CHAPTER-2

REVIEW OF LITERATURE

This chapter throws light on the previous research work and studies conducted by different researchers on e-Governance. In this way, it presents a holistic view of all the researches done earlier. The review of literature has been undertaken as it provides an overall view of the subject under study, and helps in avoiding the problems confronted by the predecessors. It also provides the requisite background for the research project.

The review of literature is an analytical and in-depth evaluation of the researches done earlier. It is a process of accumulating information from various sources and documenting it. Further, it helps to identify the gap that exists in the area of research. It also helps in identifying the methods that could be relevant to the research. In order to have a justified review of literature, the relevant studies have been classified as follows.

2.1 Studies Undertaken to Examine the Significance of E-Governance

Through the review of these studies, an attempt has been made to know how far e-Governance projects are significant for the society and the government agencies.

Aneja (2005) opined that e-Governance is the use of Information Technology to deliver public services in a more convenient and effective way. He found that the government is required to cut the service cost, improve administrative efficiency and citizen relationship, bring the transparency and encourage citizens to participate in the Governance. According to the author, this is possible only through the use of e-Governance. The study deals with two types of e-Governance objectives, external and
internal. The external objectives pertain to fulfilling the expectations and needs of citizens, while internal objectives aim to bring effectiveness and efficiency in Government processes. The study emphasizes upon the significance of e-Governance to the society and its usefulness to the Punjab State.

Singla (2005) defined e-Governance as implementation of Information Technology for handling Governmental systems and procedures. According to his study, e-Governance is used to promote E-commerce through internet to provide transparent systems to the citizens and interact directly with Government agencies for overall development of the economy. It is also used to bridge the gap between rural and urban masses. The government shall be effective rather than simply being efficient with implementation of e-Governance. Besides, the mindset of bureaucracy will also be changed towards the public.

Besliu (2006) showed the advantages of e-Governance. This includes improvement in efficiency of the administration and an increase in the efficiency of state activities. The services have been provided electronically with 24×7 access. E-Governance plays a significant role in improving the economic control with increase in interaction amongst citizens, businessmen and administration. It encourages more participation of citizens in decision-making process. In conclusion, it increases the transparency and effectiveness.

Ghosh and Banerjee (2006) carried out their study on e-Governance in rural India. According to the authors, 70% of Indians live in villages and majority of them are farmers. Now, they can easily know about current crop price, get help to prevent crop from diseases and are able to sell directly using internet services, eliminating the role of middlemen besides reducing transaction costs. However, they found that still citizen participation in Government policy making through e-Governance projects is missing
and more security features need to be added in e-Governance projects, so that more citizens can participate without any fear of disclosure of their personal information.

**Saadoun and Yanning (2007)**, in their research study, explained the role of e-Governance in delivery and maintaining standards. They brought out that the aim of e-Governance is to improve the information supply, quality of Government services delivery to citizens and businesses by making the Government more responsive, transparent and effective. E-Governance plays a significant role in improving the interaction between Government and public that leads to stronger, accountable and responsive democracy.

**Darwish (2008)** emphasized upon the significance of e-Governance as it allows interactive participation of citizens in decision-making process. This study has also discussed the e-Governance project ‘Bawaba’ launched in Egypt. This project allows single entry to all Government services. It has been used to manage transactions easily and key Government agencies can be accessed anytime, anywhere using simple browser without wasting precious time of the users.

**Khare (2008)** outlined the significance of e-Governance for the society in India. According to the author, doctors in villages may consult with the senior doctors online in case of medical emergencies. Similarly, the doctors can contact with Super-specialty hospitals located in big cities or metros. This has been made possible through e-Governance implementation only. It has been used to reduce duplication of work, simplify data collection and analyze the Government departments. It is also useful for business community for providing Government to Business (G2B) services.

**Rajon and Zaman (2008)** investigated the prospects and problems of implementing e-Governance in Bangladesh. According to the authors, implementation of e-Governance is the only way to build a corruption-free Bangladesh. E-Governance
ensures good governance, strengthens democratic process providing equal rights to access to information, service efficiency and rapid economic growth. E-Governance also increases mass participation of citizens in decision-making, accountability of the authority and transparency of affairs involving public interests.

*Shingare et al. (2008)* explored the role of e-Governance in the development of rural India. According to this paper, Gram Panchayat is a unit of Government system that governs at village level administration in India. Most of the population resides in the rural area. Therefore, the development of Gram Panchayats will mean growth of the country. E-Governance has played an important role in competitive and fast-paced development in villages. It has been used in exchanging information and providing Government services to the citizens and business. E-Governance can play a significant role in transferring/sending documents to the respective authorities, which was not possible earlier due to non-availability of transport facilities. Hence, it provides the Government services with transparency, speed and reliability at village level.

*Singh (2009)* studied different e-Governance projects that have been implemented in the state of Punjab to show the significance of e-Governance. The author highlighted the benefits of SUWIDHA centre to citizens such as issuance of Death Certificates, Affidavits, Permissions, No Objection Certificates, etc. Another project “Patwari at your call” implemented at Shaheed Bhagat Singh Nagar is used to provide copy of revenue record or to redress the grievances within a period of 48 hours. Applicants can check the status of their application through District website anytime. In this paper, a number of projects have been discussed to highlight the advantages of e-Governance for the society.

*Verma and Mishra (2009)*, in their research paper, explained the significance of e-Governance for the society. The authors believed that e-Governance has the
potential to provide speedy and convenient access to Government services. Also, it can play a significant role in improving interaction between citizens and the administration. They have also focused on single window services which mean availability of public service authorities and services at a single point. It will save the citizens from inconvenience of searching across a large number of sites and provides the seamless access to these services on 24×7 basis.

Singh (2010) advocated to promote e-Governance in India through Right to Information. According to the author, e-Governance refers to the usage of internet and mobile computing by the Government agencies for better delivery to citizens. It also improved the interaction between citizens and the Government. The thrust of e-Governance is on eliminating the middlemen, reducing corruption. Besides, it has essential features to support online filling of income tax, complaints and grievances. This paper also underlines the different types of interactions between Government and citizens (G2C), Government and business (G2B), Government and Government (G2G) which play a vital role in the implementation of e-Governance.

Garg et al. (2011) discussed the significance of e-Governance in Technical Institutions of India. In their paper, e-Governance has been used to facilitate administrative efficiency, provide speedy and transparent information to the public in every aspect of technical education. This will provide convenience to students as they need not to visit counselling venue. Besides, it will also help in monitoring academic standards of the institute via Governmental Authority, Management and parents of the students. Also, it will force the owner to maintain quality and ensure more responsibility.

Ghosh (2011) studied the significant role of Information and Communication Technology (ICT) in rural development. The author has stressed upon the advantage of
“Gyandoot”, an e-Governance project implemented in Dhar district of Madhya Pradesh. This project includes setting-up of information kiosks at village level in order to provide the information related to crops, seeds, etc. Hence, according to the author, e-Governance has played a significant role in uplifting the rural citizen.

Singh and Chander (2012), in their research paper, suggested the role of e-Governance in economic development especially in the State of Punjab. According to the authors, Punjab state is an agriculture-based state with most of the population dependent upon the sector. Therefore, e-Governance services can help to improve their economic and social livelihood. Further, the researchers have concluded that for effective implementation of e-Governance, citizens must be familiar with the internet technology. Besides, the medium of instructions should be in Punjabi for IT education.

2.2 Studies Undertaken to Assess Present Status of e-Governance

The review of these studies has helped to understand the present status of the projects implemented not only in our country but abroad also and various pitfalls in the projects implemented earlier. It also reveals the different ways in which projects can be implemented in an effective manner so that people can take maximum benefit out of them.

Tiwari and Seetha (2004) presented “Suchna Mitra” software developed by All India Society for Electronics and Computer Technology. It is an e-Governance initiative for providing the Government services to the citizens living in rural area. According to the authors, Suchna Mitra also assists in allowing opening Citizen Information Centres (Kiosks) by private sector.

Kumar et al. (2005) studied the “Lokvani”, an e-Governance project of Uttar Pradesh. It is a single window, public-private partnership project to provide the services
related to tender processing, land records and complaint handling. It also provides the information related to Government schemes and services for betterment of the citizens.

**Brahmanandana (2006)** studied the e-Governance project called ‘Portnet’. It is a ship ticket reservation system from anywhere to anywhere. It helps those citizens who are dependent upon the ship services for their routine work. It is more useful for rural population living in remote and geographically isolated islands. The connectivity of this type of area has been achieved via network provided by National Informatics Centre Network (NICNET). This system also includes the facility to ensure transparency, effectiveness of ticket issuing and cancelling process. The author concluded that it has made the rural population aware that information technology could make their life easy.

**Nkomo et al. (2006)** developed a smartcard based identity card working with free and open source software. It is a web-enabled smart card to support electronic service delivery, flexible with existing technology. This card is used for identification, communication and acts as a payment tool equipped with biometric technology. The biometric measures are used to enhance security. This smart card is used to enhance the transparency, security and cost effective e-Government service delivery process. The authors believed that it will enhance the online service delivery in South Africa.

**Sharma (2006)** investigated about the Personnel Information and Management System (PIMS), which is web based tool used for personnel administration. It has already been implemented in Public Works Department of Delhi State Government. It enables the citizens to list out the Government Departments available under PIMS, facilitates searching of any employee with address and phone number. Even any citizen can communicate with any employee, available on the PIMS database. On the other side, PIMS is useful for employees also. They can view their personal details, change their address and monthly or annually salary statements. PIMS also includes online
administrative functions such as transfer of its employees, leave calculation and online
directory of employees. It would make the Government more transparent, effective,
citizen centric as information related to all personnel would be available on one click.

**Sudalaimuthu and Sivakumar (2006)** highlighted the concept and strategies of e-filing income tax return through the internet. There are three types of e-filing, i.e. electronically, semi-electronically and intermediaries. Electronically means digital signature to sign the e-return, semi-electronically allows uploading the income tax return online and intermediaries means when return is filed through the Chartered Accountant on the behalf of individual or organization. Thus, the tax payers can file their returns anywhere, anytime with instant access. It also maintains undamaged permanent record. However, the system is subjected to certain limitations such as slow processing speed and frequent crashes.

**Hossain (2007)** studied the computerized emigration clearance system of Bangladesh, which is a part of Bureau of Manpower Employment and Training (BMET). BMET is used to handle the data bank for job seekers under the direct control of the government. Computerized emigration system includes five steps for data processing. At each step the same data is entered to the database or some auto generated data is supplied for further processing. The development of this new e-Governance system manages the volume of data and handles it efficiently and effectively. This system includes network connectivity, databank for potential overseas job seekers, effective management & control to bring transparency in overseas recruitment system.

**Bansal et al. (2008)** described the IntraGOV, an e-Governance initiative in the state of Haryana. Intra Government Framework (IntraGOV) has been developed by NIC to provide a single point gateway to integrate Government transactions and services within the Government departments (G2G) as well as between Government and its
employees (G2E). It is user-id and password supported authenticated integrated e-office application. The authors concluded that integrated IntraGOV of Haryana is one of the popular e-Governance projects. The limitation of this project is its complex nature.

Das et al. (2008) experienced the implementation of e-Grama project in Orissa. It is e-Governance initiative of National Informatics Centre (NIC) for providing Government to Citizens (G2C) services through different Gram Panchayats and village level Information Technology Kiosks. These self-financed kiosks were opened by the villagers, Clubs and Non-Government Organizations (NGOs) with their own resources and accessing the Internet from server placed at National Informatics Centre (NIC). These are managed via kiosk operators. The training is imparted free of cost at NIC office. Also, in case of connectivity problem, CDROM version of software has also been provided by the NIC. Nehru Yuva Kendra contributes in popularizing this project by creating awareness and motivation amongst the citizens. The authors conclude that e-Grama is public-private people partnership model with active participation of the citizens.

Vir and Bansal (2008a) surveyed the benefits accrued by implementing e-Governance projects in Haryana. Online Treasuries Information System provides transparent, efficient mode of clearance payment system. It facilitates faster payment processing, saving human time while conducting transactions with bank and state departments. It also provides timely information to the state finance department for further planning and action. Haryana Pension Processing and Information System provides the monthly pension to old aged, widows and handicapped citizens in a transparent way. E-DISHA is an electronic interface between Government and citizens for providing the Government services to the citizens.
Mahajan (2009), in his research paper, highlighted the importance of information technology in implementation of smart Government in the state of Punjab. The author also discussed e-Governance initiatives taken by the Government in the Punjab state. According to this paper, NASSCOMS (National Association of Software and Services Companies) analysis reveals that the southern states like Andhra Pradesh, Karnataka and Tamil Nadu are leading in e-Governance, while Punjab is far behind in this regard. The various e-Governance projects like Punjab State Wide Area Network (PAWAN), e-Procurement, Integrated Land Management System, Suwidha and Treasury Management System have been studied in this paper. The author suggested compulsory computer education from 6th to 12th standard for the effective implementation of e-Governance. The public library system should be upgraded for awareness about the e-Governance.

Rajashekar (2009) focused on the Tamil Nadu Water and Drainage Board integrated e-Governance system (TWADNEST). The main aim of this project is to implement total e-Governance in Water and Drainage Board. Services provided are project monitoring, financial accounting, and water quality management. The entire funding for this project has been provided by Rajiv Gandhi National Drinking Water Supply Scheme. The application software for this project has been developed by National Informatics Centre (NIC). While implementing this project, training was imparted to the programmers in order to increase the level of confidence amongst the officials in adopting and operating it.

Thomas (2009) reviewed the “Bhoomi” of Karnataka and “Gyan Ganga” of Gujarat e-Governance projects. Bhoomi includes the computerization of all land records in the state of Karnataka. The main aim of this project is to bring transparency in land revenue transactions and its record keeping. Unlike the Bhoomi project which is funded
by Government, the Gyan Ganga project of Gujarat State is Government-Private Sector initiative. The Gyan Ganga is a technology-based project to ensure seamless wireless internet across in all villages in Gujarat. It is useful in providing the access to email, internet browsing to the rural citizens. However, the author concludes that Bhoomi and the Gyan Ganga projects did not significantly include citizens’ participation at all stages of the project.

Dwivedi and Bharti (2010) revealed that poverty, technical illiteracy, unawareness, shortage of infrastructure and language dominance are some of the major considerations in implementing e-Governance in India. The authors have discussed Bhoomi (automation of land records), e-Governance initiatives of Karnataka, CARD (registration project) of Andhra Pradesh, Gyandoot (service access for rural people) e-Governance project of Madhya Pradesh and Vahan Sarathi (vehicle registration) for Tamil Nadu in detail. In their study, the authors brought out that in spite of poor infrastructure and illiteracy, India has a number of e-Governance projects that have contributed towards reducing corruption, cost of services and providing fast delivery of services.

Jain et al. (2011) revealed the e-Governance initiatives taken by different States in India. These are Andhra Pradesh– e-Seva, Computer Aided Administration of Registration Department (CARD); Bihar– Sales Tax Administration Management Information; Chattisgarh– Electronic Treasury Office; Delhi– Automatic Vehicle Tracking System, MIS for Education; Goa– Dharani; Gujarat– Mahiti Shakti; Karnataka– Bhoomi, Khajane, Kaveri; Kerala– e-Srinkhala, FRIENDS; Gyandoot in Madhya Pradesh, Gram Sampark, Smart Card in transport department, etc. The authors discussed in detail about the Bhoomi project of Karnataka, Rail Net of Indian Railways, check ports of Gujarat. According to this study, strong political and administrative
leadership, clearly identified goals, benefits, adoption of standards, public-private partnership are the critical factors leading to successful e-Governance projects.

**Tejasvee and Sarangdevot (2011)**, in their research paper, discussed the e-Governance projects implemented in Rajasthan for improving governance, employment opportunities and life style of citizens. The authors mentioned the e-Governance projects for Government to Government (G2G), Government to Business (G2B) and Government to Citizens (G2C) services implemented in the State under study. The authors concluded that the end-users of e-Governance projects are citizens, businessmen, employees and the government itself participates in service delivery system. The main benefit of e-Governance is to provide the public service delivery in pre-defined time and in an efficient, transparent and reliable manner.

**Warale and Diwakar (2011)** suggested the solutions for removing shortcomings of the existing e-Governance systems and discussed the present status of e-Governance at the world level. USA and western countries are far more successful in e-Governance implementation. These countries have contributed towards the success of e-Governance projects in Bangladesh, South Africa, Namibia, etc. E-voting is an e-Governance project implemented in Germany successfully. National e-Governance Plan (NEGP), Statewide Area Networks (SWAN), State Data Centers (SDC) and Common Services Centers (CSC) are the Indian Government’s e-Governance initiatives for various departments and state Governments. The author mainly stressed on SETU, an e-Governance project of Maharashtra state that connects the administration with the general public. The main objective of this project is to provide efficient services to the citizens in an integrated manner.

**Sharma (2012)** highlighted the initiatives of e-Governance and assured its impact on society across whole of the country. In his research paper, the author studied
e-Governance projects in various states of India such as BHoomi in Karnataka for computerization of land records, E-SEVA in Andhra Pradesh for e-payment of utility bills/taxes, FRIEND (Fast, Reliable, Instant, Efficient Network for Disbursement of Services) in Kerala for the payment of different utility bills, GYANDOOT in Madhya Pradesh for village communities, LOK MITRA in Rajasthan used as single window system, SAMPARK in Chandigarh providing electronic service. According to this study, the awareness of computer and use of internet is quite low in India. Hence, it is very difficult to implement e-Governance projects effectively.

2.3 Studies Undertaken to Assess the Scope of e-Governance

These studies have been reviewed as under with the objective to find out the scope of e-Governance in the State of Punjab:

**Brar (2006)** highlighted the scope of e-Governance initiatives in the departments of excise and taxation, estate office, health and education. This paper discusses e-sampark, a multi-service single window project in Chandigarh to provide the services of these departments. The list of services includes payment of taxes, payment of water bill, sewerage bill, telephone bill, issuing of birth and death certificates and services related to Chandigarh Housing Board. It provides hassle free solution to the citizens with transparency and effectiveness under one roof. This leads to high quality interaction between administration and the public.

**Chaudhri and Dash (2006)** discussed the Community Information Centres (CICs), an e-Governance initiative of eight north-eastern states of India. These states are less developed as compared to the other states due to their geographic remoteness and hilly area. According to the authors, CICs provide basic services like internet browsing, word processing and training to the students which help the students in getting employment. CICs also offer Government to Citizen (G2C) services under single
window called e-Suvidha. These enable the citizens to apply for Government services and monitor the status of their application online. This study shows the scope of single window system and community information centres in other states.

Goel and Goyal (2006) described the benefits of e-Governance initiative taken by the Uttaranchal State by implementing Dev-Bhoomi. It is used to computerize the land records in the state. It helps in reducing the delivery time and improving the efficiency of services. Now citizens can get an authorized copy of the required document by paying a nominal fee. It improves the state revenue also by eliminating middlemen. The citizens can view their record any time, anywhere with free of cost on the internet.

Guo et al. (2007) disclosed the scope of very low cost internet access at Kiosks for providing cost effective e-Governance services to the poorest sections of the society. A kiosk has Window based Personal Computer with internet connection, operated by computer literate owner. A kiosk provides basic services like birth certificate, death certificate, marriage certificate, medical certificate and agriculture consultation. But some technical and non-technical issues like availability of power, internet signal are the obstacles while implementing the Kiosk Net system in rural areas.

Mohapatra et al. (2007) studied the “JANAVANI”, an e-Governance project implemented in Orissa. It provides for all kinds of citizens’ interaction with the Government such as complaints, suggestions, feedback and all other e-Governance related activities. The security features like encryption and authentication are also provided to ensure safe storage and digital copy transmission. This paper concludes the scope of dedicated “JANAVANI” in other states as these centres can be set up at various geographically dispersed locations.
Rao et al. (2007) presented “e-Sanjeevani”, an e-Governance project. It is a low cost medical facility provided in rural areas. The main objective of this project is to bring the urban medical expertise to the rural areas. As the patient approaches the mobile unit for medical help, he is issued an electronic admit card. When doctor gets free time, the patient explains his problem via audio video link. If any medical test is required then electronic test report is sent to the doctor and mobile unit is charged by wind mill. It is an affordable, flexible, low cost medical facility system to bridge the gap between urban and rural healthcare.

Apostolov (2008) highlighted the scope of electronic single window system for import and export trade. This concept is used to increase transparency and efficiency, and helps to reduce corruption in foreign trade. In this system, all trades are allowed to file all required information at one place for executing foreign trade transactions. It provides easy access to procedures, regulations and required documents through Internet for effective trade transactions. However, data protection is the main issue while implementing this e-Governance system. The author has also disclosed that single window systems are successfully implemented in Japan, Singapore, Korea, United States, Malaysia and Australia.

Jain (2008) discussed the e-Governance project “Samadhan Ek Din Me– Jan Suvidha Kendra” of Madhya Pradesh. It is a public service delivery centre, where all Government services are available under one roof. The citizens have to apply between 11 and 13.30 hrs. After the required processing, documents are issued on the same day. In case any of the applications is rejected or delayed, the reason is informed to the user concerned. This concept reduces corruption up to some extent and generates revenue for the state Government. It also helps in increasing citizens’ confidence level and reduces the role of middlemen as well as Government officials with vested interests. The study
has highlighted the scope of single window system and fixed time service. This project can be easily replicated throughout the country for effective implementation of e-Governance. Hence, people can avail services conveniently without much of the hassle.

**Vir and Bansal (2008b)** highlighted e-Governance initiatives in Haryana, i.e., “e-DISHA Ekal Seva Kendra” called Common service centres where Government to Citizens (G2C) and Business to Citizens (B2C) services have been provided under one roof. The main objective of this project is to make governance transparent, effective and maximize citizens’ participation. It also helps in reducing the costs of service delivery and improving the quality of services. The unique feature of this project is the setting-up of information Kiosks that are owned and run by local entrepreneurs who will eliminate corruption and middlemen from the process.

**Prasad and Murali (2010)** defined the scope of e-services in different states of India. This paper discusses the concept of e-services (e-Seva) implemented in Andhra Pradesh. e-Seva centres are set up at all municipal towns of Andhra Pradesh for providing Government services to the citizens. It enables easy multiple services access with reduced travel and waiting time. The authors also highlighted the future scope of e-services, i.e., citizens should be able to apply online, make online payment and receive the services online. This eliminates the need of physical presence of the citizens in government offices.

**Shukla (2010)** examined the Chhattisgarh Online Information System for Citizen Empowerment (CHOiCE) e-Governance project. This project provides citizens the services of Municipal Corporation and Tehsil office. To run CHOiCE, a qualified citizen is appointed by the state Government as a CHOiCE agent. The duty of the CHOiCE agent is to submit various applications of citizens for processing and after that, citizens are able to check the status of their application from CHOiCE website.
CHOiCE allows the citizens to access and use Government services anytime, anywhere which improves the quality of life.

**Jamwal et al. (2011)** explored e-Governance projects implemented in Jammu & Kashmir state. This paper discusses online employment exchange information system used to fulfil the needs of various central Government Departments and organizations. It includes registration of applicants, employment counselling and guidance for competitive examinations for bright future. The authors also disclosed the Awaaz-e-Awam (the voice of common people) used as online public grievance monitoring system. It enables the citizens to lodge any kind of complaint/grievance online.

**Nikam (2011)** analyzed the scope of e-Governance in agriculture. It is clear that the main source of income of rural citizens is agriculture. So, the use of e-Governance for agriculture can improve the productivity and quality of agricultural products. It can reduce poverty and accelerate globalization for exchange of knowledge and information. According to the author, e-Governance in agriculture also improves the planning and decision-making leading to better results.

**Salkute and Kolhe (2011)** identified the scope of e-Governance in rural India. The authors discussed “E-Choupal”, an e-Governance project useful for agriculture products and selling of home appliances via Internet. The study brought out that more e-Governance initiatives should be taken in the field of agriculture because occupation of 70% of the Indian people is agriculture.

### 2.4 Studies Undertaken to Measure the Level of Satisfaction of Citizens

Some of the relevant studies measuring the level of satisfaction of citizens with respect to e-Governance have been reviewed as follows:

**Cernea et al. (2009)** studied the expectations and perceptions of the students regarding quality of e-services. The study clearly shows that most of the students are
unsatisfied with the quality of e-services. Chiefly, women students are less satisfied with reliability and responsiveness of e-services because they need updated websites, increased responsiveness of staff and dedicated student section.

Mohamed et al. (2009) measured the user satisfaction with Malaysia’s electronic Government system. The findings of authors show that timeliness which means up-to-date Government electronic system is the main contributor for end-user satisfaction. The results suggest that accuracy, content and suitable format of information are essential factors for end users’ satisfaction. This research has raised an important contributor used in implementation of e-Governance initiatives.

Naz (2009) studied the satisfaction level of citizens with public service delivery through e-Governance. The author observed that only 1.5 per cent respondents are found to be very satisfied and 9.6 per cent satisfied. But surprisingly, 36.4 per cent respondents are found to be dissatisfied and 46.5 per cent neutral. It may be due to low rate of awareness.

Thadaboina (2009) reviewed the Warana Wired Village E-Governance Project implemented in rural areas of Maharashtra. This project is used to provide basic public services with efficiency and effectiveness. The success of any e-Governance project always depends on the satisfaction of users. In this paper, the study shows that 79% of the respondents are highly satisfied, 17% are satisfied and the remaining 4% respondents are on a moderate scale. It is pertinent to note that no citizen is dissatisfied here.

Ghatak and Singh (2010) measured the satisfaction level of citizens towards the e-Suvidha initiative taken by the Government of Uttar Pradesh. The researchers revealed that citizens are dissatisfied with the services due to low awareness level. The data analysis of this research shows that 72% citizens are not aware about the location
of e-Suvidha and only 22% citizens are aware of the services offered by e-Suvidha. This study is quite useful while designing the framework of e-Governance initiatives.

Vaisla and Bisht (2010) analyzed the e-Initiative taken by the Uttarakhand state. The authors concluded that people are eager to learn internet but due to illiteracy, they are unable to learn digital technology. It shows that e-Governance is not implemented at the grass roots level.

Bharti and Dwivedi (2011) observed that there is a gap between satisfaction level of service providers and services’ users of e-Governance project, namely, Uttar Pradesh State Road Transport Corporation (UPSRTC). The users are dissatisfied, but the officials are more satisfied with e-Governance status in UPSRTC. It may be due to poor literacy rate and technical illiteracy.

Bhatnagar et al. (2011) sighted the effectiveness of Information & Communication Technology (ICT) in e-Governance in the departments of Jharkhand state. The analysis indicates that most of the users are satisfied because they have got better jobs and delivery of services with minimized cost and maximized speed. The authors suggested that there is a need of computer training on periodical basis for better participation.

Yaghoubi et al. (2011) evaluated e-Government performance while delivering electronic services in Mashhad city of Iran. The authors concluded that satisfaction level of citizens from the staff is less than average and from the given services, accessibility is more than average. It shows that there is no improvement in service delivery system but only organizational change. So, awareness among users and effective participation can improve the satisfaction level.
2.5 Studies Undertaken to Suggest Suitable Model/Framework

Different models of e-Governance have been studied through the review of following studies:

Joarder (2003) presented an e-Governance model to convert the brain drain into brain gain. Brain drain means migration of professional resources from low developed countries to developed countries. On the other hand, Brain gain network makes links among the migrated brains, so that they may contribute in the betterment of their country. They can discuss some constructive planning if they will gather at a common place. According to the paper, meetings and conferences should be arranged to get help from one another. They can share the knowledge and experience to help their country. The author also designed the governance policy of brain gain network; so that the Governments of low developed countries can efficiently maintain their professional resources for maximum gain.

Murthy and Kumar (2003) introduced the software architectural design model for architecting, designing and implementing e-Governance systems. It is not a complete model but can be used for reference. This model has four conceptual layered approaches. Firstly, business architecture layer serves various business functions of the government. Secondly, data architecture layer defines the various types of data that comes from different types of sources and in various formats. Application architecture layer is the third layer that defines the applications to manage the data effectively. Fourth one is technology infrastructure layer that includes the technologies and infrastructure required for e-Governance implementation. There are software, hardware and communication technologies used to reduce the system cost. The e-Governance tools should be used to enhance efficiency, transparency and accountability while delivering public services to the citizens.
Balasubramaniam and Jegadeesan (2004) presented the modular framework for e-Governance called eThens. This enables the application developers to design standardized and integrated applications in the e-Governance domain. It is a three-layered service-oriented software development framework. Monopolistic service offered at the infrastructure layer and Government is the sole proprietor of these services. The production layer of eThens is for application developer to design e-Governance applications. Last integration layer enables the participation of third party agencies, service integrator who provide value added services. According to the authors, eThens is highly modular, flexible but also fairly complex.

Mittal et al. (2004) studied the role of information technology in the successful implementation of e-Governance, so that an automated system could be developed which may help to automate internal operation of Government and improve external interactions with the citizens and the business at lesser cost. After a careful study of existing framework of the Government at different levels and requirements of the system and needs of the citizens, the researchers have provided a framework which helps to handle the components like security handler record management component and user interface components. The proposed interface is very easy and user friendly. It also provides facility to modify various applications as per the requirements later in response to change in any policy. The prepared model of interface has been designed by keeping in mind all the requirements of the system and has been kept very flexible for further changes and requirements.

Ghosh and Arora (2005) offered the framework to make a nationwide network so as to implement e-Governance effectively. The study brought out that e-Governance has been implemented in isolation by different states; and there is a need of nationalized level framework which would rather help to increase effectiveness of
different isolated efforts made by individual states. In this research work, various challenges for such a framework are studied. The researchers also proposed a citizen centric model so that e-Governance could benefit end-user the most.

Kaur (2005) studied the existing development of e-Governance and proposed the framework to analyze different Government websites. It includes the two-way links and different elements like citizens, participants, ICT and data. A citizen means any individual or member of the society, it may be any organization. Participants are those agencies or individuals who develop the websites from the design to be operational. ICT is a technology to deliver timely and speedy information to the end users. Data included data items, pictures, animation, etc.

Kumar and Bandopadhyay (2006) proposed the Knowledge sharing framework for answering the queries of farmers. It is used to re-use the stored knowledge from the knowledge base. In this Knowledge base, farmers can store their experiences, which can be further used for other farmers.

Gessi et al. (2007) introduced a new e-Governance framework after reviewing and analyzing the ICT case studies. This framework stressed upon the need of strong monitoring and evaluation system with feedback for corrective action. The framework focuses on making strategy for the use of information & communication technology in various existing processes for member countries.

Prabhu (2007) designed the architectural framework for effective implementation of e-Governance in the country. He emphasized that all the state level applications should be managed at the state level web services repositories located at state data centres and district level applications at district data centres. Similarly, nation-wide controlled web services will be managed at the national level web services repository located at national data centre. All data centres should be interlinked which
Islam et al. (2008) stressed on the implementation of e-Governance in urban and rural areas of Bangladesh. The authors proposed a comprehensive model of e-Governance to provide the important guidelines and information for its effective implementation. They found that there is a gap between the infrastructure needed for the implementation of e-Governance in rural and urban areas, so it is required to be considered while designing the project. About the network, they focused on telephone network for the implementation of e-Governance because this model uses the telephone lines for data transmission. In our country, telephone network is the most suitable means for rural area as well as urban area because it is widely spread throughout the country. Telephone network is easy to implement with the available software and hardware with sufficient security.

Suri and Sushil (2008) analysed the conventional programmed planning framework and examined its suitability to handle the e-Governance projects. In this study, the researchers studied various shortcomings in the existing Governmental system. They made many recommendations for the existing framework and expected benefits which could further enhance the effectiveness of the system. The study brought out that existing framework is not suitable enough to handle the complex mixture of Governmental system which involves social, legal, organizational, political and technological aspects. They proposed recommendations which can help to make the system more effective and flexible.

Kumar (2009), in his research work, provided factoring decentralization in the e-Governance policy framework. The idea of decentralized governance is a need in the
developing countries. The paper shows that a state is a province, then district, taluk, panchayat are the next levels of administration in the Indian context.

**Rabaiah and Vandijck (2009)**, in their research paper, proposed a framework of e-Governance. The framework is divided into two parts, namely, the front office pane and back office pane. Each part is further divided into different modules. According to the authors, it is flexible and customizable with modular design. This paper studies the strategies of 21 different countries for this framework. The authors also discussed about the e-Governance components cube which depicts the practical perspective of e-Government organization to show how the government visualizes the basic elements.

**Gharpure (2010)** projected the process framework for urban e-Governance. The paper defines the three distinct phases of e-Governance initiatives implementation. Firstly, provisions of static information, i.e., Government departments have their own website. Secondly, capability for transactions which means user could carry out transactions online; and thirdly, one’s interoperability with other organizations. The study brought out that all the departments are working independently due to which all have to do the same task individually. As these departments are not inter-connected, so administration is not able to work properly.

**Parikh (2010)** has given software design platform for e-Governance solution framework. The proposed design provides reusable pattern that solves the problems at design level. This pattern helps to simplify the act of developing, deploying and managing complex e-Governance solution. It will minimize writing of programmed code and maximize the reusability of design and knowledge. The study explains how design pattern could help to develop effective framework for e-Governance. The researcher prepared different patterns bringing them together can develop a complete framework for good e-Governance. The design pattern is very eco-friendly and
consumes less energy. Hence, it can play a crucial role in reducing damage to environment.

Riad et al. (2010) presented a Decision Support System (DSS) framework for e-Government. DSS is an information system for providing the solutions to management problems and improving the decision-making. Proposed framework is divided into six parts. Application channels including internet, TV, e-mail and mobiles are used by the user to access the services at any time and any place. E-Government website is a uniform entry point to access all Government services. Application layer integrates the DSS with e-Government. Unified application support platform forms the connection in the e-Government overall technical framework. Information resources layer offers various kinds of information resources to upper layer. Network layer supports e-Government by providing wired and wireless private network. Mainly, the proposed framework helps the top managers in supervising and taking effective decisions.

Varma (2010) described the role of internet computing standards in framing a good strategy for effective e-Governance. This study provides a new service consumption and delivery model to reduce the costs and rapid growth. It emphasizes the benefit of internet computing to the Government by reducing duplicate efforts, increasing effective utilization of resources and service-oriented architecture. Internet computing enables the e-Governance services faster and cheaper. It helps to deliver more interactive services to the citizens and the business through e-Governance.

2.6 Gaps in Research

The review of literature has helped to find some research gaps. Though many researches have already been done on e-Governance, yet there are certain areas which need to be explored. The main research gaps are as follows:
➢ Lack of education of IT particularly in older people.
➢ Shortfall of citizens’ awareness and training in IT.
➢ Language problems have not been addressed.
➢ Security and cost problems of infrastructure have not been taken care of.
➢ Lack of confidence of common citizens in e-Governance.
➢ Citizens’ participation in e-Governance is largely missing.
➢ Mindset of bureaucracy has not changed with IT adoption.
➢ Without IT knowledge percolation amongst masses, e-Governance success is not possible.
➢ There is lack of IT education in schools in our country.
➢ There are no library or guidance centres available for e-Governance.
➢ Slow processing speed and frequent computer crashes leading to exorbitant delays in work.
➢ There are weaknesses in IT processes being followed in SUVIDHA centres.
➢ Conducive environment to work is missing in many e-Governance service centres.

2.7 Conclusion

A detailed study of the existing literature on the subject provides that although some primary work to implement e-Governance has been done effectively, yet it requires a holistic view of all the effective approaches used for the achievement of good governance through the use of Information & Communication Technology. The research gaps found in the previous studies form the basis of this work for the effective implementation of e-Governance in the state of Punjab. The factors contributing towards its effective implementation have been studied in detail.

The next chapter discusses the detailed research methodology.