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.”

Dr. APJ Abdul Kalam[15]

4.1 Introduction

Today, citizens are becoming more and more conscious about their rights to get the required services at their doorstep and both the state and central governments recognize the need to deliver faster and efficient services to ordinary citizens through e-governance which is an effective instrument of administration. India’s experience in e-governance and ICT initiatives has demonstrated significant success in improving accessibility, cutting down costs, reducing corruption and extending help and increased access to un-served groups. e-governance initiatives have reached millions of people belonging to these sections of society. It helps to improve access to information and services because these have provided economic and social development opportunities, facilitated participation and communication in policy and decision-making processes and empowered the weakest groups. This has led to the fostering of a sense of ownership and the building of social capital, which in turn, constitutes a basis for local revitalization[3].

The advent of IT as a highly leveraged enabling tool for delivery of products and services has now redefined the fundamentals and changed the institutions and their mechanisms of delivery forever. Technology has proliferated in all spheres of life. Accompanied by the rapid growth[6] of the internet there has been a concomitant rise in online transactions. This information age paradigm shift is characterized by citizen and business integration driven as it were by the choice of service providers and means of access. In this context the concept of public governance has not gone unaffected. It too has seen a fundamental shift in the concept both in the manner and method by which the e-governance initiatives are being implemented at the central,
state and local government levels through various PPP’s. This new practice of public administration has developed into the concept of EG. It helps simplify processes and makes access to government information more easy for public sector agencies and citizens.

4.2 History of e-governance

Recognizing the increasing importance of electronics, the GoI established the Department of Electronics in 1970. The subsequent establishment of the NIC in 1977 was the first major step towards e-governance in India as it brought ‘information’ and its communication to focus. In the early 1980s, the 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 the movement of papers and files, monitoring of development programmes, processing of employees’ pay rolls, generation of reports etc. The main thrust for e-governance was provided by the launching of NICNET in 1987 – the national satellite-based computer network. This was followed by the launch of the District Information System programme of the National Informatics Centre (DISNIC) to computerize all district offices in the country for which free hardware and software was offered to the State Governments.

The concept of e-governance has its origins in India during the seventies with a focus on the development of in-house government applications in the areas of defense, economic monitoring, planning and the deployment of IT to manage data intensive functions related to elections, census, tax administration etc. The efforts of the NIC to connect all the district headquarters during the eighties was a very significant development. From the early nineties, IT technologies were supplemented by ICT technologies to extend its use for wider sectoral applications with policy emphasis on reaching out to rural areas and taking in greater inputs from NGOs and the private sector as well. There has been an increasing involvement of international donor
agencies under the framework of ‘e-governance for development’ to catalyze the development of e-governance laws and technologies in developing countries.

e-governance in India has reached the ‘transactional’ stage and provides various services to citizens and business and government organizations and is dispensed by central government agencies and different state government departments. The National e-Governance Plan \(^{10}\) (NeGP), initiated in 2006, attempts to make all Government services accessible to the common man in his locality, through CSCs being set up across India. As on April 2011, about 94,786 CSCs were operational with different brand names and delivering services to the people. The rural landscape in India is set to take advantage of the flourishing ICT initiatives, through various institutions, more specifically the CSCs. They will offer services in local languages that make a difference in the lives of the rural people. The major focus of e-governance in the www.indg.in portal is to support the ongoing e-governance movement in India by providing a one stop information access to available online citizen services, to state specific e-governance initiatives and to build awareness about online legal services, mobile governance, RTI etc.

4.3 Role of ICT in e-governance

e-governance is the application of ICT for delivering government services, exchange of information, communication transactions, integration of various stand-alone systems and services between G2C, G2B as well as back office processes and interactions within the entire government frame work. e-governance promotes more efficient and effective government, facilitates more accessible government services, allows greater public access to information, and makes government more accountable to citizens. e-government \(^{7}\) has emerged beyond electronic service delivery and is a part of the ongoing reform and transformation of government enabling participatory governance and partnerships to improve efficiency and effectiveness. ICTs are effectively throwing up new dimensions to old institutional setups. ICT \(^{4}\) plays a critical role in sustainable human development and poverty eradication. It is a powerful enabler of development goals because of the way in which it improves communication and the exchange of knowledge and information necessary for development processes. ICTs also play a critical role in speeding up the flow of
information and knowledge between government and citizens and transforming the way in which governments and citizens interact. Governments in many parts of the world have made huge ICT investments aimed at improving governance processes. It goes without saying that the impact of ICT on institutional changes is fast spreading across the boundaries of social and political arrangements of societies. e-governance is regarded as the ICT-enabled route to achieving good governance since it integrates people, processes, information, and technology in the service of governance initiatives. The expected benefits of such public sector reforms have been identified as an increase in the efficiency of government operations by strengthening democracy, enhancing transparency, and providing better services to citizens and businesses.

Through e-governance, government services will be made available to citizens in a convenient, efficient and transparent manner. The government being the service provider, it is important to motivate the employees to deliver the services through ICT. To achieve this, government employees are being trained on technology and have started realizing the advantage of ICT. The aim is to make them thorough with e-governance applications and responsive to technology driven administration. ICT is the biggest enabler of change and process reforms with minimum resistance. Decades of attempts to reform government and its processes fade in the face of what ICT has achieved in few years. People did not so readily accept process change but in the name of ICT they do. The main role of ICT for governance is as follows:

- Improve the quality of governance products and services being currently provided
- Provide new governance services and products
- Enhance the participation of the people in the choice & provision of governance products & services
- Bring new sections of society under the governance sphere including those who are most likely to remain excluded - namely the poor, the illiterate, the differently abled, the indigenous people, the migrants and displaced people

ICT is an instrument to enable and empower government to reform citizenry. e-governance is about transforming government to be more citizen-centered through
IT. e-governance and ICT are seen as elements of a larger government modernization program. Success of e-governance depends on how government works, how it deals with information and how officials view their jobs and interact with the public. Achieving e-governance success requires active partnerships between government, citizens and the private sector. Leaders should also think about how to harness technology to achieve their objectives for reform.

4.4 Backbone of e-governance: Good governance

The concept of good governance has also emerged from the felt need called New Public Management which began in the early 1980s, to improve public service efficiency. The core values around which new public management works are economy, efficiency and effectiveness. e-governance making use of ICT for better government functioning, is a tool for achieving good governance. Good governance requires a long-term, strategic approach evolved through a consensus process. It also requires a long-term perspective on what is needed for sustainable human development. This can only result from an understanding of the social context of a given society or community. e-governance connects the citizen and government with ease and speed and hence has a pivotal role in the governance agenda.

Good governance has 8 major characteristics. It includes participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive services \(^5\) and follows the rule of law. It ensures that corruption is minimized and transparency is maximized, that views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society. Good governance is considered the single-most important factor for national development and poverty alleviation. It is based on certain key characteristics which are presented below.

- **Participation:** Participation by both men and women is the key cornerstone of good governance and it could be either direct or through legitimate intermediate institutions or representatives. Participation needs to be informed and organized. This means freedom of association and expression on the one hand and an organized civil society on the other.
- **Rule of law**: Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities. Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force.

- **Transparency**: Transparency means that when decisions are taken their enforcement is done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also means that enough information is provided and that it is provided in easily understandable forms and media.

- **Responsiveness**: Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.

- **Consensus oriented**: There are several actors and as many view points in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus on what is in the best interests of the whole community and how this can be achieved. It also requires a broad and long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical, cultural and social contexts of a given society or community.

- **Equity and inclusiveness**: A society’s well being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups, but particularly the most vulnerable, to have opportunities to improve or maintain their well being.

- **Effectiveness and efficiency**: Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.

- **Accountability**: Accountability is a key requirement of good governance. Not only must governmental institutions be accountable to the public but also private sector and civil society organizations must be accountable to their institutional stakeholders. Who is accountable to whom varies on whether
decisions or actions taken are internal or external to an organization or institution. In general an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law.

### 4.5 e-governance Maturity Model

E-government applications and projects generally pass through various stages such as publishing of information on the web to carrying out transactions and even complete process re-engineering so as to bring in the true value and benefits of the efforts to the citizens. Gartner, an international e-business research consultancy firm, has formulated a four-phase e-governance model which can serve as a reference for governments to position where a project would fit in the overall evolution of an e-government strategy. In each of the four phases, the delivery of online services and use of ICTs in government operations serve one or more of the aspects of e-government: democracy, government, business. In most cases, governments start with the delivery of online information, but soon public demand and internal efficiency ask for more complex services. Of course this change will take effect gradually; some services will be online earlier than other services. In some cases the public demand is the driving force; in other cases cost saving aspects for the government lead the change. According to Gartner the e-governance four-phase maturity model is as follows:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Information</th>
<th>Presence (\rightarrow)</th>
<th>Interaction</th>
<th>Intake process (\rightarrow)</th>
<th>Transaction</th>
<th>Complete transaction (\rightarrow)</th>
<th>Transformation</th>
<th>Integration and organizational changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early 90’s</td>
<td>Information</td>
<td>Presence</td>
<td>Interaction</td>
<td>Intake process</td>
<td>Transaction</td>
<td>Complete transaction</td>
<td>Transformation</td>
<td>Integration and organizational changes</td>
</tr>
<tr>
<td>Mid 90’s</td>
<td>Interaction</td>
<td>Intake process</td>
<td>Transaction</td>
<td>Complete transaction</td>
<td>Transformation</td>
<td>Integration and organizational changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>Transaction</td>
<td>Complete transaction</td>
<td>Transformation</td>
<td>Integration and organizational changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In each of the four phases, the delivery of online services and use of ICTs in government operations serve one or more of the aspects of e-governance.

**Phase I: Information**

In the first phase, Information, e-governance means being present on the website, providing the relevant information to the G2C and G2B. This phase entails usage of
ICT to expand access to government information which is of importance to individuals and businesses. An efficient utilization of internet and communication technologies makes it possible to disseminate government information to a global audience in a fast and convenient manner. Although, the ways and means of disseminating this information keep on evolving further with the advancements in technology, an ideal way for a developing nation to enter this phase would be to set up a National Portal. This would provide a ready and comprehensive access to information online, ranging from Profile of the Nation, Parliament, Constitution, Executive and Judiciary to government publications, government services and government schemes for citizens and businesses. Setting up a National Portal will enable citizens and businesses to readily access government information without having to travel to government offices, stand in long queues or resort to malpractices to get the task done. This simple initiative can prove to be a revolutionary advancement for nations wrecked by complex bureaucracy and corruption. Some noteworthy examples of this stage with their portals include the UK Government’s ‘DirectGov’ initiative, http://www.direct.gov.uk/Homepage/fs/en, ‘Firstgov’ portal of the US federal government, http://www.firstgov.gov, Singapore government’s, http://www.gov.sg, Canadian government’s national portal, http://www.canada.gc.ca, the Indian government’s ‘India Image’ portal, http://indiaimage.gov.in and the New Zealand government’s, http://www.govt.nz.

Phase II: Interaction

The second phase pertains to enhancing public involvement in the process of government functioning. Through the use of technology, the interaction between the governments and citizens/businesses can be stimulated and made more effective. People can submit their queries and grievances through email or specially designed forms, check the status of their grievance, voice their opinion and help in policy formulation on important issues through online opinion polls and discussion forums and avail a whole range of online services. This not only raises the trust level of citizens in the government but also saves a lot of time by providing services on a 24*7 basis which would otherwise have been done over the conventional ‘counters’ only during the working hours of the government. Good examples of this phase include the websites of the Department of Administrative Reforms & Public Grievances of GoI,
the passport information portal of India and some Indian state government portals such as AP and Haryana.

**Phase III: Transaction**

While in the Interaction phase, the citizen is able to exchange information online and get details of the procedures involved. When it comes to actually conducting the transaction, he/she has to resort to conventional means. However, in Phase 3, this situation is amended and this phase involves establishing websites and other applications that allow users to conduct transactions online. In other words, the user is able to avail the service online in the complete sense. Online monetary transactions and payments is a crucial component of this phase since the citizen can carry out the transaction without having to even visit the government office. This phase demonstrates the advancements of technologies such as digital certificates and payment gateways and results in long term cost saving and improvement in productivity. Services such as online booking and payment of travel tickets, payment of taxes, land registration, renewal of identity cards and payment of utility bills etc. which require monetary transactions can be effectively provided in this phase through citizen kiosks and web-enabled applications. The examples of this phase include projects such as the e-Sampark System, Chandigarh-India and the e-Seva project of the AP government, India.

**Phase IV: Transformation**

This phase alludes to the stage where the government has gone through the full transformation process and all citizen services are being made available online through a single ‘virtual’ counter round the clock. In other words, in this stage the capacity to instantly access any service in a ‘unified package’ is provided to the citizen. Ministerial/departmental/agency lines of demarcation are removed and services are clustered along common needs. Providing such fully integrated services will require broad organizational changes, aligning the organizational setup with new capacities and integrating the back-end operations and infrastructure. Since various countries are at different levels of maturity in terms of resources and infrastructure, the adoption of e-government also has to be viewed in the form of different phases of maturity.
4.6 National e-governance Plan (NeGP)

The NeGP is an enormous step towards making the government accessible to citizens, in ways that not only save huge costs to the government but also make it more transparent and efficient in its day-to-day interactions with the common man. To that effect, the role of the common services centers, envisaged as the front-end delivery network for government services assumes great significance. Over the years, a large number of initiatives have been undertaken by various state governments and central ministries to usher in an era of e-government. Sustained efforts have been made at multiple levels to improve the delivery of public services and simplify the process of accessing them. NeGP takes a holistic view of e-governance initiatives across the country, integrating them into a collective vision, a shared cause. Around this idea, a massive countrywide infrastructure is evolving reaching down to the remotest of villages, and large-scale digitization of records is taking place to enable easy, reliable access over the internet. The ultimate objective is to bring public services closer home to citizens, as articulated in the vision statement of NeGP. The government approved the National e-governance Plan comprising of 27 MMPs and 8 components, on May 18, 2006. The government has accorded approval to the vision, approach, strategy, key components, implementation methodology, and management structure for NeGP. The existing or ongoing projects in the MMP category, being implemented by various Central Ministries, States, and State Departments would be suitably augmented and enhanced to align with the objectives of the NeGP.

4.6.1 Vision of NeGP

The National e-Governance Plan has been launched with the aim of improving delivery of government services to citizens and businesses and is guided by its vision. The vision statement clearly underlines accessibility, common service delivery outlets and successful implementation of e-governance applications by improving quality to satisfy its citizens. The vision has been designed keeping the rural population in mind. The need is to reach those sections of the society which have remained tangential to the government sphere due to various reasons like geographical challenges and lack of awareness. At present, citizens especially those living in remote rural areas have to travel long distances to avail a service through a government department or its local
offices. This is a time-consuming and costly affair for the common man. To overcome this problem, as part of the NeGP, one computer and internet enabled CSC is envisaged to be set up for every six villages so that villagers can easily avail these services. These CSCs are envisaged to offer online integrated service delivery on ‘Anytime, Anywhere’ basis. The use of ICT will enable the government to reach citizens thereby improving governance. This will also enable an improvement in the monitoring and implementing of various government schemes thereby increasing the accountability and transparency in government. e-governance helps in attaining this vision through the provision of citizen centric service delivery at nominal cost, and thereby providing better turnaround times and convenience in demanding and availing services.

Hence, the vision is to use e-governance as the route for governments to strengthen good governance. All services provided through the various e-governance initiatives are expected to assist the government at the Central and State levels in reaching the yet ‘unreached’ citizenry and enable the involvement and empowerment of marginalized groups through their participation in the government processes thereby contributing towards poverty reduction and bridging the sharp social and economic divide.

4.6.2 National e-governance Model

The Government of India has taken a pro-active role to provide e-enabled services to citizens through e-governance. GoI has also come up with a similar model like Gartner’s for its e-governance initiative. According to the NeGP, the e-governance model adopted by GoI is as follows

![Fig 4.1 e-governance model adopted by Government of India](image)
In the first stage, information is collected and is made available to citizens in the form of websites; this information is collected regularly and updated. Then comes the communication stage, that is, citizens will be able to download forms, contact officials and make appointments and requests online which previously would have been only possible with long queues near counters. Internally the government organizations can use LAN, WAN, intranet and e-mail to exchange information. The third stage is the transaction stage where citizens can do transactions with the government online, that is pay bills, reserve tickets online, finalizes decisions etc., without going to government offices. The fourth and final stage is the integrated stage where a total seamless integration of e-functions and services across administrative and departmental boundaries takes place. Now the citizen can interact with the government at a single point and can transact with the government. Currently India is somewhere between Stage 2 and Stage 3, that is, some government transactions can be done online and most information about different departments is available online for citizens.

All the information regarding the government and its transactions is available on a central portal called “The e-India portal”. This portal is internally connected to different Government of India portals and different state portals. All transactions related to G2G, G2C and G2B take place through this portal. This portal is connected through the Internet, LAN, WAN and Intranet for government organizations. The connectivity will be through the internet, mobile telephone networks, wireless networks, home PCs, integrated CSCs, kiosks and DTVs for citizens and businesses.

4.6.3 Implementation Strategy for NeGP

A prudent approach therefore is proposed for the NeGP is based on lessons learnt from the past and the experiences of successful e-governance applications that have been implemented nationally and internationally. The approach and methodology adopted for NeGP contains the following elements:

- **Common Infrastructure**: NeGP implementation involves setting up of common and support IT infrastructure such as: SWAN, SDC, CSC and NSDG.
- **Governance**: Suitable arrangements for monitoring and coordinating the implementation of NeGP under the direction of competent authorities have been set up. The programme also involves evolving/laying down standards and policy guidelines, providing technical support, undertaking capacity building, research and development etc. DIT strengthens itself and various institutions like NIC, Standardization, Testing and Quality Certification (STQC), Centre for Development of Advanced Computing (C-DAC), National Institute for Smart Governance (NISG) etc., to play these roles effectively.

- **Centralized Initiative, Decentralized Implementation**: e-governance is being promoted through a centralized initiative to the extent necessary to ensure citizen-centric orientation, to realize the objective of inter-operability of various e-Governance applications and to ensure optimal utilization of ICT infrastructure and resources while allowing for a decentralized implementation model. It also aims at identifying successful projects and replicating them with required customization wherever needed.

- **Public-Private Partnerships model**: It has to be adopted wherever feasible to enlarge the resource pool without compromising on the security aspects.

- **Integrative elements**: Adoption of unique identification codes for citizens, businesses and property is to be promoted to facilitate integration and avoid ambiguity.

### 4.6.4 Mission Mode Project (MMP)

The National e-governance Plan of the Indian government seeks to lay the foundation and provide the impetus for the long-term growth of e-governance within the country. The plans seeks to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implement a number of Mission Mode Projects[^12] at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance. "Mission Mode" implies that the objective and the scope of the project are clearly defined, that the project has measurable outcomes and service-levels, and that the project has well-defined milestones and timelines for implementation. MMPs are owned and spearheaded by various line ministries concerned with central, state, and integrated MMPs. The concerned ministry/department is entirely responsible for all decisions related to their MMPs. However, decisions impacting NeGP as a whole are taken in consultation with
DIT. Additionally, wherever required by the concerned Ministries/Departments, DIT provides the necessary support for project formulation and development. Every state has the flexibility of identifying up to 5 additional state-specific MMPs. In cases where central assistance is required, such inclusions are considered on the advice of the concerned line ministries/departments. The following Table No.4.1 shows some core projects of MMP in various sectors.

Table No.4.1 Mission Mode Projects: The Core Projects

<table>
<thead>
<tr>
<th>Central MMPs</th>
<th>State MMPs</th>
<th>Integrated MMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking</td>
<td>Agriculture</td>
<td>CSC</td>
</tr>
<tr>
<td>Central Excise &amp; Customs</td>
<td>Commercial Taxes</td>
<td>e-Biz</td>
</tr>
<tr>
<td>Income Tax (IT)</td>
<td>e-District</td>
<td>e-Courts</td>
</tr>
<tr>
<td>Insurance</td>
<td>Employment Exchange</td>
<td>e-Procurement</td>
</tr>
<tr>
<td>MCA21</td>
<td>Land Records</td>
<td>EDI for Trade</td>
</tr>
<tr>
<td>National Citizens Database</td>
<td>Municipalities</td>
<td>National e-governance service delivery gateway</td>
</tr>
<tr>
<td>Passport</td>
<td>Gram Panchayats</td>
<td>India Portal</td>
</tr>
<tr>
<td>Immigration, Visa and</td>
<td>Police</td>
<td></td>
</tr>
<tr>
<td>Foreigners’ Registration &amp;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pension</td>
<td>Road Transport</td>
<td></td>
</tr>
<tr>
<td>e-Office</td>
<td>Treasuries</td>
<td></td>
</tr>
</tbody>
</table>

4.7 Infrastructure of e-governance

Seventy percent of India's population lives in rural areas, which are underdeveloped in terms of infrastructure. Over the last decade, Govt has taken multiple e-governance initiatives to remove the long-existing digital divide. The NeGP of the Govt very clearly lays out the guidelines for the roll out of such networks. The government’s e-governance initiatives allows the State to provide various G2C services and provides a unified communication network to all government offices across the country. Tulip has been a preferred government partner for many years now and has completed a large number of projects in the public sector. Tulip has completed various IT projects with the central and state government institutions. The project has received various
national and international accolades, and has become the role model for network deployment in rural areas. A common digital service delivery infrastructure consisting of the SWAN, SDC, NSDG/SSDG, CSC is being created in every State and Union Territory to ensure a seamless and single-window delivery of public services to the common man.

4.7.1 State Wide Area Network (SWAN)

State Wide Area Network is an advanced telecommunication infrastructure, which is used extensively nowadays, for an exchange of data and other types of information between two or more locations, separated by significant geographical distances. The medium of connectivity can be copper, optical fiber cable or wireless, whichever is feasible. Such wide area networks, in a way, create a highway for electronic transfer of information in the form of voice, video and data. DIT in GoI is implementing an approved scheme known as SWAN scheme, envisaged to create such a connectivity in each State / UT, to bring speed, efficiency, reliability and accountability in the overall system of G2G functioning. SWAN is designed to cater to the governance information and communication requirements of all the State / UT Departments.

4.7.2 State Data Center (SDC)

State Data Centre has been identified as one of the important elements of the core infrastructure for supporting e-governance initiatives of NeGP. Under NeGP, an SDC will be created for the states to consolidate services, applications and infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services can be rendered by the states through a common delivery platform seamlessly supported by core connectivity infrastructure such as SWAN and CSC connectivity extended up to the village level. SDC provides many functionalities and some of the key functionalities are Central Repository of the State, Secure Data Storage, Online Delivery of Services, Citizen Information/Services Portal, State Intranet Portal, Disaster Recovery, Remote Management and Service Integration etc. SDCs would also provide better operation & management control and minimize the overall cost of Data Management, IT Resource Management, Deployment and other costs.
4.7.3 National e-governance Service Delivery Gateway (NSDG)

The NeGP of the GoI aims to cooperate, collaborate and integrate information across different departments in the Centre, States and Local Government. Government systems are characterized by islands of legacy systems using heterogeneous platforms and technologies. These are spread across diverse geographical locations, in varying states of automation, making this task very challenging. The NSDG, an integrated MMP under the NeGP, can simplify the above task by acting as a standards-based messaging switch and providing seamless inter-operability and exchange of data across the departments. NSDG acting as a nerve centre, would handle a large number of transactions and would help in tracking and time stamping all transactions of the government. The NSDG is an attempt to reduce such point to point connections between departments and provide a standardized interfacing, messaging and routing switch through which various players such as departments, front-end service access providers and back-end service providers can make their applications and data inter-operable. The NSDG aims to achieve a high order of inter-operability among autonomous and heterogeneous entities in the centre, states or local bodies of government.

4.7.4 Common Services Centers (CSC)

The CSC is a strategic cornerstone of the NeGP, as part of its commitment in the National Common Minimum Programme to introduce e-governance on a massive scale. The CSCs would provide high quality and cost-effective video, voice and data content and services, in the areas of e-governance, education, health, telemedicine, entertainment as well as other private services. A highlight of the CSCs is that it will offer web-enabled e-governance services in rural areas, including application forms, certificates, and utility payments such as electricity, telephone and water bills. The scheme creates a conducive environment for the private sector and NGOs to play an active role in the implementation of the CSC Scheme, thereby becoming a partner of the government in the development of rural India. The PPP model of the CSC scheme envisages a 3-tier structure consisting of the CSC operator called Village Level Entrepreneur (VLE), the Service Centre Agency (SCA) that will be responsible for a division of 500-1000 CSCs and a State Designated Agency (SDA) identified by the state government responsible for managing the implementation over the entire state.
4.8 e-Readiness of e-governance

The concept of e-governance has its origins in India during the seventies with a focus on the development of in-house government applications in the areas of defense, economic monitoring, planning and the deployment of IT to manage data intensive functions related to elections, census, tax administration, passports etc. e-Readiness is the ability to use ICT to develop one's economy and to foster one's welfare. Each year, in cooperation with the IBM Institute for Business Value, the Economist Intelligence Unit produces a ranking of e-Readiness across countries, based on six pillars of e-readiness: connectivity & technology infrastructure, business environment, social & cultural environment, legal environment, government policy & vision and consumer & business adoption. e-Readiness indices at the macro level are constructed primarily for ranking countries and facilitating comparisons between countries over time. They are also used to track the global digital divide, i.e. the gap between countries that have access to ICT.

The United Nations e-Government Survey [2] 2010 finds that citizens are benefiting from a more advanced e-service delivery, better access to information, more efficient government management and improved interactions with governments, primarily as a result of an increasing use by the public sector of information and communications technology. Most countries have published a tremendous amount of information online, many going beyond basic websites to provide national portals that serve as a major starting point for users to connect to government services in different ministries. At the same time, many developing countries need to devote additional energy to transactional services as well as to the electronic means of engaging citizens in public consultation and decision making. The following Table No.4.2 shows the Economist Intelligence Unit e-readiness rankings in 2010 [14]. It includes the ranks of the first 10 countries and other selected countries. Sweden is first with an e-Readiness score of 8.49 out of 10 and India is 58th position with an e-Readiness score of 4.11.
### Table No. 4.2: Economist Intelligence Unit e-readiness rankings in 2010 of selected countries

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>e-readiness Score (Out of 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sweden</td>
<td>8.49</td>
</tr>
<tr>
<td>2</td>
<td>Denmark</td>
<td>8.41</td>
</tr>
<tr>
<td>3</td>
<td>United States</td>
<td>8.41</td>
</tr>
<tr>
<td>4</td>
<td>Finland</td>
<td>8.36</td>
</tr>
<tr>
<td>5</td>
<td>Netherlands</td>
<td>8.36</td>
</tr>
<tr>
<td>6</td>
<td>Norway</td>
<td>8.24</td>
</tr>
<tr>
<td>7</td>
<td>Hong Kong</td>
<td>8.22</td>
</tr>
<tr>
<td>8</td>
<td>Singapore</td>
<td>8.22</td>
</tr>
<tr>
<td>9</td>
<td>Australia</td>
<td>8.21</td>
</tr>
<tr>
<td>10</td>
<td>New Zealand</td>
<td>8.07</td>
</tr>
<tr>
<td>13</td>
<td>South Korea</td>
<td>7.94</td>
</tr>
<tr>
<td>17</td>
<td>Ireland</td>
<td>7.82</td>
</tr>
<tr>
<td>22</td>
<td>Bermuda</td>
<td>7.47</td>
</tr>
<tr>
<td>26</td>
<td>Israel</td>
<td>6.96</td>
</tr>
<tr>
<td>39</td>
<td>Poland</td>
<td>5.70</td>
</tr>
<tr>
<td>49</td>
<td>Thailand</td>
<td>4.86</td>
</tr>
<tr>
<td>54</td>
<td>Philippines</td>
<td>4.47</td>
</tr>
<tr>
<td>58</td>
<td>India</td>
<td>4.11</td>
</tr>
<tr>
<td>63</td>
<td>Sri Lanka</td>
<td>3.81</td>
</tr>
<tr>
<td>68</td>
<td>Iran</td>
<td>3.24</td>
</tr>
</tbody>
</table>

Source: Economist Intelligence Unit, 2010.

### 4.9 Challenges of e-governance in India

Implementation of e-governance has changed the way of living of the people in many countries. The GoI has embraced e-governance as a trigger and means to redefine and streamline outdated, inefficient processes and procedures while simultaneously exploiting the full power of modern ICT. The aim is to provide citizens with easier and faster access to government services. India has recognized the benefits of e-governance and through it, ushered in a paradigm of citizen-centric service delivery.
e-governance is reforming the way government manages and shares information with external and internal clients. Specifically, it harnesses ICT to transform relations with citizens, businesses and the various arms of government. There are however, numerous challenges. Some of the key areas needing attention are as follows:

- **Clarity in objective setting:** Project approval and funding of projects through multiple departmental budgets lead to wide variations in the approach to project objective setting, without a clear focus on outcomes or on building sustainable services. The service needs of citizens/ businesses and those of other departments are often either overlooked or accorded lower priority in relation to internal needs. Very often, objective setting is purely in ICT terms such as computers, networks and so on which are specified in great detail, while government business process outcomes are either not defined or are defined in vague terms that do not lend themselves to measurement post implementation.

- **Ensuring service delivery:** e-governance projects have primarily focused on internal process automation and generally are hardware and infrastructure driven with little focus on citizen service delivery or outcomes.

- **Awareness:** There is a general lack of awareness regarding benefits of e-governance as well as the process involved in implementing successful G2C, G2B and G2G projects. The administrative structure is not geared for maintaining, storing and retrieving governance information electronically. The general tendency is to obtain the data from the files as and when required rather than using document management and workflow technologies.

- **Awareness of government officials about ICT:** More than anything else, it is the mindset of government officials that poses the biggest bottleneck to e-government. There are a number of reasons why they resist the use of computers beyond the usual typing of letters and documents. The primary reasons are that they are resistant to any kind of change in their familiar working environment; they fear that computerization of different government activities may make some people redundant and think that computers are meant for low-level typist kind of work.
• **Public Awareness about ICTs:** Although there is much hype about IT among the younger generation, there is not a high level of awareness among the general public about how ICTs may be useful to their lives. Also, there is a cultural inhibition about the use of PCs in this country. From a cultural context, people are generally not familiar with the concept of using computers. ICTs are still generally perceived as catering to the rich and the elite. As a result, there is no demand or pressure from the public for service delivery through the use of ICTs.

• **Non-acceptability of IT systems:** It is often seen that even after an IT system is implemented in a government office, it becomes hard for government officials to convince themselves to use it. Besides the general lack of awareness about ICTs and the fears discussed earlier, some other factors also play a part in the non-acceptability of IT systems. They fear that important data may get lost or they are doubtful about the security features of computers.

• **Leveraging Private Capital:** The experience of successful e-governance initiatives indicates that well structured service-oriented projects can attract private capital linked to explicit service-linked revenues from users or from government. The current system of project formulation i.e. based on budgetary allocation / grants places little or no pressure on departments to develop project structures that can attract private capital, a goal that necessitates additional rigor and complexity at the project formulation and development stage.

• **Resistance to re-engineering of departmental processes:** Successful implementation of e-governance projects requires a lot of restructuring in the administrative processes and redefining of administrative procedures and formats. This meets with resistance in almost all departments at all levels. Additionally there is a lack of expertise among departmental MIS executives in exploiting data mining techniques, updating of and collection of real time content in the website etc. Therefore the content collected or maintained by various e-governance portals is unreliable or full of gaps. In such a scenario, it is difficult for any e-governance solution to achieve its intended results. Hence, it is essential to undertake process re-engineering as an integral part of
e-governance project implementation in order to ensure increased efficiency and reduced costs.

- **Standardization:** A departmental approach and the absence of a national framework for common standards has resulted in the adoption of different technical standards and varied architectures. This has significant implications for designing effective integrated applications and also entails long-term costs and sub-optimal results.

- **Independent Impact Assessment:** In the current system, there is no requirement or institutional mechanism for an independent assessment of projects post-implementation to determine whether they have achieved the set objectives, except in purely financial terms. Further, very few projects have formal performance metrics defined at the start of the project to measure outcomes.

- **Localization/Multi-language support:** e-governance has an impact only when the services to citizens are made available in their respective language. However, this is a challenge that needs to be addressed by formulating clear standards and guidelines with respect to the fonts, storage, input etc. ICT solutions were mostly developed with an English language interface. However, in India vast majorities (95 percent) of the citizens do not know English and use the local language. The fact is that India has 22 official languages; for the success of e-governance, this reality needs to be reflected in the implementation strategy.

- **Internal Capacity/Project Management Expertise:** Departments/ states have limited access to any institutional mechanisms for building capacities in the areas of e-governance project development and design, bid process management, professional project management, development of contractual frameworks and service level agreements.

- **Underutilization of existing ICT infrastructure:** To a larger extent, the computers in the department are used for the purpose of word processing only, resulting in the under-utilization of the computers in terms of their use in data mining for supporting management decisions. The time gap between the procurement of the hardware and development of the custom applications is so
large that by the time the application is ready for use, the hardware becomes obsolete.

- **Lack of coordination between the government department and solution developers:** Designing of any application requires a very close interaction between the government department and the agency developing the solutions. At present the users in the government departments do not contribute enough to design the solution architecture. Consequently the solutions developed and implemented do not address the requirements of an e-governance project and hence do not get implemented.

- **Lack of infrastructure for sustaining e-governance projects on a national level:** Infrastructure to support e-governance initiatives does not exist within government departments. The agony is that government departments are not equipped to be in a position to project clear requirements nor are there any guidelines for involving the private sector. Whatever efforts have been made by various government organizations may be defined as islands of computerization. The infrastructure creation is not guided by a uniform national policy, but is dependent on the needs of individual officers championing a few projects. Therefore, the required networking and communication equipment is either nonexistent in government departments, or if it exists at all, it does not serve any tangible purpose as far as the requirement of a e-governance project is concerned. The use of connectivity options provided by government agencies like NICNET etc. are used in a very limited manner for the purpose of data transmission between various locations viz. district, state, center etc. and are mainly utilized for e-mail and internet purposes only.

- **Sharing of data across various e-governance implementations:** One of the key benefits that a citizen is looking at from e-governance initiatives is a single window access to various government services no matter which department is responsible for giving the service. To achieve this, there is a need to be able to seamlessly share data across the applications.

- **Security Issues:** While there are clear standards like ISO 27001 and ISO 20000 for IT securities and IT service management which are presently being used by various e-governance applications, it has been seen however, that the
concerns of the respective departments with regard to data and application security and control are still not adequately addressed. The reasons include the lack of adequate knowledge and understanding of the various management controls on these standards by the departments. Policies like access control and security are not made very comprehensive, and the controls in international standards need to be made more prescriptive for our requirements. The RFP should also highlight the concerns of the government department with respect to the requisite strategic controls clearly.

- **Lack of adequate training programs:** Many e-government or computerization projects suffer gravely from a lack of adequate training programs. Training is of vital necessity in familiarizing users with computers and overcoming their fears. Some officials go through unplanned ‘IT Training’, often in another country, and then come back not getting any scope for utilizing their newly gathered knowledge of IT and forgetting it all in due time. The training programs are mostly not need-based. They are arranged at arbitrary periods, and not during the implementation phase of an e-government project.

- **Lack of reliable maintenance:** Another significant problem is that generally there is no in-house maintenance personnel. It is of vital necessity that computers get fixed as soon as they malfunction or users very easily lose confidence in the IT systems. Most offices have contracts with local hardware companies for maintenance, but their services are often not immediate.
References