"A Critical Study of Implication of e-governance Services for effective Communication with special reference to Citizens in Pune City"

CHAPTER 1
INTRODUCTION

“Make all Public Services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man.”

Vision Statement of NeGP[20]

1.1 Introduction

The revolutionary nature of Information and Communication Technology (ICT) is rapidly changing the society and the mode of governance in the 21st century. Reformers are increasingly eyeing on e-governance as a salvation vehicle to achieve good governance, democracy and transparency. e-governance is the application of ICT for delivering government services, exchange of information communication transactions, integration various stand-one systems and services between G2C, G2B, G2G, G2E as well as back office processes and interactions within the entire government frame work. Through the e-governance, the government services will be made available to the citizens in a convenient, efficient and transparent manner. e-governance is like a giant canvas on which the people can draw a new citizen centered view of their government. Citizen expect a 24/7 convenient user interface for interaction with government with ease of use, in a language that they understand and which is tailored to individual needs. e-governance is being deployed not only to provide citizen services but for public sector efficiency purposes, improving transparency and accountability in government functions and allowing for cost saving in government administration.
Today’s world is internet driven. It is a world in which everything is e-enabled. The Internet is used for various purposes, such as electronic mail, search for information, payment of utility bills, registration for various certificates like caste, birth, death etc, and for organizational websites etc. In today’s IT environment, it has become the essential part of a citizen’s communication channel. Hence as e-citizens, they want to interact with the government through this channel thereby saving their time and the cost for availing these services. This demand forced the government to change from providing services inline to transacting the same service online. Through an initiative of the ICT most Municipal Corporations developed their websites through which citizens can easily interact with the government. Citizens can do a number of civic transactions like birth & death certificate registration, assessment and payment of property tax, payment of utility bills, grievance redressal, online building sanction and online tender etc. to meet their needs. It allows greater flexibility to citizens to do their regular transaction anytime, anywhere according to their convenience by using the internet at home, in the office or in a net café.

1.2 ICT: e-commerce & e-governance

Many governmental initiatives aimed at promoting the use of information and communication technology (ICT) for the purposes of government and administration try to transfer ideas from the area of e-commerce to the area of e-government. e-government initiatives have made governments participants in e-commerce. Through e-government activities, governments function as consumers and suppliers of e-commerce services, thus transforming their role from one of pure policy or regulatory overview to one of participation. In doing so, governments have the potential to make a positive contribution to e-commerce development. Governments that recognize this opportunity may gain a competitive advantage by using e-government operations to assist in driving e-commerce growth.
1.2.1 Electronic Commerce

The Internet has created a new economic ecosystem, the e-commerce marketplace, and it has become the virtual main street of the world. Providing a quick and convenient way of exchanging goods and services both regionally and globally, e-commerce has boomed. Electronic commerce \[^1\] is commonly referred to as online commerce, web commerce, eBusiness, eRetail, eTailing, eCommerce, ecom or EC. It is the process used to distribute and buy or sell market goods and services, or to transfer of funds online through electronic communication or networks. e-commerce can be broken into four main categories: B2B (Business-to-Business), B2C (Business-to-Consumer), C2B (Consumer-to-Business), and C2C (Consumer-to-Consumer).

e-government transforms this customary governmental role by making governments active participants in e-commerce. In this way, the role of government is changed from one of pure overview and regulation to a more participatory role in which government is not only an e-commerce regulator but an e-commerce “player” as well, because e-government and e-commerce are effectively two sides of the same coin. This evolving governmental role has significant implications for the future development of e-commerce. Governments participate in e-commerce in a variety of ways. They both use and in some instances supply, enhanced telecommunication services which provide the necessary foundation for both e-government and e-commerce services. Through online transactions they provide different types of services to their citizens at lower costs. Other services range from relatively simple informational transactions to issuing driver’s licenses, accepting payment of taxes and fines, to issuing permits and providing a means to register or form corporations and other business entities. Governments also sell and purchase goods and services online and in so doing, have the opportunity not only to set terms for government-related e-commerce transactions but also to influence more broadly the conduct of private e-commerce transactions. In their search for funding sources for e-government operations or in response to funding pressures caused by private sector e-commerce activity – governments sometimes undertake functions that are indistinguishable from those of for-profit e-commerce entities. In other cases, in order to reduce costs, governments take advantage of the

[^1]: Reference number
capabilities provided by the Internet to outsource noncore functions to the private sector and, in this way, lend their economic support to private sector e-commerce providers.

There are many ways \[^3\] in which governments, through their e-governance activities, become participants in e-commerce. These ways are

- Telecommunication
- Online transactions for citizens and businesses
- Government procurement
- Private sectors
- Outsourcing of noncore governmental functions

e-government activities increasingly are involved in e-commerce and such involvement has several benefits. Perhaps the most important benefit of such activities is that they serve to educate governments about the economic and business realities of online transactions and about the interdependence of online private and public sector activity. The close relationship between e-government and e-commerce leads to a similarly supportive regulatory infrastructure.

e-government initiatives help to create a market for corresponding private sector involvement. As governments seek to web-enable their activities, they create a demand for telecommunication networks and equipment, secure servers and other physical infrastructure. They also create a demand for other types of supportive services such as companies that process online credit card transactions, companies that design and maintain websites, companies that design various types of software, and companies to which they can outsource “noncore” governmental functions etc.

1.2.2 e- governance

e-governance is the effective use of IT to improve the ability of the government to address the needs of society and to improve the system of governance in place to provide better services to the citizens. Through e-governance, government can be defined by giving a choice to the citizens of when and where they can access government information and services. It includes the publishing of policy and program related
information to interact with citizens. It extends beyond provision of on-line services and covers the use of IT for strategic planning and for reaching the development goals of the government. The advantages are many, like a higher degree of transparency, less paperwork and less delay. It improves the pace and effectiveness of governance to name a few. e-governance is basically the application of ICT to the process of Government functioning in order to bring about SMART governance. This generally involves 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 and increasing revenue
- Restructuring of administrative processes
- Improving quality of services.

Although the term ‘e-governance’ has gained currency in recent years, there is no standard definition of this term. Different state governments and organizations define this term to suit their own aims and objectives. Some widely used definitions are listed below:

1.2.2.1 e-governance Definition

i) According to the World Bank \(^{[10]}\)

“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 efficiency of government management. The result of these benefits can be less corruption, increased transparency, greater convenience, revenue growth and cost reductions.” Thus, the stress is on the use of information technologies in improving citizen-government interactions, cost-cutting and the generation of revenue and transparency.
ii) UNESCO defines e-governance [9]

“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, 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 an articulation of citizens’ interests thereby leading to greater transparency and efficiency.

iii) The Council of Europe [13]

“e-governance is about the use of information technology to raise the quality of the services governments deliver to citizens and businesses. It is hoped that it will also reinforce the connection between public officials and communities thereby leading to a stronger, more accountable and inclusive democracy. The uses of electronic technologies in three areas of public action are: 1) relations between the public authorities and civil society 2) functioning of the public authorities at all stages of the democratic process (electronic democracy) 3) the provision of public services (electronic public services). In these cases, the focus is on making use of electronic technologies with a view to encourage better interaction between government and citizens to promote democracy and provide public services.


“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 services to the public, other agencies and government entities or to bring about an improvement in government operations that may include effectiveness, efficiency, service quality and transformation”.

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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, services to citizens and government entities on the other.

1.2.2.2 e-governance and ICT

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 framework. e-governance is generally understood as the use of 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. ICT is the biggest enabler of change and process reforms with minimum resistance. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.

Development in e-governance provides opportunities to harness the power of IT to make the business of governance inexpensive, qualitatively responsive and truly encompassing. Through e-governance the government seeks to achieve efficiency, transparency and the participation of citizens. e-governance through ICT contributes to good governance, trust and accountability, and a citizen's awareness, empowerment and welfare. It is democracy at its best and enhances the nation's economic growth.

The emergence of ICT has provided the means for faster and better communication, efficient storage, retrieval and processing of data and the exchange and utilization of information to its users, who may be individuals, groups, businesses, organizations or governments. It is also used as a tool for processing and tabulating data as an aid to decision making. With growing computerization and increasing internet connectivity, this process has presently reached the stage where more and more users are motivated to modify their ways of doing things in order to leverage the advantages provided by ICT and this has led to ‘business process re-engineering’. It 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. e-governance is the use of ICT in systems of governance in order to ensure wider participation and deeper involvement of citizens, institutions, civil society groups and the private sector in the decision making process of governance.

By increasing an 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. Today the government is expected to be transparent in its dealings, accountable for its activities and faster in its responses. This has made the use of ICT imperative in any agenda drawn for achieving good governance. It has also led to the realization that such technologies could be used to achieve a wide range of objectives and lead to faster and more equitable development with a wider reach. ICT is the tool of modern technology and should be used to transform the relationship of the government with its constituents, citizens and businesses and between its own agencies.

1.2.2.3 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. However, in the case of India, with the liberalization of the economy from the early 1990’s onwards, there has been a convergence in the availability of cutting edge technologies and the opportunity in the field of e-governance. According to the United Nations e-Readiness Survey templates, e-governance has five stages to becoming an online presence of governments worldwide:

1. Emerging Presence

The Stage of Emerging presence deals with online availability of limited and basic information. With increasing internet connectivity, a need was felt for maintaining a presence on the web. This resulted in the maintenance of websites by government departments and other entities. Generally, these Webpages/websites contained information about an organizational structure, contact details, reports and publications, objectives and vision statements of the respective government entities. A basic online
presence of an e-government involves an official website and a few WebPages. It has links to ministries and departments of the Central Government. Regional/local government may or may not be available. The website at this stage may also have some information such as the messages of Heads of States or the constitution. However at this stage most of the information remains static without there being any options for citizens.

2. Enhanced Presence

The Stage of Enhanced presence of the government online provides more public information resources such as government policies, laws, regulations, reports and newsletters. These may be downloadable at this stage and allow users to search for information within the documents which are available online. A ‘help and sitemap’ feature may also be provided on the website to make navigation of the website simpler. At this stage, though there are more documents available online, the navigation of the website is still not sophisticated and is unidirectional. There is no interactivity at this stage as the information is flowing only towards the citizens rather than from the citizens to the government.

3. Interactive Presence

The Stage Interactive presence expects government to initiate interactivity on their websites. It involves the availability of online services of the government to enhance the convenience of the consumer. It will include downloadable forms and applications for payment of bills, taxes and renewal of licenses. Government websites would also have audio and video capability to increase their interactivity with the citizens. At this stage the government officials would be able to contact citizens via email, fax, telephone and speed post. The website would be updated regularly for keeping the information current and up to date for the public.

4. Transactional Presence

The Stage of Transactional presence allows two ways of interaction between citizens and the government. It includes options such as paying taxes, applying for identity cards,
birth certificates, passports, license renewals and other similar C2G interactions by allowing the citizen to submit forms and applications 24/7 online. The citizens at this stage will be able to pay for relevant public services, such as motor vehicle violations, taxes and fees for postal services through their credit, bank or debit card. Providers of goods and services will also be able to bid online for public contracts via secure links.

5. Networked Presence

The Stage Networked Presence represents the most sophisticated level in online e-government initiatives. In this phase, some units of a few government organizations get connected through a hub leading to sharing of information and flow of data between different government entities. It can be characterized by an integration of G2G, G2C, G2B and G2E interactions. The government at this stage encourages citizen participation and online participatory decision-making and is willing and able to involve the society in a two-way open dialogue. Through interactive features such as the web comment form and innovative online consultation mechanisms, the government will actively solicit citizens’ views on public policy, law making and democratic participatory decision making. At this stage of e-governance the integration of public sector agencies is initiated with the full cooperation and understanding of the concept of collective decision-making, participatory democracy and citizen empowerment as a democratic right.

1.3 Components of e-governance

e-governance is the application of ICT for delivering government services. It is the 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 framework at National, State, Municipal & Local levels. It is a means to empower citizens through the access & use of information. Through e-governance, government services will be made available to the citizens in a convenient, efficient and transparent manner. With the government being the service provider, it is important to motivate government employees to deliver the services through ICT. To
achieve this, government employees are being trained to use the technology and they have started realizing the advantage of ICT. The aim is to make them thorough with e-governance applications and responsive to technology driven administration. Government is increasingly looking to improving delivery of services to citizens and employees. The focus is slowly shifting towards providing self-service processes through online web based applications. The four main target groups that can be distinguished in e-governance concepts are government, citizens, business groups and employees. The external strategic objectives focus on citizens, businesses and interest groups. Internal objectives are focused on the government itself and its employees. The major components involved in e-governance are Government to Government (G2G), Government to Citizen (G2C), Government to Business (G2B) and Government to Employees (G2E).

1.3.1 Government to Government (G2G)

G2G relationship includes the relationships between Central and State Government and also the relationship between two or more government departments. G2G includes various services namely e-administration, e-police and e-courts etc. All G2G interactions and dealings are required for planning, decision support and implementation of its action plans. The goal of the G2G system is to forge new partnerships among various levels of government. These partnerships facilitate collaboration among levels of government and empower state and local governments to deliver citizen services more effectively. e-governance implementation reduces the time gap between G2G which helps to evolve a faster decision making system. It requires a single interface to government offices and staff, for carrying out effective functions like human resource management and financial resource planning in an integrated environment. Most of the government agencies are to be linked through a modern computerized network that allows secure communication and interaction. This kind of interaction is only within the sphere of government and can be both horizontal i.e. between different government agencies as well as between different functional areas within an organization, or vertical i.e. between national, provincial and local government agencies as well as between different levels within an organization. The primary objective of G2G is to increase efficiency, performance and output. An example of G2G is the e-governance Standards Portal of India at http://egovstandards.gov.in.
1.3.2 Government to Citizen (G2C)

G2C is the online relationship between various government departments and citizens. The citizen gets some services without actually visiting the various government offices. The role of G2C is to serve the citizens on the websites with the most useful services for day to day life and emergencies. In G2C, an interface is created between the government and citizens which enables the citizens to benefit from an efficient delivery of a large range of public services. This expands the availability and accessibility of public services on the one hand and improves the quality of services on the other. It gives citizens the choice of when to interact with the government i.e. 24 hours a day, 7 days a week, from where to interact with the government i.e. from service centre, unattended kiosk or from one’s home/workplace and how to interact with the government i.e. through internet, fax, telephone, email, face-to-face, iPod etc.

The citizens need not visit, each time, the government departments with xerox copies of documents. The documents submitted at any of the citizen facilitation centers is made available across the departments so that carrying volumes of documents and feeding them into computers is totally eliminated or minimized. The primary purpose of G2C is to make a government citizen friendly. It includes citizens’ services such as e-Citizenship, e-Registration, e-Transportation, e-Health, e-Education, e-Help and e-Taxation. It enables G2C transactions to become more efficient, effective and productive, while enhancing the quality of services, by facilitating public transactions with the government using various electronic channels. An example of G2C is the National Portal of India at www.India.gov.in

1.3.3 Government to Business (G2B)

In order to implement the government’s various plans and projects it needs the business communities’ services. The G2B initiatives can be transactional, such as e-Taxation, e-Licensing, e-Procurement, e-Payment, with project monitoring and implementation as part of this model. They can also be promotional and facilitative, such as in trade, tourism and investment. e-procurement is an application to transform the existing manual system of government procurement into an efficient electronic based one. G2B is used to aid the
business community providers of goods and services to seamlessly interact with the government. The objective is to cut red tape, save time, reduce operational costs and to create a more transparent business environment when dealing with the government. These measures help to provide a congenial environment to businesses to enable them to perform more efficiently. It includes dissemination of policies, memos etc. government rules and regulations, business information, application forms, renewal of licenses, registration, and payment of taxes. An example of G2B is the business Portal of India at www.Indiabusiness.gov.in

1.3.4 Government to Employees (G2E)

The government like any organization has to interact with its employees on a regular basis. This interaction is a two-way process between the organization and the employee. Use of ICT tools helps in making these interactions fast and efficient on the one hand and increases the satisfaction levels of employees on the other. It includes online conference facilities for employees, online training, and employee information. An example of G2E is e-Training for Employees at www.egovonline.net

1.4 Delivery Channels of e-governance services

Today’s world is an internet driven world in which everything is e-enabled. The internet is used for various purposes such as electronic mail, searching for information, payment of utility bills, registration of various certificates like caste, birth, death etc, and for organizational websites etc. In today’s IT environment, it has become essential for most citizens as a communication media. As a communication media, delivery channels play a key role in delivering services to the citizens. The delivery channels represent the means through which electronic services are delivered to the citizens. Identifying which channels to use is a key success factor for any effective e-governance strategy. The infrastructure required to support the channels i.e. hardware, software and network needs to be assessed. Also business processes and procedures are required to operate the channel and organizational structure is required to manage and deliver the electronic
services. Governments have the option of employing a judicious mix of the following possible delivery channels to use for the delivery of services with the use of IT.

1.4.1 Internet

Today’s world is an internet driven world in which everything is e-enabled. The internet is a powerful medium for CRM and it enables governments to extend their services more effectively to the people. e-governance models are built around objectives that include better use of information, quicker dissemination of information, transparency in government-people transactions and creating services that cover as broad a spectrum of society as possible. The Internet is used for various purposes such as electronic mail, searching for information, availing various government services, advertising and purchase of products, organizational websites etc. It has become the essential part of a government’s agencies to deliver various services at the citizens’ doorstep. Government authorities have been using the internet to approach its citizenry. Governments around the world have offered various services on the Internet. Public sector websites have grown by leaps and bounds and discussions of internet policy issues are commonplace. The internet can be deployed for making existing operations more effective and efficient. The real opportunity is governance remodeling and redefining the scope of the current governance model. The internet provides immediate access to the right knowledge input to optimize any physical activity. Through the internet the citizen will get quick service from the government. Citizens need not go from one place to another. It helps to maintain quality, transparency and to manage time. Citizens can use desktops and hand-held computers to connect to the government’s web portal to request for services, register for birth and death certificates, search for information and make payments of various utility bills etc.

i) Growth of Internet users

The internet is changing and it will continue to do so. The number of Internet users is increasing day by day. Number of Internet users has reached 2095 million at the end of 2011 compared to 1,996 million in 2010. The statistics reveal that China has the
largest number of users with 513 million and the US is second overall with 245 million. The strongest growth is seen in India which is ranked third where the number of users is 121 million. The report also said that in terms of overall internet users, the highest numbers after China, US and India were in order, Japan, Brazil, Germany, Russia, United Kingdom, France and Nigeria.

Table No.1.1 indicates the growth of internet users in the world between 2000 and 2011.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Internet users in millions</th>
<th>% world Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>361</td>
<td>5.8</td>
</tr>
<tr>
<td>2001</td>
<td>513</td>
<td>8.6</td>
</tr>
<tr>
<td>2002</td>
<td>587</td>
<td>9.4</td>
</tr>
<tr>
<td>2003</td>
<td>719</td>
<td>11.1</td>
</tr>
<tr>
<td>2004</td>
<td>817</td>
<td>12.7</td>
</tr>
<tr>
<td>2005</td>
<td>1,018</td>
<td>15.7</td>
</tr>
<tr>
<td>2006</td>
<td>1,093</td>
<td>16.7</td>
</tr>
<tr>
<td>2007</td>
<td>1,262</td>
<td>19.1</td>
</tr>
<tr>
<td>2008</td>
<td>1,574</td>
<td>23.5</td>
</tr>
<tr>
<td>2009</td>
<td>1,802</td>
<td>26.6</td>
</tr>
<tr>
<td>2010</td>
<td>1,996</td>
<td>28.7</td>
</tr>
<tr>
<td>2011</td>
<td>2,095</td>
<td>30.2</td>
</tr>
</tbody>
</table>

Source: Internetworldstatus.com
It is observed from Table 1.1 that there is a tremendous increase in the number of internet users. The number has reached 2095 million. This also indicates the increase in the computer literate population. Graph 1.1 shows the incredibly fast evolution of the internet from 2000 till 2011.

ii) Internet users in India

With a population of 1.21 billion, 22 states, 5 union territories, 22 official languages, GDP of 8 percent and above, and being the world’s largest English speaking nation, India’s internet population is growing at a fast pace. People have started to realize the importance of the internet in their lives where it is not just a communication mode to email, chat and get information but also an enabling tool to perform various tasks like learning, networking, banking, shopping, gaming and expression in the form of blogs and even to the extent of establishing a virtual world for themselves. Implementation of e-governance helps people to use government websites through the internet. People can easily interact with the government and do a number of transactions like payment of various utility bills, payment of property tax, grievance redressal, birth and death certificates etc. to meet their regular needs. Using the internet they can easily contribute to a nation’s growth.
Table No. 1.2: Urban India Internet Details in 2011

<table>
<thead>
<tr>
<th>Particular</th>
<th>User Population (in millions)</th>
<th>Percentage to Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Population</td>
<td>302</td>
<td>100.00</td>
</tr>
<tr>
<td>Computer Literate</td>
<td>114</td>
<td>37.74</td>
</tr>
<tr>
<td>Claimed Users</td>
<td>82</td>
<td>27.15</td>
</tr>
<tr>
<td>Active users</td>
<td>65</td>
<td>21.52</td>
</tr>
</tbody>
</table>

Source: All India: Figures 1-cube 2011

It is observed from Table No.1.2 that the computer literacy rate in the urban population is 37.74 percent. The computer literate population needs to be increased. As shown in the Table No.1.2 claimed internet users are 27.15 percent and active internet users are 21.52 percent. This user population will increase according to the computer literacy. Graph 1.2 shows the urban India details in 2011.

Graph 1.2: Urban India Internet Details in 2011

Looking at the Indian population from the perspective of internet usage, the urban population forms the relevant mass. As most of the content available over the internet is in English, familiarity with English acts as a major factor driving internet usage.
Since India has 22 odd regional languages, the internet is largely limited to those familiar with English. This opens an opportunity for vernacular content to increase and thus tap the non-English speaking literate people.

a) **Claimed Internet Users in India:** Table No.1.3 indicates the growth in claimed internet users in India between 2000 and 2011.

**Table No. 1.3: Growth in Claimed Internet Users in India (2000 – 2011)**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Claimed Internet users (in millions)</th>
<th>Percentage increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>4.9</td>
<td>100.00</td>
</tr>
<tr>
<td>2001</td>
<td>8.7</td>
<td>177.55</td>
</tr>
<tr>
<td>2002</td>
<td>9.8</td>
<td>200.00</td>
</tr>
<tr>
<td>2003</td>
<td>11.9</td>
<td>242.85</td>
</tr>
<tr>
<td>2004</td>
<td>16.4</td>
<td>334.69</td>
</tr>
<tr>
<td>2005</td>
<td>21.5</td>
<td>438.77</td>
</tr>
<tr>
<td>2006</td>
<td>32.2</td>
<td>657.14</td>
</tr>
<tr>
<td>2007</td>
<td>46.0</td>
<td>938.77</td>
</tr>
<tr>
<td>2008</td>
<td>57.0</td>
<td>1163.26</td>
</tr>
<tr>
<td>2009</td>
<td>71.0</td>
<td>1448.97</td>
</tr>
<tr>
<td>2010</td>
<td>78.0</td>
<td>1591.83</td>
</tr>
<tr>
<td>2011</td>
<td>82.0</td>
<td>1673.46</td>
</tr>
</tbody>
</table>

Source: All India: Figures I-cube 2011

It is observed from Table No.1.3 that more and more people are now experiencing the internet. People who are computer literate use the internet which is a very healthy sign for the internet in India. It shows that people are becoming aware of the internet and are moving ahead to experience it. Graph 1.3 shows the Claimed Internet Users in India.
Graph 1.3: Claimed Internet Users in India (2000 – 2011)

![Graph showing growth in internet users from 2000 to 2011.]

b) **Active Internet Users in India**: The Table No.1.4 indicates the growth in active internet users in India from 2000 to 2011. An "Active user" is defined as someone who has used the internet at least once in the last 30 days.

**Table No.1.4: Growth in Active Internet Users in India (2000 – 2011)**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Active Internet users (in millions)</th>
<th>Percentage increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2.2</td>
<td>100.00</td>
</tr>
<tr>
<td>2001</td>
<td>4.3</td>
<td>195.45</td>
</tr>
<tr>
<td>2002</td>
<td>5.1</td>
<td>231.81</td>
</tr>
<tr>
<td>2003</td>
<td>7.5</td>
<td>340.90</td>
</tr>
<tr>
<td>2004</td>
<td>11.2</td>
<td>509.09</td>
</tr>
<tr>
<td>2005</td>
<td>15.2</td>
<td>690.90</td>
</tr>
<tr>
<td>2006</td>
<td>21.1</td>
<td>959.09</td>
</tr>
<tr>
<td>2007</td>
<td>32.0</td>
<td>1454.54</td>
</tr>
<tr>
<td>2008</td>
<td>42.0</td>
<td>1909.08</td>
</tr>
<tr>
<td>2009</td>
<td>52.0</td>
<td>2363.62</td>
</tr>
<tr>
<td>2010</td>
<td>59.0</td>
<td>2681.80</td>
</tr>
<tr>
<td>2011</td>
<td>65.0</td>
<td>2954.54</td>
</tr>
</tbody>
</table>

*Source: All India: Figures I-cube 2011*

The Graph 1.4 shows the Active Internet Users in India.
iii) Internet Users (Top Eight Metros) in India

The Internet in India (I-Cube) [19] 2011 report has indicated the number of active internet users in 8 major cities in India. It is given in Table No. 1.5. According to Table No. 1.5 Internet User Breakup across Top 8 Metros in India shows that Mumbai leads among all top 8 metros of the total claimed internet users. 34 percent users reside in the top 8 metros with the majority in Mumbai closely followed by Delhi, Kolkata, Chennai, Bangalore, Hyderabad, Ahmedabad and Pune.
### Table No.1.5: Internet Users from Top Eight Metros in India

<table>
<thead>
<tr>
<th>City Name</th>
<th>Claimed Internet Users (in millions)</th>
<th>Active Internet Users (in millions)</th>
<th>Total Number of Users (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai</td>
<td>8.1</td>
<td>6.2</td>
<td>14.3</td>
</tr>
<tr>
<td>Delhi</td>
<td>6.2</td>
<td>5.0</td>
<td>11.2</td>
</tr>
<tr>
<td>Kolkata</td>
<td>3.0</td>
<td>2.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Chennai</td>
<td>2.9</td>
<td>2.2</td>
<td>5.1</td>
</tr>
<tr>
<td>Bangalore</td>
<td>2.2</td>
<td>1.8</td>
<td>4.0</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>2.2</td>
<td>1.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>2.0</td>
<td>1.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Pune</td>
<td>1.9</td>
<td>1.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: All India: Figures I-cube 2011

Graph 1.5 shows Internet users in major cities of India.

**Graph 1.5 Internet users from Top Eight Metros in India**
iv) Purpose of Internet Usage in urban population of India

Table No. 1.6 shows the purpose of internet usage in urban population of India. According to it, 89 percent people use it to access emails, 71 percent use it for social networking activities (such as making friends and staying in touch), 64 percent access it to search for education-related content, 55 percent use the internet for chatting and 49 percent access videos, music and images. The need to stay in touch with friends and loved ones is the main reason which is pushing the users onto the internet bandwagon. The proliferation of social networking is another reason which can be attributed to the increased internet traffic. With this growth, and the introduction of better infrastructure for connectivity, the internet is going to be the medium of choice across demographics. Hitherto a niche privilege, it will be interesting to see how the internet is accepted by the masses.

Table No.1.6: Purpose of Internet Usage in urban population of India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Purpose of Internet Usage</th>
<th>Number of users (in Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emails</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>Social Networking Websites</td>
<td>71</td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>64</td>
</tr>
<tr>
<td>4</td>
<td>Test/Voice/Video Chat</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>Music/Video/Photos</td>
<td>49</td>
</tr>
</tbody>
</table>

Source: All India: Figures I-cube 2011

Graph 1.6 shows the Purpose of Internet Usage in urban population of India.
v) User wise status of Internet Usage in urban population of India

Table No.1.7 shows the user wise status of internet usage in urban population of India. According to it internet usage within the older men's segment along with women continues to reflect a fairly constant percentage, as the newer generation dominates the usage. More than 75 percent of internet usage is still driven by young people that include young men, school and college going students.

**Table 1.7: User wise status of Internet Usage in urban population of India**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Purpose of Internet Usage</th>
<th>Number of users (in Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>School going students</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>College going students</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>Young Men</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>Older Men</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>Working women</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Non working women (Housewives)</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: All India: Figures 1-cube 2011
The graph for user wise status of Internet Usage in urban population of India is shown in Graph 1.7. The usage is shared fairly amongst school going students 21 percent, college going students 27 percent and young men 27 percent while usage is far less among older men 11 percent, working women 7 percent and housewives 8 percent. The internet has seeped into everyone's lives and has become an integral part of it. The reasons could be the increased availability of better modes of communication, social networks and their popularity. Around one third of young men and working women are heavy users (those accessing internet for more than 16.5 hours per week). The new users are lighter users of the internet (those accessing internet for less than 6.5 hours per week).

**Graph 1.7: User wise status of Internet Usage in urban population of India**

![Graph 1.7: User wise status of Internet Usage in urban population of India](image)

vi) **Frequency of Internet Usage in urban population of India**

Following Table No. 1.8 shows the Frequency of Internet Usage in urban population India. According to it, 28 percent users use the internet daily, 20 percent users use it 4 to 6 times/week and 27 percent users use the internet 2 to 3 times/week, whereas only 12 percent users use the internet once a week, 7 percent use it 2 to 3 times/month and 2 percent only once a month.
Table No. 1.8: Frequency of Internet Usage in urban population of India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Internet Usage</th>
<th>Number of users (in Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>4-6 times/week</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>2-3 times/week</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>Once a week</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>2-3 times/month</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Once a month</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: All India: Figures I-cube 2011

The graph of Frequency of Internet Usage in urban population India is shown in graph 1.7. With a rising number of websites providing a variety of offerings at the stroke of a few finger tips, the internet delivers inimitable value to its users across the country. As on 2011, a healthy 87 percent of the urban population uses the internet at least once a week. This includes daily access 4 to 6 times/week, 2 to 3 times/week and once a week. Internet users are spending more time online engaging in activities that help avoid physical travel, paper work, meetings, going to travel agents.

Graph 1.8: Frequency of Internet Usage in urban population of India
vii) Internet touch Points in urban population of India

Although the growth of Active Internet users has been showing a steady upward trend, to achieve the overall objective of making everyone digitally literate an examination of various touch points is required. Table 1.9 shows the various Internet touch Points in urban population India including cyber cafes, internet usage from home and office, from mobiles and from educational institutes.

Table No.1.9: Internet touch Points in urban population India

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Touch Points of Internet Usage</th>
<th>Number of users (in Percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cyber Café</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Home</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>Office</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Mobile</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>School/College</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Others</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: All India: Figures I-cube 2011

The graph of Internet Touch Points in urban population India is shown in Graph 1.9. Households in urban cities have more than 8.7 Mn broadband connections and around 37.1 Mn users utilize these connections to access the internet. The most telling effect is visible at public access points such as cyber cafes and CSCs. Given the nature of these installations, a single broadband connection provides a large base to users accessing the internet. Cyber cafés are slowly reducing in number in the top metro cities, they are still prevalent in smaller cities. CSCs provide an effective option in rural areas and through this avenue a large pool of villagers can get digitally literate. Both of these options have a large growth potential and can include more users as the implementations grow.
The Graph 1.9 states that in terms of access points, more than 37 percent of internet users in India access it from home, while 27 percent of users access the internet from cyber cafes. Apart from these, 22 percent people access the internet from the office, 9 percent from mobiles, 3 percent from schools/colleges and from other access points only 2 percent. Most people prefer to access the internet from home. This leads us to conclude that internet users in India are increasing. This is a good sign of the growth in the IT sector.

1.4.2 Citizens Facilitation Centre’s (CFCs)

CFCs are the best possible way for the Corporation as well as other Governments to provide services with minimum cost and in a self sufficient way. The citizen will get the services from any department in time as promised in the Citizens Charter of the Municipal Corporation. The CFC is established to enable the citizens to solve their problems in a real single window environment. There are many centres’ where citizens need to stand in a queue with an application but this center is unique. The department can ensure the timely delivery of each service through this software and can coordinate many such centers through a single main server. The centre is an advanced technology oriented
center which demonstrates how a high-tech solution helps the grassroots level people with the help of information kiosks. CFCs prove that the organization is transparent, responsive and citizen centric. All the support is also given through the web to the citizens. For this service a web portal is also designed through which complete transparency can be established with the help of IT. The main objectives of CFCs are

- To give the services of the corporation in the stipulated time.
- Citizens should get the acknowledgement stating the delivery date. So as to make this a one-visit solution.
- To inform the citizen of each activity of the department.
- To brief the citizens of their rights and apprise them of the actions that are required to transact their affairs as well as to supply them with the essential information and the forms available.

1.4.3 Kiosks

e-governance refers to the use of ICT by the public sector to improve information and service delivery. The main aim of e-governance initiatives is to facilitate the flow of information between the government and the public. However, as many people still lack access to PCs or the Internet this relegates them to the wrong side of the digital divide. e-governance opens new opportunities for everyone to get information and manage any transactions with the government in front of a computer through kiosks. A kiosk is a computer based, ATM like electronic device, where citizens can access the government’s website over the internet without owning a personal computer. The kiosk is a node that can be implemented in various locations and with different communication characteristics. A stand-alone kiosk would have a multimedia player of some sort, such as a videodisk, that is used to present different marketing or other messages to the customer, through a touch-screen under the person's control. The use of touch screen kiosks by the government to deliver information to the public is one way in which central and local governments can bridge this divide. e-governance kiosks provide controlled access to e-Government portals/websites by saving costs and allowing users to perform transactions on-line. It increases access to information about local government programs & services,
publicizes new government websites and provides local tourist information. It also acts as a public, physical embodiment of government technology expenditures.

e-services \(^{[16]}\) can be quite easy to access in urban areas, using private or public equipment and the existing infrastructure, but rural areas lag behind. Internet kiosks are a method to shrink the digital governance gap between urban and rural populations without blowing up the budget. Such kiosks can help citizens to seek information for government grants, apply for licenses, file their tax returns or even register their organization. A complete e-governance system requires extensive cable or wireless networks throughout the country, ensuring internet access from every residential area. However, according to the International Association for Distance Learning, developing countries, such as the African states of Kenya, Nigeria, Rwanda and Zambia and rural areas of India, lack such infrastructure and the government does not have funds to finance a massive modernization plan. Therefore, the Internet kiosks already present in these areas serve the purpose of offering adequate public services at the lowest possible cost. A society based on equality cannot deprive less wealthy citizens of basic public services, even electronic ones. For this purpose, Internet kiosks allow people of all income levels to manage their transactions with the government for a minimal fee -- or no fee at all. For economically disadvantaged rural citizens, internet kiosks can also be a cheap alternative to migrating to towns or big cities for services that they can easily access online. Easy to use kiosks can also allow citizens with limited computer knowledge to use their simple features. By using touch-screen internet kiosks, internet or even computer illiterate citizens don't have to rely exclusively on keyboard and mouse use.

1.4.4 Call Centre’s

The use of call centres by the business community\(^{[1]}\)\(^{[2]}\) has already become a common phenomenon in both developed and developing countries. In recent years, the call centres industry has experienced a phenomenal growth worldwide. Call centres provide fast, efficient and relatively cheaper business solutions to business enterprises in managing their day-to-day activities. Similar to business entities, governments all around the world need to provide various services to their citizens and other stakeholders. In this connection, there appears to be a reasonable prospect of implementing business-type call
centres as an e-governance tool in delivering better services including the dissemination of important information to citizens and other stakeholders. Call centres together with other service delivery channels could consequently be considered as important e-governance tools which could complement widespread dependence on Internet-based operations. e-governance \cite{2} could be ‘used in a loose manner to describe the legacy of any kind of use of ICT’. Telephony and associated technologies used in call centres, therefore, form parts of e-governance.

As call centres have the potential to facilitate better service provisions, government departments and enterprises are increasingly becoming interested in using call centre’s as an e-governance tool. It could provide them with opportunities to provide better services to citizens as well as engage them in policy making and implementation dialogues. The role of call centre’s within the governance structure is different to the role of websites as call centre’s provide direct telephone contacts between citizens and the public service providers. Call centre’s have the potential to provide a better democratic option compared to web-based information sharing and service delivery system. Call centre activities within the e-governance network are likely to ensure better service delivery, improved access to information and enhanced two-way communication. They also encourage e-democracy through citizen’s participation in the decision making process. Citizens can dial the government’s hotlines and emergency centre to request for services and information. The ‘Phone’ is now considered as an electronic delivery channel due to the potential use of ‘Call Centre’s and ‘Interactive Voice Response’ technologies.

1.4.5 Mobile

e-governance is the use of IT like WAN, internet and mobile computing by governance agencies to transform private businesses and public agencies as well as to empower the citizens. On the other hand, e-governance is the use of mobile \cite{24} or wireless technologies to improve governance service and information “anytime, anywhere”. Mobile applications also rely on good back office ICT infrastructure and work processes like governance networks and databases, data quality procedures, transaction recording processes, etc. But it is just the tip of an iceberg, just the final delivery channel to the
citizen. Underneath is a complex infrastructure that is required in order to make that final delivery device work. Mobile growth statistics are now showing an increase of 60 to 80 lakhs per month in the case of new connections and it is estimated that there are around 90 crore mobiles used in India as on December 2011. Citizens can request services and information through mobile phones and hand-held digital personal assistants with the ability to use or generate computer-based information anytime and anywhere, without being tied to a specific physical location. The most common form of mobile computing is communicating with a server system from notebook and laptop computers.

1.4.6 Digital Televisions (DTVs)

The Digital TV [27] deployment allows the leverage of a new paradigm for vehicles of mass communication by inserting mechanisms of interactivity. This means a new way to transmit content and connect the people of a nation and thus it eventually reflects various social aspects of a country. A system of interactive DTV is a consequence of DTV. One of the biggest differentials of the signal transmission of digital television will be interactivity. With DTV, a user is just a receiver of the signal and can also send data such as an e-mail or requisition a webpage, current account balance, response to a survey or files via Torrent etc. By using DTV, a user is able to send data to other people, it also satisfies an inherent need of a human being i.e. to participate, give an opinion and feel more embedded in the social context. Using DTV delivery channels citizens may be able to request for services and information through their TV sets.

1.5 Present Status of e-governance in India

e-governance is considered a high priority agenda in India as it is the only means of getting the “Common Public” accustomed to IT. Development in e-governance provides the opportunities to harness the power of IT to make the business of governance inexpensive, qualitatively responsive and truly encompassing. 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
of as a worthwhile investment with a potential for returns. The following are some of the recent e-governance projects implemented by various state governments. The state governments have already taken some initiative to form an IT task force to outline IT policy documents for the states and the citizen charters have started appearing on government websites. At the central government level the important e-governance projects being executed include the passport system, company registration system and community information centre projects in the northeastern states, in addition to the normal computerization of the various activities of ministries and departments. The following Table No. 1.10 shows the recent e-governance projects [28] implemented by various state governments.

Table No.1.10: e-governance Projects in India

<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>Initiatives covering departmental automation, user charge collection, delivery of policy/programmed information and delivery of entitlements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>E-seva, GBGH CARD, VOICE, MPHS, FAST, E-Cops, AP online – one – stop-shop on the internet, Saukaryam, Online transaction processing, e-immunization Rural Health Call Center and Site Suitability for Water Harvesting, Professional e-Pension</td>
</tr>
<tr>
<td>Bihar</td>
<td>Sales Tax Administration Management Information, E-Khajana</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>Chhattisgarh InfoTech Promotion Society, Treasury Office, e-linking project</td>
</tr>
<tr>
<td>Delhi</td>
<td>Automatic Vehicle Tracking System, Computerization of website of RCS office, Electronic clearance system, Management Information System of Education, Delhi Slum Computer Kiosks etc.</td>
</tr>
<tr>
<td>Goa</td>
<td>Dharani Project</td>
</tr>
<tr>
<td>Gujarat</td>
<td>Mahiti Shakti, Dairy Information System Kiosk (DISK), Request for government documents online, Form Book Online, G R book Online, Census Online and Tender Notice.</td>
</tr>
<tr>
<td>Haryana</td>
<td>Nay Disha, Result through Binocular</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>Lok Mitra, HIMRIS ,e-pension, Unreserved Ticketing System by Indian Railways</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>Vahan, Tender Notice</td>
</tr>
<tr>
<td>Karnataka</td>
<td>Bhoomi, Kaveri, Khazane</td>
</tr>
<tr>
<td>Kerala</td>
<td>e-Sprinkle, RDNet, Fast, Reliable, Instant, Efficient Network for the Disbursement of Services (FRIENDS)</td>
</tr>
<tr>
<td>State</td>
<td>Initiatives</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>Gyandoot, Gram Sampark, Smart Card in Transportation Department, Computerization, MP State Agricultural Marketing Board (Mandi Board), Headstart etc.</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>SETU, SARITA, Digital Payment system, Koshvani, Warna Wired Villages, Telemedicine Project (Pune), Online Complaint Management System, Mumbai, PRAGATI</td>
</tr>
<tr>
<td>Orissa</td>
<td>E-Shishu, Common service centres (CSCs) in pinheads</td>
</tr>
<tr>
<td>Punjab</td>
<td>SUWIDHA(Single User Window Disposal Help Line for Applicants), SUBS(Suvidha Backend Services), AGMARKNET(Agriculture Marketing Network), ALIS(Arms License Information System), TISP(Treasures Information System of Punjab), SSIS(Social Security Information System), WEBPASS(District Passport Application Collection Centre)</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Jan Mitra, Raj SWIFT, Lokmitra, RajNIDHI, Aarakshi - Online FIR, Professional E-delivery of Tax Payers for Income Tax</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>Rasi Maiyama-Kanchipuram, Application Forms Related to Public Utility, Tender Notice &amp; Display</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>Lokvani, e-Suvidha, Bhulekh (Land Records), Koshvaani, Treasury Computerization, PRERNA: Property Evaluation and Registration Application, Bouquet of services offered by Transport Department</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>Kisan Soochna Kutirs (KSKs) , Village Information Centres (VICs), Computerization of Land Record Department, Automation of Transport Department</td>
</tr>
<tr>
<td>West Bengal</td>
<td>Vehicle registration, land records, birth and death registrations, employment exchanges, payment of excise duty, sales tax and local tax, electronic bill payment of water and electricity, computerization of health records</td>
</tr>
<tr>
<td>Assam</td>
<td>ASHA</td>
</tr>
<tr>
<td>Arunachal Pradesh, Manipur, Meghalaya, Mizoram &amp; Nagaland</td>
<td>Community Information Center. Forms available on the Meghalaya website under schemes related to social welfare, food civil supplies and consumer affairs, housing transport etc.</td>
</tr>
<tr>
<td>Tripura</td>
<td>e-Suvidha</td>
</tr>
</tbody>
</table>

1.6 ICT Enabled Municipal Initiatives

Innumerable ICT Initiatives are driving the quality & access of governance, healthcare and education across the country. eINDIA [17] Awards have been set up to acknowledge these innovations to promote the most innovative initiatives in the domain of ICTs for...
development and to spread awareness about the role of ICTs in addressing social concerns. The eINDIA Awards have been given to innovative endeavors made in integrating technology in developmental concerns. The Awards have been instituted with the primary aim of felicitating and acknowledging unique and innovative initiatives in the use of ICT for development.

The Municipal IT India 2010 Award for ICT-enabled Municipal Initiative of the Year aims to felicitate those municipal initiatives that have used ICT tools to provide and improve services, transactions and interactions with citizens and businesses. The award in the category is open to all national municipalities that use or endorse the use of ICT tools to increase efficiency of the municipalities, and benefit end users. The evaluation criteria are based on quality of vision of the projects, services, past work and implementation of technologies for the empowerment of livelihoods. Besides the soundness of technology being used, scalability and sustainability and finally impact made on the citizen's life are the primary criteria for evaluation. It also includes evaluation criteria like whether implementation of e-governance services has improved motivation and performance of staff members/employees and citizens. All the following projects are the winners of best ICT-enabled municipal initiatives and contain the inherent benchmark of sustainability and improved e-governance services.

1. **Utthan - Rising from the Bottom** by Pune Municipal Corporation urban community development department (Maharashtra- India): A multiyear initiative to assist PMC has developed a set of GIS based governance tools that will enhance delivery of services undertaken by the UCD and strengthen community participation. The project is aimed at assisting PMC with developing a GIS focused on the urban poor by strengthening the PMC service delivery to the urban poor. The data system will be designed to provide a comprehensive city level urban poor profile with a methodology for periodically updating the information.

2. **Complete Automation of Birth and Death Registration and Issuance of Certificates** by Corporation of Chennai (Tamil Nadu- India): Registration and issuance of birth and death certificates has been fully automated by the Chennai Municipal
Corporation using software exclusively developed for the purpose. The certificates are issued through the Corporation’s website at no cost to citizens residing within Chennai city limits. The data sets are online and synced among hospitals and burial grounds. The system also tracks and sends out SMS alerts for the immunization schedule of children registered within the system.

3. **GHMC Issuance of Birth and Death Certificates to Citizens through e-Seva centers Project**: Issuance of Birth and Death Certificates to citizens through an alternate channel: e-Seva centre with doorstep delivery or delivery at e-Seva centre. Citizens can submit applications at any e-Seva center or apply online. The system ensures complete disintermediation, transparency and citizen empowerment in civic service to achieve citizen satisfaction in service delivery by Greater Hyderabad Municipal Corporation, AP-India.

4. **GISQM** by Probity Soft Pvt Ltd (Maharashtra- India): GIS based Quality Monitoring Geographical Information System based Quality Management is an innovation in tracking civil construction projects. Employing cutting-edge GIS and SCADA technologies, this system tracks real-time construction data and reports it to integrated works management systems.

5. **Implementation of ERP in Corporation of Chennai** by Corporation of Chennai (Tamil Nadu- India): The project implements Integrated Web Based ERP to interconnect all the functions of the Corporation of Chennai wherever required and to collect the financial transactions captured by the financial System. The budget module is integrated to the financial module and in turn controls the budget dynamically.


7. **MAINet – KDMC Project**: MAINet by Kalyan Dombivli Municipal Corporation (Maharashtra- India) is a complete end-to-end computerization for creating an e-governed Municipal Corporation. Including all departments of 100+ citizen services rendered in a time bound manner through CFCs and Internet.
8. **Monofeya Portal** by Monofeya Governorate (Monofeya- Egypt): The portal could be considered as a social media interface through which the citizen can get the best possible of interactive service when looking for a job or grievance redressal, information about tenders etc. while overcoming red tape and nepotism in the system of governance.

9. **Property Tax Management System Using Geo spatial Technology** by Kanpur Municipal Corporation, Uttar Pradesh- India: Governance has been GIS-enabled and forms a special decision support system in a local government. The system has resulted in enhancing property-based tax revenues three times as compared to the older system.

10. **Smart Parking (SPARK) @ GHMC Parking Complex** by C-DAC, Andhra Pradesh- India: Smart Car Park systems that would not only be able to provide information about vacant car parks to the drivers before they physically reach the car park but would also enable them to reserve car parking while sitting at home. This parking solution is a sensor-based system that is executed under the National Ubiquitous Computing Initiative of the Department of Information Technology, Ministry of Communications & Information Technology and Government of India.

11. **State Urban Bodies Integrated Data handling & Access “SUBIDHA”** by Ashish Kumar Mahapatra, Orissa- India: The Urban e-governance project of the Government of Orissa has started quite a few urban e-governance initiatives developed & implemented by NIC. Some of the services provided are online redressal of public grievances, birth & death registration, and automation of licensing etc. The project was implemented first in Bhubaneswar Municipal Corporation as a pilot and is being replicated at Cuttack Municipal Corporation and Berhampur Municipal Corporation.

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1.7 **Pune Municipal Corporation e-governance Services**

Pune has been known as Oxford[^25] of the East & it is the second largest city of the state. Pune is one of the historical cities of India having a glorious past, an innovative present and a promising future. Pune is among the greenest urban areas in the country. The PMC administers the city. It is a highly developed city as it is a center for many industrial activities.
as well as top educational institutes and universities. It is also expanding in terms of software and IT developments. The PMC provides numerous services broadly divided into obligatory and discretionary services. The obligatory service of the department includes construction of schools, health centers and ensuring sufficient water supply to all. Its discretionary services include maintaining public spaces like parks, museums and community halls. Besides this, it also works for the rehabilitation of slums and squatter areas.

Pune Municipal Corporation (PMC) is being a public organization. It is at most necessary to have more transparency, had a social responsibility aspect and ethical ways to serve the society at large. In view of this the present research focuses on not only providing the utility services with efficacy and efficiency but also to give justice to a ‘Common Man’ in every respect and aspect as he is the focal point of the public system.

1.7.1 Municipal Corporation

A municipal corporation[^6] is the legal term for a local governing body, including cities, counties, towns, townships, charter townships, villages and boroughs. Municipal incorporation occurs when such municipalities become self-governing entities under the laws of the state or province in which they are located. Often, this event is marked by the award or declaration of a municipal charter. In India a Municipal Corporation is a local government body that administers a city of population 200,000 or more. Under the Panchayati Raj system, it interacts directly with the state government. Administratively it is part of the district it is located in. The largest Municipal Corporations in India currently are Mumbai, followed by Delhi, Kolkata and Chennai.

The Municipal Corporation consists of members elected from the wards of the city. The Mayor and Deputy Mayor are elected by the members from among themselves. The Municipal Commissioner who is from the Indian Administrative Service is appointed to head an administrative staff of the Municipal Corporation, implement the decisions of the corporation and prepare its annual budget. The Municipal Corporation is responsible for water supply, records of births and deaths delegated from Central Government birth and death registration act, drainage, sewage removal, fire brigade service, gardens and maintenance of buildings. The important functions of the Municipal Corporation include
regulating and imposing a property tax on residential and commercial spaces. The main sources of income of the Corporation are taxes on water, house-tax, entertainment tax and octroi etc through which they increase their revenue.

1.7.2 Pune Municipal Corporation

The PMC was established on 15th February 1950. The PMC controls the whole administration of Pune. The city comes under the Haveli Taluka of Pune District, Maharashtra. The Municipal Corporation of Pune was established as a state government department with the objective of providing community services throughout the city. It serves a large urban population of 9 million people and aims at refining their programs with the growing demands of the occupants of the city. Since the day of its formation the PMC is committed to providing the best civic amenities in the entire city. The corporation has to serve a lot many tourists as well.

The PMC has taken an initiative for e-governance with their motto “e-governance-to serve citizens better”. With growing advancement in the city, it becomes essential to develop not only good housing facilities but the commercial spaces as well. PMC includes online birth and death certification as well as pending certificates, property tax and online tenders. Besides this work a ‘citizen complaints’ registration and complaint status system has also been established. For administrative convenience, the Municipal Corporation of Pune city has been divided into four zones which include 14 Ward Offices (144 wards). Each ward office includes more than 9 wards, which are represented by the 76 kiosks which are run by elected representatives. Through the earnest endeavors of the corporation, the city is making new development a priority. e-governance allows citizen to access information, do a number of transactions or interact with the government by using internet, kiosks, CFCs etc.

Success of e-governance depends on the use of IT in mobilizing government resources and utilizing these scarce resources with the aim of providing better service to citizens. e-governance is a mechanism to build prosperity and provide better environment to the citizens in the PMC area. The advent of IT as a highly leveraged enabling tool for delivery of services to the public has now been universally recognized. This has refined the fundamentals and has the potential to change the institution and its mechanism. PMC has taken tremendous
initiatives towards ushering in IT and providing better services to citizens and improving internal productivity.

The citizens of PMC should be the focal point of each operation and every employee of PMC should be able to give support and information to citizens immediately. Citizens should be able to get the information live on the website as and when required on any issue. There should not be any duplication of work and the data should be managed very efficiently, which would be helpful for taking decisions. Every employee of PMC should be computer literate and should have the proficiency to do the job with the help of a computer. The PMC is a leading e-governed corporation which serves the citizen and the nation better in the competitive digital world. The following Table 1.11 shows all the details about Pune Municipal Corporation.

<table>
<thead>
<tr>
<th>Table 1.11: Details of Pune Municipal Corporation</th>
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<tbody>
<tr>
<td>Establishment of PMC</td>
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<td>Country</td>
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<td>State</td>
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<td>Property tax paid online by citizens</td>
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<td>Website</td>
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Source: PMC Office and http://www.punecorporation.org
1.7.3 PMC e-governance Services

PMC [31] is one of the first governance bodies in the country to launch a project for providing Wi-Fi connectivity across the city. Through this initiative “Unwire Pune”, PMC proposes to deliver a solution to the citizens, businesses and academic institutions to enable them to connect seamlessly to the internet in a relatively easy manner. Besides providing basic facilities such as drinking water supply, sewerage disposal, power, roads etc., the PMC would like to provide basic IT infrastructure such as stable internet connectivity to its citizens. Also PMC implements video conferencing facility in all 14 ward offices all over Pune city, through which citizen can easily interact with any officers to PMC main building by saving travel time and travel cost.

i) Birth & Death Certificate Registration

Registration of births and deaths is one of the major activities of the Municipality. It is done in compliance with the PMC registrations of birth and death rules of 1999. Registration of births and deaths is computerized. An online registration facility is available and computerized certificates are being issued to citizens. The health department takes care of the health in general of the citizens within the corporation limits. The department runs many health schemes like the vaccination programs for D.P.T., Polio, Measles and other diseases. The most important customer centric process that the department has is the registration of births and deaths of citizens. The department also has the responsibility of issuing food licenses.

The PMC online birth registration [18] system has been extended to private hospitals also. While newborns at KEM and Sassoon hospitals have been registered online for a month, the facility is finding takers among hospitals like Jahangir, Deenanath Mangeshkar and Poona hospital also. Various services delivered to the citizens are – birth and death certificates, birth and death registration, birth and death registration-delay, correction of registration details, cremation certificate, registration and certificate for still birth and registration of birth for delivery at home.
ii) Assessment and Payment of Property Tax

Property tax is one of the main sources of revenue for the PMC. Residential and commercial properties are situated within the limits of PMC and are assessed for property tax. Property tax is a tax on immovable or tangible real property such as land, buildings and permanent improvements which is based on such assessments. All property holders are expected to pay property tax. This tax may comprise of basic house/building tax plus service taxes such as street tax and conservancy/scavenging tax. It is collected either half yearly or annually. The property tax department is responsible for billing & collection of property tax for all residential, commercial, open plots and other types of properties within PMC limits held privately or by the state & central government. Property tax database is computerized and demand notes are issued by this database. Property tax dues are regularly updated online. An online payment facility is available for the citizens. This will reduce the number of visits made by the citizens to the corporation. Through this service citizens can avail many facilities and directly interact with PMC. Citizens can view their bills online and taxes can be paid from home. Citizens can pay or use any office of the corporation as well as CFCs. They can easily do the Property Registration for tax assessment as well as create/copy rate profile for different tax years. Property tax payments and collection is also facilitated through ICICI Infinity Internet gateway. It helps PMC maintain a high level of transparency with a strong MIS and administration control.

Due to online payment of property tax, revenues of the PMC have increased greatly. The total property tax collected in 2008-09 was Rs.356.49 crore, while in 2009-10 it was Rs.363.14 crore. In 2010-2011 it was Rs.430.76 crore and from 1st April 2012 to 31st May 2012 was 280 crore (Source: Property tax Dept. of PMC and Sakal News Paper) had been collected and the target was Rs.606 core. Even though online property tax payment is on the rise, the rate of growth in property tax remains at a low of 5 percent annually much in contrast to the rapid construction visible in the city. Various citizen services given by the property tax department to citizens are - Title transfer, Self assessment, NOC, Solar system benefit, Vermiculture project benefit, Rain water harvesting benefit, Freedom
fighter benefit, Owner occupancy benefit, Slum rehabilitation properties and Exempted properties.

iii) Water Supply Department

The water supply department is involved with the supplying of water from the reservoir to the consumer. The major responsibilities of the water supply distribution department are issuance of new water connections, plumber licenses, water disconnection, transfer, billing and collection.

The process for issuance of new water connections is manual, the scrutiny is done manually. Often there is a delay in giving connections and tracing the application manually is cumbersome. The process of getting NOC from property tax at the time of new connection is manual. There is no process for handling complaints regarding wrong bills. Tracking of complaints is not available. Information is sought manually from road department for road digging charges. GIS integration is not available for recovery of bills. Only billing is partially automated and the system uses tier architecture.

iv) Grievance Information System

Grievance redressal is a part of e-governance services and is available on the interactive web portal of the PMC. Citizens can also register the grievance via phone or mail. It is an exhaustive and user friendly environment to maintain and monitor any information about grievances in Pune city. The main objective behind grievance information is that all the complaints made by a citizen must be addressed and updated to the citizen. Any citizen can register a grievance regarding civic facilities. After registering, a citizen immediately receives an SMS with their unique grievance number and the probable date of redressal depending on the number of problems. This unique feature improves the confidence of the public as it specifies the time for redressal of the grievance. Citizens can find out the status of his/her grievance through a web portal by using this number. The commissioners and officers responsible can attend to the grievance and update the status. A new feature of responsive administration is when the grievance is not redressed in time. Then a reply SMS is sent indicating the reason for delay. The status of the grievance (i.e. the action taken by the municipal officials on the grievance reported) can also be communicated to
the e-mail address of a citizen. Citizens’ feedback is taken by using the web portal or phone or SMS or mail. Various reports are generated by the web enabled system such that the commissioner can easily identify the sections that are poor in redressing grievances. This helps to enable an effective and successful redressal of the grievance.

v) Building Permission Department

The building plans permission process is fully automated and made available online on the interactive website of PMC. The sanctioning of building permissions is one of the main activities of the PMC. The department is involved in granting building permissions from licensed architects / engineers / structural engineers for construction of buildings within the PMC jurisdiction area. The department works in close association with the development plan section, carries out demolitions of unauthorized constructions, represents PMC in legal matters, affidavits etc. and resolves complaints about building control. Building and development permissions are sanctioned through an online process. In traditional system, building sanction department requires 8 days for single report with large manpower but after implementation of e-governance services, at a click of mouse reports are generated by saving operational cost and time as well efforts.

A web based software AutoDCR has been implemented in PMC for approvals and issuing commencement and completion certificates. The users can apply online with maps and other necessary NOCs like gardens, trees, drainage, water etc. With the introduction of this software for building permissions citizens are not required to visit the corporation for submission of documents and for payment of fees. Through this the PMC can easily create new projects & associates for the developed drawings and project attributes. The AutoDCR system reads the drawing and extracts the geometrical information of layouts and building plans. This is a single window facility to get all NOCs. The application is integrated internally with all departments. It is integrated with a digital signature key – The applicant signs an application digitally and it is encrypted. Based on the project attributes the graphical object information is mapped to the relevant development control rules. A final detailed rules verification report is produced, indicating passed/failed status for each rule. It also reduces the architect’s/authority’s effort for drawing and calculations. Permission status is available online to the applicant.
It eliminates human errors & manipulation and produces accurate reports. It has tremendously reduced the time cycle of approval. It not only signals an escalation of alerts on unnecessary delays but also standardizes the drawing process and detailed user friendly dynamic reports. The main functions of the department are:

- Provides building permissions to applications from licensed architects / engineers / structural engineers.
- Involves activities of plinth checking and provision of occupancy certificates after a commencement certificate for construction is given to the applicants.
- Carries out demolitions of unauthorized constructions.
- Represents PMC in legal matters (affidavits, etc.).
- Resolves complaints about building control.

vi) e- Procurement (Online Tenders)

PMC has initiated the online tendering system for all projects and procurements to be taken up for the development works under its limits. Due to implementation of e-governance tender department saves Rs. 250 Crore (Source: PMC Office) per year with more transparency.

The tender cell in the corporation is responsible for the publication and sale of tenders. Every year approximately tender department published 5000 tenders and it is centralized process including all departments in PMC. The publication of tenders is outsourced to an organization. The same organization does the publication and uploads and sells the tenders on the online system. The e-Procurement module will empower the PMC to cover the full life cycle of purchasing and connecting buyers and suppliers through an electronic exchange of tenders, catalogs, contracts, POs, invoices etc. The basic responsibility of the tenders’ cell of PMC is the sale and processing of tenders of the various departments of PMC. Currently the sale of tenders is done through an e-governance system. Bidders can purchase forms of opened tenders. Only registered bidders can purchase forms of tenders of the allocated department.
Submission of tenders, documents, EMDs and security deposits is available through online and e-banking facilities. So by using online services, bidder registration is a onetime process. This facility helps department-wise bidder registration as well as common bidders. All the departments publish tenders online so bidders can view or download tenders online, pay SD/EMD fees online and bid online using digital signatures. Tenders can only be opened by the tender committee using digital signatures online and the lowest financial bids are published online to all bidders. A numbers of facilities are available e.g. to define multiple manufacturers for a single item so that bidders can bid for multiple manufacturers for a single item.

1.8 Benefits of e-governance

e-governance sees the people in government, business and citizens working together for the benefit of all. If properly implemented benefits of e-governance are enormous. Some of its obvious benefits are:

i) Quality Service: 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 performance reports, public database, decision making processes etc. As regards services, there would be an immediate impact in terms of saving time, effort and money, resulting from online and one-point accessibility of public services backed by automation of back end processes. An 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.

ii) Integrated Information and Services: e-governance targets the use of a government-wide electronic information infrastructure to simplify service delivery, reduce duplication and improve the level and speed of service to clients at a lower cost. It recommends creating, managing and prudently sharing information electronically among the various government departments and the different services offered by them. That is, once
information is captured as close to the source as possible, it is then shared and re-used by all authorized users. This will avoid manual transcription and re-entering of the same information repeatedly whenever a citizen goes to a new government department for some services. The integrated information approach automatically lends itself to offering integrated services. Different types of services offered by different government departments like collecting taxes, granting licenses, administering regulations, paying grants and benefits can be availed of at one place. This greatly facilitates the citizens by allowing them to perceive the government as a single body to interact with rather than as a number of unrelated entities, operating at different locations in different government buildings.

iii) Anytime and Anywhere Services: Delivery of services may require interaction between government officials and citizens, but delivery of public-domain information to citizens can be done without any such interaction. Provision of fully interactive on-line services by e-governance gives public access to government services with the quickest responses at convenient times. This on-line accessibility of stored information from remote locations allows government officials to serve any citizen from a government office located in any part of the state or country. Citizens can obtain information related to government processes and procedures through an on-line system without interacting with any government official. In fact, e-governance can give an average citizen quick, interactive access to a vast array of information, through computers at home or work or through kiosks in convenient public locations. Since this access to information is available at many different locations and at all hours, there is no pressure on individuals to physically visit the government office.

iv) Increased Speed: Technology makes communication faster and easier. Various delivery channels like Internet, Landline Phones and Cell Phones have reduced the time taken in normal communication.

v) Cost Reduction: Most government expenditure goes towards the cost of stationery. Paper-based communication needs lots of stationery, printers, computers etc. which calls
for continuous heavy expenditure. The internet, DTV and phones make communication cheaper saving valuable money for the Government.

vi) Transparency: Use of ICT makes governance transparent. All the information would be available on the internet. Citizens can see this information anytime whenever. But this is only possible when every piece of information of the Government is uploaded on the internet and is available for the public to peruse. The current governing process allows many ways to conceal the information from the people. ICT helps make the information available online by eliminating all the possibilities of concealment. Implementation of e-governance maintains transparency between government and citizens. It helps to reduce corruption and maintain a corruption free society. Corruption free utilities management in all development areas identifies the possible areas where corruption might take place and closes all the loopholes.

vii) Simplicity, Efficiency and Accountability in the government: An accountable government is a responsible government. Application of ICT to governance combined with detailed business process re-engineering 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 the 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. Once the governing process is made transparent the government is automatically made accountable. Accountability is the answerability of the government to the people. It is the answerability for the deeds of the government.

viii) Improved Productivity: e-governance will significantly contribute to improved overall productivity of both government officials and citizens, as it ensures faster interaction among them by electronic mail instead of slow moving paper files and letters. It will also streamline the workflow of internal government administrative processes such as procurement, recruitment, evaluation, budgeting and planning. On the other hand,
improved productivity of citizens results because of the facility of anytime, anywhere services and information.

ix) **Better Decision Making and Planning:** The integrated information base of e-governance helps planners and decision makers \cite{11} to perform extensive analysis of stored data to provide answers to the queries of the administrative cadre. This facilitates taking well informed policy decisions for citizen facilitation and assessing their impact over the intended section of the population. This in turn, helps them to formulate effective strategies and policies for citizen facilitation.

x) **Expanded reach of governance:** The rapid growth of communication 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 communication infrastructure would facilitate delivery of a large number of services provided by the government.

xi) **Control:** Documentation, monitoring and control of various projects in social and economic sectors. Projects which influence multiple departments/ministries and are implemented in multi-locations can easily be monitored and control measures can be taken based on a detailed analysis level.

xii) **Crime Control and Management:** The trouble spots can easily be identified with the help of crime related data and GIS-Geographic Information System for better understanding. Based on the input security forces can be deputed to the vulnerable locations.

xiii) **Better Security and Protection of Information:** e-governance uses an integrated information approach for keeping all information in one place in an electronic form, so as to keep information secure against theft or leakage. Proper backup mechanisms help in protecting the valuable information from getting lost due to natural calamities such as fires, earthquakes and floods.
References


egovernance.html (9/10/2011)


