E-Governance

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Abstract— **Governments form the backbone of a country. Public welfare is the key agenda of any government. It has to ensure that the benefits reach the needy. However much this sounds simple, it surely isn't. The state needs to run its affairs in a transparent and efficient way to reach and be reachable to its citizens. E-governance has the ability to lend the required efficiency and transparency. India, the world's largest democracy and one of the fastest growing economies of the world has recently embarked on the e-governance journey. India faces several challenges with ever-growing multilingual population, unique socio-political setup, infrastructure inadequacy and low literary that might put e-governance off the track. But accepting the challenge to prove the world wrong, Indian government has launched an ambitious e-governance initiative. This paper focuses on the initiatives taken by India, ways to build and deliver electronic government services, ways to develop and ensure interdepartmental collaboration and service delivery and critical factors required for successful implementation of e-governance.**

Keywords— **E-governance, ICT, IT enabled services, effective administration.**

I. INTRODUCTION

The emergence of Information and Communications Technology (ICT) [1] has provided means for faster and better communication, efficient storage, retrieval and processing of data and exchange and utilization of information to its users, be they individuals, groups, businesses, organizations or governments. What had begun as a faster, more accurate and simpler means of word-processing quickly lent itself to being used as a tool for processing and tabulating data as an aid in decision making. With growing computerization and increasing internet connectivity, this process has presently reached a stage where more and more users are motivated to modifying their ways of doing things in order to leverage the advantages provided by ICT. In other words, this has led to _business process re-engineering' [2].

So far as governments are concerned, the coming together of computerization and internet connectivity/web-enablement in association with process re-engineering, promises faster and better processing of information leading to speedier and qualitatively better decision making, greater reach and accountability, better utilization of resources and overall good governance. In the case of citizens, it holds the promise of enhanced access to information and government agencies, efficient service delivery and transparency in dealings and interactions with government.

With the increasing awareness among citizens about their rights and the resultant increase in expectations from the government to perform and deliver, the whole paradigm of governance has changed. Government, today, is expected to be transparent in its dealings, accountable for its activities and faster in its responses.

e-Governance or _electronic governance' [8] 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 [3]. This would generally involve the use of ICTs by government agencies for any or all of the following reasons:

- Exchange of information with citizens, businesses or other government departments
- Speedier and more efficient delivery of public services
- Improving internal efficiency
- Reducing costs / increasing revenue
- Re-structuring of administrative processes and
- Improving quality of services.

A. Definitions of E-Governance

Although the term _e-Governance' has gained currency in recent years, there is no standard definition of this term. Different governments and organizations define this term to suit their own aims and objectives. Sometimes, the term _e-government' is also used instead of _e-Governance'. Some widely used definitions are listed below:

i. According to the World Bank [4],

—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.

Thus, the stress here is on use of information technologies in improving citizen-government interactions, cost-cutting and generation of revenue and transparency.

ii. UNESCO [5] defines e-Governance as:

—Governance refers to the exercise of political, economic and administrative authority in the management of a country's affairs, including citizens' articulation of their interests and exercise of their legal rights and obligations. E-Governance may be understood as the performance of this governance via the electronic medium in order to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities.

This definition visualizes the use of the electronic medium in the exercise of authority in the management of a country's affairs along with articulation of citizens'interests leading to greater transparency and efficiency.

iii. The Council of Europe [6] has taken e-Governance to mean:

—the use of electronic technologies in three areas of public action:

- relations between the public authorities and civil society
- functioning of the public authorities at all stages of the democratic process (electronic democracy)
- the provision of public services (electronic public services)‖

In this case, the focus is on making use of electronic technologies with a view to encourage better interaction between government and citizens, promote democracy and provide public services.

iv. The US E-Government Act of 2002 [7] defines "electronic Government" to mean:

—the use by the Government of web-based Internet applications and other information technologies, combined with processes that implement these technologies, to-
- enhance the access to and delivery of Government information and services to the public, other agencies, and other Government entities; or
- bring about improvements in Government operations that may include effectiveness, efficiency, service quality, or transformation.

This definition reflects the strategy of the US Government regarding the use of ICT in improving Government operations on the one hand and enhancing the access and delivery of information and services to citizens and government entities on the other.

Basically, e-Governance is generally understood as the use of Information and Communications Technology (ICT) at all levels of the Government in order to provide services to the citizens, interaction with business enterprises and communication and exchange of information between different agencies of the Government in a speedy, convenient efficient and transparent manner [9]. Dr. APJ. Abdul Kalam, former President of India, has visualized e-Governance in the Indian context to mean:

"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."

B. Objectives of E-Governance

E-Governance solutions are oriented towards helping government organizations transform into enterprise infrastructure-based end-to-end digital governments that

✓ Build services around citizen's choice
✓ Make government more accessible
✓ Facilitate social inclusion
✓ Provide information responsibly
✓ Use government resources effectively
✓ Reduce government spending
✓ Deliver online services
✓ Involve citizens in the governing process

Common goals of any e-governance application are listed below.

1. *Transparency*
2. *Accountability*
3. *Efficiency*
4. *Fairness*
5. *Speed*
6. *Services to remote locations*
7. *Public-Private Partnership*
8. *Cost Savings*
9. *Convenience*

II. E-GOVERNANCE IN INDIA

Most of the advanced countries including United Kingdom (UK), Australia, Canada, Newzeland, and United States of America (USA) have adopted series of measures under a new model based on market principles. This new model has several names such as: ‗managerialism‗, ‗new public management‗; ‗market based public administration‗; ‗the post bureaucratic paradigm‗; or ‗entrepreneurial government‗ [8]. Though these appear to be different terms yet they convey the same message i.e. replace the traditional bureaucratic model with a new model. Have faith in market principles: cut costs; reduce budgets; improve public managements, simplify rules and

procedures; check corruption; inject transparency; and strengthen market forces by minimizing the role of the state. To make the new system more effective and ensure efficacy, the use of information technology in the governance process is emphasized.

Recognizing the increasing importance of electronics, the Government of India established the Department of Electronics in 1970. The subsequent establishment of the National Informatics Centre (NIC) [12] in 1977 was the first major step towards e-Governance in India as it brought _information' and its communication in focus. In the early 1980s, use of computers was confined to very few organizations. The advent of personal computers brought the storage, retrieval and processing capacities of computers to Government offices. By the late 1980s, a large number of government officers had computers but they were mostly used for _word processing'. Gradually, with the introduction of better software, computers were put to other uses like managing databases and processing information. Advances in communications technology further improved the versatility and reach of computers, and many Government departments started using ICT for a number of applications like tracking movement of papers and files, monitoring of development programs, processing of employees' pay rolls, generation of reports etc.

However, the main thrust for e-Governance was provided by the launching of NICNET in 1987 – the national satellite-based computer network [10]. This was followed by the launch of the District Information System of the National Informatics Centre (DISNIC) program to computerize all district offices in the country for which free hardware and software was offered to the State Governments. NICNET was extended via the State capitals to all district headquarters by 1990.

A. E-Governance initiatives in India

The Government of India kick started the use of IT in the government in the right earnest by launching number of initiatives. First the Government approved the National E-Governance Action plan [11] for implementation during the year 2003-2007. The plan is an attempt to lay the foundation and provide impetus for long-term growth of e-governance within the country. It proposed to create the right governance and institutional mechanisms at the center, state and local levels to provide a citizen centric and business centric environment for governance. The Government has given approval in-principle to the plan and overall program content; implementation approach and governance structure. While endorsing the plan, it was observed that: weightage must be given for quality and speed of implementation in procurement procedures for IT services; suitable system of motivating the states for quick adoption be incorporated; provision of delivery of services to the citizens through a single window should be encouraged; Out sourcing of services wherever and whenever feasible; efforts be made to promote and develop public private partnerships to utilize the full potential of

private sector investments; and connectivity should be improved and extended up to the block level in the states. Apart from the action plan, the following measures have also been introduced:

- Adoption of —Information Technology (IT) Act [13], 2000 by the Government of India to provide legal framework to facilitate electronic transactions. The major aims of this act are to: recognize electronic contracts, prevents computer crimes, and make electronic filing possible. The Act came into force on 17 October, 2000;
- Establishment of the National Taskforce of Information Technology and Software Development in May 1998;
- Creation of Centre for e-governance to disseminate the best practices in the area of e- governance for the use by the Central and State Governments and act as a nodal center to provide general information on e-governance, national and international initiatives, and IT policies of the government(s);
- Developing e-office solutions to enable various ministries and departments to do their work electronically. Modules such as Workflow for Drafts for Approvals, e-file, e-notings, submission of reports, integrated personal information and financial accounting systems have been developed;
- Setting up of a High Powered Committee (HPC) with Cabinet Secretary as its Chairman to improve administrative efficiency by using Information Technology in Government;
- Designating a Joint Secretary level officer as IT manager in every Ministry/ Department; and
- Instituting websites by almost all Ministries and Departments and providing information on aspects such as their objectives, policies and decisions, contact persons, etc. Some of them have started their electronic newsletter for giving publicity to their activities on wider scale; and identifying departments, which have frequent inter-face with the citizens, and computerizing them on priority basis.

Thus, it can be inferred from the above that a good beginning has been made to make government a reality in India, but still a lot needs to be done. Sincere efforts are required on sustained basis in future also to maintain the momentum.

B. Stages of e-governance

It is evident that e-Governance is intrinsically linked with the development of computer technology, networking of computers and communication systems. In developing countries, such technologies and systems became available with a perceptible time lag as compared to developed nations [15]. However, in the case of India, with the liberalization of the economy from the early 1990s onwards, there has been a

convergence in the availability of cutting edge technologies and opportunities in the field of e-Governance.

Generally speaking, the Indian experience demonstrates that the onset of e-Governance [12] proceeded through the following stages.
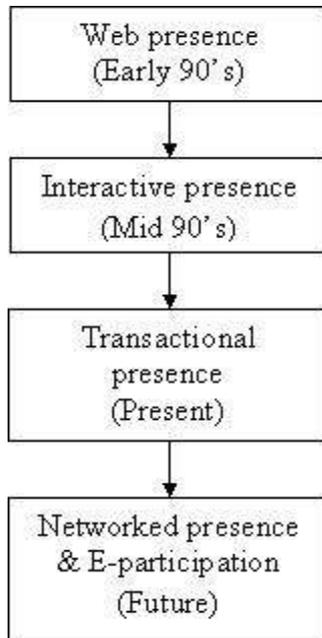

Fig 1: Stages of E-governance

Stage I – WEB PRESENCE

The first phase is marked by web presence of public institutions and dissemination of information.

This has been facilitated by the Right to Information Act, 2005 (RTI) and this has been developed as a basic feature of all public services where type of service and service provider details are made available in a proactive manner. This information is also being integrated for citizen access through the National and State Portals which provide basic information on Government programmes and services. Web presence can range from basic and static information to access to databases, documents, policies etc with the aid of help features and site map.

Stage II – INTERACTIVE PRESENCE

The next stage is marked by an interactive interface with stakeholders with pro-active solutions to problem solving and electronic requests for services and financial transactions.

The service starts on the internet but does not always end there. Applications related to property tax, land registration, property titles and programmes like ‗bhoomi' are now being

replicated at the national level. Efforts to widen the reach of these basic services to ordinary citizens through community access in several ways – through Online Sections at Government Offices, integrated service delivery through one-stop service centres – E kiosks, e-seva kendras etc, Post Offices, call centres, cooperative centres etc. – are now well tested in states like Andhra Pradesh, Karnataka, Maharashtra, Rajasthan, Gujarat, UP etc.

Stage III – TRANSACTIONAL PRESENCE

Completion of transactions on the internet and access to internet.

This interaction in turn results in vertical and horizontal integration which changes the way a service is delivered, the effort being for completion of the transaction for the service through the internet with putting in place of back-end integration. The architectural model for this stage requires interoperability and convergence. There is electronic communication between the platform and citizen and the transaction is completed online.

Stage IV – NETWORKED PRESENCE AND E-PARTICIPATION

The fourth stage is marked by a Government to Citizen (G2C) framework based on an integrated network of public agencies, process certification and participation in basic process design and political processes.

Web comment forms, upcoming events, on line polling mechanism, discussion forums and online consultation facilities are part of this stage. Integrated Portals are central to this integration. Web based political participation and institutionalization of stakeholder participation with tools like citizen polling mark important benchmarks in this stage. The promise of inclusion of all is an important hallmark of this stage.
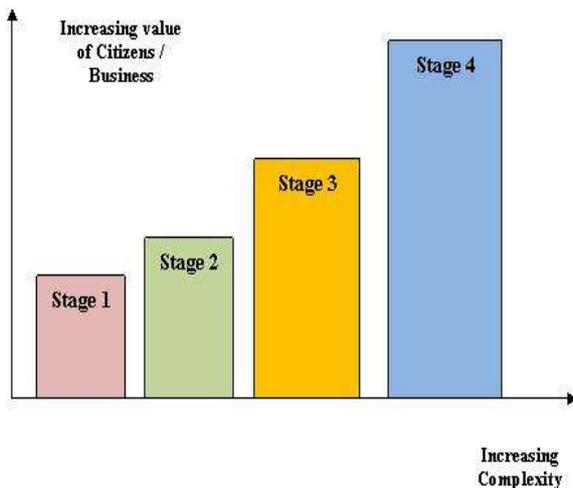
Fig 2: E-governance stages and their level of complexity

III. COMPONENTS AND BENEFITS OF E-GOVERNANCE

Governments are increasingly looking to cut down on operating costs and improve delivery of services to citizens and employees. The focus is slowly shifting towards giving self-service process improvements through online web based applications. The three main target groups that can be distinguished in e-governance concepts are government, citizens and businesses/interest groups [11]. The external strategic objectives focus on citizens and businesses and interest groups, the internal objectives focus on government itself.

A. *Components of e-governance*

The major components involved in E-governance are
i.   Government to Government (G2G)
ii.   Government to Citizens (G2C)
iii. Government to Business (G2B)
iv. Citizen to Government (C2G).

i. *Government to Government (G2G)*

All the G2G interactions and dealings are required for planning, decision support and implementation of its action plans. The goal of the Government-to-Government (G2G) system is to forge new partnerships among various levels of government. These partnerships facilitate collaboration between levels of government, and empower state and local governments to deliver citizen services more effectively [16]. The time gap can be greatly reduced once the E-governance system is in place.

It requires a single interface to government offices and staff, to effectively carry out functions like human resource management and financial resource planning in an integrated environment. Further, all government agencies to be linked through a modern computerized network that allows secure communications and interaction. Existing government systems

are either replaced or integrated into the new technology, depending on the functionality and adaptability of legacy systems.

ii. *Government to Citizen (G2C)*

It is basically serving the customers on the Web. The customers need not to visit, each time, the government departments with Xerox copies of documents. The documents submitted at any of the facility center is made available across the departments so that carrying of volumes of documents and feeding them into computers is totally eliminated or minimized to a maximum extent.

Each citizen will have a unique identification number and all the facilities and services rendered to a particular citizen can be tracked easily. Once implemented, this will drastically reduce the workload of the government departments. For example, as the government units are functioning in silos, it requires issuing various certificates to the general public for availing some facilities. Instead if common general-purpose citizen identification is given to each citizen, there won't be any further need for issuing the same set of certificates again and again. The concerned departments can verify the details from the central database.

iii. *Citizen to Government (C2G)*

It is the online relationship between the citizen and all of the various government departments one would like to interact so that the citizen gets some services without actually physically visiting the various government offices. The role of C2G is to introduce the citizen to websites that one will find the most useful, in daily life and times of need.

This is an application to make public-to-government transactions more efficient, effective and productive, while enhancing the quality of services, by facilitating public transactions with government using various electronic channels. The association between citizens and the government as a grievance redresser in an online environment can easily be leveraged to provide many more services to citizens from different providers.

iv. *Government to Business (G2B) and Business to Government (B2G)*

In order to implement the government's various plans and projects it needs the business communities' services. Services like e-procurement, e-payment, and project monitoring and implementation forms part of this model. E-Procurement is an application to transform the existing manual system of government procurement into an efficient electronic based one.
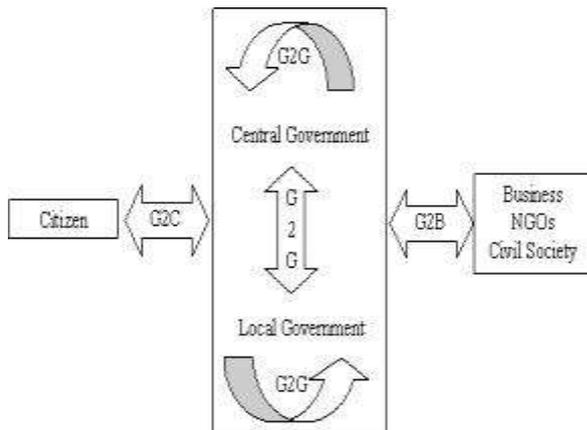
Fig 3: Interaction between the components of E-governance

B. Benefits of e-Governance

In the end, e-Governance is about reform in governance, facilitated by the creative use of Information and Communications Technology. It is expected that this would lead to:

(A) ***Better access to information and quality services for citizens***:

ICT would make available timely and reliable information on various aspects of governance. In the initial phase, information would be made available with respect to simple aspects of governance such as forms, laws, rules, procedures etc later extending to detailed information including reports (including performance reports), public database, decision making processes etc. As regards services, there would be an immediate impact in terms of savings in time, effort and money, resulting from online and one-point accessibility of public services backed up by automation of back end processes. The ultimate objective of e-Governance is to reach out to citizens by adopting a life-cycle approach i.e. providing public services to citizens which would be required right from birth to death.

(B) ***Simplicity, efficiency and accountability in the government***:

Application of ICT to governance combined with detailed business process reengineering would lead to simplification of complicated processes, weeding out of redundant processes, simplification in structures and changes in statutes and regulations. The end result would be simplification of the functioning of government, enhanced decision making abilities and increased efficiency across government – all contributing to an overall environment of a more accountable government machinery. This, in turn, would result in enhanced productivity and efficiency in all sectors.

(C) ***Expanded reach of governance***:

Rapid growth of communications technology and its adoption in governance would help in bringing government machinery to the doorsteps of the citizens. Expansion of telephone network, rapid strides in mobile telephony, spread of internet and strengthening of other communications infrastructure would facilitate delivery of a large number of services provided by the government. This enhancement of the reach of government – both spatial and demographic – would also enable better participation of citizens in the process of governance.

IV. SUGGESTED WAY FORWARD

Even though the emergence of the Internet and developments in processing and storage of data are technological issues, e-government challenges [14] are not primarily technical. E-Government activities are embedded in the environment of today's administration. This means that e-government activities can only be implemented successfully where administrations are able and willing to do so. Accordingly, the success of e-government initiatives [10] depends in part on the ability for public administration, as well as the political will of key stakeholders. While the government and its administration play a fundamental role, the e-government environment is shaped also by other stakeholders, including citizens, businesses, civil servants, local, national and international institutions and civil society organizations.

A. Successful E-governance

E-Governance is said to be a pill for all ills of governance. However many e-Governance projects are not succeeding or are facing bottlenecks [15]. There is resistance to change or duplication of efforts in many initiatives. There are local language issues in some cases and a lack of planning in others. Lack of infrastructure is a bottleneck in some countries while in others Universal Access is an issue. In short the paper identifies twenty five steps toward successful e-Governance [17]. The steps [20] as identified are:

1. Understanding Governance
2. Definition of Vision & Strategic Objectives
3. Formulation of e-Governance Roadmap
4. Leadership for e-Governance
5. Institutional Framework for e-Governance
6. Government Process Re-engineering
7. Legal Reforms
8. Human Capacity Building
9. Cost Benefit Analysis
10. Sustainable Business Model
11. Service Delivery Paradigm
12. Collaboration for e-Governance
13. e-Content
14. Building National Information Infrastructure

15. e-Governance Technology Architecture
16. Privacy and Security
17. People's Participation/Civic Engagement
18. Universal Accessibility
19. Awareness and Communication Strategy
20. e-Governance Program Management
21. e-Governance Application Development
22. Change Management in Government
23. Evaluating e-Governance Projects
24. Continuous Feedback
25. Integrated Government (iGov)

B. E-governance projects in India

The state governments have already taken some initiative to form an IT task force to outline IT policy document for the states and the citizen charters have started appearing on govt. websites. For governments, the more overt motivation to shift from manual processes to IT-enabled processes may be increased efficiency in administration and service delivery, but this shift can be conceived as a worthwhile investment with potential for returns.

At the central government level the important e-governance projects being executed includes Fertnet, Dacnet, Passport System, Company Registration System, Community Information Centre projects in the north-eastern states, etc.

In addition to the normal computerization of various activities the ministries and departments, the following are some of the recent e-governance projects implemented by various state governments.

TABLE 1. SOME E-GOVERNANCE INITIATIVES IN INDIA

State/Union Territory	Initiatives covering departmental automation, user charge collection, delivery of policy/programme information and delivery of entitlements
Andhra Pradesh	E-Seva, CARD, VOICE, MPHS, FAST, e-Cops, AP online—One-stop-shop on the Internet, Saukaryam, Online Transaction processing
Bihar	Sales Tax Administration Management Information
Chattisgarh	Chhattisgarh InfoTech Promotion Society, Treasury office, e-linking project e-Kosh –Online system of Treasuries and Pensions
Delhi	Automatic Vehicle Tracking System, Computerization of website of RCS office, Electronic Clearance System, Management Information System for Education, Online public grievances system etc
Goa	Dharani Project
Gujarat	Mahiti Shakti, request for Government documents online, Formbook online, G R book online, census online, tender notice.
Haryana	Nai Disha
Himachal Pradesh	Lok Mitra
Karnataka	Bhoomi, Khajane, Kaveri
Kerala	E-Srinkhala, RDNet, Fast, Reliable, Instant,

	Efficient Network for the Disbursement of Services (FRIENDS)
Madhya Pradesh	Gyandoot, Gram Sampark, Smart Card in Transport Department, Computerization MP State Agricultural Marketing Board (Mandi Board) etc
Maharashtra	SETU, Online Complaint Management System—Mumbai
Rajasthan	Jan Mitra, RajSWIFT, Lokmitra, RajNIDHI
Tamil Nadu	Rasi Maiyams–Kanchipuram; Application forms related to public utility, tender notices and display
Uttar Pradesh	NISANI-A multipurpose National Identity card System/Mirzapur, UP. BhuLekh –Land Records Computerization
West Bengal	Matir Katha –An Agri portal of the government
North-Eastern States	
Arunachal Pradesh, Manipur, Meghalaya, Mizoram & Nagaland	Community Information Center. Forms available on The website under schemes related to Social welfare, food civil supplies and consumer affairs, housing transport etc.
Tripura	e-Suvidha

V. CONCLUSION

E-governance as the above discussion suggests offers many benefits to the citizens. It has much potential to bring many dreams and goals into reality designed by various international organizations and governments of the world. The issues of poverty reduction, economic underdevelopment, illiteracy, pervasive corruption can be arrested by using skillful application of e-governance initiatives. Despite its enormous potentials, it is observed that the benefits of e-governance are not duly reaped by the governments of both developed and developing countries.

The main stumbling blocks in this way are basically the political leadership and bureaucratic inertia. Another stumbling block for global equitable access of e-governance is _digital divide' [18] often called as _information block holes'. E-governance can very positively turn a paradigm shift as indicated above from traditional bureaucratic administration to a more responsive, accountable and effective administration which many governments of the world are aspiring for a long time.

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