7. Application of e-government in developing countries
—issues, challenges and prospects in India

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Abstract:

In this paper, we review the achievements and progress of e-government in India. The paper briefly discusses various e-government projects in India. The purpose of the paper is to delve into policy and issue of the government of India in making e-government accessible to the common person. It briefly identifies the strategic issues for achievement of e-government. This paper derives a list of key strategic factors that are appropriate for planning, designing, development and implementation of e-government. The paper identifies the range of diverse problems, challenges and barriers planners and developers must face as they work in the e-government projects. The paper discusses prospects and future of e-government in India. The paper highlights the role of government to develop richer and deeper understanding of e-government.

Keywords:

E-government, developing countries, India, e-government projects, application, public services, challenges, prospects.

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Introduction

From the 20th century onwards, technology is now the enabling factor, more than anything else. In the 21st century, the development of application and utilization of information technology is taking place at a rapid pace throughout the world. Advances in ICTs have accelerated the growth of e-government in both the developed and developing countries around the world (Adams, 2015; Kaaya, 2003). IT has the potential to transform government structures and to improve the quality of government services (Sebina & Mazeba II, 2014; Ghapanchi, Albadvi, Zarei, 2008). ICT makes a provision of fast, inexpensive services to the population (Heeks, 2003). Throughout the world, the democratic governments have tended to see the web-site and portal primarily as a medium for the dissemination of information and the delivery of public services to the citizens.

IT leads to better quality of services provided by government agencies (Gil-Garica & Pardo, 2005). The use of information & communication technology (ICT) in governance is growing rapidly in many parts of the world (Ifinedo, 2005). For the delivery of public services, the interaction between government agencies/bodies and citizens takes place in a government department or an administrative institution, but with emerging ICTs, it is possible to locate service delivery centres nearer to the citizen. Throughout the world, information technology has been intensely used for delivery of public services. Information and communication technologies (ICTs) support and transform the external workings of government by processing and communicating data effectively. Information technologies continue to serve primarily as platform for incremental changes to the public services. Developing countries are making efforts to harness the new technology for delivery of public services. It is the application of ICT to improve the accountability, efficiency and effectiveness of government. E-government is an emerging concept involving the state, citizens, NGOs and civil society organizations, where importance of citizen input in planning, policy formulation and implementation are recognized and valued (Rocha, Correia, Adeli, Reis, & Teixeira, 2016; Navarra & Cornford, 2003; Singh, 2004).

E-Government: An Overview

E-government is concerned with application and utilization of technologies such as the internet to improve the processes of governance, functions and the basic public services (Halpin, 2013; Heeks, 1999; Heeks, 2001; Moon, 2002). E-government refers to the strategic and systematic use of ICTs to promote efficient and effective government (Navarra & Cornford, 2003). It could be seen as to encompass all ICTs, but the key innovation is computer networks from intranets to the internet creating a wealth of new knowledge, information and digital connectivity. Sprecher (2000) considers e-government as a technology to help simplify and automate transactions between governments and constituents, business or other governments.

There have been significant e-government initiatives in developed nations (Zaigham 2013a; Zaigham, 2013; Ke & Wee, 2004; Lee, Tan & Trimi, 2005; Kolsaker, 2006). It is an attractive investment for government organizations/machineries (Sia & Neo, 1999; Al-Kibsi, de Boer, Mourshed & Rea, 2001). E-government is considered as Internet-based Government or On-line Government which uses information and communication technology such as internet, World Wide Web and mobile computing to reach out to citizens and to facilitate the delivery of public services.

E-government is about opportunity………to provide cost effective services to the private sector……..to enhance governance through improved access to accurate information and transparent, responsive, and democratic institutions (UNDPEPA/ASPA, 2003, p.6). Heeks (2001) describes e-government as i-governance or integrated governance, which enables the integration of both the processing of information by people and the use of communication technologies in achieving the objectives of governance.

E-government programmes can be a catalyst in boosting productivity, thereby speeding up the benefits of newer technology to the people (Zaigham, 2013a & 2013b; UNPAN, 2012, p.10). Some thinkers view e-government as a sort of public service that operates in a "one-stop, non-stop" manner (Lawson, 1998). E-government is more focused on modernizing existing state processes to improve performance with respect to existing services and policies (Kolsaker, 2006). E-government is making government agencies/bodies and administrative institutions work in an efficient manner and involve citizens, NGOs, and civil society organizations (CSOs) in decision-making to the extent possible. It is changing socio-economic conditions and business opportunities.

Objectives of E-Government

E-government is a means of enhancing the capacity of the public sector, together with citizens, to address particular development issues. It is never an end in itself (UNPAN, 2010, p.2). For e-

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government projects, there is need to know how these projects can be successfully designed, developed and implemented for maximum realization of pre-determined objectives. E-government enables the people to access, interact and receive services from the government at any time, say 24 hours a day, seven days a week. E-government is a key method for achieving many of the goals of development and equality. It harnesses information technologies such as the Internet, wide area networks and mobile computing to transform relations with citizens, stakeholders, NGOs, and business sectors for delivery of public services.

Main objectives of e-government are—

1. To provide knowledge about the administrative process;
2. To provide citizens access to information;
3. To facilitate transparent, accountable, speedy, efficient, and effective process for performing government activities;
4. To simplify citizens' interactions with various online services;
5. To fulfil the people's needs and expectations on front office side;
6. To provide new ways and means to increase citizens involvement and participation;
7. To ensure and strengthen public trust in the government;
8. To make government representatives more responsive and accountable to the citizens;
9. To enhance interaction and networking between the government and its citizens through increased openness and transparency; and
10. To make the system more efficient and effective.

Application of E-Government

The three variables of age, education, and broadband access at home significantly influence citizens' adoption of the Government Gateway (Dwivedi & Williams, 2008). Internal environment within the government and external environment—social, economic, cultural, technical, etc—play a useful role in the matter of e-government applications in the delivery of public services. Transparency and accountability in governance can be enhanced through e-government. The process and application of e-government projects are digitalizing government information. Applications of e-government include intra-governmental systems, online delivery of government services, online taxation, web-based registration and licensing, and e-procurement.

E-government innovation and development can position the public sector as a driver for ICT infrastructure and applications in the broader economy (UNPAN, 2012, p.10). E-government has become a useful tool to provide efficient and effective services. The government of UK has launched a

single portal to provide government information and services[1]. On June 24, 2000 in the USA, Bill Clinton, the then President, launched an initiative to provide a single interface for all government information and services through unified portal[2]. The Government of Singapore offers one of the best examples of delivering electronic services to citizens under its 'e-citizen' concept[3].

While designing and developing e-government projects, application of e-government leads to:

1. Connections within government and between various government agencies/bodies;
2. Connections between government and citizens transforming public service delivery;
3. Connections between government and citizens strengthening transparency, responsiveness and accountability;
4. Connections within communities building social, economic and cultural development;
5. Connections between government and private sectors;
6. Connections between government and NGO supporting pre-determined goals and objectives; and
7. Connections between government and civil society organizations (CSOs) helping in delivery of public service.

E-Government in India

Today, India has a well-focussed national IT policy managed by professionals, technocrats, and experienced administrators. The new national ICT policy pays attention to e-government aspects of various directives. The government at the central/union level has a Web Portal whereas state governments and union territories[4] operate their respective Web Portals as well. These web sites provide the public with government information and have some downloadable forms. Even local government—both rural and urban—have designed and developed web portals for providing information and delivery of services.

E-government projects in India have successfully emerged where the population possess the relevant skills and knowledge to appreciate IT-related innovations and has the resources to buy ICT facilities. E-government is gaining prominence across India. Government is seizing the opportunity to enhance governance through improved access to government information and public services through e-government projects.

Properly implemented e-government initiatives and projects could help improve the transparency and accountability. For example, e-government initiatives were used in India to fight corruption (InfoDev, 2004). The political will of the government and political parties was vital in the creation of an enabling environment such as favourable IT policies, IT Act, 2000 and the emergence of e-

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government initiatives. The government has initiated economic and administrative reforms such as the liberalization and deregulation of the telecommunication sector leading to spread of e-government projects.

Issues for E-Government Projects in India

The ubiquity of network connections and access has become one of the key drivers of change in e-government (Sharma & Gupta, 2004). Organizational and communicational skills are needed to maintain the aspirations, values and vision of the citizens and stakeholders in an e-government (Garnett, 1992; Sharma & Gupta, 2003). Most of the studies on e-government projects have often focused on measures of usage and content analysis. E-government refers to a transformation in which ICTs are seen as means for reorganizing, restructuring, redesigning and reforming government. It enables all citizens, stakeholders and the business sectors to handle administrative procedures electronically and online.

Questions often arise—

1. How to utilize scarce resources with an aim to provide better services to citizens?
2. What would be legal frameworks for e-government?
3. What would be political, economical and societal implications of e-government?
4. What effective strategies have been used in India to encounter non-internet users to access and use the Internet and online public services?
5. What and how do the strategies address existing barriers and challenges to provide government information and services over the Internet?

All the aspects of e-government policy—from policy design to decision making to implementation and evaluation—are of vital importance particularly in India with scarce resources—financial, technological, skilled manpower. Designing and development of e-government projects are sensitive to societal context. The focus on e-government has shifted from the infrastructure and technical aspects to organizational adaptability, strategy, process change, administrative skill and the ability for citizens to access public services to interact with government agencies/bodies. It has been found that several e-government projects were deployed without carrying out the financial feasibility and financial sustainability of the project. The prime example is e-Seva[5]. The project was started without formal budget provision and without conducting financial feasibility study.

The main reasons for e-government initiative is cost and time savings and prompt delivery of public services. Different ministries, departments, agencies/bodies in government have different

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relationship with each other. There exist levels of organization structure and distribution of function. The agency/body at the same level may not appreciate directions from the same level or subordinate. The National E-Governance Plan[6] (NeGP) identifies various projects for implementation as Mission Mode Projects (MMP). A few projects like income taxes, commercial taxes, MCA, insurance and banking, etc. are specific to a particular ministry, department or an agency/body.

Some of the questions to be answered before implementing e-government projects in India are:

1. Is the planners, policy-makers and developers ready?
2. Is the legal system proper and effective?
3. Is the Organizational structure and institutional systems ready and sufficient for the delivery of Services?
4. Is the advanced information technology and technological system being adopted?
5. Is the data systems infrastructure ready?

Strategic Issues for E-Government in India

E-government strategy has moved to the centre of the political agendas of democratic governments worldwide. A number of factors collectively form a framework for e-government development and implementation. E-government is seen as an important strategy to both modernizing government and creating an information society. E-government is a broad strategic issue based on integrative approach. It is concerned with organizational structure, strategic planning, technological design issues, IT project management, e-skilling, governance and sustainable issues. Critical issues related to e-government projects are multi-channel access technologies, use of multi-device, reengineering of back-end ICT infrastructure and analysis of operational projects.

Strategic issues for e-government means—

1. Innovating with information and communication technology;
2. Reinventing government;
3. Using ICT to build capabilities and capacities;
4. Developing integrated electronic services; and
5. Being proactive and responsive.

The e-government implementation framework can enable the policy-makers to comprehensively design and develop the e-government strategies. A holistic approach and right strategy can lead to resolve numerous e-government implementation challenges. Government of India—at central, state

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and local level—is actively participating in e-government strategy by initiating different projects like BHOOMI[7], FRIENDS[8], CARD[9], etc.

Bhoomi, the project of computerization of land records, was launched by the Department of Revenue in Karnataka. Under this project, more than 20 million records of land ownership of 6.7 million farmers in the state have been computerised. The Bhoomi Centre, a Computerized Land Records Kiosk (CLRK), is operational in all the 177 taluks in Karnataka.

FRIENDS was launched in Thiruvananthapuram, the capital city of Kerala in June, 2000. FRIENDS stands for Fast, Reliable, Instant, Efficient, Network for Disbursement of Services. It comprises of computerised centres that enable remittances of water, electricity, and telephone bills; property tax, professional tax, etc. FRIENDS was planned and developed to act as a one-stop centre where a citizen could pay all government dues.

The Computer Aided Registration of Deeds (CARD) project was launched in the state of Andhra Pradesh on 4th November, 1998. Now Land Registration Offices (LRO) throughout Andhra Pradesh operate computerized counters to help citizens complete registration requirements within an hour, instead of several days as earlier. The CARD was conceived, designed and developed to eliminate the barriers affecting the conventional registration system by introducing electronic delivery of all registration services.

Most of the state governments in India are implementing e-government projects to enhance the quality of their service delivery. These projects primarily implement e-government strategies with basic objectives—to increase transparency, responsiveness and accountability. In India, in the state of Andhra Pradesh, the top level strategy for e-government is formulated by the committee consisting of the Chief Minister, the Minister for IT, the Secretary (IT), and the IT advisor.

A strategic mechanism is necessary to develop organizational preparedness for e-government projects. A well-developed plan and holistic approach provide an important guideline for advanced e-government implementation. E-government is not only about setting up information systems or managing IT projects, but a strategic issue of e-transformation in government at central, state and local level. Government—at central, state and local level—should establish E-Government Commission at the central, state and local level to give strategic directions to e-government initiatives in India[10]. An E-government initiative is an ambitious strategy of the Government of India for nationwide deployment of e-government application to bring about radical changes in service delivery to the citizens.

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Effective Strategy for E-Government

The strategy of e-government projects is to manage knowledge, information and data effectively and deliver public services using information and communication technology. E-government is a strategy of the on going process of reinventing and enhancing democracy in the 21st century through the enshrined goal of re-establishing trust between the government and the citizens. A strategy should be designed and developed keeping in view the organizational structure, organizational capability, organizational complexity, and cultural challenges to administer the emerging challenges. Factors affecting the acceptance of a new IT for e-government projects are likely to vary with the context, target users and the adoption of technology. Analysis and evaluation of e-government projects provide strategic guidance for the government agencies/bodies.

Effective strategy for e-government could be adopted through—

1. Developing IT-vision as part of the overall vision;
2. Developing long-term and short-term objectives;
3. Drawing a strategy for e-government projects;
4. Selecting an e-government team;
5. Implementing e-government projects based on resource allocation;
6. Regular analysis and evaluation of the e-government projects to match with the business and IT visions; and
7. Assessment of the external and internal environment affecting the e-government projects.

Steps Taken for E-Government in India

Implementation of e-government projects has received the proper attention of the planners and policy-makers in India. Government—at central, state and local level—is developing tools to help planners and policy-makers make decision about e-government planning and implementation. The formulation of the government's IT strategy document 'IT Act, 2000' marked an important shift in the Indian government's thinking to a much broader e-government agenda. The government of India has developed a strong e-government agenda over the last seven years, initially focused on providing access to information and more latterly on delivering public services online.

An array of diverse e-government acts and policies have been introduced in India, which aim to transform and improve the administrative institutions and internal management, use advanced information technology and a variety of electronic channels to deliver citizens centred services, transform the relationship government has with citizens, stakeholders and NGOs, which establish a

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two way communication between government and citizens, changing the process and procedures of how public services are provided in various departments or government agencies/bodies, providing new informational links that drive fundamental shifts in the way government services are delivered by supporting e-administration, e-transaction, e-citizens. In India, the state of Andhra Pradesh, Karnatka, Tamil Nadu, etc. have emerged as leading states in e-government applications by implementing a comprehensive plan and policy to utilize IT for better services to citizens (World Bank, 2004).

A number of executive agencies / bodies have been constituted for the spread of e-government initiatives in India. A few central agencies currently in existence are NIC[11], NISG[12], STPI[13], NICSI[14], STQC[15], etc. Almost every state in India has also established executive agency like Chips[16] in Chattisgarh, Hartron[17] in Haryana, MAPIT[18] in Madhya Pradesh, Rajcomp[19] in Rajasthan, Webel[20] in West Bengal, etc. The e-government projects is successful in several states in India and changed the way the government thinks, plans and makes decisions, allowing free flow of information and reducing corruption.

The government of India has taken following steps to improve e-government projects:

1. Provide a greater access to information to government agencies/bodies;
2. Encourage civic engagement by enabling the public to interact with government agencies/bodies and administrative institutions, internet or web-portals;
3. Provide development opportunities particularly to the deprived and marginalized sections of the society;
4. Promote transparent, responsive and accountable governments in which the opportunities for corruption are reduced;
5. Some progressive initiatives have been undertaken in India aimed at providing an enabling environment for the emergence of e-government; and
6. The Government of India took a series of plans and policies aimed at preparing the citizens for the change that e-government might bring.

Challenges to E-Government in Developing Countries

No doubt, the challenges arising out of conditions related to infrastructure, multilingual & cultural issues, bandwidth issues, literacy and awareness are affecting e-government projects. Majority of the studies reported in e-government literature identify the challenges involved in any e-government implementation from technical or project implementation perspective (Jain & Kesari, 2008). Many countries in developing regions continue to struggle in their attempt to improve government services

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using ICT facilities because of the lack of infrastructural support (UNDPEPA/ASPA, 2003; UNPAN, 2005). Several challenges and barriers continue to confront developing countries that result in the slow diffusion of e-government initiatives.

Some challenges have their roots in socio-economic conditions or cultural orientations of the region, to include poor political, organizational, and infrastructural factors (Heeks, 1999; Ifinedo, 2005; Mbarika, Musa, Byrd & Mullen, 2002; Moulder, 2001; Odedra, Lawwrie, Bennett & Goodman, 1993; Oyebisi & Agboola, 2003; Straub, Loch & Hill, 2001; Wade, 2001). Governments in the developing countries face numerous challenges on how e-government can enable socio-economic development.

E-government projects fail due to indulge in shoddy practices. In developing countries, governments particularly at the local level, not at the central/federal or state/region level, show reluctance in promoting the objectives of e-government (Kaaya, 2003; Sanchez, Koh, Kappelman & Prybutok, 2003). The failures could be attributed to a lack of organizational skills and commitment to objectives (Ifinedo, 2004). The main challenge for e-government is to describe the decision-making processes and make the appropriate infrastructure for technology adoption (Ezz, 2007).

Challenges to E-Government in India

Throughout the world, e-government projects, particularly in developing countries, face multiple and complex challenges (Gil-Garcia and Pardo, 2005), which can be prevented if a holistic approach exists in the planning stage (Ghapanchi, Albadvi & Zarei, 2008). E-government projects in developing countries totally or partially fail due to citizens factors also. Although, several developing countries including India have created National e-Governance Plan[21] (NeGP), but the lack of a comprehensive framework to guide how to use this plan and appropriate technology leads to ineffective strategies.

E-government is a complex and cumbersome process that involves many overlapping and interconnected development stages at the technological, economical, social, and cultural level. A number of barriers and challenges hinders the adoption of e-government projects in developing countries, namely privacy and security issues. Though there have been several e-government projects undertaken in India, there have been numerous problems in developing and implementing them successfully. There are some barriers to inclusion of e-government in India such as lack of affordability of computers per se, a lack of internet access in some areas(especially rural and hilly areas), the high cost of internet services, and complexity of the internet that does not lend itself to dial-up internet access.

There are a number of risk factors that can affect the long-term sustainability of e-government projects (Bhatnagar, 2004)]. The provision of e-government services is still far from reaching full

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effectiveness. High upfront cost and delayed economic savings are the reasons why e-government projects are not funded initially. Government agencies/bodies and administrative institutions in developing countries like India perceive e-government as a potential threat to their power and jurisdiction. Re-engineering problems in e-government can interfere seriously with the effectiveness of putting public services online. ICT infrastructure has not been appropriate for emerging e-government programs focusing on service delivery.

The main challenges to e-government projects in India are—

1. Critical processes of the government like income tax assessment, passport and visa regulation, etc. may be seriously affected due to leakage of sensitive data in a temporary halting of the process;
2. E-government projects make processes work faster, but decision-making could be slow due to a deep hierarchy in the administrative institutions;
3. A large part of e-government projects are soft systems, which are often prone to perceptual irregularities and inconsistencies among planners, policy makers, designers, developers and users;
4. The upfront costs for e-government projects tend to be high. These include the costs of acquiring new system, designing, developing and implementing enterprise architecture, training of personnel in these redesigned processes, and reengineering businesses process;
5. Pragmatic ideology, political strategy and political interference affect the implementation of e-government in India;
6. The reasons for the comparably slow spread of e-government services include difficulties in carrying out organizational change, lack of computer and IT skills, ineffective procurement practices, complex nature of public sector financing, and inertia;
7. The existing digital divide between the 'information rich' and the 'information poor' is a major obstacle for development and implementation of e-government projects; and
8. Inequality in broadband connections and internet access does exist in backward, hilly and desert areas in developing countries like India, and also for the rural and marginalized sections of the society.

Prospects for E-Government Initiatives in India

For better delivery of public services, e-government needs to shape with vision and long-term planning (Metaxiotis & Psarras, 2005). E-government needs a framework to succeed, evolving a set of strategies to use technology to deliver result, appropriate to users and stakeholders. A holistic approach for e-government projects reduces the costs, wasted time and associated risks, increases

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the citizens' participation and interaction and quality of e-government. There is need to develop deeper understanding of the information technology and web-site and the contribution it can make in terms of achieving better and more effective public services to the citizens and stakeholders, achieving greater operational efficiency of administrative machineries through more effective information sharing, and supporting the development of knowledge through re-use and exploitation of information in government agencies/bodies.

Development of e-government projects is a highly complex process requiring provisions of hardware, process re-engineering, networking and software. Governments at central, state and local level are engaged in serious endeavours in making e-government 'system-driven' rather than 'unit driven'. The e-government related projects running in isolation will be being integrated soon. In a number of states like in Orissa state, GramSATs[22] under ORSAC[23] are installed at each DRDA[24] and block levels of Orissa. The recently promulgated National e-Governance Plan (NeGP) presents a golden opportunity for e-government development in India. Application of e-government initiatives has witnessed remarkable achievements, including hard-earned experiences and lessons as well, laying a good foundation for future prospects in India. It is important to keep in mind the pitfalls and be cautiously optimistic about the future of e-government in India.

In India, the IT Act, 2000 was passed to synchronize and push forward e-government activities. Seamless e-government should be fully operational for the central, state and local authorities by 2010. The planning, designing, developing and implementation of e-government, as it continues to develop and grow in India, will have to focus on finding methods to address varied issues. Future of e-government in India will be confronting the important policy and planning issues that remain unaddressed. In order to develop future e-government projects in India, there is a need to carefully analyze the deficiencies of current e-government projects in respect to future needs. Future scenarios of government interacting with citizens, stakeholders and business sectors via ICT have to be developed. Central and state ministries/ departments needs to develop capacity building roadmap for e-government projects as strategic documents towards integrated government and work for implementation of the same.

Recommendations for Prospects of better E-Government in India

Demand for electronic public services has been voiced by the government agencies/bodies, public authorities, citizens, stakeholders and the business sector. Many IT policy issues are likely to present significant challenges to the development of e-government projects in India. It has been found that People with disabilities, lower education, lower income and older people make less use of government web-sites and portals. E-government projects have to ensure that basic public services

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are to be made accessible to all citizens. There seems to be a need for more public awareness and education about public services provided through e-government at all levels.

There is need to appoint Chief E-Government Officer (CeGI) in each state, central government ministries/ departments and government agencies/bodies as nodal officers to look into e-government implementation[25]. A Central E-Government Council (CeGC) may be formed in order to streamline e-government norms, standards, universal accessibility, service delivery, cyber security, etc. A national institute of methods and standards for e-government may be established with a mission of developing guidelines, methods, standards, and techniques for information systems and security. It may periodically assess the guidelines, norms, methods, standards, and undertake analysis from time to time as appropriate.

Main recommendations for prospects of e-government in India are:

1. Sufficient time should be given for needs assessment;
2. There is need to reduce transaction cost;
3. There should be a common central database;
4. There is need to set up guidelines and frameworks for e-government projects;
5. There is need to develop transnational e-government projects and standards;
6. There is need to bring IT-driven modernization of public government structure and make institutional change;
7. There is need to conduct regional projects and case studies;
8. The government should concern long term processes rather than immediate decisions;
9. There is need to harness advances in IT and the opportunities so developed to restructure government and administrative institutions with the objective of better governance;
10. Government should establish institutional mechanisms to facilitate initiatives towards synergic utilization of IT as an enabling tool for efficiency and effectiveness in e-government; and
11. Government has to ensure transparency and accountability in e-government projects.

Concluding Remark

E-government is creating significant benefits for government agencies/bodies, citizens and business sectors. E-government is expected to assist in achieving democratic society, and improving the performance of the country's administrative institutions. The state governments are more conscious and concerned about citizens' active engagement in the procedure and implementation of e-government projects. E-government enables transactions between concerned groups (citizens and businesses) and the government through multiple channels (Gorala, 2008). It has the potential to

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enhance public participation and civic engagement. It is accepted that e-government is concerned with the use and application of information technology to enhance the access to and delivery of government services to benefit the employees, citizens, stakeholders, NGOs, and business houses.

Implementation of e-government projects should be based on the planning and reforms defining the objectives, principles, strategy, and implementation stages coordinated with the tools and success factors that may be provided. Dealing with e-government challenges requires well-classified governmental information bank and an appropriate web-portal. The reform and innovation are useful not only for future e-government projects in India, but also for e-government projects in other developing countries. What is required is designing and development of e-government projects which is focused on a process of rethinking the representations that underpin the systems, processes and information technologies constituting e-government.

E-government can be seen as an innovation and India is still in the early stages of e-government adoption. Lack of awareness of the benefits of using the e-government is one of the reasons for people's lack of perceived need. E-government has accelerated the move toward a more networked approach. India provides a useful basis for developing and implementing e-government. India has been aggressively bolstering its usage of information technologies in order to realize the promise of e-government initiatives. Once the e-government projects in India are fully operational, the result will be a more sophisticated administrative institutions and sustainable growth.

Notes:
1. See more details in http://www.open.gov.uk
2. See more details in www.firstgov.gov
3. See more details in www.ecitizen.gov.sg
4. There are 28 states and 7 Union Territories in India
5. Source: Information Technology Audit of e-Seva—an e-governance initiative by the Government of India www.icisa.cag.gov.in
6. National e-Governance Plan (NeGP) was approved by the Government of India in the year 2006, comprising of 27 Mission Mode Projects(MMP) and 8 components.
7. For more details see http://www1.worldbank.org/publicsector/egov/bhoomi_cs.htm.
8. For more details see http://www1.worldbank.org/publicsector/bnpp/egovupdate. Also see http://www.friendscentre.net/
9. For more details see http://www1.worldbank.org/publicsector/egov/cards.htm.
10. In India, a Committee headed by Cabinet Secretary at the central level is already form
11. NIC—National Informatics Centre of the Department of Information Technology, Government of India, is providing network backbone and e-government support to Central Government, State Government districts and other government agencies/bodies. It offers a wide range of ICT services including nationwide

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communication network for decentralized planning, and improvement in government services. For more details see home.nic.in

12. NISG—National Institute for Smart Government has been established as a centre of excellence in e-government projects by leveraging private sector resources through public private partnership mode for the spread of e-government in India. For more details see www.nisg.org

13. STPI—Software Technology Park of India is a society set up by the Department of Communication & Information Technology, Government of India in 1991, with the objective of encouraging, promoting and boosting the Software Exports from India. For more details see www.stpi.in

14. NACSI—National Informatics Centre Services Inc. was set up in 1995 as a section 25 Company under National Informatics Centre(NIC), Ministry of Communications & Information Technology, Government of India to provide total IT solutions to various ministries/departments and government agencies/bodies. It promotes the utilization of information technology.

15. STQC—Standardisation Testing and Quality Certification Directorate is an attached office of the Department of Information Technology (DIT), Government of India. It provides quality assurance services in the area of IT and e-government through countrywide network of laboratories and centres.   For more details see www.stqc.nic.in

16. Chips is a registered society in the state of Chhatisgarh. It has launched a number of e-government projects like CHOICE, e-Gram Suraj, e-Procurement, SWAN, e-Treasury, etc. The state of Chhatisgarh is a backward state in India.

17. Hartron—Haryana State Electronics Development Corporation Ltd., is a pioneer in the IT and e-government projects in the state of Haryana. Hartron was the first organization in India that undertook voter identity card projects in India. The state of Haryana is a small and prosperous state in India.

18. MAPIT--Madhya Pradesh Agency for Promotion of Information Technology is the society promoted by the Government of Madhya Pradesh to serve as the nodal agency for designing, development and implementation of e-government projects. The state of Madhya Pradesh is a leading state for decentralization in India.

19. RajcComp, a leading consultancy organization in the field of information technology and e-government was established by the Government of Rajasthan in 1989. Area-wise, Rajasthan is the largest state in India.

20. Webel—West Bengal Electronics Industry Development Corporation Ltd., is an undertaking of the Government of West Bengal. It is the nodal agency for developing IT, ITeS and e-government projects in West Bengal which deliver value to citizens. The state of West Bengal is leading towards progress, and development.

21. For more details see www.nationalegovernanceplan.doc.co.in

22. GRAM means village in India and SAT means Satellite

23. Orissa Remote Sensing Application Centre

24. Department of Rural Development and Administration, Government of Orissa, India

25. Currently IT advisors, consultants, managers in Central Ministries are responsible for the development and application of e-government

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