CHAPTER I
INTRODUCTION

As human society advances, information plays an important role in society’s existence, renewal and enrichment. The present day change in electronic technology has brought about revolutionary changes in the life of the people and the social institutions. The results of this revolution are seen to be pervasive, extending to every aspects of social life. It affects realities as disperse as relationship between people, cultural consciousness, modes of apprehending reality, ideas of the self, political organization, global relations and in fact every walk of social life. IT has shrunken the globe into a village. These technologies have created new avenues for scientific and economic development with large implications for social change (Satyanarayana R, 1996:63-114). The increasing interconnection and interconnectedness between and among societies in the current phase of globalization left ICTs (Information and Communications Technology - or Technologies) to become dominant in every aspects of the social system.

In the present information age, creation of knowledge is an essential driving force for the development of society and without ICT, it is impossible to have an infrastructure, which can automatically process the huge flow of information that is required for creation of knowledge (Information Society Commission, 2008). Information Technology (IT) is a powerful tool for the development of society. It is a valuable tool
required for planning, directing, controlling, decision making, motivating, forecasting and research and development activities to ensure productive and gainful operations. IT is transforming the way people do things. Computing and communication technologies have dramatically increased the intensity of information processes, occupations and institutions, as well as that of products and economies. Transformations are occurring in all services: finance, trade, distribution, marketing, education and health (Hanna Nagy, 1994:11).

IT is generally defined as a new technology concerned with the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by micro-electronics based combination of computing and telecommunication (Macmillan Dictionary, 2008). It is rather concerned with retrieval, manipulation, analysis and transmission of information.

UNESCO (United Nations Educational, Scientific, Cultural Organization) considers IT as scientific, technological and engineering disciplines and the management techniques used in information handling and processing; their applications; computers and their interaction with men and machines; and associated social, economic and cultural matters (Sameer Babu M: 2008:15). IT is treated as the study, design, development, implementation, support or management of computer-based information system, particularly software applications and computer hardware by organizations like Information Technology Association of America and others similar organizations (http://www.uitp.org/news/pics/pdf/MB_IT_final.pdf). IT deals with the use of
electronic computer and computer software to convert store, protect, process, transmit and securely retrieve information. Today, the term IT has ballooned to encompass many aspects of computing and technology, and the term has become very recognizable. On the staff sector, IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. The importance of ICT lies less in the technology itself, than in its ability to create greater access to information and communication among the hitherto unreached geographies and populations (ICT in Agriculture, 2008:5). ICTs is an umbrella term that include any communication device or application, encompassing- radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning. ICT is often spoken of in a particular context, such as ICT in education, health care, or libraries. Many countries around the world have established organizations for the promotion of ICT in order to catch up with the technologically advanced countries, so that the gap between technological “haves” and “have-nots” does not become accentuated and exacerbate the already-existing economic gap. Internationally, the United Nations actively promotes ICTs for development as a means of bridging the digital divide (Future of ICT: http://beepwork.com/?p=5)

Though the terms ‘Information’ and ‘Technology’ were known to the people as separate concepts but the term ‘IT’ as a combined word signifying special meaning was recognized only in the last few years. The writings of Norbert Wiener, the inventor
of cybernetics, (Maggie McGarry.2008) in the late 1940s and that of Daniel Bell's on post industrialization in his prominent book 'The coming to post industrial society — a venture of social forecasting' are considered significant in understanding the impact of information and technology in society. The use of the term 'IT' is of recent origin. As recently as 1981, a British opinion poll that appeared in the *Times, London: 14th Jan. 1982* (Satyanarayana R, 1996:63) indicated that eighty percent (80%) of those interviewed then, had not heard of the term IT.’ The term IT has come into common use since the mid 80s with the integration of the computer technology and communication. It is only during the last two decades that the term IT became widely known and has become a popular word in everyday parlance.

Today, a lot of benefits are expected from ICT and the protagonists of ICT point out that this can be a potent weapon for social change. The basic argument in favour of ICT is that: the rapid flow of information is a catalyst for social development. An information society and knowledge economy built on the edifice of ICT is the launch pad of development. Telecom is improving opportunities for people’s interaction across different social strata. A whole range of information based industries and applications have come up, creating new sources of employment and earnings with welfare enhancing consequences for both the poor and the rich. As a meta-technology, ICT has caused rapid innovations to occur in all other areas of material sciences (Manas Bhattacharya: India Vision 2020:665). It has improved access in the fields of education, healthcare, governance and business services. It has also enhanced the ability of the poor to manage risks and mitigate vulnerabilities through provision of timely
information. As far as social sustainability is concerned, ICT enables greater access to
to basic services such as education, finance and healthcare by all segments of society and
can improve to provide the basic amenities to citizens.

It is accepted that the sectoral composition of the GDP (Gross Domestic Product) changes with economic development. The global economic trend indicates that the predominance of agriculture in the least developed economies is reduced by the increasing importance of manufacturing and subsequent services, as they move up the ladder of development (Poojary, J., 2005). In the course of the process, the rates of economic growth tend to increase. This transition is now occurring globally and is reflected in the explosive growth of the services sector, especially in the fields of financial services, ICT, insurance, education and health.

There has been a global emphasis upon development of IT, as it has come to be recognized as the essence of a nation's socio-economy. The ICT industry is playing an increasingly important role in the global economy. It created approximately 5 percent of total GDP growth between 2003 and 2008, and it represented 5.4 percent of world's GDP in 2008 and is expected to reach 8.7 percent by 2020 (Global IT Report (GITR), 2009-10:61). Because of its size and the nature of its products, the industry has a notable role to play in encouraging economic growth and contributing to other social goals, including improving education and healthcare access and services. Furthermore, ICTs are fundamental to realizing the shift towards a low-carbon economy. UN Secretary-General Ban Ki-moon, speaking at the International Telecommunication
Union (ITU) Telecom World event in 2009, said that “ICTs are vital to confronting one of the biggest problems we face as a planet: the threat of climate change” (Johnson M., 2010)

IT has the potential to greatly contribute to the prosperity of developing areas. By bridging the digital divide, it is possible for poverty stricken regions to enhance communication with other countries, therefore offering economic, social and political opportunities. IT is also a stimulant to the growth of home-based employment opportunities, especially suitable for women. The trend towards tele-working, which is growing rapidly in USA (United States of America) and some other countries is just beginning in India. The lower cost and greater convenience of home-based employment is bound to open up greater job opportunities for educated women with children (GITR 2009-10). IT services will be a powerful engine of job growth. Besides supporting economic sustainability, ICT can play a leading role in fostering environmental and social sustainability both within its own sector and as an industry-wide enabling infrastructure. Not only is the ICT industry increasingly adopting measures and strategies to reduce the sector’s energy footprint, but it is also developing innovative solutions to diminish other sectors’ energy consumption and improve overall sustainability across industries.

Many efforts are seen in the recent times to make IT an important component of information and knowledge dissemination in the field of education. The ICT sector has dramatically changed the way people learn. A wide range of information is available
free on the Internet, something that was unthinkable 20 years ago. The use of email, websites, and virtual classrooms and libraries has proliferated, facilitating the sharing of information on a large scale. Some countries have set specific initiatives to improve education through ICT. For instance, the deployment of the Jordan Education Initiative (JEI), a public-private partnership that aims to improve education in Jordan through the effective use of ICT, was launched in 2003 with the support of the World Economic Forum. Partnerships with multinational companies such as Microsoft and Cisco have provided enabling equipments, such as computer labs and broadband Internet for 100 “Discovery Schools” around the country. These infrastructures enabled the creation of e-learning curricula for 50,000 pupils and IT training schemes for 3,200 teachers. The performance of students is found to be higher in Discovery Schools than any other schools. This facilitated higher level of education which in turn reduces unemployment and poverty (Daniel L., 2008). In another case, Vietnam has invested significant amount of resources to provide computer-based connectivity to improve its education system (www.unescap.org/pdd/publications/regcoop/ch5pdf). Similarly, China’s advance distance learning satellite broadband multimedia transmission platform became operational in November 2000 to serve the country’s western and other remote regions (Satyanarayana R: 1996:65). Denmark is a leading country in national healthcare information exchange with its successful development of national e-health plan. The healthcare portal was created in 2003 to enable patients to view their medical profiles and histories, renew their prescriptions, book appointments with doctors, and so on. Healthcare professionals also have access to the health information and additional clinical knowledge. Through the careful use of IT, the Danish health system
has saved money, improved efficiency and laid the foundation for improvements in the quality of care. Apollo Hospitals, an Indian hospital chain, have started providing basic diagnostics including blood pressure, medical check-ups, and consultation via mobile services in collaboration with a leading provider of telecommunications and data communications systems. This project is to enable the provision of affordable and accessible healthcare to millions of people in remote areas (GITR 2009-10:65).

ICT has a vital input in capacity building for local governance institutions. ICT is exploited for transparency, social audit, disclosure of information to citizens, monitoring for improving the quality of service delivery, improving internal management and efficiency etc. IT has build information systems for planning, compilation and coordination at various levels of local government institutions. For example, in Singapore, citizens can renew or purchase identity cards online by submitting digital passport-sized colour photographs and scanned copies of existing identity cards. Also, when citizens are changing their residential address, they need to submit just one single report and all government and non-government will automatically be notified. A customer perception survey in 2008 conducted by the Ministry of Finance and Info-com, Singapore showed that 85 percent of respondents made transactions with government electronically. It was found that 88 percent were rated satisfied for four main reasons: easy to find information, user friendly, fast transaction, and easy completion. In Malta, to take another example, citizens can purchase online copies of personal documents such as birth, marriage and death certificates for themselves and family members dating back to the 1880s.
Thus there are important uses of IT in the field of e-governance.

Information has vital role in the social, economic, cultural and political life. In the field of IT, India has gained sufficient reputation. Use of ICT has revolutionized several sectors in India including governance and planning. Data available on the net now help the decision making processes. Attempts have been made to bring in transparency and accountability through making data electronically available to the people. National Task Force on IT and Software Development 1998 have been set up to frame IT policies for setting the base for a rapid spread of IT awareness among the citizens through propagation of IT literacy, networked government, IT led economic development, rural penetration of IT applications, training citizens in for day to day use of IT services like tele-banking, telemedicine, tele-education, tele-document transfer, tele-library, electronic commerce etc. In India a Ministry of Information & Communication Technology has been set up and the National Informatics Centre (NIC) has come up as an autonomous centre under this Ministry for the development of e-Governance Schemes.

The contribution of ICT is significant in terms of income and earnings, growth and employment generation as well. An abundant pool of skilled staff has facilitated the rapid growth of IT industry in India, growing annually at the rate of approximately 50 percent (http://www.carretek.com/main/visitIndia/about_india.htm). IT sector has not only created a large number of jobs, but also resulted in new types of challenging
Knowledge of IT has opened up the opportunity for India to become the premier, low-cost provider of computer software and IT-enabled services to the industrialized world. It can not only provide high paying jobs and rising exports, but also transform the way we educate our youth with increasing speed, quality and efficiency. In addition, IT is already transforming the way we communicate among ourselves and with the rest of the world. The changes have shrunken the distances between hemispheres providing instantaneous access to the whole knowledge base and customer base.

Availability of private IT training institutes and pressure to develop IT skills has led to the development of ICT knowledge among many non-ICT professionals in the urban areas. On the other hand, the situation in rural areas is of significant concerns. Many rural areas do not have access to basic education let alone ICT infrastructure and IT education. Today, many non-governmental organizations (NGO) and private companies are working in this sector to implement innovative method of providing education which can at best supplement government efforts in ensuring total literacy. In addition, India’s established credentials in IT and IT enabled services can be leveraged to develop a competitive advantage in other fields of engineering, scientific research, especially biotechnology, medicine, pharmaceuticals, agriculture, as well as education. Performance in these sectors will depend on country’s capacity to generate larger numbers of well-educated and competent scientists, engineers and IT professionals. The emerging global scenario is to open up greater opportunities for countries with a surplus of well-educated, highly skilled labour. IT can provide an attractive commercial
environment for outsourcing of manufacturing and service businesses from high and even middle income countries.

India's recent boom in outsourcing IT services further facilitates declining costs in international communication and transportation. This provided a wide range of economic opportunities existing in the manufacturing and service businesses. At the same time, the demand of highly educated and highly skilled individuals across the globe increases significant migration of scientific, engineering and medical talents. Export of IT services is a sector in which India continues to excel for some time. Computerization coupled with low cost global telecommunications is generating rapid growth of trade in service businesses, such as software and IT enabled services. This trend will further accelerate opening up vast opportunities for countries with the capacity to deliver low-cost and high-quality services.

ICT increasingly play an important role in the reduction of social exclusion. The new technology has significant potential to assist community development by re-engaging communities and building community identity. However, ICT can also reinforce social exclusion through inequality of access to the necessary equipment or lack of the skills necessary to utilize them. All the developments in the IT industry in India have their implications on the socially excluded classes also. For example in Dhar district in Madhya Pradesh, the farmers check rates at different agriculture markets yards and choose the days when they get a better price. They have learnt to access veterinarian advice through the e-mail communications (Arifa K, 2003: 62). In 2000, the National
Capital Territory government, Delhi in collaboration with an IT corporation established a project known as 'Hole in the Wall' experiment to provide computer access to the city's street children. An outdoor five computer kiosks was setup in one of the poorest slums of Delhi (Warschauer, M. 2002). The World Bank in 1998 organized a forum called “voices of poor” with feedbacks from 60,000 people in 60 countries. The general agreement was to access to knowledge and opportunities instead of charity to fight conditions leading to poverty. IT has potential for spreading information on health and accessing consultants for various diseases. According to the UNDP’s (United Nations Development Program), Human Development Report 2009, (HDR) 50 percent of the population in the least developed countries has access to health services.

The Government of India (GoI) under the Department of IT (DIT) took up an initiative in 2000 for setting up of CICs in far-flung hilly areas of North East India. The CICs were expected to bring in the benefits of ICTs to the people for socio-economic development of these regions and to alleviate the digital divide. CICs deliver IT-enabled e-government services and were providing IT training. The CICs catered to e-mail/internet access, information dissemination, entertainment news, tenders, e-employment notification, including agri-market information, hospital bookings, board examination results, and access to socio-economic databases through its portal. Today, in order to continue providing services for socioeconomic development of the region, arrangements were made to facilitate the merger of CICs into CSCs (Common Service Centers) throughout the country under National E-Governance Plan (NeGP).
The “North East Vision 2020” has objectives like developing appropriate IT software for Panchayat activities, capacity building for elected Panchayat representatives and officials, building a vibrant net-community of Panchayats using NPP (National Panchayat Portal) etc. These plans are organized to put in place IT enabled planning, decision making, implementation, service delivery, reporting and disclosure including information dissemination under the national Right to Information Act (NE vision document 2020). These are some grand visions yet to deliver.

For North Eastern States of India i.e. Arunachal Pradesh, Assam, Manipur, Mizoram, Meghalaya, Nagaland, Sikkim and Tripura, IT holds special significance. The unique geographical constraints and poor communication infrastructure kept the region isolated from the rest of the country. These states are economically and socially backward as compared to the rest to the country. This backwardness to a large extent is attributed to the geographical and location constraints. The use of IT holds great potential for bridging the physical communication bottlenecks of the region. A step towards development of IT in Manipur is the need of the hour. Manipur with its total 22, 327 sq km and 2293896 populations (Census, 2001) has its own physical and social constraints. The state has a complex social composition with diverse ethnic communities including 29 different scheduled tribes of different ethnic origins (Das, R.K., 1985: 5). This complicates the socio economic phenomena too. There is apparent disparity in the level of income and consumption between the rich and poor, between urban elite and rural poor, between public living in the hills and valleys. However, with proper state intervention, IT facilities can be made accessible at low cost which will
open opportunities for all. Theoretically the greatest gain can be expected for those disadvantaged section in the field education and information access. In this regard, it would be worthwhile to study the extent of IT use and the scope of its development in the state of Manipur.

LITERATURE REVIEW

Some of the studies that relate to the social aspects of IT are reviewed below - Armitage, J and Roberts, J. (2002) traced the study on the development of ICT to Daniel Bell and pioneering theorist like David Lyon, Jean Francois, Manuel Castlles and Frank Webster. The author considers the works of these theorists important in the study of information embedded society. According to him, Webster’s study on ‘Information Society’, Jean- Francois Lyotard concept of ‘postmodern society’ traces their genealogy to Bells Post Industrial and Information society concept. He stressed that Lyon’s ‘Surveillance Society’ has gone far beyond post industrial society to the concept of cyber society as conceived in the twenty first century, but agreed the realities of industrial society perspectives on information and modes of social expansion. The author further says that development of micro computing and its dovetailing with telecommunications is assumed to herald certain social, economic and political changes comparable to those often attributed to the diffusion of machine technologies in the nineteenth century. For him, if the industrial revolution bequeathed an industrial society, IT revolution promised an information society. He considers Information society as a construct, a product of imagination that is used to try to grasp some significant features of today’s world. The author opines need for sociological
understanding on IT embedded society which will not only indicate the social origins as well as social consequences of ICT but also point to the political, moral and cultural questions which are raised profoundly by the information society.

According to Castles M. (1998) the roots of the idea of the information society are closely associated with the idea of post-industrialism. He contends that the IT, which include microelectronics, computers, and telecommunications diffused widely in 1970s accelerating their synergistic development and converging into a new paradigm. He prefers to call the emerging society as ‘informational’ society where the process of generation and transformation has rather become the fundamental source of productivity and power. According to Manuel Castles network logic is information, pervasiveness, flexibility, and convergence and is the central feature of the IT paradigm. One of the key features of informational society is the networking logic of its basic structure, which explains the use of the concept of ‘network society’. Networks constitute the new social morphology of the societies, and the diffusion of networking logic substantially modifies the operation and outcomes in the processes of production, experience, power and culture. For Castles, the network society is the result of informational-ism and a new technological paradigm.

Webster (1995) as a part of the critique in defining information society presents criteria such as technological, economic, occupational, spatial and cultural. In technological, he has considered networked computer and the ISDN (Integrated Systems Digital Network) as the foundational element of information society.
Information society focuses on occupational change, spatial that is space and information network which connects location and the cultural change. The major critique of concepts such as information society, knowledge society, network society, postmodern society, postindustrial society, etc. has mainly been voiced by critical scholars. This was to create the impression that the societies have entered into a completely new type of society. Webster argue that these approaches stress discontinuity, as if contemporary society had nothing in common with society as it was 100 or 150 years ago. Such assumptions would have ideological character because they would fit with the view that we can do nothing about change and have to adapt to existing political realities.

Bell Daniel (1976) forecast social change in every aspects of the society, be it social structures, political, economy, technology, demography etc. Daniel Bell describes technological transformation playing a crucial role in the progression of human societies from one stage to another stage. This transformation has widely influenced the economic, social, cultural and political institutional arrangements of society. He believes in the transformation of human societies from pre-industrial agrarian to industrial and then to post-industrial shaped by the innovation of technologies. According to Daniel Bell, in knowledge and information society, science plays an increased role in the productive forces and thus professional, scientific and technical groups will rise into prominence in addition to vast expansion of IT, which include a converging set of technologies in microelectronics, computing, telecommunicating / broadcasting and society. He forecasts the growth of a new social framework based on
telecommunications which may be decisive for the way knowledge is created and retrieved, and the character of work and occupations people are engaged in.

According to Alvin Toffler (1980) the latter half of the 20th century witnessed the advent of ICTs which heralds a new phase in the history. The changes brought about by ICT in the social and economic fabric are effectively unique. During this period there was a phenomenal expansion of computer communication, electronic technology and service economy. Agriculture wave, Industrial wave and Information wave are the three stages of economic evolution of humanity according to Alvin Toffler has emphasized to have gone through by the human society. Presently the society is undergoing the third wave i.e. information wave, which is marked among others by explosive developments in IT and predominance of service employment. It is recognized that the present phase of globalization have paved the way for the emergence of global knowledge society and economy; a network society with a varied kind of economic and educational requirements organizing the society’s moral values and identity. In essence ICTs have been juxtaposed to the process of restructuring economic and social institutions.

Lyotard Jean-Francis (1984) has argued that knowledge has become the principle force of production over the last few decades. Knowledge would be transformed into a commodity. Lyotard says that postindustrial society makes knowledge accessible to the layman. IT diffuses into society and break up grand narratives of centralized structures...
and groups. Lyotard denotes these changing circumstances as postmodern condition or postmodern society.

Scotts M (1997) says in the knowledge society, people's endowment of skills, capabilities, investment in education and training constitutes the key to economic and social development. According to him, IT is not so much physical capital, or human skills (human capital) that determines economic growth but the nation's capability to apply knowledge to knowledge creation itself for economic development. According to Scots, economies are increasingly built on the foundation of information, learning and adaptation. Hence the quantity of knowledge increases and the production of knowledge accelerate.

Naisbitt, J (1986) assumes emerging society as a 'knowledge Society' which is characterized by new methods of dissemination and IT. These technologies permits and sustains unrestricted access to knowledge and control over it. Thus in the contemporary phase of human society the proliferation of IT has lead to the emergence of a mass society that produces knowledge and information on a mass scale as the driving force of economy.

Yoneji Masuda (1981) writes that in the post industrial information based society knowledge or the production of information values will be the driving force of society rather than industrial technologies. Thus in the evolving information age, the
generation, dissemination and application of knowledge becomes the basis of all aspects of society.

**Alain Touraine (1988)** writes the passage to postindustrial society takes place when investment results in the production of symbolic goods that modify values, needs, representations, far more than in the production of material goods or even of 'services'. Industrial society had transformed the means of production: post-industrial society changes the ends of production, that is, culture. According to Touraine, in postindustrial society all of the economic system is the object of intervention of society upon itself. It is also the programmed society because of its capacity to create models of management, production, organization, distribution, and consumption. In the programmed society, the area of cultural reproduction including aspects such as information, consumption, health, research, education would be industrialized. That modern society is increasing its capacity to act upon itself means for Touraine that society is reinvesting ever larger parts of production and so produces and transforms itself. This makes Touraine's concept substantially different from that of Daniel Bell who focused on the capacity to process and generate information for efficient society functioning.

**Rodovan Richtra (1977)** argues that society has been transformed into a scientific civilization based on services, education, and creative activities. This transformation would be the result of a scientific-technological transformation based on technological
progress and the increasing importance of computer technology. Science and technology would become immediate forces of production.

Nico Stehr (2002) says that in the knowledge society a majority of jobs involves working with knowledge. "Contemporary society may be described as a knowledge society based on the extensive penetration of all its spheres of life and institutions by scientific and technological knowledge". For Stehr, knowledge is a capacity for social action. Science would become an immediate productive force, knowledge would no longer be primarily embodied in machines, but already appropriated nature that represents knowledge would be rearranged according to certain designs and programs. For Stehr the economy of a knowledge society is largely driven not by material inputs, but by symbolic or knowledge-based inputs. There would be a large number of professions that involve working with knowledge, and a declining number of jobs that demand low cognitive skills as well as in manufacturing.

Dijk Jan Van (2005) defines the network society as a "social formation with an infrastructure of social and media networks enabling its prime mode of organization at all levels (individual, group/organizational and societal). Increasingly, these networks link all units or parts of this formation (individuals, groups and organizations)". For Van Dijk networks have become the nervous system of society, whereas Castells links the concept of the network society to capitalist transformation. Van Dijk sees it as the logical result of the increasing widening and thickening of networks in nature and society.
Darin Barney (2003) uses the term for characterizing societies that exhibit two fundamental characteristics: The first is the presence in those societies of sophisticated – almost exclusively digital technologies of networked communication and information management/distribution, technologies which form the basic infrastructure mediating an increasing array of social, political and economic practices. The second, arguably more intriguing, characteristic of network societies is the reproduction and institutionalization throughout and between those societies of networks as the basic form of human organization and relationship across a wide range of social, political and economic configurations and associations.

According to Kumar Krishan (1995) the different theories of post modernism, information society, post-fordism, overlap with one another. For him, IT more or less defines the information society idea and is central to the analysis of the theories. ‘Globalization’ is another common denominator. If the theory of the information society emphasizes the forces of production, post-fordist emphasizes on the relations of productions. Society goes from industrial society to the information society, cyber society and beyond.

Saskia Sassen (2002) opines that there is a strong tendency in the social sciences to understand and conceptualize the new IT in terms of their technical properties and to construct the relation to the sociological world. According to the author, understanding the place of these new technologies from a sociological perspective requires avoiding a
purely technological interpretation by recognizing the embeddedness and the variable outcomes of these technologies for different social orders. According to her, these technologies can indeed be constitutive of new social dynamics and can also be derivative or merely reproduce older conditions. Second, such an effort will in turn call for categories that capture what are now often conceived of as contradictory or mutually exclusive attributes. The author examines these aspects by focusing on three analytical issues for sociology: the embeddedness of the new technologies, the complex interactions between the digital and the material world, and the mediating cultures that organize the relation between these technologies and users.

Abdul Kalam, APJ (2004) stressed the need of IT along with bio-technology, space technology, weather forecasting, disaster management, telemedicine and tele-education. IT is also expected to produce native knowledge products, service sectors and infotainments for wealth generation. These technologies and management structures have to work together to generate knowledge society. He emphasized that we are living in a knowledge society which has two very important components driven by societal transformation and wealth generation. The societal transformation on education, healthcare, agriculture and governance will lead to employment generation and higher productivity. The author also made suggestion of creating a virtual university in India through networking of all the universities and other educational institutions for imparting tele-education. He proposes digital library is an important component for capturing knowledge.
Martin Albrow (1999) fears the advances of technology are so rapid that the society is continually facing the loss of control. We are forced into a permanent state of ambivalence towards change. He cites the experiences of cash cards, ticketing, entry codes, ID numbers, credit ratings as one of an external system penetrating not only that of our work situation but also the fabrics of everyday life as colonalization of the lives.

Satyanarayana R. (1996) opines that emergence of IT provided greater impetus for information transfer both at inter and intra organizational levels. Organizations of all types become involved within and have implemented (or are implementing) IT based systems. At the macro level, growing interest is noticed in and concern over the wider socio-economic effects of IT. The author draws some inferences relating to the issues of social implication of IT such as (1) Emergence of Information society which has come to represent societies in an advanced post industrial stage characterized by a high degree of computerization, large volumes of electronic data transmission and an economic profile heavily influenced by the market and employment possibilities of IT. (2) The social implications of IT is mostly based upon speculative thought as many of the new technologies have not yet been built and located in their social settings. (3) The impact of IT on jobs is far from being deterministic.

Claire Mercer (2004) tried to visualize the international development and community conception on role of ICTs in promoting democratic development. The 1994 Zapatista uprising in Mexico or ‘Zapatista effect’ has prompted claims that access to ICTs will strengthen civil society by giving voice to the poor and marginalized thereby widening
popular participation, and encouraging information-sharing and alliance-building. Drawing on research carried out in Dares Salaam and Arusha, two of Tanzania's most connected cities, the author critically analyses such claims in the light of the experiences of NGOs use of ICTs. The author found that only a minority of resourceful, urban and/or international NGOs have access to ICT facilities. Moreover, NGOs are not using ICTs in the ways imagined by donors, who ignore the social, cultural and political contexts within which they would wish to embed technological professionalism. Access to ICTs has to some extent facilitate networking among Tanzania's elite NGOs whose advocacy and lobbying activities have had some impact upon national policies. The paper concludes with the recent 'ICT fetishism' of international donors is likely to result in a case of misplaced optimism.

Lawrence, Ilana and Wendy Sutherland (2004), the authors tried to analyze the concept of have and have-not's and the considerable debate about the growing gap between the information-rich and information-poor. The paper examines four families, one of which had long-term ICT access, and three of which took advantage of the virtual communities offer to get home computer and Internet access for the first time. The authors examine their engagement with ICT and suggest that previously disadvantaged family members are not particularly advantaged by their access to ICT. They have a computer and internet access in their home making them part of that rapidly expanding group of the technology 'haves', but that is where the similarities with other children in the study more or less begin and end. Therefore, the paper questions how useful it is to talk about technology 'haves' and 'have-nots'. The data
suggest that an expanded, re-conceptualized understanding of 'access' and its relation to equity. Access cannot be seen merely as having an internet connection, but as much more complex and multileveled social goal. The question is about not only who gets how much of the technology resources, but also who gets the benefits associated with such resources and how much of them.

Konsbruck Robert Lee tries to explain the business models, commerce and market structure. He opines technology can enable a finer division of labour among countries, which in turn affects the relative demand for various skills in each nation. The technology enables various types of work and employment to be decoupled from one another. He considered workplace and labour market as an important component and in these computers and communication technologies allow individuals to communicate with one another in ways complementary to traditional face-to-face and written modes. They enable collaborative work involving distributed communities of actors who seldom meet physically. Education advances in IT will affect the craft of teaching by complementing rather than eliminating traditional classroom instruction. Indeed the effective instructor acts in a mixture of roles. In one role the instructor is a supplier of services to the students who might be regarded as its customers. These computer-based training programs provide flexibility in skills acquisition and are more relevant than traditional seminars and courses. He is of the opinion that IT raises a host of questions about intellectual property protection.
Subbiaharunachalam (2003) tried to analyze the concept of information rich and information poor countries taking into consideration the academic research purposes. He is of the opinion that with the advent of Internet and electronic sources, information has not only exacerbated researchers from taking part as equal partners in publishing, refereeing, and in international collaboration. If escalating costs of print journals have made life miserable for scientists and other scholars in developing countries, the advent of electronic sources of information has made the situation even worse. It is in the nature of any new technology to exacerbate the existing divide between the rich and the poor. The newer and more potent the technology is, the greater its ability to increase inequalities. Even when both information and communication were entirely mediated by the printed word, there was a big gap between the richer and poorer countries that increased with the passage of time. In the 1920s, 1930s, and 1940s, India did rather well in science.

Felix Alvarado (2009) describes the implementation of web intelligence tools in public education and other policy sectors in Guatemala. The author discusses the salient aspects of experience of implementing and expanding what has been called the "Platform for Integrated Social Information (PISI),” as a combination of software, hardware, reports and institutional arrangements. The combination lead to the transparent availability of raw non-aggregated data from the social sector for education, health, finance and demographics that can be accessed and analyzed through a common interface, irrespective of the institution and technology on which these data are originally based. The paper discusses the issues this platform raises as a resource for
an improved public decision making, policy analysis and a promising but challenging tool for democracy in the education sector.

Gill SS (2004) attempted to examine the pace of IT revolutions with special reference to India. The author begins with computer and microelectronic revolutions. He stressed that we are in an information society where the computers have relieved us of repetitive task. It is also argued that IT was developed for commercial interest. The author deals with various aspects of IT impact on society. The study covers themes on globalization, nature of work, employment, education, democracy and wars. He also tries to draw the extent of IT use in developing countries. The study has stressed the need of IT application rural areas.

Louis Vernal and Paily MU (2004) took a case study of Washington based ‘World Link’ to highlight connecting thousands of students and teachers around the world through internet as a medium of learning. The ‘World link’ initiated an Indian program of training secondary school teachers with an objective to bridge the digital divide. He also highlighted the government’s initiative as per National Task Force on IT and Software Development 1998.

Mark Warschauer (2002) takes into account the problem of digital divide, modes of access, technology for social inclusion. He speaks of the project ‘Hole in the wall’, 2000 taken up by the Government of National Capital Territory (NCT) of Delhi in collaboration with an IT corporation to provide computer access to the city’s street
children. He emphasizes the impact i.e. realization of the parents and community. Further, he writes of the project ‘Information Age Town’, funded by Ireland’s national telecommunications company in the year 1997. A rationale of the effort was to help overcome the gap between Ireland’s emerging status as a multinational business centre of ICT production and limited use of ICT among Ireland’s own people and indigenous small business. He then writes of a decision to donate ‘A model computer lab’ funded by United States Agency for International Development (USAID) to a major Egyptian university. The purpose of the donation was to establish a model teacher training program in computer assisted learning in the departments of the university. The author further talks of social inclusion and exclusion as prominent concepts in European discourse citing that social inclusion is a matter not only of adequate shared resources but also of participation in the determination of both individual and collective life.

Nighat Ahmad (2004) observes wide disparity in the use of IT in India in rural and urban areas. Even where the facilities are available, the same are not being fully utilized. The technical know-how is primitive in rural areas and there is also lack of initiative at individual level which is partly because of lack of adequate encouragement and partly because of difficulties, hindrances and red-tapism.

Vikas Nath (2002) observes that the info-technological revolution led by advances in ICT is restructuring the global socio-economic equations-shifting from income divide to knowledge divide. The poor in developing countries remain much isolated
economically, socially and culturally from the burgeoning information and process in the arts, science and technology. These features need intervention and research.

**Divakara K Udupa (2001)** writes of digital divide as a charged mantra for a large cross section of people ranging from Bill Gates to anti-computerization groups. The author says some group of people contends that IT is going to divide the society into have and have-nots. The debate on digital divide is going to be fierce in many developing and underdeveloped nations. Incidentally, these nations also have significant disparities of income, education level and other factors.

**Pitabas Pradhan (2007)** examines the digital divide in India. She begins her analysis from industry, export, employment to implications of digital divide and strategic choices of bridging the divide. She says India’s booming IT and IT enabled service sector has brought the deserved respect for highly educated people. It created an active market for talent and influenced the way young Indians looks to the future. She draws the global efforts of bridging digital divide by World Submit of Information Society (WISS) and UNESCO’s contribution. The author suggested developing strong training infrastructure, promoting rural information kiosks providing Broadband connectivity at most reasonable price.

**Vipul Mitra (2006)** specifically analyses the state of Gujarat and its rural development department. According to Vipul, the government had tried to reach out to the below poverty line (BPL) peoples with schemes and welfare programs through the use of IT.
To enable this mission, NIC have developed special software to facilitate scan forms to get converted into relevant database. BPL list are being digitized with provisions for appeal and revisions, and inclusion and exclusion. He claims IT and its revolution are expected to radically change the life of the poor in line with green revolution and white revolution.

Singal and Rogers (2001) gives a detailed treatise on India’s communication revolution. The book contains an elaborative history of IT history starting from Silicon Valley in Northern California to India’s Silicon Valley of Bangalore. The author calls new communication technologies such as satellites, cable television, wireless telephony, the internet, and computers as bringing about noticeable changes in Indian society. The government policy on IT and economic policies are also discussed in detail.

Nirvikar Singh (2008) took Punjab as a case for his study to evaluate the connection of IT industry to the broader structure of economy and society. The author feels union territory of Chandigarh did not initially took up the issue of attracting IT investment with much alacrity. Besides this, the government initiative to improve internet infrastructure in the rural areas was inadequate. Despite of increasing technical training institutes in the state, vast majority of the engineering and technical graduates move to Bangalore for employment. Though Punjab is successful in establishing a niche in ITES, employability is relatively small. He suggested that the government has to analyze governance and policy implications to minimize this gap.
Uimonen Paula (1997) explores the potential role of the internet in promoting sustainable and equitable development in Third World Countries. The paper covers the extent to which internet is being used improve education, health, political process and social change initiatives. The author argues that the internet become a tool for social development. Further states that in the health sector, telemedicine provides a number of advantages for doctors and other medical staff. In the developing countries, access to appropriate expertise for an accurate diagnosis and the treatment of illness is often difficult. While this is true particularly in rural and remote areas, it applies to many urban areas as well. Accesses to computerized network facility for accurate and up-to-date information enabled treatment have been emphasized. The very origin of internet is strongly related to education, as it was in universities and research institutes. The information published and disseminated on the Internet allows more democratic and participatory political structure.

Peter EkDhal and Lena Trojer (2002) deal with ICT discourses and practices in the areas of encounter between reach and poor countries. The authors considered G8, EU (European Union) and SIDA (The Swedish International Development Association) as dominating the ICT discourses meeting more effectively their vital development goals such as poverty reduction, health, sanitation and education and to benefit from the rapid growth of global e-commerce. Subordinate discourses is the shift in ICT development away from strict linearity- a change that is further supported by uniting the necessity of developing countries to become proactive in the process. The questions of how, where, when to be proactive are fundamental. The authors emphasized on how to create a
broader and more complex understanding of how ICT is embedded in cultural, social and economic structures. Theoretical understanding has been emphasized of the information age and the power battles. The understanding does seem clear that there are no immediate links between equal level participation and ICT development. ICT policy development links are created through hard work and tedious dialogues. The author considers India big in global software development and is increasingly seen as an ICT super power with Bangalore as one of the most important centre. Comparisons are made against china and gives preference on India as knowing English language.

Marc Porat (1977) distinguishes a primary (information goods and services that are directly used in the production, distribution or processing of information) and a secondary sector (information services produced for internal consumption by government and non-information firms) of the information economy. Porat uses the total value added by the primary and secondary information sector to the gross national product (GNP) as an indicator for the information economy. The Organization of Economic Cooperation and Development (OECD) have employed Porat's definition for calculating the share of the information economy in the total economy. Based on such indicators the information society has been defined as a society where more than half of the GNP is produced and more than half of the employees are active in the information economy.

Aurore J., Jeffrey S., James A. (2004) investigates the relationship between IT infrastructure, ISPs, and socio-economic factors of ICT. They try to examine the
hypothesis that the higher the purchasing power of individuals, the higher will be their Internet use. Interestingly, the study reveals that higher IT investment leads to more internet use, the existence of reliable telephone infrastructures have a positive effect on internet use and that use is positively impacted by the increasing competition among ISPs. The authors found that all the factors considered seem to be consistent with the hypotheses with the exception of the economy variable. They found that because of technological inequality there is an increasing gap between rich and poor countries when it comes to having access to the internet. It is feared that while the internet has profound implications for many countries, it will only accelerate the marginalization of others especially the poor countries.

Mark Thompson (2004) attempts to analyze the recent ICT related initiative taken up by the World Bank Group. He also examines speech on ICT by the Bank’s president. ICT is represented as a neutral tool for the Bank’s experts, the province of ‘young people’ the new millennium, and the future and far from offering alternatives to the existing developmental order. ICT is seen by the Bank as key to its future expansion. Examples of the conception of ICT projects within a markedly North American worldview and the use of ICT to export unchallenged cultural assumptions are the discourse of the speech. Discourse analysis is arguably a useful lens through which to view the statements of organizations in any problematic political domain, for it allows a view beyond stated policies and action plans. The author concludes that the extent to which the Bank is consciously aware of the problematic nature of its assumptions regarding the role of ICT in development in the form of policy is of less concern than
the material effect of such discourse on those whom the Bank seeks to develop. It is hoped that others on both sides of the digital divide will reflect further as a result of this article upon the nature of this relationship in structuring their own developmental experience.

**Graham H May (1996)** writes on the implications and impact of IT in creating unemployment, deskillning jobs, reducing the ability of governments to control their economics, invading privacy, increasing delinquency in children, manipulating of truth and pornography etc. He gives only general observations of destroying cities, threatening the country side, terrorism, anarchy, destroying culture establishing the state. These are the negative aspects which really need to assess through a proper empirical study.

**Deepthi Shanker (2008)** examines the emerging new identity of Indian women in IT companies along with the employability of the women. The author considers IT as the heartbeat of the knowledge based economy and is one of the most influential technological sectors affecting economic growth in developing countries. The author is mainly concerned with gender relations in IT companies from and Indian experience with its impact on the domestic lives and social development. The author took Bangalore which is popularly known as Silicon Valley as the area of study. Human resources department of the companies and women workers are taken as the sample. She tried to intervene into rural versus urban, forward caste and backward caste, young versus the old in the industry. The author delves into women participation, their skill
up-gradation and career vision. At the end, she found that job market for women is changing along with high salaries but on the other side, the author finds that the domestic life of women have not changed greatly.

C. Rajendra Kumar and Sanjay Skaptan (2004), conceives IT as the latest facilitator of positive change in various walks of rural life and citizen’s empowerment. The authors talks of E-commerce and cites examples of models like E-Choupal of Indian Tobacco Company, Drishtee (a network management company) and Gyandoot (community based, state of the art IT centre project located in the Dhur district of Madhya Pradesh) which are the success story of E-business in Rural India. Though the paper on the whole, provided a significant remark but it also needs to examine the constraints faced by the farmers and businessman at large.

Ashok Jhunjhunwala (nd.) visualizes the recommendations of two IT reports of the IT Task Force of 1998 viz, IT Action Plan and Basic Background Report on IT Hardware Development, Production and Export. The author attempted to analyze IT infrastructure available along with the efforts made by different groups and agencies over the last 10–15 years in overcoming the bottlenecks. He says while the growing population has created a lot of problems in the country, it also represents a large potential market. The author felt the need of very large pool of trained personnel to achieve the Task Force goal. The software export target set by the task force requires liberalization and simplification of the procedures detailed in the report. The writer emphasized the need to analyze what is to be done to have IT in the hands of hundreds
of millions of people. Unless various sections of our people from all walks of life participate in this effort, the IT industry will remain a small part of our relatively small economy.

Mujamil (2004) draws attention by appreciating that IT has potential to uplift any specific group or an area out of educational backwardness by bringing awareness of modern developments. He also stress that IT has revolutionized the Indian economy and improved governance. The author reveals that significance of land and physical capital in economic development has declined with IT revolution. Asian, African and Latin American countries are following the USA and European countries in IT development.

Subhas Bhatnagar (2004) emphasizes on the application of ICT in improving planning and monitoring of development programs. He draws implications of IT in improving services to citizens citing examples of IT applications in co-operative sectors/milk collection societies in rural areas.

Ranjana Agarwal (2003) study reveals that majority of IT professionals belong to the upper caste. According to her, ICT provides a perfect bridge for matching demand and supply of information. It helps a recipient in locating strategic information and at the same time, creates potential users for particular information. She says, the stained history of a corporate body indulges in environmental unfriendly practices on the internet which damages the information available for the users. To mitigate such
phenomena, the United Nations recently launched Unglobal.Compact.org website to enable NGO to be able to keep tab on whether big companies.

Gangadevi G Byadgi and CR Karisiddapa (2004) observes IT as a major shift in the way information services are delivered covering wide areas of human resources. The authors reveals networks of professionals, free exchange and mobilization of information, establishment of centre of excellence are excellent strategies for building capacity.

Vittal N (2007) laid emphasis on developing IT staff by providing IT training. He stressed the need of staff by expanding and upgrading selected public educational institutions and linking them to local software industry and foreign universities. The author suggested that government may explore various incentives and financing schemes to promote in-house training by software firms for high quality education in software engineering. It is also prescribed that to target priority end users for IT training and promote greater interaction among IT companies. He suggested basic training of ICTs among rural populace can also build skill which can be an added employment opportunities in rural areas.

Liz Beastall (2006) highlights into Britain’s Department for Education and Skills (DfES) potential of transforming the British education system through technological intervention. She examines the effect of government white papers which demonstrate e-learning-based unification strategies which reinforce the message that introducing ICT
will raise standards in schools. She found that using ICT and e-learning across the curriculum is seen to be part of the solution to delivering a more effective education to children in schools, although solution is also part of the problem. The postmodern teaching and learning environment has the potential to attract young people through familiar language and stimulating digital resources. However, in having to homogenize curriculum delivery due to a simple lack of skill diversity within the teaching profession, the marketplace is stagnating and could alienate its customer base that is the students. The paper finds that teachers are not only frustrated by their own lack of ability within ICT and e-learning, but are also being restrained by a lack of strategically embedded pedagogical support designed to encourage and support the process of change. In order for the digital age to explore its potential within post-modern education systems there needs to be an overhaul of strategic policy ensuring that future policies are designed to provide support where it is most needed.

Sarah Guri Rosenblith (2005) examines the distinct differences between 'distance education' and 'e-learning' in higher education settings. Many policy makers, scholars and practitioners in higher education use these two terms interchangeably as synonyms. But the fact is that distance education in most higher education systems is not delivered through the new electronic media and vice versa. E-learning in most universities and colleges all over the world is not used for distance education purposes. According to the authors 'Distance education' and 'e-learning' do overlap in some cases, but are by no means identical. The lack of distinction between 'e-learning' and 'distance education' accounts for much of the misunderstanding of the ICT roles in higher education and for
the wide gap between the rhetoric in the literature describing the future sweeping effects of the ICT on educational environments and their actual implementation.

Monique Volman Edith van Eck (2001) presents a review on gender differences and ICT in primary and secondary education. First the rapid development of the use of ICT in education is outlined. Then the topics of access to computers, computer-related learning processes, and educational outcomes are discussed. The review also provides insight into the background of gender differences in participation in computer activities and performance in relation to ICT. There research reviewed the focus on the role of teachers and fellow classmates on the different approaches of girls and boys to ICT. There search also analyzed the complex meaning of computer attitudes as both a cause and a consequence of differences in the participation and performance of girls and boys. The extent and nature of these differences vary from application to application. Finally, in addition to gender, ethnicity and class, another student characteristic that requires attention is age. Younger students seem to achieve better results in ICT and have a more positive attitude. Gender differences are also less apparent in younger students. Research is necessary to determine whether this is due to the age difference or the general trend that computers play an increasing role in children's lives as a matter of course. We cannot predict what the role of ICT in education will be in ten years time. It is clear that the use of ICT will become more the norm than it is now. If we guard against the development of undesirable differences between groups of students in different sorts of ICT applications in education, hopefully girls and boys and students
from different ethnic and social backgrounds will in principle be equally competent to work with computers as a matter of course.

Dahiya Surender (2004) emphasized the need to integrate ICT into formal classroom teaching and learning for quality education. The author highlights ICT requirements corresponding to technology strategy and pedagogical strategy. He stresses on the need of good resources in the form of text, e-books, learners guides, assignments and tutor guides. Resource creation for ICT in combination with media has been emphasized but cautions to take into account objectives at individual student, teacher and institutional level while developing educational multimedia. The teacher training educational institutions should prepare in-service teachers to keep up with technology utility in the classroom. Full integration of ICT in education, highly interactive multimedia or hypermedia and online activities are the need of the hour.

Neelamghan A (2003) draws suggestion that teacher, researcher, students and practicing professional must keep themselves updated with the rapidly changing environment at the local, national and global levels else one would become outdated. The author predicts the future impact of ICTs on scholarly publications with digitization of the original materials whereby materials can be accessed on the network as soon as the author has keyed in. Students, teachers, researchers and others need not personally visit the library but can browse online. Distance learning and delivery of education to remote areas will be possible.
Manas Ranjan Panigrahi (2010) discusses use of ICT in teacher education and the challenges therein. He cites example of leading institutions in India to explain his viewpoint. The initiative of IGNOU and Teaches Education Program of IGNOU is appreciated in the study. Mentions are also made of NCERT-CIET and SIET, support to Kendra vidalaya and Jawaharal Nabodaya Vidalaya for the Smart Schools. The author says advantage of ICT and change in pedagogical thinking assures the teachers that any effort made towards enhancing the teaching learning process using ICT would reap higher dividends.

Ajeet Mathur (2004) examined the use of IT in health care with respect to design and development of health care products and services, delivery systems and healthcare administration. To him, IT created opportunities for optimizing cross-border linkages as reflected in the design of healthcare products and services. Telemedicine emerged for medical consultations, diagnosis, treatment, nursing care, medical education and transfer of medical data together with a broader concept of tele-health.

Eric Schoeniger (2002) writes e-governance or electronic governance is an attempt to harness IT to improve the efficiency or effectiveness of the executive function of the government including the delivery of public services. According to the author, e-governance is the application of electronic means in the interaction between government to government (G2G), government to business (G2B) and government to citizen (G2C) to improve democratic government and business aspects of governance. So, it is lot more than online voting or electronic town hall or just delivering services
online. It is all about how government, business and citizens interact on an ongoing basis.

Charu Malhotra (2004) focuses on the application of IT in public administration in India through imparting high quality training to administrators on IT. While visualizing fully the role of awareness enhancement and IT literacy, she highlights in detail the importance of IT training or the administrators. She delves into the government policies on IT training and inadequacies of existing arrangement.

Mrinalini Shah (2007) views e-governance to be attained in four steps: 1. information or cataloguing, 2. transaction, 3. vertical integration and 4. horizontal integration. The writer claims that India has already achieved the first and the second stage of e-governance and presently the country is on the verge of attaining the third stage, and moving towards the fourth or the final which is most challenging. The author feels that e-governance has not touched the issues of geographical constraints, social and economical disparities, illiteracy, infrastructure bottleneck, security and privacy of personal and legal issues of the new technology.

Anil Monga (2008) attempted to distinguish the two terms e-government and e-governance as independent of each other. The author claims that people tend to have used the two terms alternatively, there by missing the distinction between e-government and e-governance. According to Mongia, e-governance is the use of ICT by the government, civil society and political institutions to engage citizens through dialogue and feedback to promote their greater participation in the process of
governance of these institutions. He approved the concept of e-government a subset of e-governance as visualized by Subhas Bhatnagar in the book "e-government from vision to implementation". To explain this claim, he took examples of e-Government initiatives at the state level such as project “Bhoomi” in the state of Karnataka, project “Gyandoot” in the state of Madhya Pradesh, project “Smart Government” in the state of Andhra Pradesh, project “Sustainable Access in Rural India (SARI)” in the state of Tamil Nadu and project “Sampark” in Chandigarh.

Priya S explains e-governance as a powerful tool for development. To claim this view point, Priya took examples of e-Governance initiatives in India such as the “GRAMSAT” project which is one of projects of Indian Government in Orissa. The project was implemented by Hughes Escorts Communications. The goal of the project was to eradicate illiteracy in rural areas. She found that the induction of IT into governance especially at the rural level is not an easy task due to unstructured nature of rural development, low literacy levels and reluctance to adopt IT. Regional disparities which were already glaring in poverty, employment generation, literacy are widening further. E-governance will be successful only if we start to undertake due efforts to implement it in all blocks and districts and spread it to the grass root level. Although there are so many examples of very good e-Governance projects in India, still the results are not very satisfactory. According to her, 15 percent of the projects are successful, 35 percent are partial failures and 50 percent are failures. She suggested that to make these projects a real success, stress should not only be given on use of technology but also awareness amongst general public.
Subimal Bhattacharjee (2006) talks of CICs in northeast India. He is of the opinion that localised content is an important factor for the success of the CIC project. The delivery of education, including basic IT training should be a critical feature of CICs. While some hours in the centers should be marked for educational delivery, the off-peak hours should be utilized for IT training for specific groups like children, women and the older generation. Considering the fact that most of the doctors in the rural service are often unavailable, these CICs could become the reference point to obtain treatment from Community Medicine Program as is happening in Gambia. He suggests that various NGOs and voluntary organizations can also be allowed to propagate their good causes through this network. Mass initiatives like acquired immune deficiency syndrome (AIDS) control programs, information on family welfare and population control could be better served through these CICs. Organizations like UNDP, UNESCO and WHO can give a new dimension to the growth of the CIC project.

Overall analysis of the relevant literature reveals three distinct trends of analysis: the positive impact, the negative impacts and impacts on both. All the authors had highlighted some or the other aspects and the impacts on both. Some of the authors have discussed the information society and knowledge society and brought forward the revolution of information. Impact of ICT has been treated as the need of the hour by almost all the authors. Some authors had made study of applications of IT in rural marketing, cooperatives, industries, contribution to economy and service sectors which are significant. Some authors have even gone to study IT industries, the gender relationships and management issues which are considered important with the
development of IT sector. Authors have also discussed the use of ICT technology in teaching and learning in the field of education. Some writers have highlighted implications of IT in the governance, public administration and all government activities. Others have highlighted the issues of digital divide in different parts of the world but had not taken any empirical research as such. All the authors had highlighted only general issues of economy relating to jobs and working system at organizational level but we need to look forward to qualitative societal aspects. The observation given on societal implications of IT are mostly based on speculative and expected lines. Though some studies are available but most of the studies have not brought out the real issues relating to health, education, general administration. Here, the study would examine empirically such issues which have not been touched especially with reference to the State of Manipur.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

(i) To find out, the extent of use of IT in the field of education, health and general administration.

(ii) To find out, whether access to IT is dependent upon location, and the nature of IT establishment.

(iii) To examine, how far the government policies are conducive to the spread of IT facilities in the state.
METHODOLOGY

The Sample

Multi-stage sampling technique is applied for selection of the sample. At the first stage, four (4) districts out of the total nine (9) districts of the State have been selected on the basis of hill-valley criteria to fulfill the main objective of the study. Senapati and Chandel are the two Hill districts and Imphal West and Thoubal are the two Valley districts selected. The consideration for selection of the four districts is on accessibility in terms of transportation and communication facilities. All the selected districts are touched by the National Highway No. 39, which is the main surface transport route and lifeline of the State. It touches international boundary with Myanmar at Moreh town of Manipur which is also an international trade point. The National Highway No. 39 is considered strategically important by the government of India for economic development and other strategic developments in its look east policy.

The nature of the study demands information from two sources, the service providers of IT and the service users of IT. As such two types of sources were incorporated in the sample viz. (1) IT Service Providers (ITSPs) and (2) Institutional IT Service Users (IITSUs) which are in the form of questionnaire scheduled designed for the study.

At the second stage, ITSPs were taken into consideration. It is seen that there are three categories of prominent ITSPs in the State, viz., BSNL (Bharat Sanchar Nigam Limited), STPI (Software Technology parks of India) and NIC( National Informatics Centre). Almost all the existing ITSPs in the four districts have been included in the sample, totaling 34 units, which have gone more or less census.
At the third stage, the IITSUs are selected purposively to represent areas in terms of easy and difficult accessibility based locations. A minimum of two percent (2%) each for the three main categories of IITSUs, viz., departments of health, education and general administration is included in the sample. The inclusion and non-inclusion of an institution into the sample is determined by the use or non-use of IT facilities. In other words, any institution using IT automatically becomes a part of the sample universe. It has been found that there are about 9000 IT service users including institutional and individual users (Source: List of users provided by ITSPs). Out of these, only the institutional users are selected purposively in each sample district. The size of the sample is determined keeping in view the generalization factor and has been prepared by using Epi Info StatCalc., a software designed. In this statistical calculation, to conclude about the objectives, it is assumed that frequency of effective use being 50% and worst acceptable limit of 30% produce a sample size of sixty seven (67) i.e. approximately seventy (70) which will give us 99% confidence for generalization.

Table 1: The Sample

<table>
<thead>
<tr>
<th>Types of Units</th>
<th>Hill Districts</th>
<th>Valley Districts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Imphal West</td>
<td>Thoubal</td>
<td>Chandel</td>
</tr>
<tr>
<td>ITSPs</td>
<td>11</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>IITSUs</td>
<td>29</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Field Survey

Research Tools

Data is collected both from primary and secondary sources. Here, the primary source is the field study which has been conducted in the four districts of Manipur i.e, two valley districts of Imphal West and Thoubal and two hill district which are Senapati and
Chandel. For collecting the primary raw data two sets of questionnaires were prepared for use with the two sets of sample, viz., IT Service Providers (ITSPs) and Institutional IT Service Users (IITSUs). The questionnaire for the ITSPs included 18 items related to general information, location, administrative, technical and financial details including problems faced and suggestions for remedy. The IITSUs questionnaire is wider in scope with 26 items including the details about the nature of use (Appendix I & II).

Secondary sources were important for the study. For the secondary sources, relevant books, journals, reports, websites, and official gazettes etc were consulted. The data analysis of the field survey of the study has been done using appropriate statistical techniques.

LIMITATION OF THE STUDY

1. The scope of the study is limited to four (4) districts of the Manipur namely Imphal West, Thoubal, Chandel, and Senapati.
2. The study covers the extent of use of IT especially in the field of education, health and general administration.
3. ITSPs has been limited to three providers such as BSNL, NIC and STPI only as the other players like Aircel, Airtel, Tata Indicom, Reliance, Hughes Net etc has limited presence and play less role in providing services to the institutional setups in the state.
4. Mainly, the institutions in the field of education, health and general administration are considered in case of IITSUs.
5. The study has excluded telecom part of the ICT (Information and Communication Technology) and confined only to the IT.

SIGNIFICANCE OF THE STUDY

During the past few years, IT has received a great deal of attention in development literature, development plans, on political platforms and in the vocabulary of international donor organizations to name a few. In the recent years, IT has attracted attention of people in every walk of life. IT is presumed to have immense potential in bringing about an appreciable improvement in the living standard. The study of “Information Technology and society in Manipur” is important because IT is expected to offers new opportunities for socio-economic growth in terms of bridging the location disadvantage of the state, creation of employment avenues and facilitates knowledge based development for the State. The state has high literacy of 70.5 percent as per the 2001 census. Not only this, Manipur has high human capital which is yet unemployed. Growth of IT can help to reduce the problem of unemployment. Poverty which is another issue that state faces both in the hill and valley; this issue can be addressed, if there are IT industry being located in both hill and plain of the state. Manipuri’s economic and industrial backwardness is often attributed to its remote location and geographical disadvantage. IT has the potential to relieve this geographic disadvantage through creation of effective IT infrastructures along with assured power supply. The study is significant because the social impact and implications of IT in varied institutional setup can be explored. From the point of view of inclusive approach to
development, a light into the gap between hill and valley discrepancies is expected to have important policy implications.

**LAYOUT OF THE CHAPTERS**

The study has been interwoven within the framework of five chapters.

Chapter I is an introduction to the work in which various aspects of the study such as the preamble of the study, review of literatures, objectives of the study, research methodology are covered.

Chapter II deals with the development of the IT, its history, development in the world, India, Northeast India and Manipur. It has dealt with the policy implications and the recent trends and development initiatives.

Chapter III deals with the background of the field of Study. It has first delved into the geographical location, demography, social infrastructures and moves to overall socio-economic conditions of Manipur. The chapter then deals with the profile of the surveyed district and the social infrastructure and socio-economy of the districts.

Chapter IV contains a detailed analysis and interpretation of data of the field surveyed. It includes important issues of the study.

Chapter V presents the conclusion and policy recommendations.