embedded in the domain. Third, they can be used to analyze the domain independent of any application requirements. They can be used to build web data in a structured way .

Semantic-based e-government consists of describing existing entities, concepts, processes, laws and regulations governing a government service domain, into a conceptual model namely domain ontology. This domain ontology is initially represented in a human readable form. To make it processable by computers, ontology editing and implementing platforms can be used to develop the domain ontology in Semantic Web machine processable syntaxes such as XML, RDF, and OWL(Crichton, Davies, Gibbons, Harris & Shukla, 2007).

One of the main challenges for search engines is to provide a good ranking for documents that are retrieved as relevant to the users' query. They use several criteria to rank web documents. Many involve the use of the number of keyword hits of the retrieved documents as the criteria,. Our approach used the ontology to build a relevancy measure that checked how close the content of a document was to the user query

People visit government websites in search of information or avail government services online. These information and services are available only through government websites. Therefore citizens have no choice but to visit these websites. Many studies in the past have also indicated that people often visit the web space not by directly landing on individual websites but through search engines. One of the main challenges for search engines is to provide a good ranking for documents that are retrieved as relevant to the users' query. They use several criteria to rank web documents. Many involve the use of the number of keyword hits of the retrieved documents as the criteria,

Search engine optimization of government websites is not very high primarily because there is no competition and therefore need is not felt for SEO of web pages. As a result often people are not able to get to right information easily. So despite government departments putting in so much of effort in digitization of huge document, converting in web friendly formats, end users are not able to access them or even get to know about this.

It is therefore proposed that if we meta-tag the web pages in government space following standard classification system and in parallel develop ontology around this for different domains of the government, we could increase the discoverability of the government content exponentially through a customized search platform for government or a government search engine. Ontologies have been developed for regulation information, project management in government space (Sarantis, Charalabidis & Askounis, 2009).

CONCLUSION

Every citizen needs to interact with government at number of occasions in his life time to avail various services right from birth certificate, cast certificate, passport, voter id, employment, land registration, driving license to marriage registration, payment of taxes etc. Governments all over the world are setting up websites, portals to deliver information about these services, forms to download, procedure to avail etc. and slowly moving towards offering these services online. And in each country a huge part of budget is being spent on such initiatives. However due to poor promotion and discoverability of such initiatives in cyber space, governments are not able to leverage upon the strengths of the medium of internet and connect to its citizens across the country as well as abroad. Many countries have developed guidelines and mandated them on government departments. Such initiatives have not made significant difference.

Semantic-based e-government consists of describing existing entities, concepts, processes, laws and regulations governing a government service domain, into a conceptual model namely domain ontology (Vincent, Dombey & Huisman 2011). Improving the discoverability of government content through a customized search platform integrated with country & domain specific ontologies seems a more feasible solution. This is also true that nomenclature and language used by government departments is quite official, government like. While citizens have much simpler vocabulary. Moreover nomenclature of government information varies from department to department, state to state. Using domain ontologies we can map these variation and give much more comprehensive & relevant information to the citizens. A project to establish such a platform has been initiated in this direction in Indian Government web space.

To end, this paper proposes research to be carried out in the field of formulation of ontologies in various aspects of governance. Though limited literature is available in application of semantic web in the field of electronic government. We feel this paper can become a base for carrying out more research in terms of formulation of frameworks, models for building ontologies in different domains of governance.

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e-Governance and RTI in India

Anjali Kaushik

Professor, Management Development Institute, Guragaon

E-mail: anjali1112@gmail.com

Abstract—This article discusses the status of Freedom of Information (FOI) across a few countries and then examines the status of Right to Information Act (RTI) in India. It also discusses some of the implementation mechanisms across different States in India. It measures the performance of RTI based on Zifcak and Snell framework and compares it with the FOI status in other countries. Based on the Global trajectory and learning's on FOI, it tries to analyze the status of RTI in India. The article also tries to see what are the common issues and challenges regarding FOI across countries and especially in the Indian context.

Keywords: Freedom of Information (FOI), Right to Information (RTI), e-Governance, Performance, India

BACKGROUND: FREEDOM OF INFORMATION (FOI)

Freedom of Information is increasingly becoming an accepted part of democracy. Around 90 countries have information acts in place and another 50 have legislation pending (Vleugels, 2009). This signifies thrust towards openness and transparency across countries. Since, FOI is becoming more and more acceptable; the thrust is on developing mechanisms for its implementation and in trying to measure its impact and effectiveness. This paper starts with the genesis and background of RTI in India; it examines the status of the various RTI implementation mechanisms in terms of e-governance technology and capacity building initiatives. It then studies the global practices to assess FOI and examine the status of FOI across some countries. It then tries to examine the status of RTI in India and comment on the issues and challenges faced.

RIGHT TO INFORMATION (RTI) IN INDIA

The Indian Parliament had enacted the "Freedom of Information Act, 2002" in order to promote, transparency and accountability in administration. The National Common Minimum Program of the Government envisaged that "Freedom of Information Act" will be made more "progressive, participatory and meaningful", following which, decision was made to repeal the "Freedom of Information Act, 2002" and enact a new legislation in its place. Accordingly, "Right to Information Bill, 2004" (RTI) was passed by both the Houses of Parliament on May, 2005 which received the assent of the President on 15th June, 2005. "The Right to Information Act" was notified in the Gazette of India on 21st June, 2005. The "The Right to Information Act" became fully operational from 12th October, 2005. This law empowers Indian citizens to seek any accessible information from a Public Authority and makes the Government and its functionaries more accountable and responsible. The law applies to all States and Union Territories of India, except the State of Jammu and Kashmir - which is covered under a State-level law. The Act specifies that citizens have a right to request any information (as defined), obtain copies of documents, inspect documents, works and records, and take certified samples of materials of work. The Act states

“...democracy requires an informed citizenry and transparency of information which are vital to its functioning and also to contain corruption and to hold Governments and their instrumentalities accountable to the governed”

Source: RTI Act' 2005

The RTI Act mandates the setting of the Information Commission at the state and the central level. The institutional mechanisms are now in place in most of the states and the Act has been operational for more than 5 years. There have been many cases where the civil society organizations and the media have started using the Act for bringing in transparency and objectivity.

RTI IMPLEMENTATION MECHANISMS

Many FOI laws are “paper” laws, passed in response to domestic or international pressures for transparency and good governance for “symbolic purposes,” with little or no implementation machinery (Relly & Sabharwal, 2009). Therefore, implementation mechanisms in terms of enabling technology and capacity building initiatives are important.

Implementation Mechanisms in India

Post the enactment of the Central Act, some State Governments have taken innovative initiatives in line with the spirit of the Act. Some of the initiatives are listed here:

RTI Call Center

This is a convenient channel wherein the RTI application is taken by the call centre and payment of fee is included in the telephone bill.

- Bihar was the first State in the country to create a RTI Call Centre – “Jankari”. Government of Bihar has initiated a six seater call centre. This call centre facilitates a caller in drafting the RTI application and the fee is collected through the phone bill. Requisite changes have been made in the rules for acceptance of the application through this channel. In Jankari, for filing the application under Right to Information Act, the applicant has to dial 155311 (even from a PCO) and he/she can seek information from the public information officer. Applicant has to provide his name and address for communication to file the request. He can also file the appeal on this number. In 2007 the total number of calls received was 6820 while this number went up to 15780 in 2008. The number has been increasing since which shows that this has been a sustainable initiative to promote RTI. An initiative similar to Jaankari has been started in the state of Haryana also. Similarly, RTI Helpline in Bangalore is providing RTI information to citizens (2002).

RTI Portal

- In this case, the information request can be made through the RTI portal. Various State Governments have already started planning the implementation of this recommendation. The RTI portal should contain links to all Ministry/Department websites of the appropriate Government. The RTI application is made online by choosing the relevant Public Authority on the website. The information seeker has the option of making the payment of fee through a payment gateway.
 - o Central Information Commission has launched a website where the citizens can submit their complaints and second appeals online. The official portal designed, developed and hosted by National Informatics Centre (NIC) under the aegis of Department of Information Technology (DIT), facilitates citizens in filing complaints, appeals and in checking the status of appeal/complaints.
 - o Orissa has developed a portal -RTI Central Monitoring Mechanism(CMM) (www.rti.orissa.gov.in) which was launched in 2009 and provides a single point access to information in conformity with the RTI Act, 2005 in a uniform manner at all the offices of Government of Orissa(figure). The portal enables proactive disclosures, receives applications online and disposes off requests in conformity with the Act. Further, it provides a scope to the Administrative Department to monitor the process of RTI implementation in respect of its subordinate Offices. More than 2000 offices are now connected to RTI CMM including 38 departments and 20 District Information & Public Relations Offices (DIPRO). Citizens are also asking information by using online RTI application form to all connected Public Authorities (Offices). The citizen can check his/her application status online by using his/her unique ID number given by the system. All these RTI applications are auto routed to the concerned Public Authorities (Offices) and status are maintained by respective Public Information Officer (PIO) through this System. On an average, more than 60 RTI applications have been received online to various Public Authorities (Offices) per month. Till May 2011, about 4500 RTI applications were received online from a total of 25,000 applications filed during the same period.

All the departments and subordinate offices are given with a user ID and password to manage their proactive disclosure information, RTI applications and appeals. However, the backend processes are not robust and the awareness in the respective departments needs to be built up to enhance the implementation of the Act. The state information commission also does not have any controlling mechanism on the department to ensure implementation. Therefore, at best this is an enabling mechanism and more needs to be done in terms of training, awareness building and accountability to enhance the usability of the portal.

ଲୋକ ସୂଚନା
LOKA SOOCHANA
rtiorissa.gov.in
You are just a Click away from Govt.

RTI Central Monitoring Mechanism
Govt. Of Orissa

ti-on@nic.in for more information.

HOME RTI ACT RTI INFORMATION DOWNLOADS RTI NODAL OFFICER CONTACT US

>Welcome to Right to Information

The state RTI Portal of Government of Orissa is a web based centralized system to monitor RTI implementation in the entire State. In this system all the Departments & subordinate offices are given with an user ID & password to manage their proactive disclosure information, RTI applications and appeals. Citizen will be able to make online RTI applications and appeals to any public authority in the State through this system. The Information Seeker (Citizen) can check his/her online RTI application and appeal status.

Enter Keyword

Search: ☐ Information Search ☐ Public Authority

News and Events

Tarun Kanti Mishra is New State Chief Information Commissioner
BBSR/20.11.10 : Sri Tarun Kanti Mishra Former Chief Secretary was sworn on 20th November 2010 as the...

National Press Day Celebrated in Orissa
BBSR/16.11.10 : The National Press Day was celebrated on 16th November 2010 at Conference Hall of In...

Login

User ID
Password
User --Select--
R n f A 4s
(Letters are case sensitive)

[Forgot password?](#)
[Click here to Check online Application/Appeal Status](#)

India eGOV2.0
"RTI Central Monitoring Mechanism"
Most User Friendly

Key Focus

1. Proactive Disclosure
2. Operational Guidelines
3. Nodal Officers at District Level
4. Exempted Category Section

FIG. 1: RTI CONTROL MONITORING MECHANISM GOVT. OF ORISSA

Capacity Building Initiatives

- Government of India launched a programme in 2005 for "Capacity Building for Access to Information (CBAI)". However, in 4 years, it could train only 0.1 million people across India.
- The Department of Personnel and Training (DoP&T), Ministry of Personnel, Public Grievances and Pensions, Government of India has started the 'Online Certificate Course on RTI (OCC_RTI)' to create awareness about the provisions of the Act (figure 2). This is an online 15 days certificate program open to all stakeholders. This programme has a better reach as it is online and has been able to provide training to about 10,000 stakeholders in 2009-2010.



FIG. 2: RTI ONLINE CERTIFICATE COURSE—HOME PAGE

- “Train the Trainer” concept in Assam: Assam has adopted a “Train the Trainers” concept, where the Government trains the Community Based Organizations (CBOs) and Non-Governmental Organizations (NGOs) to impart training to citizens on RTI in order to maximize the reach of RTI and ensure that there is local ownership and sustainability. In this decentralized approach, active NGOs in each district are identified and training is imparted to them on “How to train citizens for RTI”. Then, these trained NGOs go to rural/remote areas to train the citizens on RTI and create mass awareness of RTI in the district. Moreover, Assam ATI has given some token money to all the 27 district deputy collectors, to be used to assist the NGOs in their awareness raising efforts.
- Review of Public Authorities by Andhra Pradesh State Information Commission
- Public hearings at the district headquarters by Kerala State Information Commission
- The Central Information Commission website has a feature for online submission of complaints and second appeals.

While the contribution made by the above implementation mechanisms has enhanced the awareness of RTI, there is still a long way to go to establish transparency and accountability through RTI. Common Service Centers (CSCs) is a scheme of the Government of India under which 2,50,000 CSCs are being created. This means that there would be approximately 1 CSC for every 6 villages. These CSCs are expected to act as front-end/single window outlets for many Government services. These are being operated by private agencies under the Public Private Partnership model. These CSCs may be utilized to collect applications and facilitate citizens in filing RTI applications.

An assessment of RTI progress will help in the interventions required by various state/ central governments to improve its effectiveness. The implementation of RTI also depends on the political context and will. As Julnes and Holzer (2001) observe, such procedures “do not operate in a vacuum”; all reforms operate within a “political context that may weaken or bolster” the operation of the reform initiative.

HOW TO ASSESS FOI?

Since FOI is an international phenomenon, different organizations have begun to develop performance measures in an attempt to evaluate the effectiveness of the new laws. Some organizations such as the World Bank Institute (Relly & Sabharwal, 2009), have attempted to compile indicators on good governance such as transparency and accountability, access to information legislation etc. Simultaneously, Government departments also collect and publish statistics on FOI on their respective web-sites. There have been some studies which compare the FOI requests in different countries with the number of successful requests resulting in disclosure and the number of failed requests. However, this kind of data is hard to get on a cross-country level. Generally, such studies are restricted to country-level studies or department level studies with a view to give policy inputs and suggestions for reforms for the Act (White, 2007; RaaG/NCPRI, 2009).

Therefore, there are divergent views on what should define the success of FOI and how its performance should be measured. Should the performance be based on only efficiency measures such as number of requests, resources used, disclosures made, failure rate of requests, time taken etc or should it include broader governance parameters on effectiveness. Also, a comparison of FOI status across countries and learnings based on that would be useful. Broadly, the performance measures are seen to belong to one of the following categories:

- Efficiency parameters such as number of requests, resources used, Failure rate of the requests, High level of successful requests resulting in disclosure, Number of appeals undertaken, Time taken to process requests
- Quality indicators such as level of awareness and use
- Compile indicators for transparency and accountability like access to information legislation, telecommunications access, press freedom etc
- Cross-country comparative surveys

The performance measures collected and published by the governments are focused on: use of the Act and the volume of requests; the success and failure rate of requests; and performance of the appeal system. In no case do these provide absolute measures to assess FOI; at best, they offer a range of different proxy measures of good performance. A positive combination of the above factors, such as high levels of awareness and use, high rates of successful requests resulting in disclosure, and a strong appeals process potentially locks FOI into a positive cycle of use, learning, and improvement, in which

the request process and appeal system improve and the exemptions are clarified through interpretation. Such a finding would be a sign of an Act performing well. Conversely, if FOI is not used or the appeal system is weak FOI may become locked into a negative cycle of disuse, neglect and stagnation (Hazell and Worthy, 2010)

The first indicator of a healthy FOI system may be the number of requests, though this may be dependent on who is making the requests and for what information. Heavy use by business or the media may produce a very different type of FOI regime than one driven by requests from the public. If the Act is well publicized by government and the media, public awareness of the Act should be high, enabling a high rate of use.

Apart from the number of requests made, the performance of FOI also depends on the number of disclosures made. Here, the differences may arise because some countries such as Australia and Ireland allow access to personal files under FOI while countries such as Canada and UK enable access to personal files under a separate privacy or data protection legislation. This brings in a more fundamental question—should we include access to personal files under FOI? Australia initially included access to personal files within the FOI and then segregated it. India has followed a similar route. India has come up with a separate provision under the Data Protection Act in 2011 and personal information is not covered under RTI Act now. Canada has a separate privacy policy. In Australia, initially the number of FOI requests granted were as high as 75% as these were requests from individuals seeking access to their personal files (Hazell, 1987). But the numbers declined after access to personal information was taken out from the preview of FOI (Hazell and Worthy, 2010). While in most countries, the number of disclosures as a proportion of the number of appeals (disclosure rate) has increased over time, UK has shown a reverse trend. This may be due to the constraints in capacity as the number of requests increase. Another common problem seen is the delay in responding to the FOI requests beyond the statutory deadline in India, this deadline is 30 days; in UK it is 20 days. Different countries have different deadlines but to meet them, the capacity has to be created within the Government.

The Information Commissioner or appeal body can serve to rectify problems with the Act, establish precedents and provide guidance. An effective appeal body—one that polices the Act to ensure compliance and rectifies mistakes and promotes openness—is a key part of an Act performing well. This has proven to be the case in Australia, where the lack of a full champion and focal point for FOI contributed to the gradual deterioration of the Act's performance (ALRC, 1995). India has an Information Commission in every State headed by a state Chief Information Commissioner. But above all these structures, an effective FOI system requires strong Government commitment and political will.

Zifcak and Snell developed a four-stage typology characterizing the life of an FOI regime: initial “optimism,” increasing “pessimism,” giving way to “revisionism” designed to alter the FOI law, normally to limit its scope or performance, and then later a return to the “fundamentals” of FOI (Snell, 2001, p. 343). In each case, the performance of the FOI is influenced by the political environment of the country.

Here, we have tried to study and compare FOI across countries such as Australia, Canada, Ireland, New Zealand, Canada, Mexico and the UK. Australia, Canada and New Zealand passed Acts in 1982. Ireland passed an FOI Act in 1997 and UK passed it in 2000. Based on these learning's, we have tried to examine the status of FOI in India.

In Australia, the initial optimism and strong support gave way after 3 years to a series of revisions including an increase in fees which deterred requesters and after 5 years to gradual neglect of FOI by Governments (Terril, 1998). A review by the Australian Law Reform Commission (ALRC) highlighted problems of conflict, lack of co-operation, lack of FOI Champion. In 2008, a position of Information Commissioner was created to revive FOI and the scope of the Act was also enhanced.

In Ireland, explicit government support and positive assessment by the Information Commissioner were followed by similar pessimism and revision. After 5 years the government introduced the fees which led to a reduction in a number of requests. The introduction of application fees, charging 15 Euros per non-person request, cut the number of requests by almost 50% (McDonagh, 2006). The Information Commissioner describes acceptance of FOI as uneven with some public bodies reluctant and others suffering FOI fatigue due to resource constraints.

In New Zealand, the Act's success in early years was assisted by strong support of the Prime Minister. New Zealand revised in 1987-it increased the scope of the Act and limited the ministerial veto (to prevent release). These were positive revisions. However, this was followed by requests from media and opposition parties which caused friction and a lot of political dilemma (White, 2007).

In Canada, the Act was implemented with diligence though the public uptake was low. However, it was hampered by a negative reaction following a series of early controversies resulting from FOI requests, one involving the Prime Minister himself (Gillis, 1998). This led to revisionism due to a combination of resistance, decreased resources and informal systems designed to limit the impact of requests. This included a revision that the requests have to be made in person and in writing and cannot be made electronically.

In UK, FOI Act of 2000 came into force in 2005. The UK Act had a peculiar gestation. Pessimism set in early in UK-implementation was delayed until the latest possible date by statute. FOI laws can be launched with initial enthusiasm, but then undergo revisions to restrict the operation of the Act when politicians start to feel the pain, or simply suffer from bureaucratic neglect when starved of resources.

The implementation structures in Canada and Mexico are similar to the implementation structure envisaged in the RTI Act in India. Both these countries have mature implementation mechanisms. The Canadian Access to Information Law came into force in 1983. In Canada, emphasis is given to the record management practices at the Government Institutions and is under the Minister for causing the record

management practices at the Government Institutions. Mexico was one of the first countries in Latin America to pass a “right to information” law, with the signing into law by President Fox of the Federal Transparency and Access to Public Government Information Law (RTI Law) in June 2002.

Studies to Assess RTI in India

Society of Participatory Research in Asia (PRIA) did a study across eight states in India in 2007. The aim of the study was to assess the experiences of information seekers in accessing information under the RTI Act. Poorest Area Civil Society Programme (PACS) did a RTI campaign which was aimed to help poor people in 108 poorest districts of the country. PACS also tried to study the impact of use of RTI and to train and encourage as many people as possible on RTI. PricewaterHouseCoopers (PWC) did a study to understand the “Key Issues and Constraints” in implementing the RTI Act in 2009. Based on these studies, some of the issues and challenges in implementing RTI are discussed below.

Status of RTI in India: Issues and Challenges

The experiences in India show that the issues in the implementation of RTI may pertain to the procedural aspects of the Government, capacity building and building implementation mechanisms for the Act.

The number of RTI Appeals with the Information Commissions is growing at a rapid pace year after year. In

Maharashtra, the numbers of appeals grew to 15,959 in 2007. However, there is a “wait period” of more than 12 months, thus discouraging citizens from filing appeals. On an average, the wait period across states is more than 3 months (PWC Report, 2009).

TABLE 3: PENDENCY LEVELS OF SECOND APPEALS AT VARIOUS STATES

	Appeals and complaints filed	Appeals and complaints disposed	Cumulative Pendency	% Pendency	Approx wait Period
Maharashtra	11579	3611	13949	120%	14.4 Months
Assam	189	189	0	0%	0 months
AP	2217	2217	804	36%	4.3
Orissa	2415	499	800	33%	3.9 months
Himachal Pradesh	306	306	0	0%	0 months
Uttarakhand	1349	1479	42	3%	0.3 months
Meghalaya	156	172	0	0%	0 months

Source: PriceWaterhouseCoopers (2009). Report on Understanding the “Key Issues and Constraints” in implementing the RTI Act.

The awareness of RTI is increasing and so are the number of appeals. For instance, in Andhra Pradesh, the number of appeals from rural areas increased from 11% in 2006 to 43% in 2010. A total of 5867 appeals were received in RTI, Andhra Pradesh since Jan 2011. However, only 3,153 have been disposed off. This shows a disposal rate of only 54% and the pending cases are accumulating everyday. Building capacity will help the information seekers to learn how to use the Act more effectively. This will also help to reduce the gap between information providers and information seekers (PWC report, 2009). For India, the status of RTI may best be described between stage 2 and stage 3 of Zifcak and Snell framework. India had a slow start to the RTI Act. Increasing awareness of the Act has enhanced the number of appeals. Since the number of unattended appeals across states is building up, there is a growing disillusionment and pessimism related to the Act. Initially, India covered the personal information under the RTI Act. Recently, it has come up with a revision. Now, India has a separate provision under the Data protection act in 2011 and personal information is not covered under RTI Act.

CONCLUSION AND RECOMMENDATIONS

As the number of appeals is increasing, there is a need to strengthen the implementation mechanisms, target better record management practices which enable RTI compliance, build capacity and provide training. The RTI call centers set up in Bihar (Jaankari) and in Haryana have been a success. Similar initiatives may be planned across other states. Presently, the RTI call center and RTI portal initiatives are being planned in isolation. An integrated implementation mechanism should yield better results. Simultaneously, efforts should be made towards awareness generation, building a knowledge resource center on RTI Act, strengthening the record management system (paper/ e-office) and making it RTI friendly and conducting training.

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Citizen Participation for Successful e-Governance—A Case Study

Rama Krushna Das¹, Manas Ranjan Patra²,
Susanta Kumar Panda³ and Rabi Narayan Behera⁴

¹ National Informatics Centre, Berhampur

² Berhampur University

³ National Informatics Centre, Bhubaneswar

⁴ National Informatics Centre, Bhubaneswar

E-mail: rk.das@nic.in, mrpatra12@gmail.com, sk.panda@nic.in, rnbehera@nic.in

Abstract—Today developing countries are confronted with two major challenges – on one hand the pressing need to catch up with the international standards and on the other to address the basic needs of the citizens. While the first can be achieved through policy planning and technology adoption, the later can only be possible through citizen participation. In India the last two decade has witnessed a phenomenal change with the initiative taken by implementing many e-Governance projects. Interestingly many of the projects have targeted the rural community. But the irony is that the people living in the rural areas are least involved during conceptualization and planning of different rural projects resulting in difficulties at the time of implementation. In this paper, we discuss how the participation of the citizens was actually useful in the successful implementation of a specific rural project in India, namely, the NREGS. Further, we also share how continuing participation of the rural community was not only helpful in monitoring the execution of the project but also to provide feedback to the Government for better implementation and to ensure transparency.

Keywords: Rural e-Governance, Citizen participation, Project monitoring, NREGA, Social Audit

INTRODUCTION

e-Governance is still a fashionable word in the developing countries. While technology plays a pivotal role in implementing e-Governance projects the role of citizens is even more important for the success of the projects. In most cases the projects are implemented in a top-down manner in the sense that the planners and architects conceptualize different project scenarios, decide on the technology and build systems which are finally thrust upon the citizens. As a consequence either the projects are far from ground realities and thus fail to cater to the actual requirements of the citizens at large. India which is fast developing is no exception to this reality. During the last twenty years many ambitious projects were planned which were either short-lived or still struggling to be of use to the common people.

NREGS (National Rural Employment Guarantee Scheme) is one such project which was specially designed for the rural community. Though the project kicked off well and still considered to be successful but it suffered from proper monitoring and lack of transparency which culminated in citizen dissatisfaction. This led to regular complaints and grievances before the government. In many occasions the facts could not be established because there was no mechanism in place to track and monitor the activities and information flow across government agencies at different levels of the hierarchy. In order to help the situation some of the NGOs stepped in to act as facilitator between the beneficiaries of the scheme and the government agencies. In the rest of the article we share our experience as how the citizens participated in the implementation of the

NREGS project. They could not only provide feedback to the appropriate government agencies but could put forth their grievances through the NGOs for redressal. In section 2 we describe the objectives and stakeholders of the NREGS. We also highlight the loopholes and vulnerabilities in the implementation of the project. In section 3, we explain the role of the NGOs in bridging the gap between the government machinery (the implementer) and the rural community (the beneficiary).

NREGA

The NREGA [7], now called Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) came into effect on 2nd February 2006 [9]. In the first phase almost 200 districts in different Provinces of India came under this act. Subsequently in different phases, it was extended to other districts excluding those with 100% urban population. MGNREGA aims at enhancing the livelihood security of the people in rural areas by guaranteeing hundred days of wage-employment [8] in a financial year. This is meant for those rural households who volunteer to do unskilled manual work. It is a landmark initiative to alleviate poverty in rural India. Though it is for only 100 days still it generates productive wage employment for unskilled rural labour. It is envisaged as a growth engine for sustainable development of an agricultural economy. Through the process of providing employment on works which addresses the causes of chronic poverty such as drought, deforestation and soil erosion, the act seeks to strengthen the natural resource base of rural livelihood and create durable assets in rural areas. It protects the rural poor from vulnerabilities by providing them demand based employment. It prevents risks associated with agricultural investment and forced migration of the rural poor. The other key attributes of this scheme are labour-intensive work, decentralized participatory planning, women's empowerment, work site facilities, transparency and accountability through the provision of social audits and right to information.

RURAL E-GOVERNANCE

Rural e-Governance is an important subject in the Indian context. The rural India is populated with a diverse section of the society. The people living in the rural areas are of different ethnic origin speaking different languages and mostly illiterate. These people primarily live on agriculture, poultry, and fishing or on some family trades like pottery, blacksmith, artisan etc. In a mission to alleviate the living standard of the rural community and to provide support to their means of living the government introduces many schemes and projects. The government extends financial help under different schemes such as guaranteed employment for the rural youth, support for family trade, community oriented activities etc. Besides these the government also undertakes infrastructure development activities in the rural areas such as construction of roads, health centers, schools, community centers, etc. Training and awareness programmes are another important aspect of the governmental activities for the rural community.

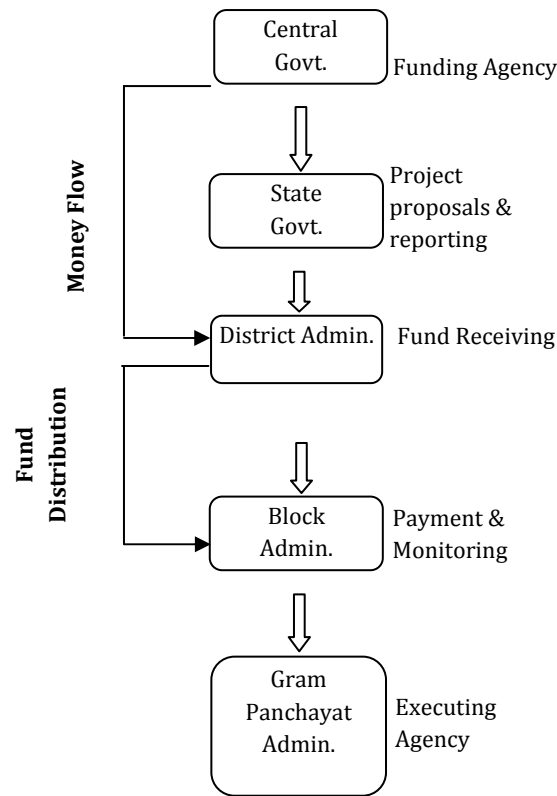


FIG. 1: FUNDING & EXECUTION HIERARCHY

Most of the rural projects in India are directly funded by the Central Government. Plans are chalked out at a top level and are implemented at a much lower level in the rural. A typical project funding and execution hierarchy is depicted in figure 1.

Normally, there is a big gap between the plans and the implementation in terms of relevance and practical realities at ground zero. With a view to monitor the execution of the schemes and projects the government officials maintains relevant records and reports to the appropriate levels of the administration.

CITIZEN PARTICIPATION

Citizen participation in effective e-Governance is not new. In many countries citizens have been invited to participate in the administrative process. In [4], the author has emphasized on the need for online public participation and shares his experience in China as to how it helped in establishing an open and interactive administrative decision network. In yet another work [2], one finds how the participation of citizens helped in building a healthy political system. In [1], the need for citizen participation has been emphasized for effective administration at the municipal level in Istanbul. In [6], the

authors talked about a participatory government budgets in the Brazilian context where thousands of people can decide on the allocation of public investment. Participation of citizens in the democratic process [8] is yet another instance of how the citizens can make their voice heard even at the highest level in a democratic set up. The participation of rural people and NGOs has been experimented in the e-Grama project [3] which proved to be quite effective in bridging the digital divide.

Need for Participation

When funds are assigned for various purposes and finally reach the rural areas for distribution many-a-times there are complaints of pilferage. Besides this the government does not have proper mechanism in place to get the feedback whether the fund was used the way it was intended. Therefore, it is felt that unless the beneficiaries are involved in the process it will be difficult to get a picture of the ground reality.

Citizen Participation in Rural Planning

The importance of citizen participation in rural planning cannot be ignored. One of the most important factors in rural planning is to understand the aspirations and preferences of the rural mass. It is difficult on the part of any Government to perceive the requirements and priorities of a particular geographical area without direct participation of the citizen from that region. Therefore, citizen needs to be involved in the planning process of any government projects.

Citizen Participation during Execution

A project that completes well is the one that is considered to be successful. Planning can be done by an expert committee but its execution can be far from the vision of the planners. Active involvement of the citizens cannot be overlooked during execution of any project. Citizens can contribute in terms of supervision, feedback and monitoring. In some sense they can act as watchdogs.

CITIZEN PARTICIPATION IN THE IMPLEMENTATION OF NREGS

Under the NREGS, Ganjam district of Orissa province was taken up in the first Phase and about 367 thousand households were issued job cards. The purpose of a job card is to make somebody eligible for engagement in rural projects that involve manual labour. The challenge was to provide jobs to rural citizens on a huge scale while ensuring transparency and accountability. Moreover, it was supposed to be executed in a time bound and citizen friendly manner. Information and Communication Technology (ICT) has been used in the best possible manner to streamline reporting, record keeping and information flow across different execution channel. All relevant information is made available in the public domain on the Web site <http://nrega.nic.in> for easy access by the citizens and other concerned persons. The information on the web site was regularly updated for the benefit of all concerned. Ganjam district is one of the leading districts in the country in terms of online monitoring of the NREGS [9]. Adequate ICT infrastructure and manpower are created at all levels of the administration even at the lowest level up

to blocks and panchayats to replace Manual Monthly Progress Reprts(MPR)s by online MIS. Manual reporting of expenditure from below district offices is discouraged, only online expenditure is accepted through the MIS.

Generation of Periodic Reports

Daily the District Collector gets an MIS report of the NREGS performance of all the block panchayats and his observations are sent through e-mail to the BPOs for follow up action. This system of daily online monitoring helped in taking timely decisions which is crucial in the whole process. In the peak working season, Grampanchat-wise and village-wise works were reviewed and monitored once a fortnight. Employment provided increased from 2600 thousand Person-days in 2006-07 to 7100 thousand Person -days in 2007-08; an increase of over 200%, which reached 9700 thousand Person-days in 2008-09. Direct and hassle free payments could be made to the beneficiaries. Out of about Rs. 60.44 crores spent on NREGS works, about Rs. 42.57 crores has been spent on labour payments. More than 90% of wages have been paid through bank accounts of job seekers. More than 200 thousand bank accounts have been opened in the name of the beneficiary for this purpose. This could happen mainly because of the use of ICT which ensured transparency, solved the problem of underpayment and ensured timely payment. It improved accountability as the supervision was no longer dependant on voluminous reports and returns. The District Collector could directly monitor the wages paid, work done and the flow of funds. This put pressure on the executing agencies to improve performance and deliver results. This is certainly a success story as far as G2G type of e-governance is concerned.

National Rural Employment Guarantee Act - 2005
Ministry of Rural Development
Govt. of India

Navigation: HINDIVERSION | NREGA ACT 2005 | NREGA DISTRICTS | GUIDELINES | SEARCH: [] GO | Citizen | Panchayata GPT PS 2P | Workers | Other Impl. Agency | District / Block Admin. | States | Bank / Post Office | MoRD | Social Audit Agencies | Engineers

Block: DPC -GANJAM | English | Local Language | Financial Year: 2010-2011

MG-NREGA Statistics
District : GANJAM

Employment provided to households:	1,41,872 Lakh
Persondays (in Lakh):	
Total:	79.12
SCs:	19.93 [25.19%]
STs:	4.76 [6.04%]
Women:	39.02 [49.32%]
Others:	54.41 [68.77%]
Total Fund: Rs.	79.18 Crore.
Expenditure:	81.64 Crore.
Total works taken up:	13370
Works completed:	5089
Works in progress :	8281

Report

- Employment
 - Employment Status
 - Progress Report
 - Employment Provided Period wise
 - Households Completed 100 days
 - No. of Registered households, workers, SC, ST, Others Families
- Works
 - Works under different category/status
 - Work Status
 - Spill Over Works
 - Suspended Work
 - Assets Created
 - Work Execution Level Analysis
 - Bharat Nirman Rajeev Gandhi Seva Kendra
 - BNREGSK Additional Information
 - Vendor Wise Expenditure Report
 - Material Wise Expenditure Report
- Fund Management
 - Fund Transfer Statement and Expenditure
 - Available Fund at Each Level
 - Financial Statement
 - Status of release at GP level
 - Average wage paid
 - Range Wise Average wage paid
 - Labour /Material Ratio Analysis
 - Outlays & Outcomes
 - Position of Account

Data Entry

Report

Financial Year 2010-2011

Block DPC -GANJAM

ASKA

BEGUNIAPADA

BELLAGUNTHA

BHANJANAGAR

BUGUDA

CHATRAPUR

CHIKITI

DHARAKOTE

DIGAPAHANDI

GANJAM

HINJILICUT

JAGANNATHPRASAD

KABISURYANAGAR

KHALLIKOTE

KUKUDAKHANDI

PATRAPUR

POLOSARA

PURUSHOTTAMPUR

RANGEILUNDA

SANAKHEMUNDI

SHERAGADA

SURADA

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CHIKITI

DHARAKOTE

DIGAPAHANDI

GANJAM

HINJILICUT

JAGANNATHPRASAD

KABISURYANAGAR

KHALLIKOTE

KUKUDAKHANDI

PATRAPUR

POLOSARA

PURUSHOTTAMPUR

RANGEILUNDA

SANAKHEMUNDI

SHERAGADA

SURADA

FIG. 2: NREGA WEBSITE FOR GANJAM DISTRICT

The Figure 2 is the snapshot of NREGA home page of Orissa, the district names are displayed on the left side with data entry and different report options.

Govt. of India Ministry of Rural Development Department of Rural Development The Mahatma Gandhi National Rural Employment Guarantee Act Friday, April 08, 2011 Back																
State: ORISSA District: GANJAM																
Employment Generated During The financial Year 2010-2011																
1	2	3				4	6	7	9					10	11	12
		Cumulative No. of HH issued jobcards (Till the reporting month)	Cumulative No. of HH demanded employment (Till the reporting month)	Cumulative No. of HH provided employment (Till the reporting month)	No. of HH working under NREGA during the reporting month				Cumulative Persondays generate(Till the reporting month)	Cumulative No. of HH completed 100 days (Till the reporting month)	No. of HH which are beneficiary of land reform/IAY	No. of Disabled beneficiary individuals				
													a			
S.No	Block	SCs	STs	Others	Total				SCs	STs	Others	Total	Women			
1	ASKA	4470	278	14458	19206	2944	2628	952	23313	1786	73143	98242	44622	116	141	5
2	BEGUNIPADA	4355	976	14047	19378	6989	6420	2680	82888	19088	257318	359294	177194	1393	11	14
3	BELLAGUNTHA	2718	288	14526	17532	6130	6004	3064	61795	5262	303296	370353	165564	940	19	4
4	BHAIJANAGAR	4279	1912	12895	19086	5967	5937	3174	83027	30048	255444	368519	161015	985	46	96
5	BHUGUDA	4166	787	15172	20125	6038	5343	2457	71905	11660	208921	292486	131602	750	4	7
6	CHATRAPUR	6104	528	16293	22925	7967	7906	2507	104387	9472	203827	317686	178881	408	444	6
7	CHIKITI	3839	765	11815	16419	5361	4909	2149	42699	16355	166638	225692	135942	282	0	1
8	DHARAKOTE	3291	1932	12973	18196	4336	4289	2370	49898	30020	135442	215360	100277	379	1	8
9	DHARAHANDI	4012	2296	16437	22747	5842	4992	1965	42380	33596	138959	209825	103627	371	19	4
10	HAUM	3683	177	12041	15901	4783	4627	1713	25689	888	118341	144918	74513	164	234	6
11	HINJILICUT	5792	49	13236	19077	7729	7646	3391	160481	579	252181	413241	232689	1474	269	186
12	JAGANNATHPRASAD	3835	2109	14794	22738	6215	5971	1719	76617	39892	236010	352519	163923	452	2	3
13	KABISURANAGAR	3713	157	14257	18127	5710	5336	2581	76959	2348	194942	274249	130278	219	270	0
14	KHALLIKOTE	6250	874	17968	25092	6240	5731	2876	67614	10453	140338	221105	117546	217	166	0
15	KULUDAHANDI	5706	2139	11339	19184	5246	5233	2343	74385	15808	115181	205374	131292	311	1	1
16	PATRAPUR	4132	3332	16764	24228	6961	6950	3479	40049	56401	167782	264232	159947	328	0	2
17	POLOSARA	3810	1048	17842	22700	7509	7405	3660	80319	22108	325872	428299	200267	1007	2	12
18	PURUSHOTTAMPUR	6385	70	11347	17802	4407	4395	2418	96678	795	111600	209073	115876	575	10	2
19	SAIGELIUNDA	5373	98	15665	21136	7846	7791	3883	121901	1095	360633	483629	260206	1407	14	94
20	SAIKHEMUNDI	3532	1705	18836	24073	3939	3276	1708	31305	26380	110039	167724	78089	587	0	1
21	SHERAGADA	4040	515	14293	18848	6174	6174	3788	66577	13331	198442	278350	121167	716	1	13
22	SURADA	4691	2929	12722	20342	5399	4697	2325	34304	57090	103904	195298	85407	408	4	3
Total		100176	24966	319728	444862	129732	123660	38202	1515176	404445	4175833	6095468	3069524	13489	1658	488

FIG. 3: REPORT ON EMPLOYMENT GENERATED IN A FINANCIAL YEAR

Challenges Faced

This program was implemented over a geographical area of 8,206 square kilometers having a population of 31,60,000 living in 3,500 villages of the Ganjam district. The work was to be executed through multiple agencies. One of the major challenges was to sensitize local representatives, Panchayati Raj Institution (PRI) members and individual beneficiaries regarding the importance of the use of ICT. Initially, people were skeptical about its use, citing reasons of delay in wage payments and duplication of work. Though all reports on village wise jobs provided are available online some villagers had received neither job cards nor any job, and in some villages job cards were lying with VLWs (Village Level Workers) and JEs (Junior Engineers) Challenges Faced This program was implemented over a geographical area of 8,206 square kilometers having a population of 31,60,000 living in 3,500 villages of the Ganjam district. The work was to be executed through multiple agencies. One of the major challenges was to sensitize local representatives, Panchayati Raj Institution (PRI) members and individual beneficiaries regarding the importance of the use of ICT. Initially, people were skeptical about its use, citing reasons of delay in wage payments and duplication of work. Though all reports on village wise jobs provided are available online some villagers had received neither job cards nor any job, and in some villages job cards were lying with VLWs (Village Level Workers) and JEs (Junior Engineers)

The Difficulty

Though the participation of the rural people was thought to be a viable solution but there were implementation difficulties. In most cases the rural people are illiterate and are not aware of the modalities of the government schemes. Besides this they may not know about reliable contact points where they can discuss about their complaints or get clarification on certain issues. Moreover, in some of the remote areas communication facilities are neither available nor affordable. In order to help the situation some of the NGOs stepped in to provide the necessary support to act as a link between the beneficiaries and the government.

Role of NGOs

NGOs played a crucial role as a contact point for the rural people to listen to their grievances and communicate the same to the appropriate government machinery for suitable action. Besides this the NGOs gathered views of the rural people on different aspects of the ongoing rural projects and their expectations. Even the people could freely discuss their preferences and suggestions with the NGOs which in turn communicated the same to appropriate forums for consideration. This source of information from the grass root level is considered to be a vital input for the government at the highest level during planning. As a consequence rural projects are being customized keeping in view the local needs of the villages and communities.

Infrastructure

The Nehru Yuva Kendra (NYK) an autonomous organization under the ministry of youth affairs and Sports, govt. of India, has done a commendable job in facilitating people-to-government communication. Now it is possible to lodge complaints or queries to toll free telephone numbers provided through the NYKs. Wherever possible information kiosks have been established in Public-Private-Participation mode which are managed by NYKs. These kiosks also act as contact points for the rural people.

INITIATIVES FOR CITIZEN PARTICIPATION**Publicity Campaign**

In order to effectively reach out to the jobseekers and make them aware of the provisions of NREGA, a project initiation meeting (PIM) was introduced in the village / worksite on the first day of starting of a project. The officials of Block Panchayat or Gram Panchayat who execute the project, initiate action to call for such meetings in the beneficiary village. Wide publicity through beat of drums, announcements through loud speakers are made in the beneficiary villages before holding the meeting. All the primary stake holders are invited to attend such meetings. Registrations of jobseekers, who have not registered are done on the spot, asking them to submit an application with necessary details. Wage payment dates are also declared in the same meeting. Since

payments are made only through banks the payment system is explained to the villagers. They are motivated to receive their payments only after correctly entering the number of days worked and the amount paid to them in their respective job cards. Work components of a project are explained to the primary stakeholders which helps in maintaining transparency in the implementation of a project. The provisions of Social Audit and complaint redressal mechanisms are also explained to the jobseekers. Village Level Vigilance and Monitoring Committees are formed in the said meeting and their role is explained. Future project plans/ availability of other works in the private sector particularly in Agriculture sector/ Lean periods of works/future job requirements are also discussed in the meetings, which provide scope for the job seekers to prepare his/her plan to avail continuous jobs. Photographic/ Video documentation of the meeting is done and kept for record and future reference. Further the proceedings of the meeting along with signature of all participants is also kept as an important document.

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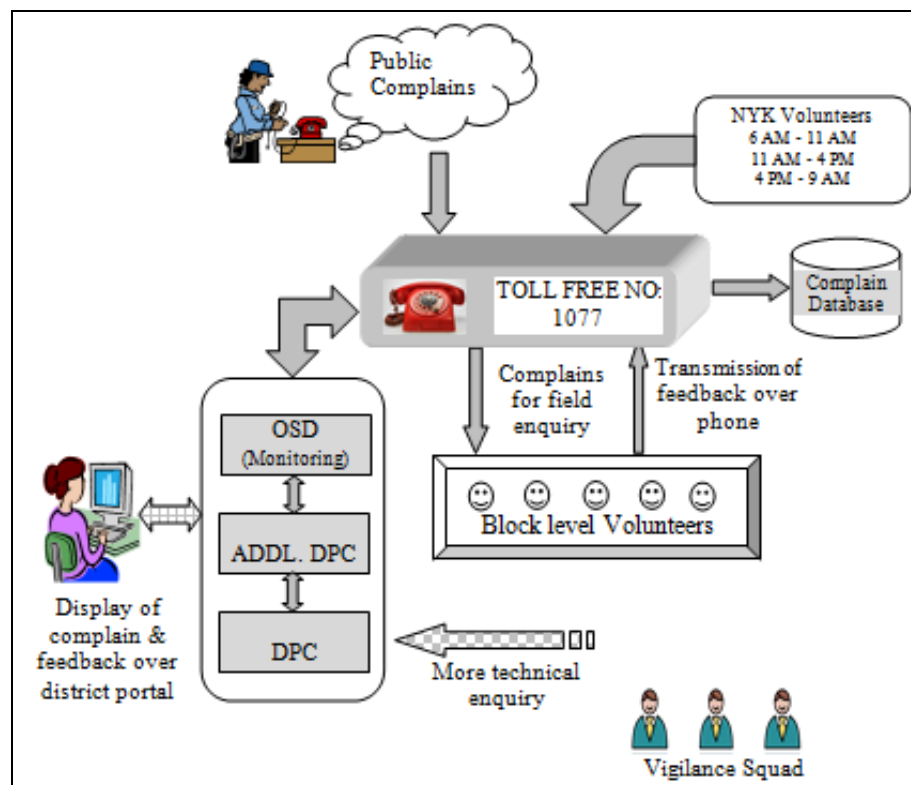


FIG. 4: NREGA HELPLINE WORKFLOW

NREGA Helpline

Ganjam district has developed a unique system to participate and address the grievances under NREGS which has been named as Quick Response Team(QRT). A four digit toll free telephone number 1077 is provided to the public for receiving complaints on NREG scheme which is popularly known as NREGS helpline. Neheru Yuva Kendra volunteers[3] man the help line and they also provide man power for the quick response teams located in every block panchayats to enquire in to the complaints received. NYK volunteers have been trained adequately on NREGA and also on manning the help line, documentation and maintaining the received complaints through the software. A simple software has been developed locally for effective documentation of complaints and monitoring. One senior retired Govt. employee has been engaged as the Officer on Special Duty(OSD) to monitor and supervise the above system. Six volunteers engaged for attending calls at the tool-free telephone number. Two volunteers each have been stationed at Block level to conduct enquires on complaints and render feedbacks within 24 hours. The volunteers working at the control room are paid @ Rs. 2,000/- per month(40 USD). The volunteers working in the field are being paid @ Rs. 100/- for each enquiry and feedback(2 USD). A consolidated amount of Rs. 15,000/- (310 USD) are

being paid to the OSD who has been monitoring and supervising the total scheme. Adequate publicity about the toll free number has been made through daily news papers, local radio, leaflets were distributed in the local market/ village functions and also through wall writings in work sites, GP offices, Block offices and prominent places like banks.

The figure 4 explains the work flow of the NREGA help line. The help line functions from 6.00 am to 9.00 pm and when a complaint is received, the details are entered and a reference number is given to the complainant.



FIG. 5: NYK VOLUNTEERS ENTERING DATA RECEIVED THROUGH HELPLINE

The Block level volunteers immediately after receiving complaints from the controlling station proceed to the spot to conduct enquiry and submit feedback through Fax/E-Mail direct to the DRDA/OSD. Based on the nature of complaint it is passed on to the QRT for enquiry or to the supervisory officer. The complainant using the reference number can ask for details of action taken after 48 hrs. A daily report on complaints along with action taken is given to the Collector-cum-District Project Coordinator(DPC) every evening. Important aspects having technical irregularities and/or mis-management of funds are being dealt separately by the vigilance squad on emergency basis. Action as deemed proper are being taken against the erring officials within 48 hours. The action taken on all the cases are displayed on the district portal for public awareness and maintaining transparency.

The advantage is People don't have to come all the way to District headquarters or Block panchayat office to lodge their complaints. They can make a call from their village and lodge their complaints or give their opinion. Because it is toll-free there is no

problem of people spending money to make a call. The entire process of manning the helpline and preliminary enquiry has been outsourced to an independent agency (NYK). This adds credibility to the entire process. Some initiatives are also taken by the district administration for strengthening decentralised participatory planning process, implementation, monitoring and evaluation of works under Mahatma Gandhi NREGA by using GIS tools[4]. These initiatives allow the citizens to participate what work needs to be taken up under NREGA in the local area, which is basically decided in the village meeting.

Social Audit

Social audit for NREGA [9] is a process by which the final beneficiaries of this scheme are empowered to audit the scheme. It is an ongoing process by which the potential beneficiaries and other stakeholders of the scheme are involved from the planning to the monitoring and evaluation of the project. It covers the quantity and quality of works in relation to the expenses incurred, disbursement made, number of works/ materials used and also selection of works and location of works. The aim is effective implementation and control of irregularities through citizen participation. In NREGS social audit is taken up (i) During planning stage to ensure that the Gram Panchayat Plan is need-based and drawn up in consultation with community, serving the poor and the disadvantaged (ii) During preparation stage to ensure that estimates are proper and are in tune with the approved quantum of work. (ii) During implementation stage to ensure that wages are paid rightly, properly and to the right people (iv) After the completion of work to ensure that quality of work is in tune with quantity and estimated cost. Social Audit is carried out by the community of stakeholders. A group called Village level Monitoring Committees (VMC) is formed voluntarily with representatives from beneficiaries, woman self-help groups (SHGs), village level organisations, respected local/ community leaders, youth clubs etc. This group along with Gram Panchayat representatives and officials carry out social audit and present their findings in the Gram Sabha. This enables the project management team to take appropriate corrective action so as to ensure that the project implementation is proceeding according to Action Plan. In some remote tribal villages of the district, the concepts, methods and operationalisation are not widely known, external facilitators like NYK or local NGO volunteers have been involved in carrying out social audits. It is a useful tool to identify the gaps and leakages in NREGS implementation which often get left out in the process monitoring and MIS systems. Its real time feedback mechanism creates the space to address small issues that can possibly derail the process. It empowers the citizens to read out muster rolls and opportunity for persons affected by corruption to testify in Gram Sabha. During the audit, the corresponding government officials are called to give explanations for discrepancies found. It strengthens local participation for accountability in service delivery.

The Right to Information

The NREGA can never meet its objectives without the active participation of people in its implementation. The RTI Act[10] provides access to the citizen over any records held by the government or its agencies. The first stage of the Right to Information is the proactive disclosure of information, where the government has a duty to inform people. As per the Act Key documents related to the NREGA are proactively disclosed to the public without waiting for anyone to apply for them by putting information up on websites, painting on boards, mandatory display of detail lists of all works under NREGA on notice boards etc. Open access to all records for inspection, and the right to receive certified copies of any documents on demand, are two essential right to information entitlements. Under the Act detail information is given to all the citizens on who to apply to for information and for gaining access to records, fees charged for copies of NREGA-related documents. Necessary steps at different levels are taken to ensure that documents asked for under NREGA should be complied with within seven days. The Right to Information(RTI) Act 2005 acts as an indispensable tool in the hands of the rural citizen to fight leakages, claim entitlements, and make the NREGA meaningful for themselves.

CONCLUSION

Participation of citizens at different phases of e-Governance projects is of paramount importance in terms of relevance and acceptability. This is more appropriate in the Indian context especially for the implementation of any rural e-Governance projects because of the peculiarities of the local conditions which is quite diverse in nature.

In this work, we have studied the importance of citizen participation in rural e-Governance and show how the citizens contributed to the successful implementation of a specific rural project NREGS in India. The wholehearted participation of the rural mass helped in maintaining transparency in the administrative functions, the stakeholders could express their views and participate in policy making. The feedback received from the grass root level helped the administration to take appropriate measures to deal with any deviations during the execution of the projects. Moreover, the government machinery became more vigilant and serious in discharging their duties which led to the successful implementation of the scheme.

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E-Samadhan: A Successful Grievance Handling Project

Abhishek Narain Singh¹, M.P. Gupta² and Amitabh Ojha³

¹Department of Management Studies, Indian Institute of Technology, Delhi

²Department of Management Studies, Indian Institute of Technology, Delhi

³Research Designs & Standards Organization, Lucknow

E-mail: singhabhi444@gmail.com, mpgupta@dms.iitd.ernet.in, ojhaamitabh@yahoo.co.in

Abstract—With increasing demand and expectations of the people, it has become a challenge for government organizations to provide services in a timely and cost-effective manner. e-Governance is a solution for such demands and expectations. Although several e-Government projects have been rolled out in India since the introduction of National e-Governance Plan (NeGP), studies and surveys however indicate a high number of failures with such initiatives. Plausible reasons could be: not drawing lessons from past failures, lack of top management involvement/support, disintegrated back office processes of government departments and lack of skilled workforce, etc. e-Samadhan, a successful e-Government project of Himachal Pradesh government, was implemented in close co-ordination with National Informatics Centre (NIC), Shimla, Himachal Pradesh. In this paper, we present a short case study of this e-Government project and analyze the same through SAP-LAP method of inquiry.

Keywords: e-Government, Grievance Handling and Monitoring, Himachal Pradesh, National Informatics Centre (NIC)

INTRODUCTION

One of the key and necessary roles of e-Governance is to transform the internal and external relationships between government and citizens through e-enabled processes, IT tools and information and communication technology. The ultimate goal of this overall process is to provide effective government service delivery through increased citizen participation. e-Governance is a mechanism that transforms the citizen-to-government and government-to-citizen relationship with a close co-ordination with other stakeholders like public and private sector organizations, NGOs, etc. e-Government offers a one-stop solution for multi-channel interaction and multi-service delivery. With the increasing penetration of technology and advanced ICT tools, now the environment has changed from one-stop to one-click solution. Furthermore, e-Governance offers the benefit of centralized government authority along with decentralized service delivery, thus enabling enhanced productivity, reach and service quality. Implementation of such e-Government projects takes significant amount of public funds and other resources. Therefore, post-implementation evaluation and assessment becomes a necessity for such initiatives. This paper presents a short case study on e-Samadhan a successful e-Government project implemented in Himachal Pradesh (H.P.), India.

The following section briefly reviews literature in the area of e-Government project implementation and evaluation. This is followed by sections in which we present a short case study on e-Samadhan, an analysis of the case through SAP-LAP method of inquiry, discussion on key findings from the case and implications for practice. And finally, we present our key observations and conclusions.

LITERATURE REVIEW

Many researchers have highlighted the fact that e-Government has the potential to provide a one-stop solution for citizens' access to government information and services (Reddick, 2009). However, not many scholars have paid attention to quality of service, efficiency of e-Government initiatives and post-project evaluation; partly, this can be attributed to dearth of effective instrument or method to evaluate e-Government quality (Carbo& Williams, 2004). With rapid development and penetration of ICT tools, it has become a popular trend to create a web page/portal and quickly roll-out information and transaction services. Such isolated attempts without proper back-end integration of government departments and public/private agencies cannot achieve the desired end outcomes. It has been reported that 85% e-Government projects around the globe have ended up as failures (Heeks, 2001). Over the last few years, there has been a significant increase in both on the diversity of issues and the volume of articles dealing with e-Government (Gil-Garcia &Pardo, 2006). Authors have tried to study and examine various facets and dimensions of e-Governance i.e. growth models (Layne & Lee, 2001; Moon, 2002; Chan, Lau & Pan, 2008), citizen acceptance of technology (Hamner&Qazi, 2009; Lin, Fofanah& Liang, 2011), web interfaces (Detlor& Finn, 2002; Eschenfelder, 2004; Shi, 2007), user acceptance and satisfaction (Hung, Chang & Yu, 2006; Verdegem&Verleye, 2009) and e-Government evaluation (Gupta & Jana, 2003; Lenk&Traunmüller, 2002).

High failure rate of e-Government projects in India and elsewhere puts a question mark on the current approaches of monitoring, evaluating, and benchmarking e-Government initiatives. According to Kunstelj and Vintar (2004), existing benchmarking mechanisms should be improved in order to give policymakers better evaluation criteria for decision making. In a study of contracting e-Government services, Ni (2007) highlighted the effect of economic and political factors on state government's decision on contracting e-Government services. Further, Chen and Thurmaier (2008) have thrown light on the issue of financial challenges and sustainability of e-Government projects. Through their pricing policy model for e-Transactions, those authors have highlighted the fact that financial challenges and sustainability issues can be handled by generating the required financial resources by charging fees from users for availing e-Government services. Sustainability of e-Governance projects has always been a key challenge for policy makers and implementers (Ghapanchi, Albadvi&Zarei, 2008). In the context of Indian police administration, Mitra and Gupta (2008) have conducted a performance assessment study on three dimensions of performance indicator, namely internal efficiency, employee satisfaction and public satisfaction, and have highlighted the need to create a performance management and measurement system that can create a loop to relate e-Government with governance.

CASE STUDY: E-SAMADHAN

E-Samadhan is a web based system for online grievance handling that includes the whole process starting from grievance submission to grievance redressal and monitoring. This initiative was launched in January 2009 by Department of Redressal of Public Grievances, Himachal Pradesh, India. The web based portal for operationalizing the overall process of online grievance handling has been developed by National Informatics Centre (NIC), HP State Centre, Shimla (H.P.). As of this writing, e-Samadhan has received 18,450 online grievances and has successfully resolved 16,772 of those. Besides 'grievance redressal' yet another service provided by e-Samadhan is 'demands', wherein a citizen can apply for availing new services such as telephone connection, electricity connection, driving license, etc. At the launching ceremony of e-Samadhan, Chief Minister of Himachal Pradesh, Prof. Prem Kumar Dhumal said (Indlawnews, 2010),

"...redressal of public grievances would be accorded top priority by every department while the Ministers of the State Cabinet would also be undertaking extensive touring of different Assembly constituencies and organize 'PrashashanJantaKeDwar Par' (administration at the doorsteps of public) to listen to public grievances and promptly dispose them off."

The feature that sets this online grievance handling system apart from any similar project is its monitoring provision. As soon as someone submits a grievance, he/she is provided a unique grievance number along with an estimated time frame in which his/her grievance would be addressed. During the process, if the concerned officials feel that it may take more time to resolve an issue, then the complainant would be informed telephonically as well as through e-mail or SMS of the reason for delay and the new timeline for resolving the issue. Any of the concerned officials or senior officials in the department or the local Member of Legislative Assembly (MLA) and/or Member of Parliament (MP), the concerned minister and the chief minister of the state can intervene and give directions for redressal of the grievance within a fixed time frame. The complete system has been designed, keeping in mind transparency as the major concern. Any authority in the complaint redressal chain can log-in to the system with his/her unique identity, monitor the overall status of the process and take up the issue with the concerned authority. At any point of time, the complainant can check the status of his/her grievance by logging-in to the web based portal through his/her unique grievance number and at any time he/she can update the information or details regarding the grievance. The public have been given the facility of uploading pictures and video files for the purpose of communicating their grievance with full clarity. Any update on grievance redressal status is notified to the complainant as well as to the concerned authorities in chain by SMS and/or e-mail. After successfully resolving the grievance, the concerned authority has to submit a brief online report about the grievance and actions taken by them. At the end of this process, should the complainant be not satisfied with the solution, he/she can again register a fresh complaint giving the reference of earlier grievance number and details.

The following is an interesting example of a citizen's experience of using e-Samadhan grievance handling system in Chamba district, Himachal Pradesh (Governance now, January 2010):

"Mr. Harsh Gupta, a resident of Nagar Panchayat Chowri in Chamba district, had a first-hand experience of how effective this mechanism is. He had been doing rounds of the Indian Gas Agency at Hamirpur for an LPG connection for almost a year but to no avail. Finally, he filed an online complaint through e-Samadhan, and he got an LPG connection within two weeks."

Following is the action taken report in respect of Mr. Gupta's registered complaint (Governance now, January 2010):

"Mr. Gupta filed the complaint on August 26, 2009. The next day the director of the Food, Civil Supplies and Consumer Affairs (FCS & CA) asked the district controller to take action within a week. As the week passed without any action, the deputy director of FCS & CA reminded the district controller that the "maximum redressal time has been crossed" and asked him to attend to the complaint immediately. On the same day, Mr. Bhim Sen, principal secretary to the chief minister, also asked the district controller to "redress the matter by taking appropriate steps at once." When another week passed without the district controller attending to Mr. Gupta's grievance, FCS & CA Secretary Mr. Anil Kumar Khachi lost his temper and asked why the district controller was "sleeping over the complaint?" The next day, on September 17, 2009 Mr. Gupta was issued an LPG connection."

There have been many such success stories resulting from a successful partnership between Himachal Pradesh government's Department of Redressal of Public Grievances and National Informatics Centre (NIC), H.P. The project was evaluated by the authors for the purpose of CSI-Nihilent e-Governance awards, 2010. This project of Himachal Pradesh government can be considered as a benchmark and an example that other states should emulate.

SAP-LAP ANALYSIS OF THE CASE

Here, we apply the SAP-LAP methodology (Sushil, 2000) to analyze the e-Samadhan project. The SAP-LAP methodology works broadly in two phases i.e. *Situation, Actor, Process* (S-A-P) followed by *Learning, Action, Performance* (L-A-P) and helps to systematically analyze a case from six perspectives. Being a holistic and investigative methodology, SAP-LAP is well suited to the analysis of e-Samadhan project. In the first step of SAP, this technique provides an exact understanding of the case by analyzing the current situation; the second step identifies the actors involved in the case and the third step identifies the processes involved in the case. This concludes the first phase i.e. SAP which provides the necessary and key understanding of the case. The second phase i.e. LAP also involves three steps to analyze the case. The first step in LAP involves learning from the identified situations, actors and processes; in the second step, we draw upon

the learning and decide on the actions that need to be taken; and finally, in the third step we identify as to how these actions affect the overall performance. In this way, SAP-LAP analysis gives a complete picture of the observed case. After having clarified the methodology, we now proceed to apply this technique for a systematic analysis of the e-Samadhan case.

TABLE I: SAP-LAP ANALYSIS OF E-SAMADHAN PROJECT

SAP Analysis
<i>Situation</i> Identification of various shortcomings in traditional grievance redressal system: • Long gestation (request-to-response) period • Ineffective manual grievance handling process • Bureaucratic and complex system • No direct and continuous monitoring mechanism • Inefficient utilization of resources earmarked for grievance redressal i.e. manpower, money and time • Repetitive complaints for the same grievance and citizen dissatisfaction
<i>Actor</i> Identification of actors involved in the overall grievance handling process: • Complainant (Citizen) • Concerned department's officials • Local MPs and/or MLAs • Concerned minister • Chief minister • National Informatics Centre (NIC) team
<i>Process</i> Identification of various processes in manual grievance handling system: • Identifying the concerned department and complaint submission process • Forwarding of complaint to the concerned authority • Investigation of complaint and taking necessary remedial action • Reporting back to the department on action taken • Informing the complainant regarding the redressal of his/ her grievance • If action is not taken, then repeating the same process again • Monitoring the grievance handling system and processes during audit
LAP analysis
<i>Learning</i> Learning from the earlier manual grievance handling system and processes involved therein: • It is necessary to make the overall process less bureaucratic • Unnecessary wastage of time, money and man-power should be checked • A regular and effective monitoring mechanism is required • Latest technological solutions need to be adopted for faster and more reliable service delivery • Higher officials and authorities need to be involved to make the system effective

Table 1 (Contd.)...

...Table 1 Contd.

<i>Action</i> Based on the learning, following actions been taken: • An online portal for grievance handling has been created with the help of NIC • Accounts were created and unique IDs were given to all the department officials, local MPs & MLAs, ministers and the chief minister • An easy to use web interface has been built which helps the complainant to log-in, select the concerned department and lodge the complaint • A transparent system has been developed wherein any relevant authority across the chain can monitor the complaint at any time and give necessary directions • A mechanism has been devised for sending updates to the complainant and the concerned authorities • The complainant has been empowered to upload pictures and videos of the problem on the e_samadhan portal; alternatively, the complainant can look up the contact/ mailing details on e-samadhan portal and communicate directly to the concerned authorities across the hierarchy
<i>Performance</i> The above actions have improved the performance of the department of Redressal of Public Grievances in following ways: • Request-to-response time gap has been reduced significantly • The overall process became transparent and reliable • Reduced paper work and back office task • Increased efficiency with lesser investment of man-power, time and money • Regular monitoring has made the system efficient and responsive • Increased satisfaction level of complainants (citizen)

FINDINGS FROM CASE

Use of the latest information and communication technologies can prove to be an easy and reliable solution to the bigger problems. Large government departments should focus on their core functional areas and IT services could be outsourced from other government/public organizations or private agencies. The present case is a good example of such an arrangement between Himachal Pradesh government's Department of Redressal of Public Grievances and National Informatics Centre (NIC, H.P.). By such joint ventures, departments will be able to better concentrate on their core areas of concern and the other services in which department has less specialization can be outsourced from other agencies. But such alignments should be done with due care and should be based on a proper understanding of each other's requirements or else this may lead to unsatisfactory outcomes. In this case, Members of Parliament, Members of Legislative Assembly, ministers and chief minister have taken keen interest and promoted the initiative on priority. Without their involvement and support, successful implementation of such a massive project would be impossible.

FUTURE RECOMMENDATIONS

E-Samadhan is an exemplary e-Governance project. Fifty government departments have been closely involved in this project and they have worked in a cohesive manner to provide a one click solution to citizens' grievances. Other states could learn from the success story of Himachal state's e-Samadhan project and they could implement similar

projects in their respective states with proper customization, if needed. Other government departments can also attempt similar solutions to make their system effective and transparent so as to better serve the citizens. National Informatics Centre (NIC) has provided technical solutions and played a critical role in successful running of this project. Similar alignments and joint ventures can be worked out in other e-Government projects and success paths can be charted out by close co-ordination between government department and other public and private organizations. Outsourcing some activities that are not the core functions of the organization can help to make such projects successful.

CONCLUSION

A successful e-Government project requires commitment from all stakeholders i.e. government departments and officials, public and private agencies and citizens as well. Integration and alignment among various government departments and private/ public agencies can play a crucial and important role in making a success of e-Government projects. The present case serves as a good example of back-end process integration wherein information and data can be shared without redundancy and at a faster pace. In the era of fast changing information and communication technologies, citizens' demand for services can be fulfilled only by adopting such closely integrated and self sustaining technological solutions. The key objective of such e-Government projects is to empower citizens by providing them fast, reliable and transparent services at a single click at any time/ anywhere. Ultimately, the success and failure of such e-Governance initiatives depends on citizen participation, usage and satisfaction.

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APPENDIX

e-Samadhan Web Portal

Select Language | English

Towards New Horizon

".....We promise the people of state to provide efficient, clean and transparent administration and to make the officers & officials answerable to the people of state.

Prof. Prem Kumar Dhumal, Chief Minister, Himachal Pradesh

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Submit Your Application
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Click here to get other information such as Grievance cells, Committees, FAQs etc.

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Govt. IAS/HAS Department
GOVT - Government
Login ID Password Login

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Grievances >>	Received Today	Total Received	Total Disposed	Demands >>	Received Today	Total Received	Total Disposed
	0	18464	16792		0	10016	8109

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NATIONAL INFORMATICS CENTRE

FIG. 1

Name and Designation-Wise Contact Address, E-mail and Phone Numbers of Concerned NIC Centers on e-Samadhan Portal

Name & Designation	E-mail	Phone	
		STD OFFICE	Residence
NIC District Centre, Deputy Commissioner's Office, Bilaspur-174001 Sandeep Moudgil, Pr. Systems Analyst & DIO Sanjib Kumar Mishra, Sr. Systems Analyst & DIA	hpbil@nic.in	01978222433	9418451778 222800
NIC District Centre, Deputy Commissioner's Office, Chamba-176310 Akshay Mehta, Sr. Systems Analyst & DIO	hpccha@nic.in	01899224189	
NIC District Centre, Deputy Commissioner's Office, Hamirpur-177001 Vinod Kumar Garg, Sr. Systems Analyst & DIO Bhupinder Singh, Programmer & DIA	hpham@nic.in	01972223026	
NIC District Centre, Deputy Commissioner's Office, Kangra at Dharamshala-176215 Bhupinder Pathak, Pr. Systems Analyst & DIO Mukesh Chawla, Systems Analyst & DIA	hpkang@nic.in	01892222358	224242
NIC District Centre, Deputy Commissioner's Office, Kinnaur at Rekong Peo-172107 Anurag Gupta, Systems Analyst & DIO	hpkinn@nic.in	01786222379	
NIC District Centre, Deputy Commissioner's Office, Kullu-175101 Brijender Kumar Dogra, Sr. Systems Analyst & DIO Rajiv Kumar, Systems Analyst & DIA	hpkul@nic.in	01902224130 226261 226262	225552

FIG. 2

Government Information Quarterly, 26(3), 487-497.

Efficiency and Transparency of e-Governance in Rajasthan Tourism—A Case Study of Rajasthan

Alpi Sharma, Ashish Pareek and Narendra Bhati

CESBM, Maharshi Dayanand Saraswati University, Ajmer-305009, Rajasthan India

E-mail: sharmaalpi@yahoo.com, ashpareek@gmail.com, bhatinarendra7@gmail.com

Abstract—Service excellence has been a goal for the private sector for long and is now gaining more importance with the introduction of online services in recent years by governments around the world. This paper analyses the E- governance initiative in the area of tourism by the State of Rajasthan in India. Rajasthan has been a state of warriors and has always attracted people towards its beauty. Rajasthan probably attracts the highest number of tourists every year in India.

The computerization of the tourism system in Rajasthan has provided significant benefits to the citizens in terms of reduced delays and increased promptness in the delivery of services. The measurement of e-governance quality is addressed here with particular reference to Rajasthan. The paper provides an empirical study of assessment of service orientation & effectiveness of public sector in Rajasthan tourism and discusses the benefits, the barriers and the key success factors of tourism under E governance. . Importance and performance analysis has also been done to find the gap between desired performance and actual performance of certain factors which are important for successful implementation of E governance.

Keywords: e-Governance, Tourism, Benefits, Barriers, I-P Analysis

INTRODUCTION

E-governance is a widely used term all over the world. E-governance is basically an application of IT for improving administrative efficiency, which would lead to transparency, and efficiency in government processes. E-Governance shows a relationship between a government and citizens and also helps in reducing the gap between the two.

e-Governance in Rajasthan is an area on which very little work has been done by the researchers. A research has been conducted in Karnataka in perspective of E-governance. But in Rajasthan no research has been conducted on E-governance especially in tourism. Most governments have realized the potential of e-government initiatives in disseminating information, improving service delivery, increasing transparency, decreasing corruption, and widening the democratic participation. E-Government initiatives can be categorized as internal, which are government to government (G2G) and government to employee (G2E), or external, which are government to business (G2B) and government to citizen (G2C). The idea is that government officials are held accountable for the information and services that they provide. This paper is based upon E-governance in relation to government to citizen (G2C) perspective.

REVIEW OF LITERATURE

The study of E-governance in the tourism industry has emerged as a 'frontier area'. The literature on E-governance in the tourism industry was critically reviewed with a view to developing a framework suitable for this study. E- Governance can be defined as "the use of IT to improve the ability of government to address the needs of society. It includes the publishing of policy and programme related information to transact with citizens. It extends beyond provision of on-line services and covers the use of IT for strategic planning and reaching development goals of the government." [8]. "The term e-governance is primarily used to refer to the usage of IT to improve administrative efficiency; this is argued to produce other effects that would give rise to increased transparency and accountability of government processes" [4]. Research has indicated that the three Indian states leading in e-governance provision are Andhra Pradesh, Karnataka and Tamil Nadu, while the states of Kerala, Gujarat, Maharashtra, Madhya Pradesh, West Bengal and Rajasthan are not far behind (NASSCOM, 2003) [1]. "Information and Communication Technologies (ICT) have revolutionized the world by facilitating remote learning and education, far distanced social connection, online employment opportunities and marketing products and services online. These and many more benefits leveraged the opportunities for government to provide integrated services across their internal departments and to citizens" [11]. "The computerization of bus pass system in Hyderabad city of Andhra Pradesh is to provide significant benefits both to the citizens and to the corporation with respect to reduced delays and increased promptness in delivery of services"[7].

STATUS OF TOURISM IN RAJASTHAN

Rajasthan attracts probably the highest number of tourists in India. It encompasses the warm and simplistic lifestyle of the natives and stands for historic battles. Rajasthan has a number of attractions and destinations, which attract a large number of tourists. The beautiful desert towns i.e. Jaisalmer and Barmer, the great Rajput grandeur and brilliance in the districts of Udaipur and Chittorgarh. One can find the most fascinating havelis, palaces and wildlife sanctuaries in Rajasthan. Adventure sports and imperial tours such as the Palace On wheel are other major attractions. In summers, the Mount Abu catches all attention.

OBJECTIVES OF E-GOVERNANCE INITIATIVE IN TOURISM

The computerization of tourism system in Rajasthan has provided significant benefits both to the citizens and to the corporation with respect to reduced delays and increased promptness in the delivery of services. Objectives of E-governance in tourism:

- To increase accessibility to the citizens
- To reduce the waiting time of the citizens
- To save time and increase convenience

TRANSFORMATION OF TOURISM: BEFORE AND AFTER IMPLEMENTATION OF E -GOVERNANCE

A large number of citizens travel by railways. Before E-governance, people had to go to the bus stands, railway stations and airports for booking their tickets and had to make long queues for obtaining the tickets. People could get the information regarding various destinations of a country through books only. Foreign tourists had very little idea about the guide, accommodations, and charges in a country. The salient features of manual process of ticket booking are:

- Process managed manually by Clerical staff
- Longer waiting time
- Less information about Destinations and attractions
- Coverage was less
- Manual records of transaction
- Low control over system

AFTER IMPLEMENTATION

For tourism businesses, E-governance offers the advantage of making information and booking facilities available to a large number of customers at relatively low costs. The main focus was to make the process simpler, faster and more cost effective and to provide superior services to citizens. Another important focus was to provide services at the doorstep of the customers.

The salient features of e-governance process are:

- Increased accessibility
- Ticket booking facility to the citizens anywhere in the country through networking
- Reduced waiting time
- Increased availability of information regarding destinations, attractions, festivals, guides, accommodations etc.
- Citizens can book tour packages
- Increased convenience

In the light of the background of e-governance this paper seeks to examine the following.

- Has e-governance contributed to good governance in Rajasthan Tourism?
- Do people understand the concept of E-governance?
- Has E-governance provided the ease of accessing the services of tourism?
- Has E-governance provided quality services with minimum serving time in tourism sector?

RESEARCH METHODOLOGY

Research was performed with the primary data on e-governance in the tourism industry. On the basis of these data, a questionnaire was developed to get information on the performance of E-governance in Rajasthan. 100 respondents filled this questionnaire. The survey includes e-governance activities, benefits, barriers and key success factors.

ANALYSIS OF DATA

Respondents considered that the main benefits of e-governance for tourism enterprises are 'providing easy access to information on tourism services,' 'providing quality information on tourism services,' and 'providing convenience to customers. As depicted in figure-1

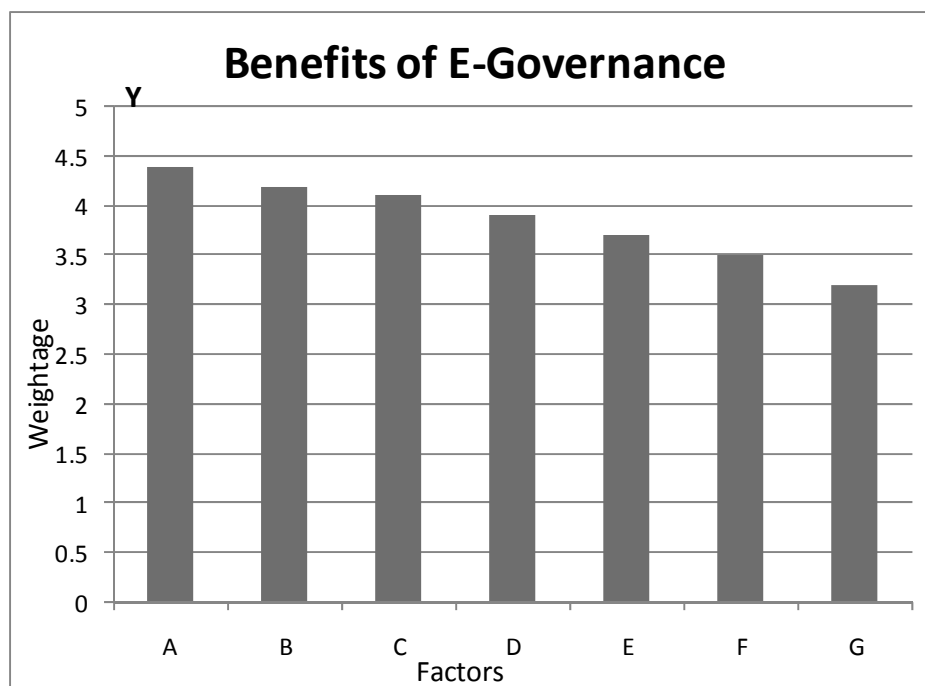


FIG. 1

- A. Ease of accessing information on RTDC sites.
- B. Quality of information available on RTDC sites
- C. Convenience to customers
- D. Customer service quality
- E. Serving Time
- F. Availability of schedule charges
- G. Choices to the customers

BARRIERS TO E-GOVERNANCE

There are a number of barriers in adopting e-governance. These barriers include 'limited knowledge of available technology,' 'lack of awareness,' 'lack of confidence in the benefits of e-governance,' 'resistance to adoption of e-governance.' 'Small e-governance market size' (Figure 2)

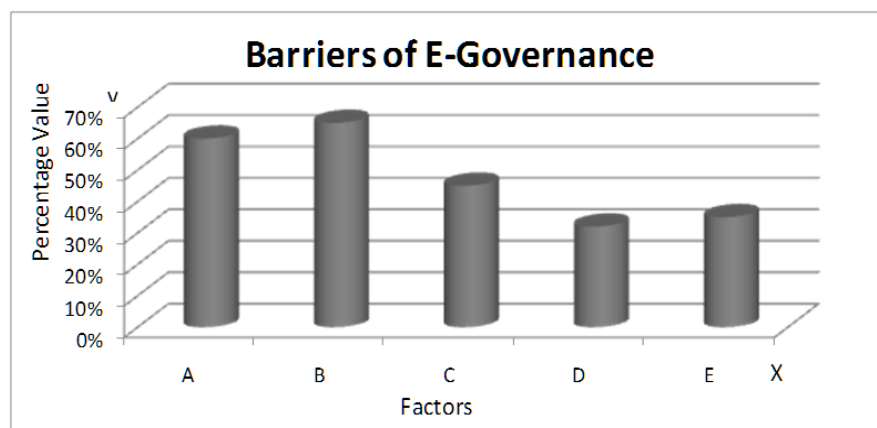


FIG. 2

- a. Limited knowledge of available technology
- b. Lack of awareness of E-governance
- c. Lack of confidence in the benefits of E-governance
- d. Relatively small market size
- e. Resistance to adoption of E governance

The Key Success Factors

The key factors for conducting successful e-governance are 'convenience to customers', they can avail these facilities anywhere in the world and 'Quality information available on the website of E governance'.

Importance and Performance of E-governance (I-P Analysis)

Importance and Performance (I-P) analysis has been done to find the importance of certain factors for the successful implementation of E-governance, on the other hand it has also been analyzed the performance level of these factors. In other words, to find the gap between desired performance and actual performance of certain factors which are important for successful implementation of E-governance? For 'Importance' respondents indicated the importance of each of the 12 proposed factors for a successful implementation of e-governance. For 'Performance,' respondents indicated how well their member economy performs regarding e-governance, in relation to their response to 'Importance.'

Four IP categories emerge from this analysis. 'The good work' category means that both 'Importance' and 'Performance' is high. 'The more efforts' category refers to 'high importance' but 'low performance' responses. The 'low priority' category refers to 'low importance' and 'low performance' responses. The 'low importance but well performed' category includes 'high performance' and 'low importance' responses. (Figure-3)

Good Work

Respondents considered the following factors as important; Ease of accessing information on RTDC sites, Quality of information available on RTDC sites, Convenience to customers, Serving Time, Customer service quality. These factors were also considered as relatively well performed. (Figure-3)

More Efforts

Factors in this category include, limited knowledge of available technology, Lack of awareness of E governance, Lack of confidence in the benefits of E-governance. These factors are considered as very important for implementing e-governance but are considered as performed insufficiently. Thus, more efforts are needed to be focused on these factors.(Figure-3)

Low Priority

Relatively small market size fell in low performance and low importance category. This factor, however, is actually critical to successful e-governance. This implies that people have limited information and knowledge on e-governance (Figure-3)

Low Importance but Well Performed

Availability of schedule charges is considered as low importance but high performance. This factor however is important as it provides all the information regarding different charges at different destinations and other charges. This factor is performing well but people considered it as less important. (Figure-3)

Reminder

This category includes choices for customers. It was considered as 'low importance and middle performance' whereas resistance in adoption of e-governance was considered 'middle importance but low performance' (Figure-3).

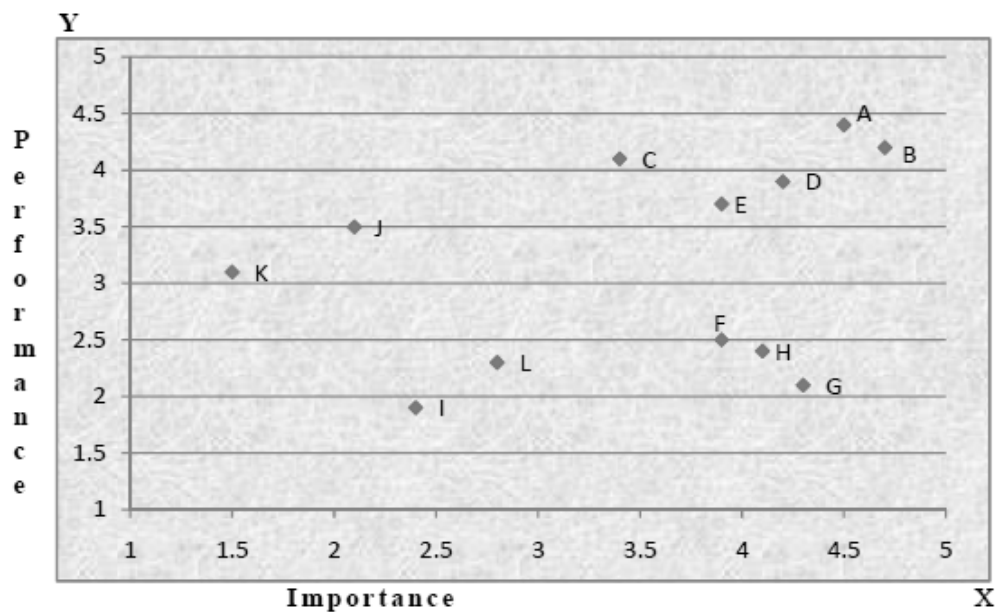


FIG. 3: (I-P ANALYSIS)

- a. Ease of accessing information on RTDC sites.
- b. Quality of information available on RTDC sites
- c. Convenience to customers
- d. Customer service quality
- e. Serving Time
- f. Limited knowledge of available technology
- g. Lack of awareness of E governance
- h. Lack of confidence in the benefits of E-governance
- i. Relatively small market size
- j. Availability of schedule charges
- k. Choices for customers
- l. Resistance in adoption of e governance

CONCLUSION

This paper provides an analysis of using governance framework to develop and analyze e-Governance. It further provides an analysis of the shortcomings and the possibilities of e-Governance processes with regard to governance outcomes. By the response of the respondents we can say that E governance in tourism has provided lot of benefits to the citizens like ease to access the information regarding any tour, tourist can get all the information on the website of E-governance in relation to various destinations, attractions, accommodations, charges of different facilities etc.

Citizens can get the information and other services very quickly for example if they want to book their tickets now they need not go the station for the same, they can avail these facilities just by one click.

Although E-governance is very important and beneficial, it enjoys limited awareness among citizens.

It was found by the survey that only 35% people were aware of the concept of E-governance and out of 35% people 89% of the citizens belonged to the age group of 20-45 and were male. It was found that people knew about the online services but were not aware of the term E governance.

All online features must be designed keeping the end users in mind. They must be usable and easy to learn. Complex systems reduce the size of the participatory audience.

Summarizing the above, we can conclude that the e-Governance is providing various facilities to the citizens, government is also investing huge capital on the projects of E-governance but lack of awareness adds to its major shortcoming.

RECOMMENDATIONS & SUGGESTIONS

This paper suggests some recommendations to other researchers and government for more effective working of E governance. The government should develop a national vision, a strategic plan and policy guidelines for E-governance activities. The policy makers are also responsible for establishing the appropriate laws, regulations and service standards that will enable to build trust and consumer confidence

The media infrastructure is also an important issue for all e-governance managers because internet is a mass communication platform. Managers who run on-line enterprises must learn to manage a staff responsible for design interface, stylistic choices, and editorial policies, and content choices associated with the new communication venue. Therefore, an e-governance manager is now a publisher of digital content on the Web. He/she should make choices about the types of media employed (*e.g.* print, audio, video), the nature of the media, and editorial policy, including style, content, and look-and-feel. All online features must be designed keeping the end users in mind. They must be usable and easy to learn. Complex systems reduce the size of the participatory audience.

Finally, both the government and the citizens should work together to raise awareness of e-commerce through training and education of consumers. E-governance cannot be implemented successfully without empowering and enabling tourism stakeholders to take advantage of new Internet and e-governance technologies.

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Gujarat Model of TPDS Reforms

Raj Kumar

Secretary, Food, Civil Supply & Consumer Affairs Department, Government of Gujarat

E-mail: secfcs@gujarat.gov.in

Abstract—Through Targeted Public Distribution System (TPDS), Government of India (GoI) aims at providing food security to the poor families. GoI supplies food grain at subsidized rates to the State governments who appoint Fair Price Shop (FPS) dealers to deliver such food grain to the beneficiary families. Ration Cards given to the beneficiary families create entitlements but as a tool it is too weak to enable them enforce their right to avail subsidized food grain, especially in the absence of a strong and functionally responsive grievance redressal system. Also, diversion and leakages of highly subsidized food grain occur due to weak accountability mechanism across the food grain distribution channel. A few States have circumvented these deficiencies to a large extent by adopting universal PDS, though at a substantial cost to the exchequer. Therefore, most of the States implement TPDS rather than universal PDS. Assuming that setting up of an effective grievance redressal and oversight system to cater to a very large number of beneficiary families across vast geographical area would be a time and resource centric proposition, Gujarat Model of TPDS Reforms seeks to address these deficiencies by empowering the beneficiary families through innovative use of modern ICT and governance processes.

INTRODUCTION

Targeted Public Distribution System (TPDS) is an instrument of public policy to provide food security to the poor and vulnerable sections of the society from either the price shocks or supply shortages. Under this programme, the Government of India (GoI) supplies essential commodities viz. wheat/millet, rice, sugar and kerosene, while the State Government has the option to add other items as considered essential. However, outcome of TPDS depends on the efficiency and effectiveness of the governance framework of TPDS. Over the years, TPDS functioning has come under severe criticism due to high level of leakages/diversion in the system. However, performance is much better in States operating Universal PDS as against those having Targeted PDS. One study of the Planning Commission¹ concluded that 58% of subsidized food grains do not reach the Below Poverty Line (BPL) families because of the *identification errors, non-transparent operations and unethical practices* in the implementation of TPDS.

Recent advances in technology have enormous potential to improve not only the efficiency but also ensure delivery of subsidized essential commodities to the targeted population. All stakeholders including Central and State Governments, economists, public policy specialists, social activists etc. believe that TPDS reform is a must and several States have been working with various pilots. Since 2010, Gujarat has moved ahead and developed its own model of TPDS reform solution that is simple, scalable and cost effective. Gujarat's TPDS solution is essentially a closed loop governance framework which utilizes database(s), computational and local National Informatics Centre's technical resources that are readily available with the State Government. Consequently,

¹Planning Commission (2005), Performance Evaluation of TPDS, Programme Evaluation Organisation, March 2005.

roll out of Gujarat State's TPDS reform process has, so far, been a non- disruptive, gradual and yet a comprehensive exercise.

Part-I of this paper details key reform aspects and rationale of various choices that Gujarat made in developing its TPDS solution as part of implementation and roll out strategy while Part-II describes the framework of solution, present status, challenges and future roadmap.

PRESENT TPDS FUNCTIONING

Based on the estimates of below poverty line (BPL) population (including persons under Antyodaya Anna Yojana (AAY) category) and entitlement norms, GoI allocates subsidized essential commodities to the States. Depending upon the availability of food grain GoI also makes some allocation for above poverty line (APL) category card holders. Thereafter, in proportion to the category-wise i.e. AAY/BPL/APL number and entitlement of the card holders and available quantum of essential commodities, State allocates these essential commodities to the districts. Normally, the numbers, category and entitlement of the card holders in FPS area are the basis of allotment of subsidized essential commodities to the FPS dealers. Further, TPDS is a large programme dealing with several million card holders (households) spread over vast territory. FPS and card holders are the building blocks of this system. Block (Taluka) Supply Officer is responsible for appointment and issuing the license to the FPS dealers and also the ration cards of applicable category to the beneficiary families as per their socio- economic status and in accordance with the guidelines of the Central and State governments. Both the decision making and the record keeping is decentralized at the block level. As shown below, TPDS has several stakeholders such as Food Corporation of India (FCI), Gujarat State Civil Supply Corporation (GSCSC), FPS, and Card Holder etc.

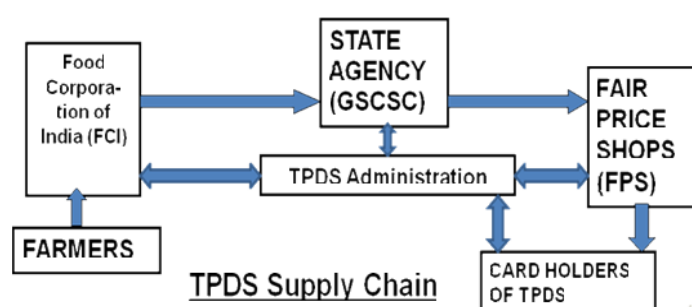


FIG. 1

Further, in pursuance of TPDS objectives, each month there are a large number of transactions between FPS and card holders. Theoretically, existing TPDS governance structure looks fine but it suffers from several deficiencies as described below.

TPDS FAULTLINES

Ineffective Identity Management: Due to decentralized nature of decision making and data keeping, particularly in respect of the issuance of ration cards to the card holders at the Block level, quite often one comes across instances of card population in excess of the total population of that Block. In other words, there are duplicate/bogus ration cards which not only create distortions in the allocation of essential commodities to the districts and FPS dealers but also result in diversion and leakages of such commodities. Through proper management of card holders' identity and centralized data keeping, one can largely eliminate and prevent issue of bogus/duplicate ration cards.

Lack of Beneficiary Empowerment: Further, irrespective of the number of duplicate/bogus cards in a given FPS area and despite full allocation of the essential commodities to the FPS dealers, yet the card holders may not get timely delivery of essential commodities as per their entitlement. As a matter of fact, often it has been observed that the FPS is irregular and inaccessible. This works to the detriment of the card holder as he is *tied* to a particular FPS dealer and has no *choice* of FPS. In any case, in the absence of any reasonably effective and responsive grievance redressal system within the *reach* of the card holder, ration card is too weak an instrument to empower the card holder to claim his/her entitlement. In other words, along with the ration card, the beneficiary needs another *empowerment tool* to claim his/her entitlement each month.

Structurally Weak Grievance Redressal Mechanism and Vigilance: At cutting edge of TPDS administration i.e. Block or Taluka, there are a large number of beneficiaries and delivery points i.e. FPS. Consequently, redressal of grievances is both a time and resource consuming exercise while manpower resources are very limited. Further, voluminous nature of monthly transactions between FPS and the card holders is a major hurdle in ascertaining the genuineness of these transactions. Thus, despite stringent FPS license conditions, inability to carry out comprehensive verification of transactions provides an easy escape route to the FPS dealers to avoid and evade consequences of misconduct, if any. This issue can be best addressed if each transaction with the card holders is dutifully *recorded, maintained, and monitored* in a transparent manner and aggregate sum of all such transactions becomes the basis of subsequent FPS operations.

Near Absence of Accountability: Nonetheless, present TPDS system works on the premise of trust between the administration, FPS and the card holders. In case of breach of trust, proving the guilt of the delinquent is a prerequisite for any punitive action. This is a tedious and time consuming process especially with limited man power, motivation and competence at the Block level supply set up. Further, collusion and rent seeking may provide better private gains than otherwise. Moreover, in the context of decentralized TPDS administration, it is very difficult to establish accountability of the delinquent quickly and efficiently. Therefore, ease in fixing responsibility and establishing accountability should be another key parameter of TPDS reforms.

With aforesaid major deficiencies in the present TPDS governance structure it is the card holder whose food security remains in peril.

TPDS: WAY FORWARD

Key Aspects of Reforms: Governance of any activity or function requires interlocking system of checks and balances which maximizes desirable outcomes and minimizes undesirable results. In the instant case, the whole purpose of TPDS is to ensure food security of the vulnerable population.

Card holder's *identity* and *classification* are the key determinants of his/her entitlement under TPDS. In order to protect and safe guard card holder's interest, reforms in TPDS governance structure should empower him such that only he can *authenticate* the delivery of essential commodities. This would minimize leakage/diversion from the system and also compensate for weak oversight and grievance redressal system, at least in part. Since technology would be an integral part of TPDS governance structure, it should facilitate capturing/ maintaining of *transaction data* at each stage. To improve *accountability*, the decision making may be decentralized but TPDS administration should be *centralized* while highest level of *transparency* should be maintained at each stage of TPDS logistics chain. To ensure stake holders' participation, appropriate risk reward strategy should be evolved.

IMPLEMENTATION STRATEGY

In order to arrive at a workable approach to the reforms of the governance structure of TPDS and technological solutions an attempt was made to answer a few questions and make discreet choices that are as following:

Whether to Wait for UID Roll out or not?

Undoubtedly, proposed UID (Unique Id) is an ideal and almost ultimate method to establish identity of an individual. Though, rollout of UID Project has started and its speed of penetration/coverage of population is picking up but due to voluntary nature of the project, its implementation time frame is uncertain. Howsoever good may be the approach, as we know, any ideal solution of the identity issue would need both time and resources. Therefore, our challenge is to address identity issue with reasonable accuracy but within limited time and resources. On the other hand, converging existing identities (EPIC/BPL no. etc) of the card holder and linking the same with biometric identities (such as photo/finger-prints) can generate reasonably accurate ID but at a faster pace which should serve the purpose reasonably well. Further, UID is a number. By itself, it is only a key for identity but not a solution of TPDS computerization. Thus, having a solution compatible with UID (as and when it becomes available) would be more pragmatic than developing a TPDS solution that depends upon prior availability of UID.

Smart Card Vs Coupon

Technology supports solution in which end user can have either the Smart Card or Coupon. Rather than costs, the choice should depend upon the degree of transparency and comfort available at the level of the card holder. Comparing the two, Coupon is relatively better in terms of both transparency and ease of use, but its cost is recurring. On the other hand, Smart Card has a non recurring cost and it provides ease of use but lacks transparency especially in the absence of card reading devices. Moreover, in case of Coupon, it is necessary to have access of TPDS solution on broadband while Smart Card can work in off line mode on hand-held device. Considering, the availability of Citizen Service Centres (CSCs) with Broadband (E-GRAMS at more than 13000 village Panchayat offices), Gujarat has decided in favour of bio-metric based Coupons for faster roll out of TPDS Solution.

To Introduce Technology at FPS Level or not?

As we know, with the help of computers, FPS can record and aggregate sale transactions efficiently. Fortunately, small hand held computational devices or computers are quite affordable now. However, real challenge lies in motivating and persuading the FPS dealers to adopt and accept technology which may, otherwise, be detrimental to their self-interests and therefore unwelcome. Thus, we decided to do away with introducing technology at FPS level.

Technology Solution Should bring Market Orientation in TPDS

Currently, the card holder is tied to a particular FPS. This is a monopoly situation to the disadvantage of the card holder. Technology should help card holders in having a choice of FPS, grain, food coupon or cash coupon etc. Further, issue of subsidized TPDS commodities (from FCI depot downwards) at economic price (which is normally close to the market price) can also help in preventing leakages and diversion. In this regard, the technology can facilitate reimbursement of the difference in the amount of economic price and the subsidized sale price of the end transaction to the FPS dealer. In addition, technology should also facilitate cash transfers in lieu of physical delivery of subsidized essential commodities.

How to Minimize Solution Roll out Cost and Time?

Any comprehensive TPDS solution catering to various layers of TPDS administration including the State, District, Block, FPS, card holders and other associated organizations would generate vast amount of data. Obviously, this would require investments into data processing, storage and networking resources. Instead of evolving a green field solution in terms of hardware/networking resources across the State/District/Block/FPS level, efforts should be made to utilize existing computational and connectivity set up under the National E-Governance Plan (NEGP) wherein GoI has already assisted States in setting up of State Wide Area Network

(SWAN), State Data Centres (SDC) and several thousand Common Service Centres (CSCs) at the village level. With this approach, one can achieve faster rollout of TPDS solution in the State.

Private Software Solution Provider Vs NIC

Our country has several large and mid-sized IT companies with reasonable exposure and expertise in rolling out e-governance solutions. In a government set up, one can appoint a Software solution provider by following due process viz., through open tendering. For this purpose, prior to the tendering process, one needs clarity with regard to the scope of work, capability to monitor development and roll out of software solution, budgetary provisions etc. Further, no private company has, so far, rolled out any large scale TPDS solution in the country. On the other hand, National Informatics Centre (NIC) is a government organization providing e-governance solutions and services to various government organizations for more than two decades. Few of the most important attributes of this organization are ready availability of competent personnel in all the Districts, exposure to the working style in the government, faith in the organization's ability with regard to the security of citizens' data and not the least, cost effectiveness in the development and roll out of the Software solution. Since ownership of the solution rests with the Food and Civil Supply department of the State Government, it is imperative to have a very close coordination with NIC during the development and roll out phase of the solution at the field level. Looking to these factors, Gujarat decided to take help of State unit of NIC in the development of software component of TPDS Solution. However, low end IT work could be outsourced.

Reforms in TPDS Regulations to Precede or Succeed the Solution Development or Implementation?:

Over the years, policies and regulations of conventional TPDS governance framework must have evolved to cater the felt needs of the time. Infusion of technology in the governance of TPDS influences the regulatory framework of TPDS and *vice versa*. Since TPDS is a live system, it is difficult to implement solution in a *disruptive* manner. In accordance with the blue print of TPDS reforms, the broad direction of regulatory reforms has to *precede* the solution development. Further, to maintain the continuity of the present TPDS, changes in its regulatory framework should be introduced in a *gradual* manner. In view of these considerations, it was decided to synchronize the regulatory reforms with the Solution development and implementation process.

Solution Approach & Roll out Strategy

Following table summarizes the key components of Solution Matrix:

TABLE I: KEY COMPONENTS OF SOLUTION MATRIX

Issue	Solution Approach
Identity	Elector's Photo Identity Card No. + Bio-metric data of at least one member of Beneficiary Family
Classification	Convergence of Beneficiary Family's Socio-economic data e.g. BPL data, Electricity Connection no., LPG no., Land holding status etc.
Delivery	Through FOOD COUPON based upon ON LINE bio-metric verification of the Family member
Record keeping	Capturing of Transaction Data embedded in Food Coupon
Logistics efficiency	Commodity-wise aggregation of Supply and Demand Data at various stages i.e. FCI Depot, Godown, FPS, Kerosene Agent/ dealer etc.
Transparency	SMS alerts, Web site
Accountability	Bio-metric authentication by Decision makers
Stake holders' Participation	Appropriate Risk-reward System

Roll out strategy is the other very important aspect of Solution implementation. Present TPDS suffers from bogus and duplicate ration cards which have crippling effect on the functioning of the system. Therefore, top priority should be assigned to the cleaning of card holders' data base. For this purpose, the State government evolved an entirely new format and asked all existing card holders to fill up the same giving their full details including present identities such as Elector's Photo Identity Card (EPIC) no., Driving License no., LPG connection no., BPL no. etc. Basic idea is that any duplicate or bogus card holder cannot fabricate all the identities provided by different government organizations at various points of time. Taking FPS as a unit, once all existing card holders fill up the prescribed application form, the data entry work is undertaken. After completion of the entry of the application form, card holder's identity details are verified against the existing data bases maintained in the government system. Priority would be given to BPL/AAY households. In case, there is identity mismatch or missing data in the government data bases, local officials take up physical verification of card holder's family. Subsequently, prior to the issue of bio-metric ration card in lieu of existing ration card, photo and bio-metric detail(s) of at least one adult member of the card holder's family is captured at FPS or Village Panchayat location. Effectively, bio-metric identity along with bar-coded ration card becomes authentication key of the card holder's identity. Also, card holder's card details are cross-linked with the government data bases which is protection against misuse of the same in future.

SOFTWARE SOLUTION FRAMEWORK

In the present operational framework of TPDS as shown in the figure 1, of all the stake holders, the card holder is the most important one as his '*Right to Life*' is at stake. Therefore, any TPDS solution has to be card holder centric. Rest of the stake holders are peripheral but are mandated by law or by administrative fiat or by way of

contractual obligations to perform certain functions in pursuance of TPDS objectives. Failure, delay or irresponsible behaviour on the part of any of the peripheral stake holders may have adverse impact on the card holder's welfare. Thus, built in feed-back mechanism along with transparent nature of transactions is an important aspect of TPDS reforms. Gujarat developed '*FPS - Card holder Transaction Centric*' model of TPDS Software Solution, as following:

This model envisages that each card holder would have a bar coded ration card (as shown in Figure 3) containing basic information such as name of the head of the family, number of family members, card category, Elector's Photo Identity Card (EPIC) number of persons in the family etc.

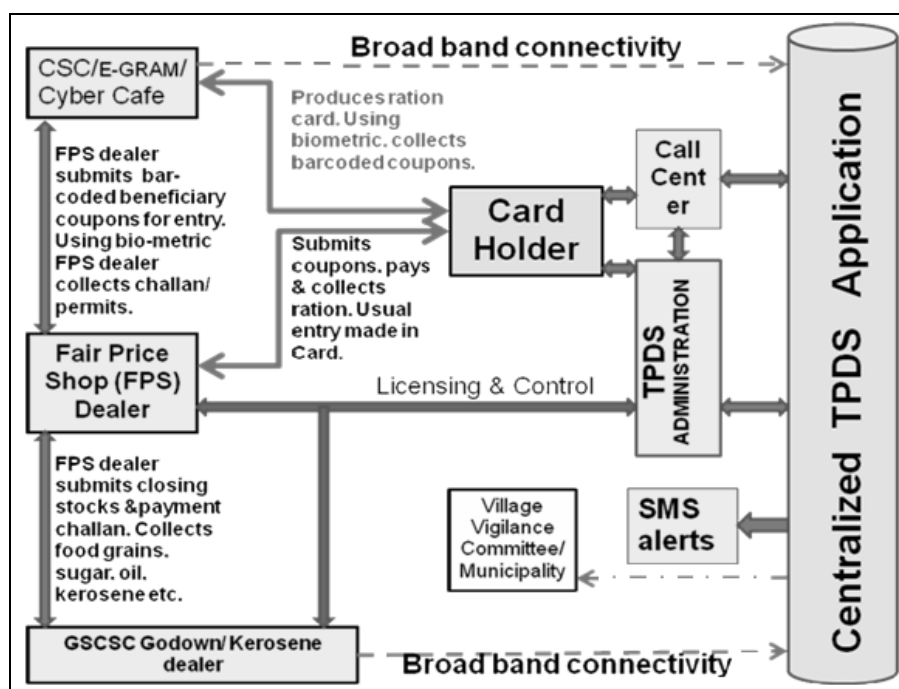


FIG. 2: BIOMETRIC BASED MONTHLY COUPON SYSTEM

Using Bar Coded ration card and bio-metric identification, the card holder will obtain bar-coded coupons from the CSC or Cyber cafe, a tool to claim his entitlement of the essential commodities. As shown in Figure 4, each coupon sheet contains commodity-wise bar coded coupons printed on the extreme ends of an A4 size sheet. Middle portion is the consumer's copy of the coupon(s). To incorporate transparency, each coupon contains details such as the name of the card holder, commodity name, quantity, price, month of entitlement, FPS name etc. When the card holder visits the FPS, he tears apart the commodity coupon and submits the same to the FPS along with the amount as printed on the bar coded commodity coupon. In turn, the FPS dealer should hand over the said commodity as per pre-printed quantity and also makes an

endorsement in the bar coded Ration Card booklet. In case of any misconduct, the card holder can register complaint using toll free Call Center number as printed in the Ration Card book let. Effective cost of each Coupon sheet is free to the BPL card holders while APL card holders pay Rs 3 per coupon sheet. Moreover, the card holder has the option to draw commodity coupons for quantities less than his entitlement.

FPS dealer, as per his convenience, goes back to the CSC during the month and gets bar coded commodity coupons read into his account (with the help of bar code reader). Simultaneously, FPS sales register is updated in the central data base. Based on actual sales figure for each commodity, FPS dealer can obtain commodity-wise permits for the next month.

In this manner, the bar-coded coupon is not only the proof of *transaction* but also a basis of subsequent FPS operations. Combination of the bar coded card along with bar coded coupon(s) obviate the need of technology at the FPS level. In addition, above mentioned solution framework makes full use of technology infrastructure available in the State viz., State Data Center (SDC), State Wide Area Network (SWAN) and the Common Service Center (CSC) also known as E-GRAM in each Village Panchayat connected through VSAT.

બુકલેટ નંબર : 3090635001		BPL Card	
રેશન કાર્ડ નં 30200 80000 00004		જન સંખ્યા 7	
કાર્ડ ધારકનું નામ: સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ			
સરનામું : 24, સુભાષીયા વાસ, ગામ મોરીયા, તા.પાલજપુર જિલ્લા સુરેશકલ			
ભા. ક્ર. ક્રમનું કોડ અને સ્થળ કોડ: મુ. મોરીયા 1, તા. પાલજપુર			
ફોન નં ક્રમનું મશરૂમ નંબર: 1174 - ચાર પી બારોડ મશરૂમ, મોરીયા			
ગેસ બી ડિલિવરી સેલેક્ટીવ ☐		પીસેલેક્ટ ☐	
ગેસ બી નં			
ગેસ કનેકશન નંબર : 0			
ગેસ કનેકશન ડેટા :			
Following the following			
સે.નં.	સરનામું નામ (ગેસ નંબર નં)	સમાપ્તિ ઉમેર	સુટલી સંખ્યા કોડ નં
1	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 001)	પોતી	40
2	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 002)	પાનલી	38
3	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 003)	પુતી	18
4	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 004)	પુતી	18
5	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 005)	પુતી	18
6	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 006)	પુતી	15
7	સુભાષિલા નાનજીભાઈ વેંચલ્લાઈ (30200 80000 00004 007)	પુતી	11
NIC Version : 1.0.0.32		Biometrics Captured	

FIG. 3: BARCODED RATION CARD

[illegible]

FIG. 4

SOFTWARE FEATURES OF THE SOLUTION

Card Holder's Module

This module uses basic data of the card holder and his family members. Card holder's category depends upon his socio-economic profile while card holder's entitlement is linked to his category viz., AAY/BPL/APL. If need be, links with other government data bases and schemes would enable dynamic categorization of the card holder. Further, card holder's identity details including photo and bio-metric details are also part of the basic data structure which are captured in the presence of responsible government servant and under his bio-metric authentication. This would make government servant accountable in the event of issue of fake or duplicate ration cards in future. Subject to the card category and entitlement norms, identity authentication sub module triggers printing of bar coded coupons.

State and District Level Commodity Allocation Module

As stated earlier, Gol allocates essential commodities to the States. In turn, based upon the availability and actual numbers of category-wise cardholders and their category-wise entitlement, inter-District allocation is made from the State level. This is an inefficient method. Instead inter-District allocation should be subject to availability and

actual lifting of essential commodities by FPS in the previous month. Since this solution enables availability of FPS wise sales data of the previous month, it is easy to make inter-district allocation of essential commodities. Likewise, within a District, inter-FPS allocation of essential commodities can be made in a rational manner which would further help in improving the efficiency of transport and storage logistics management.

FPS Dealer Module

This is a critical module that captures delivery of essential commodities to the card holder, maintains sales register and accounting details at the FPS level. As part of TPDS reforms FPS dealer should minimize interaction with the administration. In due course, subject to actual sale of essential commodities to the card holders and based upon bio-metric authentication module, the FPS dealer would get permit(s) to replenish stocks for the subsequent month. Lifting of the stock of essential commodities from Civil Supply Godown will trigger SMS alerts to the card holders possessing mobile phones in the said FPS area. Further, FPS wise accounting details would be maintained in the Accounts and Credit Maintenance sub module. Also, issue of license to FPS, its renewal, suspension, cancellation, leave, vigilance and inspections etc. will be in the scope of FPS License Management sub module.

Transport and Godown Modules

Godowns are part of decentralized logistics hub for receipt, storage and issue of essential commodities to the FPS dealers. Transport is an integral component of logistics supply chain management. In order to establish accountability, using bio-metric authentication based Transport module of a hand held terminal, a GPRS and GPS enabled mobile device, the Lifting Inspector at each FCI depot would issue Transit Pass (TP) to the transporter. Simultaneously, this will trigger of SMS alert to the receiving godown center. Godown Module would keep track of Transit Passes and updates commodity-wise stock storage details. Likewise, the Godown Stock Issue module would capture details of stocks issued to the FPS dealers as well as stock transferred to other Godowns. As the stock is issued to the FPS dealer, SMS alerts would be sent the card holders in that FPS area. In addition, Godown module would also incorporate another sub-module for procurement of food grain at Minimum Support Price (MSP).

MIS

MIS module is based upon aggregation of commodity-wise transactions at various levels e.g. card holder-wise transactions at FPS level; FPS-wise transactions at Godown level; Godown-wise transactions at the District and FCI depot levels, District-wise transactions at the State level. In case of non-lifting or abnormal lifting pattern at the Godown or FPS level, the State and District Supply authorities can launch investigations and initiate corrective action. In other words, one can monitor the health and performance of TPDS implementation at each level and almost in real time.

PRESENT STATUS

Since the codification of the conceptual framework of this solution by way of Government Resolution in April 2010, over 11.2 million existing ration card holders have submitted prescribed forms during June-September 2010. Since November 2010, data entry of this form has been undertaken in two stages i.e. to begin with FPS-wise summary of forms was taken up and about 75% of the work has been completed by May 2011. Further, since June 2011, detailed entry of the forms has started. Also, quite a few of the Software components of the Solution have been operationalized while others are still under development and testing. In the mean time, a few other parallel activities have been taken up. It was decided to take up one FPS area on pilot basis in each block of every District almost in the manner as shown in Figure 2. With this objective, on 1st April 2011, first pilot has been launched in village Moriya, Taluka - Palanpur of District Banas- Kantha, Gujarat. By August 2011, over 100,000 Bar Coded Ration Cards have been issued in all 26 districts of the State. Further, bio-metric based Bar Coded Coupon System has been operationalized in 121 FPSs (one Pilot FPS in each Block) of 22 districts. In addition, another 70 FPS are ready to switch over to bio-metric based Bar Coded Coupon System. Currently, State government is funding the entire estimated Project cost of approximately Rs. 800 Million while this solution will have annual recurring cost of about Rs. 250 million.

OUTCOMES SO FAR

Process of solution development and implementation has so far led to decline in the number of live card holders from approximately 12.5 million to 11.2 million (as on 1st January 2011). Consequently, the distribution efficiency of TPDS commodities has gone up by about 10%. Further, implementation of the solution in the Pilot FPS areas has given a very encouraging feedback of card holders as they really feel empowered. Since commodity-wise and category-wise Sale registers are maintained centrally, it is now feasible to carry out micro analysis of the Pilot FPS functioning each month. Even one can do card holder-wise analysis of lifting of commodities. In addition, concept of one pilot FPS in each Taluka has been helpful in training the Block level supply staff, CSC operator and FPS dealer in implementing this project.

CHALLENGES

Journey so far, has not been without challenges, both technical and administrative. Matching of card holders' data with the Electoral Roll has been a key strategy to address the issue of bogus and fake ration cards. Since there are over 10 million ration card holders, this has turned out to be a time consuming exercise. Likewise, collection of biometric data (including photograph) of at least one adult member of the card holders' family at the time of bar-coded card distribution has been equally time consuming exercise which also requires physical presence of the member from beneficiary family. However, experiences gained from pilot FPS experiments are

helpful in fine tuning the Solution and this process is expected to continue till the entire roll out is complete. With improvements in FPS functioning and card holders' satisfaction level viability of FPS operations would have to be ensured. For this purpose, there is a need to reduce costs of FPS operations including door-step-delivery and augmenting incomes by way of enhanced commissions and conversion of each FPS into model FPS which could sell non-TPDS items too. Similarly, access to E-Gram/Cyber cafe within reasonable distance of the habitation would be another pre-requisite for smooth functioning of the Solution.

FUTURE ROADMAP

Data entry of the forms submitted by the cardholders will be completed by October 2011. Alongside the progress in issuing bar coded cards in the FPS areas, it is also proposed to introduce Bio-metric based Bar Coded Coupon System concurrently. In view of the procedure, especially that of matching exiting identities and capturing bio-metric/ photo details of at least one member of over 10 million card holder's family, this is a huge task. Subject to any unforeseen contingency or disruptions, it has been planned to complete issuance of bar coded Ration cards in more than 16000 FPS areas by March 2012. Once the solution roll out is complete, the bar coded ration card will also work as roaming Ration Card. Also, it is envisaged to provide freedom to the card holders to avail essential commodities from any FPS as per their choice. Considering that TPDS is a citizen centric service delivery programme, therefore, its Solution framework is comprehensive enough to cater the needs of other citizen-centric government schemes as well. Thus, in due course and to begin with this solution may be extended for better implementation and monitoring of other nutrition schemes i.e. Integrated Child Development Scheme (ICDS) and Mid Day Meal (MDM).

CONCLUSION

Since 2010, Gujarat model of TPDS reforms is a *work in progress* but it has already brought about a paradigm shift in TPDS administration. Pending UID roll out in the State, the card holders' identity issue is being addressed in a satisfactory manner and other challenges in the implementation process are also being dealt with. Overall, in a very short period of about 15 months, there have been several positive outcomes. All of this could happen due to *stable, visionary and reform oriented leadership* of the State government and the *team work*. In all, the TPDS reform process holds great promise not only for better targeting of government subsidies but also for ensuring food security of the poor and vulnerable sections of the society.

e-Governance in Rajasthan—A Critical Appraisal

Ashok Kumar Jetawat and Jayshree Jain

IICE College, Udaipur (Raj)

E-mail: iice_udaipur@yahoo.com

Abstract—This paper presents a critical evaluation of various e-Governance projects initiated by Rajasthan government. It is widely acknowledged that the concept of e-Governance has shown usefulness in raising the efficiency of government functioning and improving public service delivery. It is also helpful in bridging the geographical divide. The state government is taking all possible measures for spreading e-Governance throughout the state; the actual realization to cover all the sectors, to provide hassle free, transparent and efficient services, is yet to be achieved.

According to the latest e-Readiness Assessment Report, Rajasthan stands in the expectants category in the ranking of states by their e-Readiness. The state has initiated a number of projects, but only a few projects have been successfully incorporated in the system. According to the Swan implementation status, Rajasthan occupied the middle position. The state has focused only on few projects and numbers of projects are left disdained, therefore, due consideration is required for all the projects for successful implementation of e-Governance in Rajasthan.

The paper depicts the fact that awareness among people regarding e-Governance is very low. In general, only revenue earning departments have taken noteworthy initiatives. There is a high level of ICT illiteracy among government employees to adapt to the new system. The paper also reveals that the reliability factor among people on e-Governance services is not upto the mark. This prompts us to look back at the state e-Governance plans and strategies and rewrite a time bound action plan for realizing the real dream behind the implementation of e-Governance.

INTRODUCTION

We live in world of constantly evolving technology and its enabling power. The explosive technology can be one of the key enablers of citizen centric services delivery mechanism to create accessible interfaces to bring about Simple, Moral, Accountable, and Responsive and Transparent (SMART) government. In other words, it is an e-Democracy, where all forms of interaction between the electorate (i.e. general public) and the elected (i.e. the government) is performed electronically. E-Governance is defined as a set of technology-mediated processes that are changing both the delivery of public services and the broader interactions between citizens and government. These initiatives have helped in gaining a head start in modernizing the government.

Rajasthan has emerged as one of the frontrunner IT state in India. As on today, Rajasthan features among India's top performing regional economics. The state government is giving strong thrust on e-Governance: especially e-Enabled citizen services to further improve the state economy. [1]

EVALUATION OF E-GOVERNANCE PROJECTS

The Government of Rajasthan has initiated various projects. Out of these projects some projects are directly related to citizen and have provided a lot of convenience in dealing with government departments.

We analyzed the performance of various e-Governance projects implemented in Rajasthan on the basis of three aspects. These aspects are explained below:

Technological Aspects

Any project can be successful if technology used in that project is up to the mark. Usually government invests a lot of amount in e-Governance implementation but by the time the planning is made and is actually implemented the technology gets obsolete. While implementing any technology, delivery channels facilitate its availability to the end users.

Marketing (Awareness about the Project in Public)

Without raising awareness among people no project can get success and survive for a longer period. The Government starts various projects for the benefit of the society, but if the user is not aware, masses will not be benefited. Government of Rajasthan implemented various e-Governance projects, but ironically people are not well aware about the facilities provided for them. The Government is expected to focus on various stakeholder groups for marketing purpose.

Human Resource Preparation to Implement the Project

The third key area is manpower. Government should analyze what type of manpower is required for successful implementation of the project. For proper implementation of any project, good training to the employees is required. Employees of various government departments require proper training and motivation to go in tune with the new initiatives. Every project needs a good team and best leader to achieve its objective. The Government is investing a huge amount in the projects but just investing the money is never being the guarantee for success of any project.

MAJOR INITIATIVES IN RAJASTHAN

Information Technology & IT Enabled Services (IT & ITES) have emerged as key economic engine of our nation. Rajasthan is also poised to take several strategic initiatives to capitalize on growth opportunities in this sector. Governance projects in Rajasthan cover the entire spectrum of interfaces-G2G, G2B, G2C, and G2E.

Under the e-Governance plan, the Government wants to enhance transparency in public dealing and make the delivery system more effective. Following are the some of the important projects undertaken by the state government [2].

e-Mitra: G2C e-Governance

e-Mitra provides wide range of citizen friendly services of different departments using Public-Private Partnership (PPP) model, thereby deploying information technology for the benefit of masses. The scope of e-Mitra is not only limited to state government domain but may include central government departments (ex. railway reservation) and other sectors like LIC, BSNL, mobile phone service providers also.

To implement the project across the state, the government has established District e-Mitra societies at each district under the chairmanship of respective District Collector. It is supposed to provide single window service to consumers for utility bill payment service submission of application form, railways and airlines reservation booking, submission of grievances, etc. This project has been implemented across 33 districts.

Under the e-Mitra project, a citizen can avail the following services from any e-Mitra kiosk across the state:

- Utility bill payment Service
- Submission of application form
- Railway reservation booking
- Mobile and other bill payments of private companies
- Other public utility services

Various citizen centric services of government departments are made available in integrated form through service and information delivery points called “e-Mitra Centers / Kiosks”.

It has been observed that the number of operational kiosks across the state have decreased from April 2007. This is mainly due to the lack of timely payment to the Kiosk holders and limited number of transactions leading to non profitability of kiosk holders. According to the kiosk holders, the commission is very low. This is because of limited number of transactions per kiosk. Various technical and management problems are also responsible for the lack of interest of people in the government's online services. There is little awareness among people about kiosk activities and because of this the kiosks are running in loss. At times, people have to wait to receive the receipt against their payment. Further, as the number of e-Mitra kiosks increases, per kiosk transactions decreases. Some of the departments are yet not fully computerized. Advertisement about the scheme is very low. There is a lengthy process to transfer data to the user department. The e-Mitra Software is not user friendly. Except utility bill payment services, other services are hardly available for the people. [6]

Functioning of the citizen centric services can be improved by providing sufficient commission amount to the kiosk holder. If this is done, it will motivate them to continue the services. The lengthier process of clearance of bills should also be shortened to eliminate the delay in payment to kiosk holders. Apart from that, proper training and motivation programs should be conducted on the periodic basis and adequate marketing programs should be adopted to raise the awareness level among people. Application forms of ration card or examination forms can be directly issued at e-Mitra centers.

Excise Department's G2G & G2B e-Governance

Rajasthan State Excise Department (RSED) is the controlling and monitoring agency for liquor trade, administration of the laws and rules related to manufacturing, possession,

sale, import, intoxicating drugs and collection of revenue from each of these sources in the state. In order to provide general information about the department, www.rajexcise.org has been launched. Special software has been developed for online transactions. The process of revenue collection of the department is made electronic. All the district offices are provided with a computer and Internet system. Around 43 depots in Rajasthan have Internet connectivity. The department has made most of its documentation processing online. [5]

It was observed that most of the transactions are done online; therefore security needs to be tightened to maintain the privacy of confidential data. It was also realized that people do not easily accept Payment Gateway. In case of server failure, the present system does not have efficient backup recovery system. There is no adequate method to get back the last archive log. At present, batch wise tracking of liquor is being done, but some liquor brand does not hold the batch number in the system.

The Excise Department can set up a method of collecting revenue by using PAN card number as a service taxpayer code. Steps can be taken to sell Indian Made Foreign Liquor (IMFL) and country-made liquor from the same outlet. This will help in reducing the number of liquor shops. Payment to the retailers can be made online through a payment gateway, which will make the processing fast. Approval of the brands and the rates should be made online so that manufacturer can directly contact the department. Clustering of database servers can be incorporated to minimize the gap to re-connect whenever the server fails.

Registration and Stamps Department's G2C e-Governance

Rajasthan Computerized Registration System (RajCrest) has been developed with the objective of providing single window services, timely registration, transparent and reliable transactions of documents relating to sale of immovable property, lease, gift, partition, mortgage, bond and power of attorney. The project attempts to bring the fundamental changes in the registration process. The software is capable to provide easy and effective storage of information related to clients that come up to the department for registrations of their property.

There are many offices in Jaipur for registration. The system has decreased the revenue leakage up to a large extent, yet there is a lack of trust in the computerized process. In many districts, training is being imparted to the operators but no clear-cut vision for HR training exists in the department. Moreover, no particular agency is there to determine the real land rates in each area, which causes loss of budget. Further, there is no provision for controlling stamp vendors.

Registration and Stamp Department should be integrated with the e-Mitra kiosks. This can make it possible for citizens to deposit stamp duty to be paid on document at the concerned e-Mitra kiosk. The prevailing market rates can be disseminated through internet and other important places through screen presentation. A well-trained employee should be appointed so that tax evasion can be controlled. Stamp duty can also be obtained through cash, challan or bank draft rather than getting it printed from Nasik Printers. [5]

Commercial Taxes Department

Commercial taxes department (CTD) is a major contributor to the tax revenue collected by the state government. The project involves implementation of Value Added Tax (VAT) Application Software, setup of IT Infrastructure at Production and Disaster Recovery Sites and building of CTD Network (Intranet) System across the State. The application is rolled-out across the state and entire CTD is now on a single and integrated IT – Taxation System.

The department is supposed to serve mercantile public, electronic services like e-Filing of returns, e-remittance of tax and e-assessment through websites and online issue of statutory forms etc.

Land Record Computerization

Land and Building Tax Department levies land and building tax on open land and any constructed residential / commercial / industrial building for which software was developed. This project is covering all the 33 districts and 241 tehsils. This software automatically values the property and calculates the tax payable and stores the assessment details of the taxes.

Apart from the initiatives taken, the complete records of jamabandis are not available on the server. Farmers are unable to avail the services due to lack of adequate marketing strategy. As state lands are allotted to private sector, they are prone to manipulations up to a certain level for their self-interest. Landholders face lot of difficulties in obtaining the land titles. Crop loan mechanism is very awkward and mutation process is cumbersome. People do not have faith in these services, although several camps have been organized to increase the awareness among people. The role of patwaris is still important in getting the land documents. Flaws from the system can be removed if maintenance of records is accomplished electronically. Maintenance of records should be computerized completely. Efficient methods should be incorporated for delivery of records and disposal of civil litigation.

Hospital Computerization and Swasthya Mitra-Telemedicine

For expanding specialized health care services to far-flung areas of the state, “Telemedicine network” is being setup in the state with collaboration of ISRO. The project has achieved only the initial objectives of the e-Governance. Since it is in its initial phase, there is a lack of effective registration process and cash collection system. Delivery of rural health care services is also irregular due to the inept Health Management Information System. [4]

There should be considerable increase in accessibility and equity of below poverty line people and underserved population to health care. Senior doctors can be connected through online system in case of emergency and can help juniors operating far in rural areas. Through institutional development, the quality of the health care should be improved.

OTHER E-GOVERNANCE PROJECTS

The state government has included efforts to build out its ICT infrastructure within the realms of e-Government strategy efforts. Innovative technologies – especially those associated with wireless access - enable to make leaps into technological development. Various projects are initiated by the government of Rajasthan to promote the infrastructure growth. These projects are as follows:

State Data Center (SDC)

The SDC is one of the first of its kind of ICT infrastructure project successfully implemented by state government in the country. SDC facilitates vertical and horizontal integration of departmental data and services. It is to act as the repository of all the important data pertaining to state government domain and to act as a core of the state level information infrastructure that in turn would integrate geographically distributed data depositaries. This will house the enterprise level servers and network equipments, enabling the different departments to be connected to each other on a real time basis.

Currently SDC hosts different websites of various Government departments. It includes GIS project, e-procurement project and several other e-Governance projects. The SDC shall be further strengthened so as to cater to the increasing requirements of the Government in optimizing e-Governance efforts [3]. Many departments are still not integrated with the state data center. The data are repeated at number of places and are not integrated.

Computerization of Treasuries

Rajasthan was one of the pioneering states, which introduced the concept of Treasury Computerization for Fiscal Management. Computerization of all the 38 treasuries and 110 sub treasuries was done in phased manner.

E-District

This program is proposed to cover Ajmer, Baran, Jalore and Jhalawar Districts. It would help in IT enabling of internal processes of the district administration and its subordinate offices and integration with the e-Mitra service delivery channel. Funds for the e-District project would come from government of India and would be provided to the selected districts.

CONCLUSION

The critical evaluation of various e-Governance projects implemented in Rajasthan depicts the true picture of present status. State government is taking all possible measures for spreading e-Governance throughout the state, the actual realization to cover all the sectors to provide transparent and efficient services is yet to be achieved. Mere computerization cannot fulfill the objectives of e-Governance.

Citizens should be able to find what they need quickly and easily, and access information in minutes or seconds, instead of days or hours. It was observed that awareness among general people regarding the implementation level of e-Governance in Rajasthan is very low. The satisfaction level for e-Governance services is also very low. This is because the government centers around only few projects, rest have not been given due consideration. At times, technical errors also hinder the smooth processing of the system leading to the dissatisfaction among the people. Lack of coordination among various government departments is also responsible for discontent. Little training is provided to the kiosk holder to operate the software and no further feedback is provided even when the staff of the kiosks changes. Effective human resource training programs should be conducted to promote the e-Governance in the state. Another reason for the low awareness is that till now all the e-Governance projects are at the conceptual level and are known to very small section of top officers. [7]

There are only few departments, which invest proper time and money to improve its existing system. There is a high level of ICT illiteracy among government employees to adapt to the new system. Although employees believe that proper training programs can improve their performance upto significant level, yet existing training system is not effective to improve the performance of employees. It is also observed that employees are not very comfortable to adapt with new technology. Lack of motivation and positive attitude among government employees also hinders the smooth running of e-Governance services.

In Rajasthan, the literacy rate is around 61.03% [2] and effective implementation of e-Governance is difficult because of illiteracy. People in rural areas are not aware about IT developments and its application. As a result, very few people are able to cope up with the new initiatives. Due to the non-availability of computers in all the departments, awareness among the government officials is also low. Common identification numbers of people for their different identification cards like pan card, voter identification card and driving license can be implemented in governance proceedings.

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A Case Study on Collaborative Government to Employee (G2E) Services in India

Velamala Ranga Rao

*Soil and Land Use Survey of India, Department of Agriculture & Cooperation,
Ministry of Agriculture, Govt. of India, PUSA, Delhi-12*

E-mail: velamala.ranga@gmail.com

Abstract—Government initiatives all over the world endeavor to integrate Information and Communication Technologies (ICT) to transform delivery of government services to their stakeholders by improving quality of services, accountability and efficiency. There are different types of e-Government based on using ICT to facilitate relationships between government and other key stakeholders. The types of relationships are with citizens (G2C: Government-to-Citizen), business (G2B: Government-to-Business), other governments (G2G: Government-to-Government), and employees (G2E: Government-to-Employees). Most researchers and academics refer only to the first three blocks, without considering the fourth or simply including it as part of 'government to government' block. The relationships, interactions and transactions between government and employees in fact constitute another large e-Government block, which requires a separate and very careful handling. The majority of Governments have not yet begun to develop collaborative G2E services. Before we can expect citizens to go online, Government employees must go online.

This paper explores the adoption of ICT to enhance Government-to-Employee (G2E) services in various states of India. After reviewing G2E services, we found that there is no uniformity in G2E services within and among state governments across the country and hence there is an urgent need for collaborative G2E services. This paper proposed Integrated Employee Information System (IEIS) and discussed basic architecture, key issues and challenges. In the proposed system an employee life cycle approach will be adopted while capturing employee information in a dynamic real-time basis right from the stage of the recruitment of the employee to the stage of his/her retirement (in fact, even for post-retirement pension related issues) will be recorded in the proposed system. This is designed to eliminate the longstanding paper pushing processes. This system is expected to cover all government offices and departments including the heads of departments as well as their grass root level subordinate field offices. Many transactions between the government and the employees will be done automatically through the system. This will clarify the major issues surrounding G2E services for e-Government as well as to provide readers with best practices in e-Governance.

Keywords: ICT, e-Government, e-Governance, Government to Employee, G2E, Collaborative, Integration.

INTRODUCTION

Information and Communications Technology (ICT) facilitates efficient storing and retrieval of data, instantaneous transmission of information, processing information and data faster than the earlier manual systems, speeding up governmental processes, taking decisions expeditiously and judiciously, increasing transparency and enforcing accountability. Uses of ICTs within the organization to increase internal efficiency are often characterized as Internal Effectiveness and Efficiency (IEE).

E-Governance or 'electronic governance' is basically the application of Information and Communications Technology to the processes of Government functioning in order to bring about 'Simple, Moral, Accountable, Responsive and Transparent' (SMART) governance. This would generally involve the use of ICTs by government agencies for any or all of the following reasons: (a) Exchange of information with citizens, businesses

or other government departments (b) Speedier and more efficient delivery of public services (c) Improving internal efficiency (d) Reducing costs / increasing revenue (e) Re-structuring of administrative processes and (f) Improving quality of services.

Several countries around the world are attempting to revitalize their public administration and make it more proactive, efficient, transparent and especially more service oriented. To accomplish this transformation, governments are introducing innovations in their organizational structure, practices, capacities, and in the ways they mobilize, deploy and utilize the human capital and information, technological and financial resources for service delivery to citizens [2]. Types of e-Government: There are different types of e-Government based on using ICT to facilitate relationships between government and other key stakeholders. The types of relationships are with citizens (G2C: Government-to-Citizen), business (G2B: Government-to-Business), other governments (G2G: Government-to-Government), and employees (G2E: Government-to-Employees) [3].

Government to Citizen

Deals with the relationship between government and citizens. e-Government allows government agencies to talk, listen, relate and continuously communicate with its citizens, supporting, in this way, accountability, democracy and improvements to public services. G2C allows customers to access government information and services instantly, conveniently, from everywhere, by use of multiple channels (Computer, mobile phone or wireless device, Internet, E-mail etc.) [4].

Government to Business

Consists of the electronic interactions between government agencies and private businesses. It allows e-transaction initiatives such as e-procurement and the development of an electronic marketplace for government [5].

Government to Government

Refers to the relationship between governmental organizations, as for example national, regional and local governmental organizations, or with other foreign government organizations. Governments depend on other levels of government within the state to effectively deliver services and allocate responsibilities. In order to realize a single access point, collaboration and cooperation among different governmental departments and agencies is compulsory. Online communication and cooperation allows government agencies and departments to share databases, resources, pool skills and capabilities, enhancing the efficiency and effectiveness of processes [5].

Government to Employees

Refers to the relationship between government and its employees. G2E is bringing employees together and to promote knowledge sharing among them. It gives employees access to relevant information such as compensation and benefit policies, training and learning opportunities, civil rights laws, etc. G2E refers also to strategic and tactical mechanisms for encouraging the implementation of government goals and programs as

well as human resource management, budgeting and accounting . G2E focuses on relationships within government among employees to coordinate internal operations and improve the internal efficiency of business processes [5].

Most researchers and academics refer only to the first three blocks, without considering the fourth or simply including it as part of 'government to government' block. The relationships, interactions and transactions between government and employees in fact constitute another large e-Government block, which requires a separate and very careful handling. Many people today refer to employees as internal customers and as a result, in order for an e-Government initiative to be customer oriented and centric, it has to take into account needs and requirements of this group as well [5].

The majority of researches of demand for e-Government services concentrate on studying of citizens and business. However studying of prospects of internal e-Government services development seems to be also necessary [11].G2E services encompass G2C services as well as specialized services that cover only government employees, such as the provision of human resource training and development that improve the bureaucracy's day-to-day functions and dealings with citizens [6].

Civil Servants are vital to the success of policy implementation and service execution in the e- Government. The focus of G2E is to empower public officers using ICT with new skills, to enrich their careers and to keep them relevant in the e-economy. e-Government needs to be a service-wide initiative, appreciated and embraced by all public officers. The officers should have necessary skills to see the possibilities and capitalize on the opportunities for the creation of an e-Government [13].

The Government to Employee solution is about empowering employees to assist citizens in the fastest and most appropriate way, speed-up administrative processes, and optimize governmental solutions. Civil servants will be able to link efficiently with other departments, rely on the latest news, draw on the available resources in an optimal way, and use the most appropriate support [4].

COLLABORATIVE G2E SERVICES

Government-to-Employee (G2E) solution is about empowering their own employees in order to speeding up their internal administrative processes and rendering optimal solutions, so that they can support the citizens in much better and faster way, It streamlines internal processes, improves knowledge sharing, collaboration and staff productivity. Its aim is to make the processing system paperless. It allows co-ordination with other government employees anytime, anywhere

The majority of governments have not yet initiated to develop collaborative G2E services. Employee services that consolidate information access and common transactions (for example, administration, travel and expense payments, training programs, and so on) reduce operating cost pressures and enable employees to focus on

knowledge creation activities. Before we can expect citizens to go online, Government employees must go online [11].

The goal is to improve significantly the efficiency, effectiveness, accountability, and transparency in intra-department and inter-department businesses within the government and with its employees [14].

TABLE 1: SCOPE STRATEGIES [12]

Governments have choices on how they seek to establish collaboration models				
	Scope strategies			
	Single-issue/ single-government*	Single-issue/ multigovernment**	Multi-issue/ single-government	Multi-issue/ multigovernment
Risk-level	Low	Moderate-high	Moderate	High
Primary challenges	• Prioritizing processes to integrate • Cultural barriers	• Establishing standards • Data-sharing rules • Committing funding	• Gaining sponsorship from leaders • Turf battles	• Long-term implementation • Significant cultural change
Examples	G2G	• Managing budgets/finances/assets/procurement	• Applying/receiving grants • Emergency response	• Arresting and processing an individual • Promoting economic development • Ensuring national security
	G2E	• Resolving issues	• Sharing leading practices/intellectual capital	• Recruiting, hiring and initiating employees • Career development • Workforce planning • Skills assessment, education and training
	G2C	• Registering/renewing licenses/permits • Public meetings	• Searching for information • Voting • Paying income taxes	• Changing of address/moving home • Providing healthcare
	G2B	• Reporting/filing	• Paying taxes (corporate, sales, and so on)	• Starting a business • International expansion/trade
* Single-government = one jurisdiction – inter-department (for example, Province of Ontario). ** Multigovernment = across jurisdictions or levels (for example, Provinces of Ontario and Quebec or Province of Ontario and Canadian Federal Government).				

The private sector has embraced the concept of Customer Relationship Management (CRM) and increasingly, this is seen to be relevant also to the provision of public services. CRM supplies the conceptual and technology framework within which it will become possible for the e-government programme to deliver the promised benefits [10]. Developing an effective online public administration or e-administration means balancing the needs of two constituent groups 1) external: the citizens or the customers, and 2) internal: staff and management, or the administrative back office. These two obligations are neither conflicting nor mutually exclusive. In both situations the internet has become essential in augmenting the administrative system in support of its mission. For a number of countries (industrialized, emerging and developing) there exists a propensity to center their e-government projects and budgetary resources on the output of services provided to external users before ensuring the administrative capacity exists to support such initiatives [18].

Back office integration occurs from the economies of scale that can be achieved where several government agencies or departments are linked together. For illustration, the integration of payroll systems across a number of public sector bodies can lead to

significant unit cost savings increasingly the success of back office integration is being seen as dependent on the people element of the equation. The scope of collaboration depends on a variety of factors, including the funding available, a timeline for implementation and the existing collaboration culture. The segment services range from:

- *Low risk*—integrate the same process across a single jurisdiction: For example integrate recruiting and hiring across all departments within a city government
- *Moderate risk*—link the same process across levels or jurisdictions: For example, link the grants process across central, regional and local government and private sector organizations
- *High risk*—integrate related processes across multiple levels or jurisdictions: For example, promote regional economic development [1].

A CASE STUDY ON G2E SERVICES IN INDIA

In India, e-governance still seems to be in growth stage. Various experiments are being conducted by governments at various levels (centre, state, local level) to implement e-government initiatives. Efforts are made to study the various issues involved in e-readiness, e-adoption and e-deliverance with the help of various case studies. Some states have been very successful in their efforts, while others are still lagging behind. In India, Governments at Centre, State and Local bodies are making an effort to adopt Information Communication Technology to deliver efficient and quick services to citizens. In this process numerous projects (G2C, G2G, G2B and G2E) have been initiated by different state governments in India. Some State governments and Central government of India initiatives of Government to Employee (G2E) services are summarized at Table 2.

TABLE 2: SOME GOVERNMENT TO EMPLOYEE (G2E) INITIATIVES IN INDIA

Some Government to Employee (G2E) services in India	
State/Union Territory	Government to Employee (G2E) services
Andhra Pradesh	<i>Pension Status</i> : The Employee should select a particular district and year and provide the File Number/Name and Date of Birth to get the pension status.
Arunachal Pradesh	<i>Executive Record Sheet of Arunachal Pradesh Civil Service (APCS) Officers</i> : Bio-data, Transfer/Posting details, training details, photographs etc, are available online for viewing by employees. This data will be of immense use for the departments and employees.
Chhattisgarh	1). <i>e-Karmachari</i> or Employee Database The data pertaining to employees of state government under the categories of Permanent/Temporary/Contract and Contingent is captured and maintained in central server on oracle database. The data comprise personal information, initial appointment information; present posting details, nominee-details besides details of transfers, promotions, and disciplinary cases from time to time. Employee database consisting about 220000 employees of all departments is built. Information on employee transfers, promotions, disciplinary cases, deputations, nominee details for GPF, Pension etc. is captured. 2) <i>Gradation List of Employees</i> : The Gradation list of Officers is available online on the website of the Public Works Department (PWD) of Chhattisgarh.

Table 2 (Contd.)...

...Table 2 Contd.

Delhi	1) <i>On-line Posting and Transfer of Teachers</i> in Education Department of Delhi Government: The Department of Education of Delhi Government started computerizing and networking about 916 schools, 12.2 lakh students and 50,000 teachers and employees. One of the important radical reforms is on-line submission of requests for transfer by the teachers of the Delhi Government schools. It has brought accountability, transparency and openness in the functioning of the Department. 2) <i>Employee Resource Information System (ERIS)</i>: To share the experience gained by officials of different departments of Delhi Government, Knowledge Management Portal system will be setup which will be the Employee Resource Information System. Under this common platform reports, documents, templates, manuals, office procedures, notifications and other day-to-day circulars may be shared. ERIS will provide necessary and useful information to the employees of Government of NCT of Delhi viz., project reports, transfer orders, Delhi Acts, Gazette Notifications, Promotion, Orders, New Initiatives, Best Practices, RFPs, agreements (Source: The Capital Goes Digital Version 4.0)
Goa	There are about 40,000 GPF subscribers in the State of Goa. GPF System has been designed to maintain their accounts up to date, which includes monthly subscriptions, advances, refunds, withdrawals, interest calculation and final payment. The GPF System has also the features to generate GPF slips, employee wise summary statement, statement of interest and etc.
Gujarat	<i>Pension Case Status Online</i>: Directorate of Pension and Provident Fund office processes and generates the pension payment orders of about 10,000 government employees every year on average. Pension Case Status Online is a unique and probably the first initiative, amongst all the states, in which pensioners can access the status of his or her case from anywhere on the Internet after submitting the papers to this office. This has given a new dimension to the field of MIS generation. It also facilitates search features to provide information individual-wise, department-wise, birth-date-wise, retirement-date-wise, joining-date-wise, death-date-wise, etc. Even information in respect to new pension cases, revision of pension case, etc., can be generated.
Haryana	<i>Employees.Net</i>: Personnel services being provided include access to complete service book, GPF details, missing credits, loan payment details, salary slips, annual statement, and other payments. It also provides facility to interact with external applications like library to see the books catalog and reserves the books if available. Grievances Redressal System has also been integrated where one can lodge his/her grievances. Designated Grievances Officers may take action on it and update the status. Employees.net does address to the vital elements of good governance like Accountability, Transparency, Speed and Ease of services, cost effective and Sustainability therefore claiming it to be a best practice in governance. Employees.net is one the exceptional G2E services offered by any state government in India

Table 2 Contd....

...Table 2 Contd.

Himachal Pradesh	1) <i>Pension Case Status Online</i> : ePension application is the result of major process re-engineering by the Government of Himachal Pradesh, Department of Finance, Treasury Accounts and Lotteries benefiting senior citizens. It involves complete change in the pension disbursement system for HP Government pensioners. The web interface enables the HP Government pensioners to know the status and details of their monthly pension through Internet. 2) <i>Personnel Information System</i> : This service enables one to view information about Government employees 3) <i>Online GPF Statement</i> 4) <i>Status of Final GPF Payment to Retiring Employees</i> .
Jammu and Kashmir	1) <i>Online Information about General Provident Fund(GPF)</i> : To find out the information about GPF Funds of Employees. 2) <i>Family Pension of the Employees</i> : to find out the online information of family Pension of Employees 3) <i>Superannuation Pension</i> : to find out the Superannuation Pension of Employees. These services for the registered users
Jharkhand	<i>SMS Alert from Jharkhand Treasury</i> : The system will automatically send the SMS alert after the accounting is over for the particular Treasury, mentioning his TV no and date by which his monthly subscription has been deposited in his GPF account at no cost to those employees who register on this site.. This will prevent you from a lot of problem regarding your TV No. search. The employee can know himself while registering whether or not some other employee has the same GPF number in any other Treasury or in the current Treasury.
Karnataka	1) <i>HRMS</i> : The Human Resource Management System takes care of the two main functions Service Records maintenance and Payroll generation , 19200 Drawing and Disbursing Officers (DDOs) are using HRMS to generate the monthly salary bills of 5 lakh employees. DDOs from 29 districts (176 Talukas) accessing HRMS online through Internet to update salary and other HR Information. Various MIS reports are made available to HODs and DDOs. World Bank funded this project. The total estimation of the project was 5 crores. 2) <i>Status Report on Provident Fund</i> : Status Report on Provident Fund of Members of All India Services / Employees of Karnataka Government 3) <i>Check Pension Status</i> : Online Pension Status , Family Pension, Pension Revision, Fresh Pension.
Kerala	1) <i>Service and Payroll Administrative Repository for Kerala (SPARK)</i> is a G2E web based Personnel Administration and accounts software for Government of Kerala covering 5.25 lakhs employees. It provides integrated solution for Service and Payroll Management which meets all requirements in Service and Salary matters. SPARK has the provision as such in the Service book to trace service history, track record, bills/ reports/orders etc. 2) <i>House Building Advance (HBA) Scheme</i> : Through this facility, employees and teachers can register online applications for House Building Advance.
Madhya Pradesh	1) <i>Gradation system</i> , in which seniority list of all employees is maintained in a database. System maintain list on the basis of post and branch wise. 2) <i>Introductory Training compulsory</i> for all employees below 55 years by GAD order 3) <i>Notification issued by Government of MP to undergo computer training</i> for All employees below the age of 55 years. All one additional increment to be given to employees who completes computer training 4) <i>Playbill system</i> , in which all account information of employees of Directorate of Technical Education is stored in a database. Every month playbills, pay slips, various schedules are generated from the Pay bill System software.

Table 2 Contd....

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Maharashtra	<i>SETU: It is an Online Complaint Management System.</i>
Manipur	<i>Computerization of Personnel Information Systems (CPIS)</i> aims to create a (a) complete database of sanctioned post for all categories of personnel in each department, (b) a complete database of all regular employees posted in each office against sanctioned post and (c) assigning unique Employee Identification Number (EIN) for each employee, irrespective of his posting. The system enables the administrators to understand the actual position of staff (excess or shortage) in every office. CPIS has already become Virtual Law Enforcing Agency (VLEA) to all the departments. At present CPIS has covered all the 38 Departments with 80 Head of Departments, spread over in 9 districts with more than 3000 offices. So, far it has recorded 64,832 employees. Finance department has issued notification for not releasing salaries to those offices that are not following CPIS systems.
Rajasthan	<i>Pension Status Online:</i> Check your pension status online. Submit city name of your office and PPO number and get the status
Tamil Nadu	1) Application Processing Status for Pension:- The employees of the Government of Tamil Nadu, who are due to retire can find the processing status of their application for pension on the Website of the Accountant General, Tamil Nadu. 2) Know the Wait List Position for Central Government Quarters Accommodation: Central Government employees in Chennai can find the wait list position for Government Quarters accommodation. The request position for change of quarters can also be seen through this service. 3) Know PF Statements of Government Officers and Staff: Online access to GPF Account details of more than 7 lakh employees of the Government of Tamil Nadu. 4) Access GPF Account Details: This service helps the subscribers to view their GPF account status online. This covers GPF in respect of AIS Officers (All India Services), High Court Judges and all State Government Officers/Staff of Tamil Nadu.
Orissa	<i>Human Resources Management Information System (HRMIS):</i> An Employee Life Cycle Approach will be adopted while capturing the employee data in a dynamic real-time basis through the proposed system right from the stage of the recruitment of the employee to the stage of her retirement (in fact, even for post-retirement pension related issues) all the relevant facts in connection with the employee will be recorded in the proposed database. It will cover all the offices including the Departments, Heads of Departments, other subordinate Field offices (Source: http://orissa.gov.in/ga/ARCell/ar.htm)
Uttarakhand	<i>General Provident Fund Information:</i> This service provides online access to GPF and Loan information for the benefit of Uttarakhand Government employees. One needs to know Login and Password to access the information.
Uttar Pradesh	<i>Pensioners Information System:-</i> This system lets the users search through the complete database of pensioners through category, account number, age, bank details etc and provides details regarding the pension payment. Also Personnel Information system available exclusively for Health Department (http://uphealth.up.nic.in/SOFT.htm)

Source: 9 & 17

Central Government

- 1) *National Informatics Centre (NIC)* is a nodal agency for providing software support to computerize several functions in various Ministries and Departments

of the Government of India. The important applications developed and implemented by NIC at various central government accounting units across the country are: COMPACT (PAO-2000), Comprehensive DDO Package (CompDDO), Contributory Pension Fund Management (CPFM), CDDO2PAO, COMPACT (RAMS), COMPACT (REVACT), e-Lekha, PrAO2e-Lekha and e-Samarth applications are summarized at Table 3.

TABLE 3: G2E APPLICATIONS DEVELOPED BY NIC FOR MINISTRIES & DEPARTMENTS OF THE GOVERNMENT OF INDIA [16]

IT Application	Level	Date
COMPACT Ver.6.0 Comprehensive Accounting	Pay and Accounts Offices of Ministries.	17-09-2001
Comprehensive DDO 3.0 Payroll and Other Payment & Receipt functions of DDO	Drawing and Disbursal Offices	02-10-2005
CDDO2PAO Ver.2.02 Electronic Interface of CDDOs with PAO	Cheque Drawing DDOs	01-12-2004
APPREC Ver.1.0 Appropriation Accounts Reconciliation	Appropriation Accounts	30-09-2005
COMPACT RAMS Revenue Accounts Management System	Zonal Accounts Offices (CBDT)	01-10-2007
PrAO2e-Lekha Electronic Interface of Pr.A.O. with e-Lekha	Principal Accounts Offices of civil ministries.	01-05-2007
e-Samarth G2E application empowering the Government Servant with employee related information	Employees of different Ministries and their Associated Accounting Units	Pilot for CISF under progress.

- 2) *Indian Railway (E-Enabled Employee)*: It is used by the Integral Coach Factory (ICF) for Indian Railways: employee personal data, salary, seniority list, loans and advances etc. Online application for recruitment and Electronic Service Register for employees is a revolution in the history of Indian Railways. In the first level around 13000 ICF employees, 9000 pensioners and other service users can be escalated to the entire Indian Railways and other Central Government offices after customization [8]

KEY ISSUES

As per the case study on G2E services provided by some of the State Governments in India, it was observed that, even though some state governments have taken initiatives on some of the G2E services, but there is no unified system exists to provide all G2E services within and among various State Governments of India. Also there are a number of bottlenecks in the current system, some of which are lack of up-to-date information on employees and pensioners, incomplete service book, annual confidential reports (ACRs), lack of computerization of information related to employee etc.

Some of the major issues are:

1. Lack of Integration between all channels: since each channel is handled separately, each employee's interaction history is not documented within all interaction channels

2. Absence of unified templates for employees in the state for repetitive inquiries: such situation could lead to inconsistent answers in several channels and even within the same one
3. Manual analysis: Analysis are doing manually hence it may not give accurate results timely
4. Unavailability of a way to measure the quality of services: the information required to measure the performance of the services provided is not available.
5. Absence of a common database storing employee's interactions in all G2E services. Some services require interaction with more than one ministry, which makes it mandatory to provide a unified database for employees in all governmental agencies.
6. The major issue is there is no integration between different state governments for various G2E services, which is a real challenge.
7. Other issues:

ICT infrastructure (e-readiness, computer literacy, telecommunication equipment)

- a) Policy issues (legislation)
- b) Human capital development and continuous learning (skills, capabilities, education and learning)
- c) Change management (culture, resistance to change)
- d) partnership and collaboration (public/private partnership, community and network creation)
- e) strategy (vision, mission)

Therefore there is an urgent need for collaborative G2E services. An employee life cycle approach will be adopted while capturing the employee data in a dynamic real-time basis through the proposed system right from the stage of the recruitment of the employee to the stage of his/her retirement (in fact, even for post-retirement pension related issues) all the relevant facts in connection with the employee will be recorded in the proposed system. This is designed to eliminate the longstanding paper pushing processes. The system's database also integrates multiple databases into one system.

Integrated Employee Information System IEIS

Various modules of IEIS are summarized in the Table [4].

TABLE 4: MODULES OF IEIS

Module/G2E Services	Brief Description of the Service
Service Register	Employee personal & family background details, education qualifications, previous and current working details, leave record, probation confirmation, transfer, promotion/demotion, increment/decrement, retirement, promotion, confirmation, separation. Different types of separation process like resignation, termination, superannuation, voluntary retirement, absorption in other organizations, retirement on medical ground and removal/dismissal and police verification of employee are available under this service.
Accounts	Salary, General Provident Fund (GPF), LTC, Taxes, deductions, medical reimbursement etc are considered under this service.

Table 4 (Contd.)...

...Table 4 Contd.

Resource Inventory	Computer, laptop, mobile, car, driver, helper, security personnel and other facilities provided to the employee are computerized in this service.
Vigilance Information	Disciplinary cases and complaints against employees are computerized and integrated with the other modules, so that concerned department, employees and general public can share this information for speedy, efficient and transparent.
Recruitment / Selection of employees.	Complete information about the employee selection/recruitment computerized and sharing among stake holders such as public service commissions, employment exchanges online on demand. This information is available to the general public anywhere and anytime.
Employee Certificate Tracking System (ECTS)	Employee Certificate Tracking System (ECTS) is related to employee birth, education, experience certificate etc. In order to avoid delay, online certificate tracking system introduced in schools, colleges, universities and organizations/departments in this service.
Grievances Redressal System	An integrated grievance Redressal System (Phone, Fax, e-mail , internet, mobile , post , courier etc.,) is introduced for speedy redressal of employee grievances and complaints at various levels in order to solve their problems anywhere and anytime on 24 x7 basis.
Assets Information System	The employee assets information movable and immovable assets, such as land, house, car etc., (other than salary) are available online to the government and general public for transparency.
Employee Unique-ID	Unique Employee ID will be used for all the employee related information and it is need to be integrated with the National ID.
Works Information System	The works information/project status on who is doing what and when should be linked with the performance appraisal system or employees' performance indicator monitoring system to track employee performance.
Training Information System	All employees will be trained from time to time in order to improve their skills and it will be integrated with works information system and performance appraisal system to ensure that the learned skills will be utilized properly. Employees Trained database will be will be available online to the stake holders.
Attendance Management System	An Integrated employee attendance system with non-biometric/biometric among all the departments across the government for a single view of attendance.
Employee Performance Tracking System.	Performance appraisal process of employee will be done through computerization of Assessment of Confidential Report (ACR). All ACRs will be available online to the stake holders such as Government, employee, recruitment agencies. If necessary for public too.
Employee Health Information System	Employee health information will be captured from time to time in order to maintain employees' health database and it is available to the respected Government departments, Govt./Private hospitals and employees on demand anywhere at any place. Integration of various health schemes such as central and state governments is also proposed under this service.

Key Objectives of IEIS

- 1) Development of an integrated view of employee information across all departments among and between departments
- 2) Provision of timely and reliable management information relating to human resources for effective decision making within the government. .

- 3) Provision of 'single window' services to employees.
- 4) Provision of user-friendly operating environment (to the employee), where in, the IEIS system is accessible by a majority of the employees, over a browser.
- 5) Complete personnel information to be available on-line, in order to eliminate delays in decision making
- 6) More efficient and effective workforce to serve the citizens, particularly the poor.

Expected Benefits of IEIS

To Employee

Responsibility increase, One place for all communication and information needs and better cross-department understanding of the services a) Efficient communication: Employees will be able to find contact details of any civil servant and phone them up or send an email with the click of a button. Backups will be switched in automatically and/or agenda information provided. Internal department information and processes will also be at hand to ensure speedy answers. b) Personal data: All personal workforce information (like name, phone, location, marital status, children, salary, and pension) will be accessible by the employee, so that latest status can be checked and mistakes corrected as necessary. This will ensure a sense of control and increase the trust in the employer. c) Employment, development and training: All human resources information regarding job definition and positioning will be available; information regarding development and promotional possibilities can be checked out; training availability will be available with on-line evaluation and registration. d) Document and knowledge repository: Internal procedures and compliance guidelines and rules will be maintained in one place and available directly; this ensures up-to-date information at all time. Documents will be circulated automatically following a pre-defined process and people will be reminded about actions as necessary

To Government

- a) Empowered pro-active workforce,
- b) Streamlined efficient communication
- c) Workforce retention

Challenges

There are various challenges to implement collaborative G2E services. Some of the Challenges are

Integrate Common Transactions across Departments

Similar activities exist throughout G2E areas. Employees across departments routinely file reports from the field, access historical records and complete time and expense reports. Although intranets can provide easy access to cross-enterprise information, exponential benefits occur when governments can merge similar transactions (such as service, attendance, payroll, annual confidence reports, vigilance etc.)

Integrate Programs to Recruit and Initially Train Employees

Many government agencies struggle to recruit young, skilled and talented workers. Governments must compete with the private sector, which offers higher pay and greater job opportunities. Besides financial benefits, prospective employees are also looking for a challenging work environment where they can develop skills. To address these challenges, governments should: a) Link similar functions across departments b) develop career development programs. c) Partner new employees with veterans, d) Sell potential employees on the diverse breadth of opportunities that exist across the government enterprise

Develop Knowledge Workers through Communities of Practice

Relevant knowledge resides among people in various organizations and at different levels. Increasing the ability to tap into the expertise occurs more when individuals are connected. Individuals at all levels need to cultivate communities of practice by actively seeking interested parties. These informal networks succeed because they replicate the way people seek information: informally and through personal contacts. Leaders must encourage this sharing by providing the tools and incentives for collaborative discussions.

Develop Workforce Plans to Address Knowledge Drain

The potential loss of workers creates a significant knowledge drain. Governments need integrated plans to capture the critical know-how from skilled employees and transfer it to less-experienced workers. Workforce plans provide the foundation to ensure that governments capture knowledge and leverage it in their employee attraction, development and retention strategies. Process standardization with a view to identifying and eliminating operational inefficiencies needs to be agreed upon. Change in law requirements need to be identified, based on the Process Standardisation.

6) Modalities for sharing of common information such as Employee ID etc. need to be addressed 7) Data cleansing and migration (Data migration Strategy, Preparation of data and uploading from manual / legacy systems) particularly with respect Service Registers and ACRs is one of the biggest challenges of the project 8) Technology issues (architecture, standards, languages etc) need to be considered. State Wide-Area Network (SWAN) and the availability, reliability aspects need to be addressed 9) Security is most important (security architecture) 10) Leadership role (*motivate, involve, influence, support*) Invest in human development – the success of e-initiatives depends largely on human skills and capabilities. Accordingly, education and training initiatives must be considered as priority actions 11) Staff need to be trained to handle new processes and activities; they have to be given incentives (not necessarily monetary) to prevent the brain drain of skilled people; and they need to feel part of the organization by engaging in the decision making process. Some basic training needs necessary to be provided to community members, in general, in order for them to be able to use new

facilities for accessing electronic information and services 12) Top Down Governance, Policy Making, Legal Issues ,confidentiality and RTI Act, Necessary infrastructure like ICT tools (computer , printer , Xerox , network, internet) , Complexity of the Processes, Mindset of the Users 13) Strong cooperation and coordination amongst government ministries and agencies in planning for and implementing collaborative G2E services

RECOMMENDATIONS

1) Develop a strategic plan to guide G2E services , 2) Understand the needs of all segments to make sure the e-Government system genuinely assists each employee fulfill his or her human development needs; and, enable employees to participate in the design of e-Government services 3) Use well established system development practices to carry out the day-to-day activities of developing, implementing and maintaining e-Government services 4) Create a learning organization where employees are encouraged to participate in developing and managing e-Government services; 5) Develop effective ICT governance mechanisms to assign roles and responsibilities for managing and making decisions about e-Government services; 6) Develop ICT capabilities focusing on building a suitable ICT infrastructure to sustain long-term investments in e-Government, nurturing the development of human capital within the government to use ICTs for e-Government, and facilitating the skills of employees to develop and manage partnerships with private sector firms and other possible partners; 7) Provide security by developing an e-Government security and disaster recovery plan. 8) Coordination among and between employees 9) Introduce problem-solving teams to provide employees with direct input into improving the government service 10) Rotation across jobs improves ideas for teamwork and makes use of broader worker skills 11) Information sharing is important to provide the information and motivation for greater involvement and decision making; 12) Training is needed to do problem solving and to increase skills for day-to-day decision making 13) Incentive pay, in the form of some type of pay-for-performance, is introduced to offer the incentive for greater employee involvement; 14) Job security provides the understanding that improving a service performance will not result in the direct loss of jobs. 15) Careful screening and selection of workers is required to obtain those who are more skilled in both the direct job-related (technical and analytical) skills, as well as the “team skills” to work together to solve problems and to respond to rewards on the job.

CONCLUSION

The aim of this case study is to collect data of all government employees for G2E services, this database will help administrators in taking decisions regarding use of employees in the best possible way as per their skills and ability.

IEIS is an initiative for the development, integration and maintenance of web-portal for various departments for providing 'One-Stop-Shop' for G2E services. It provides major source of information dissemination. A key prerequisite for IEIS is

interoperability, which can be defined as the ability of systems to work together seamlessly and are able to adapt in time, achieving one-stop, and automated service provision for G2E services. Therefore, the design and operation of interoperable systems require a range of consideration including governance, organizational, strategic, social and technical issues. Interoperability not only presents organizations with technical challenge but also requires a shift in strategies and change in organizational structures and business models.

Moving ahead with administrative reforms for providing effective services to the employees, the government has ushered in a new integrated IEIS managing resources of the government efficiently. IEIS offers comprehensive employee self-service and it include development of a single and integrated view of employee information across all the departments, higher utilization of the existing infrastructure and technology investments, and provision of timely and reliable management information relating to human resources for effective decision-making. The system also envisages integration with other related applications like treasury and payroll. Provision of single window services to employees as well as a user-friendly environment accessible over browser, and provision of 'anytime anywhere' service to the employees.

The Government can operate the old paper-based process at the same time as operating the new e-government system (IEIS) till the complete implementation of the project. One of the challenges is to determine the best approach to archive the paper records and to develop ways to help the employees in the Government/department to trust the new system. This system is expected to cover all government departments as well as their grass root level subordinate field offices. Many transactions between the government and the employees will be done automatically through the system.

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Online System to Distribute Land Pattas to Schedule Tribes & Other Forest Dwellers

Om Lata, Vinay Thakur, D.C. Misra and A.K. Srivastava

National Informatics Centre, New Delhi

E-mail: om.lata@nic.in, vinay@nic.in, dcmisra@nic.in, ak.srivastava@nic.in

Abstract—Receipt of Claim applications, verification and approval of land title certificates to the Schedule Tribes and other traditional forest dwellers have been streamlined by implementing online Forest Right Monitoring System. The disputes and appeal flow mechanism starting from filing of appeal applications, assigning of hearing dates, recording of decisions have paved way for early settlement of the complaints. Efforts have been made to share the data, information and documents over Internet. System allows user to find the details and pendency of his/her application at any point of time.

Keywords: SLMC, DLC SDLC, GP, FRC, SDO.

INTRODUCTION

The tribal people have been deprived, displaced and dispossessed of their cultural and traditional rights under the grab of development of the districts inhabited by them¹. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006² is a result of the struggle by the marginal and tribal communities of our country to assert their rights on the forestland over which they were traditionally dependent. This Act is crucial to the rights of millions of tribal and other forest dwellers in different parts of our country as it provides for the restitution of deprived rights across India, including both individual rights to cultivated land in forestland and community rights over common property resources. The notification of Rules for the implementation of the Forest Rights Act, 2006 on 1st Jan 2008, has finally paved the way to undo the 'historic injustice' done to the tribal and other forest dwellers.

The livelihood of perhaps 100 million poorest of the poor living in the difficult forest areas stands to improve after implementation of the act. The Rule, 2008³ is significant as it provides scope and historic opportunity of integrating conservation and livelihood rights of the people. The Act is a potential tool for the following:

- To recognize forest rights of forest dwelling Scheduled Tribes
- Empower and strengthen the local self governance
- Address the livelihood security of the people, leading to poverty alleviation and pro poor growth
- To address the issues of conservation and management of the natural resources and conservation governance of India.

SIGNIFICANCE OF THE ACT

- For the first time Forest Rights Act recognizes and secures community rights or rights over common property resources of the communities in addition to their individual rights

- Settling the rights in and over disputed land
- Rights of settlement and conversion of all forest villages, old habitation, un-surveyed villages and other villages in forests into revenue villages
- Right to protect, regenerate or conserve or manage any community forest resource which the communities have been traditionally protecting and conserving for sustainable use.
- Right to intellectual property and traditional knowledge related to biodiversity and cultural diversity
- Rights of displaced communities
- Rights over developmental activities

ICT ENABLED IMPLEMENTATION OF THE ACT

The ICT has ensured transparency and helped in information dissemination. ICT has facilitated online monitoring and evaluation of the Act. ICT has played a definite role in every phase of the implementation of the act starting from receipt of applications to disposal of claims. The information on the claimants, status of their applications is available on the system. The online system has been designed and developed to accommodate the rules framed starting from setting up of various committees and workflow of approval of the claims. This system supports multilingual interfaces with two different themes. A sound based support is also built in to the system to operate the system. The system is available on <http://www.forestrights.nic.in>.

This System has following modules:

- 1) Committee Members (Forest Rights Committee at GP/Village Level, Sub-division Level Committee, District Level Committee and State Level Committee) -Entry and Reports
- 2) Individual Claims (Application Entry, Decisions of FRC, SDLC, DLC, Appeal Handling and Patta Printing)
- 3) Community Claims (Application Entry, Decisions of FRC, SDLC, DLC, Appeal Handling and Patta Printing)
- 4) Reports – Dynamic Reports and Fusion Charts

Feature of System

The application formats for both individual claims and community claims have been fixed and circulated to the states as part of rules released. The states have further translated the formats in local languages for the people to fill them easily.

Forest Rights Committee (FRC)

Forest Rights Committee (FRC) at village level shall be elected by Gram Sabha from amongst its members, a committee of not less than ten but not exceeding fifteen persons as members of the Forest Rights Committee, wherein at least one-third members shall be the Scheduled Tribes, women, primitive groups and forest dwellers. From the elected

members, chairman and secretary will be chosen and list will be sent to Sub Divisional Officer (SDO) for further approvals and notification. The names of the members along with their addresses, category and phone number (if available) will be entered in to online system by SDO office. The function of FRC is to scrutinize the applications and conduct field survey and put up the cases in the Gram Sabha meeting for the decision of Gram Sabha. The Gram Sabha meetings are convened by Gram Panchayat regularly.

Sub-Division Level Committee (SDLC)

The committee is headed by local Sub-Divisional Officer assisted by members drawn from Forest Department, three members from Block Panchayats of that area out of that at-least two shall be Scheduled Tribes preferably those who are forest dwellers as well as officer from local tribal department. The receipt for each claim application is printed (Figure-1) and given to the claimant. The function of SDLC is to further scrutinize the applications based on revenue records and electoral records available in his or tehsil office and transmit the records for further approval. The sub-division has been given user-id to make entries of all claim applications where accepted or rejected. All the applications are given unique number which is used throughout the processing and tracking of the status at any time.

District Level Committee (DLC)

The Committee is headed by District Collector assisted by DFO and three members drawn from Zilla Panchayat. At least two members should be Schedule Tribes, Women etc. The main function of DLC is to examine all the claims and approve them. All the approved claims are printed (Figure 2) and list of all approved claims is made available on the system (Figure 3). State of Tripura wanted the Patta Passbook to be printed from the System (Figure 4).

State Level Monitoring Committee (SLMC)

State Level Monitoring Committee (SLMC) is formed under State Chief Secretary. SLMC gives time lines to set up all the committees and settle the claims. State Level Committee monitors the progress and targets assigned to each district.

Flow of Approval

The application filled by the applicants is put up to the FRC which scrutinizes the details based after field verification. The verified records are put up in the Gram Sabha meeting which endorses the same and send it to SDO office. The SDO office makes the entry of all the applications in the system, generates receipts and SDLC meeting are called regularly which takes decision on the all the applications based on attachments, revenue records etc. The decision approving or disapproving are recorded in the system and the systems makes the applications available to the DLC, which takes the final decision for Patta Distribution, which are printed through the system.

Appeal Work Flow

In case of partial approval or rejection of the claim, applicant can go for appeal to the SDLC or DLC. The details of objection raised all are required to be entered in to the system. The meeting dates and decisions are all recorded in the system.

Government of India
Ministry of Tribal Affairs
Scheduled Tribe and Other Forest Dwellers (Recognition of Rights) Rules 2008
Annexure-I, See Rules(I)

Receipt for Claim Application
Claim Id: 28/505/146275

1. Name of the claimant(s) (Sole/Joint)	KANDELA SAMMAIAH	
2. Name of the Spouse (Sole/Joint)	KANDELA SAMMAKKA	Photo is not Attached
3. Father Name	Shri LAXMI POCHIAIAH	
4. Mother Name	Smt	
5. Address	RD PV NAGAR,GP,VALLIMAKUNTA M/O MALHARRAO	
6. Village	Veetamamudi	
7. Gram Panchayat	Vallemakunta	
8. Tehsil	Malharao mandal	
9. Sub Division	Manthana	
10. District	KARNI NAGAR	
11. Scheduled Tribe	Scheduled Tribe	
12. Is Spouse a Scheduled Tribe	yes	

S.No	Name	Gender	Age	Relationship	Marital Status
1	KANDELA THIRUMALA	Female	9	daughter	Unmarried
2	KANDELA LAKSHMAN	Male	12	son	Unmarried
3	KANDELA SRIKISHNA	Male	14	son	Unmarried
4	KANDELA SAMMAKKA	Female	34	wife	Married

Claim Details										
Nature of Claim	Land In:	National Park/ Sanctuary	Forest Type	Area (in hectares)	Survey Number / Khasara	Compartment Number	Coupe Number	Present Ownership	Status of Dispute	Map
Self Cultivation	Forest Village	Other	Protected Forest	2.833		755		Forest Department	Not Disputed	

Availability and Details of Patta(if any)	
S.No	Nature of Claim on Land
a	Habitatless
b	Self-cultivation

Evidences :

1. Photo Document [Click to view](#)

Maps [Click to view](#)

Satellite Imagery [Click to view](#)

(Date of Issue)

(Signature of Issuing Authority)
Name
Designation

PRINT PREVIEW GO FOR GS DECISION

FIG. 1: RECEIPT OF INDIVIDUAL CLAIM

Title/Patta/Passbook

The Scheduled Tribes and Other Traditional Forest Dwellers
(Recognition of Forest Rights) Act 2006
Ministry of Tribal Affairs, Government of India

Individual Claim	Community Claim	Appeal Claim	Report Claim	Mapping	Home
State	RAJASTHAN	District			
Sub Division	Select	Tehsil			
Gram Panchayat	Select	Village			
Claim Id					

List of Approved Individual Claims

Claim Id	Claimant Name	Claimant Address	Father Name	Spouse	Date	Decision	Passbook
CLAIM 8.88.397929	दीपक	बिहारी	दीपक	दीपक	07/12/2008	Title	Passbook
CLAIM 8.88.402888	दीपक	बिहारी	दीपक	दीपक	07/11/2008	Title	Passbook
CLAIM 8.88.395088	दीपक	बिहारी	दीपक	दीपक	07/12/2008	Title	Passbook

1 of 544

➔

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FIG. 2: LIST OF APPROVED TITLES

PATTA/TITLE

The Scheduled Tribes and Other Traditional Forest Dwellers
(Recognition of Forest Rights) Rules, 2007
Government of India
Ministry of Tribal Affairs

ANNEXURE - II
[See rule 8(h)]
TITLE FOR FOREST LAND UNDER OCCUPATION

1. Name(s) of holder (s) of forest rights	पैधान				
2. Name of the Spouse (Shri/Smt)	शुद्धी				
3. Father Name	श्री पिता				
4. Mother Name	Smt.				
5. Name of Dependents	1. दादा son 2. दादी son				
6. Address	बाराही				
7. Village	बाराही				
8. Gram Panchayat	बाराही				
9. Tehsil	बाराही				
10. Sub Division	बाराही				
11. District	बाराही				
12. Whether Scheduled Tribe or Other Traditional Forest Dweller	Scheduled Tribe				
13. Area:					
S.No	Claim Nature	Area			
1	Self Cultivation	0.32			
14. Description of boundaries by prominent landmarks including khasra/ compartment No					
S.No	Claim Nature	Survey Number	Compartment Number	Coupe Number	Map
1	Self Cultivation	211/3			

This title is heritable, but not alienable or transferable under sub section (4) of section 4 of the Act
We, the undersigned, hereby, for and on behalf of the Government of RAJASTHAN affix our signatures to confirm the above forest right.

Divisional Forest Officer/ Deputy Conservator of Forests
Date :

District Tribal Welfare Officer
(बाराही)
Date:

District Collector/ Deputy Commissioner
Date:

FIG. 3: APPROVED TITLE

PASSBOOK(1)

The Scheduled Tribes and Other Traditional Forest Dwellers
(Recognition of Forest Rights) Rules, 2007
Government of India
Ministry of Tribal Affairs
ANNEXURE - II
[See rule 8(h)]
PASSBOOK FOR FOREST LAND UNDER OCCUPATION

1. Name(s) of holder (s) of forest Rights / Name of the Spouse	पैधान / शुद्धी	
2. Father Name/Mother Name	श्री पिता / Smt.	
3. Name of Dependents	1. दादा son 2. दादी son	
4. Address	बाराही	
5. Village	बाराही	
6. Gram Panchayat	बाराही	
7. Tehsil	बाराही	
1. Self Cultivation	0.32	

This title is heritable, but not alienable or transferable under sub section (4) of section 4 of the Act
We, the undersigned, hereby, for and on behalf of the Government of RAJASTHAN affix our signatures to confirm the above forest right.

Divisional Forest Officer/ Deputy Conservator of Forests
Date :

District Tribal Welfare Officer
(बाराही)
Date:

District Collector/ Deputy Commissioner
Date:

Print Seal

Design and Developed by National Informatics Centre

FIG. 4: PATTA PASSBOOK

CITIZEN SECTION

(Recognition of Forest Rights) Act 2006
Ministry of Tribal Affairs, Government of India

Committee Report Claims Report Home

Loading....

State Wise Individual Claim Analysis

State	Total	Gramsabha Claims				Subdivision Level Claims				District Level Claims			
		Accepted	Pending	Rejected	PA	Accepted	Pending	Rejected	PA	Accepted	Pending	Rejected	PA
ANDAMAN AND NICOBAR ISLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0
ANDHRA PRADESH	18828	548	1012	1	0	11202	548	0	0	6062	11202	0	0
ARUNACHAL PRADESH	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSAM	18144	4123	2883	0	0	4152	4123	1	0	4984	4152	0	1
BIHAR	0	0	0	0	0	0	0	0	0	0	0	0	0
CHHATTISGARH	0	0	0	0	0	0	0	0	0	0	0	0	0
CHHATTISGARH	87814	75991	4825	1781	81	2771	75991	792	1	1619	2771	6	0
DADRA AND NAGAR HAVELI	0	0	0	0	0	0	0	0	0	0	0	0	0
DAMAN AND DIU	0	0	0	0	0	0	0	0	0	0	0	0	0
DELHI	0	0	3	0	0	0	0	0	0	5	0	0	0
GOA	0	0	0	0	0	0	0	0	0	0	0	0	0
GUJARAT	0	0	0	0	0	0	0	0	0	0	0	0	0
HARYANA	0	0	0	0	0	0	0	0	0	0	0	0	0
HIMACHAL PRADESH	1226	61	474	2	0	94	61	21	0	322	94	0	0
JHARKHAND	52	0	0	0	0	0	0	0	0	52	0	0	0
KARNATAKA	33343	13220	8833	2371	803	339	13220	5411	16	1857	339	13	0
KERALA	22794	115	4813	1	0	153	115	2	0	18671	153	1	0
LAKSHADWEEP	0	0	0	0	0	0	0	0	0	0	0	0	0
MADHYA PRADESH	221402	0	0	138	0	0	0	0	0	221263	0	1	0
MAHARASHTRA	8406	335	7848	0	0	83	335	0	0	139	83	1	0
MANIPUR	0	0	0	0	0	0	0	0	0	0	0	0	0
MIZORAM	0	0	0	0	0	0	0	0	0	0	0	0	0
MEGHALAYA	0	0	0	0	0	0	0	0	0	0	0	0	0
MIZORAM	0	0	0	0	0	0	0	0	0	0	0	0	0
NAGALAND	0	0	0	0	0	0	0	0	0	0	0	0	0
ODISHA	261402	34266	183472	6751	2268	48119	34267	2452	6	81181	48119	88	2
PONDICHERY	0	0	0	0	0	0	0	0	0	0	0	0	0
PUNJAB	0	0	0	0	0	0	0	0	0	0	0	0	0
RAJASTHAN	30863	401	818	10956	41	200	401	106	1	18218	200	0	0
SIKKIM	0	0	0	0	0	0	0	0	0	0	0	0	0
TAMIL NADU	0	0	0	0	0	0	0	0	0	0	0	0	0
TERRITORY	71612	7462	48121	2	1	15433	7462	6	1	548	15433	0	0
UTTARANCHAL	0	0	0	0	0	0	0	0	0	0	0	0	0
UTTAR PRADESH	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST BENGAL	2531	0	1477	0	0	0	0	0	0	1054	0	0	0

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FIG. 5: STATISTICS OF INDIVIDUAL CLAIM APPLICATION PENDING AND APPROVED AT DIFFERENT LEVEL

The Scheduled Tribes and Other Traditional Forest Dwellers
(Recognition of Forest Rights) Act 2006
Ministry of Tribal Affairs, Government of India

Committee Report Claims Report Home

View Line Chart View Bar Chart View Pie Chart

District Wise Individual Claims Analysis

State: ANDHRA PRADESH

District	Total	Gramsabha Claims				Subdivision Level Claims				District Level Claims			
		Accepted	Pending	Rejected	PA	Accepted	Pending	Rejected	PA	Accepted	Pending	Rejected	PA
ADILABAD	0	0	0	0	0	0	0	0	0	0	0	0	0
ANANTAPUR	0	0	0	0	0	0	0	0	0	0	0	0	0
CHITTOOR	0	0	0	0	0	0	0	0	0	0	0	0	0
CUDDAPAH	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST GODAVARI	5227	28	0	0	0	28	0	0	0	3105	0	0	0
GANNAM	0	0	0	0	0	0	0	0	0	0	0	0	0
GUNTUR	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDERABAD	0	0	0	0	0	0	0	0	0	0	0	0	0
KAMMAM	2224	62	875	0	0	308	62	0	0	48	308	0	0
KHAMMAM	10812	0	18	1	0	10798	0	0	0	2	10798	0	0
KRISHNA	141	0	0	0	0	2	0	0	0	136	2	0	0
KURNOOL	0	0	0	0	0	0	0	0	0	0	0	0	0
MAHABUBNAGAR	628	0	0	0	0	0	0	0	0	528	0	0	0
MEDAK	0	0	0	0	0	0	0	0	0	0	0	0	0
NALGONDA	0	0	0	0	0	0	0	0	0	0	0	0	0
NELLORE	0	0	0	0	0	0	0	0	0	0	0	0	0
NIZAMABAD	0	0	0	0	0	0	0	0	0	0	0	0	0
PRAKASAM	52	1	0	0	0	11	1	0	0	39	11	0	0
RANGAREDDI	0	0	0	0	0	0	0	0	0	0	0	0	0
SRIKAKULAM	22	28	7	0	0	2	18	0	0	2	2	0	0
VISAKHAPATANAM	1	0	1	0	0	0	0	0	0	0	0	0	0
VISHAKHAPATNAM	0	0	0	0	0	0	0	0	0	0	0	0	0
VIZIANAGARAM	0	0	0	0	0	0	0	0	0	0	0	0	0
WARANGAL	458	418	1	0	0	28	412	0	0	12	28	0	0
WEST GODAVARI	176	9	113	0	0	32	9	0	0	0	32	0	0

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FIG. 6: DISTRICT WISE CLAIM APPLICATION

Citizen can check the status of their claim application any time. All other reports of approved applications, rejected application, partially accepted applications related to Individual and Community Claim are available on the website. One can see the details of around 2 lakhs committee members created in 19 states. As per online statistics

available in the system, 7,91,546 applications were received and 3,38,385 claims were settled (Figure 5). The drilldown reports of individual claims, district wise and community claims are also provided in Figure-6 and 7. Data on the system is also depicted in bar and pie charts (Figure 8). In the state of Madhya Pradesh, Maharashtra and Kerala, maps of the allotted land are also being supplied along with the Patta certificate. In community claims, around 1347 claims were settled. The reports are being shown in charts as well in tabular form. Other states are also coming onboard in providing details of settling the Pattas. The system provides the status of the claims and where these are pending. The system has been developed using advanced Java, JBOSS, PostgreSQL and Fusion Chart.

(RECOGNITION OF TRIBAL RIGHTS) ACT 2000
Ministry of Tribal Affairs, Government of India

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State Wise Analysis of Community Claims

State Wise Community Claim Analysis

State Name	Total	Gram Sabha Claims			Sub-Division Level Claims			District Level Claims		
		Accepted	Pending	Rejected	Accepted	Pending	Rejected	Accepted	Pending	Rejected
ANDAMAN AND NICOBAR ISLANDS	0	0	0	0	0	0	0	0	0	0
ANDHRA PRADESH	0	1	3	0	0	0	1	0	0	0
ARUNACHAL PRADESH	0	0	0	0	0	0	0	0	0	0
ASSAM	115	0	1	0	0	0	0	0	114	0
BIHAR	0	0	0	0	0	0	0	0	0	0
CHHATTISGARH	0	0	0	0	0	0	0	0	0	0
DADRA AND NAGAR HAVELI	154	127	0	17	0	10	127	0	10	0
DAMAN AND DIU	0	0	0	0	0	0	0	0	0	0
DELHI	0	0	0	0	0	0	0	0	0	0
GOA	3	0	2	0	0	0	0	0	1	0
GUJARAT	0	0	0	0	0	0	0	0	0	0
HARYANA	0	0	0	0	0	0	0	0	0	0
HIMACHAL PRADESH	21	0	3	0	0	10	0	0	2	10
JHARKHAND	0	0	0	0	0	0	0	0	0	0
KARNATAKA	517	259	258	0	0	0	259	0	0	0
KERALA	5	0	0	0	0	1	0	0	4	1
LAKSHADWEEP	0	0	0	0	0	0	0	0	0	0
MADHYA PRADESH	3	0	2	0	0	0	0	0	0	0
MAHARASHTRA	1	1	0	0	0	0	1	0	0	0
MANIPUR	0	0	0	0	0	0	0	0	0	0
MEGHALAYA	0	0	0	0	0	0	0	0	0	0
MIZORAM	0	0	0	0	0	0	0	0	0	0
NAGALAND	0	0	0	0	0	0	0	0	0	0
ORISSA	437	203	208	14	0	10	203	0	10	0
PONDICHERY	0	0	0	0	0	0	0	0	0	0
PUNJAB	0	0	0	0	0	0	0	0	0	0
RAJASTHAN	4	1	1	0	0	0	1	0	2	0
SIKKIM	0	0	0	0	0	0	0	0	0	0
TAMIL NADU	0	0	0	0	0	0	0	0	0	0
TRIPURA	22	2	20	0	0	0	2	0	0	0
UTTARANCHAL	0	0	0	0	0	0	0	0	0	0
UTTAR PRADESH	0	0	0	0	0	0	0	0	0	0
WEST BENGAL	0	0	0	0	0	0	0	0	0	0

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FIG. 7: COMMUNITY CLAIM STATISTICS

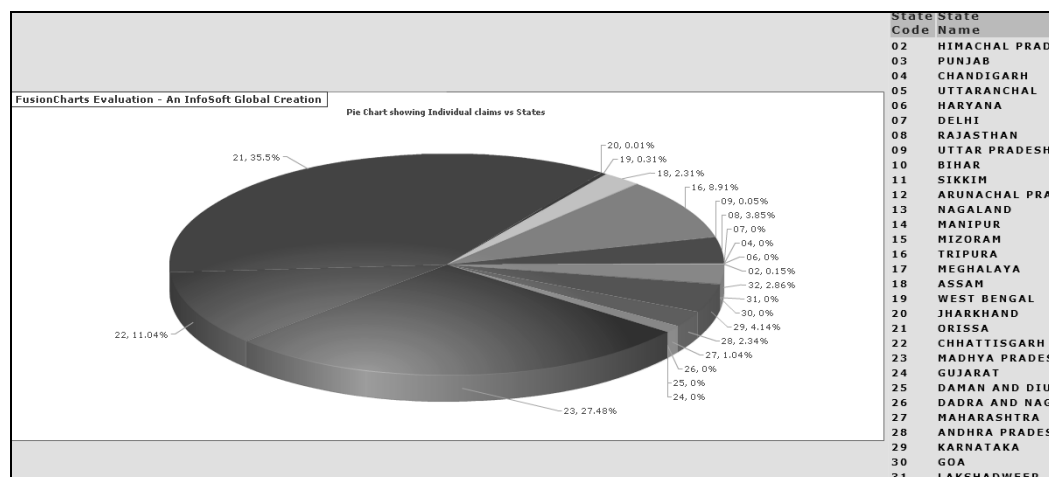


FIG. 8: CHART SHOWING STATE WISE PERCENTAGE OF SETTLED CLAIMS

CONCLUSION AND FUTURE DIRECTIONS

The online system to distribute Land Pattas' to Schedule Tribes and other traditional forest dwellers has expedited the process of distribution of individual and community claims. The progress is being regularly monitored by Ministry of Tribal Affairs through this system and necessary direction is being given to the states which are unable to settle the claims. The states which are doing manual work are also asked to make entries of all the settled claims on this system. Though there is provision of storing maps as image in the system. However, in future, system will be able to handle the inputs from Global Positioning System(GPS) to draw the maps and distribute these as part of Land pattas. The system has provision for claimant-id which will be replaced with Unique ID to make the system interoperable with other systems like Land Records-Revenue, other developmental schemes and subsidies of the government for the welfare of tribal and rural people.

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