Chapter 1
Introduction

1.1 Backgrounds of the Study

Most of the earlier studies in 1970s and 1980s confer a discourse on consuming benefits of owning and using ICT goods and that is summed up in productivity paradox (Freeman, 1988). Productivity paradox describes the relationship between owning and using ICT and its resultant effects on growth in productivity. Mansell and When's study on knowledge society explains how economic success of many Asian Countries has been determined by the production of ICT goods and services (Mansell and When, 1998). A study across Asia-Pacific region (Samarajiva and Gamage, 2007; Norton, 1992; Thompson and Garbacz, 2007; Waverman et al, 2007) demonstrates that countries i.e. South Korea, Thailand, Taiwan and India with higher levels of annual growth in ICT consumption have exhibited the highest levels of growth of GDP and productivity. On the other hand, a strong correlation between the growth in productivity and GDP alongside the ICT consumption has been demonstrated by various studies in India (Sein and Harindranath, 2004; Saravanan, 2010; Courtney et al, 2013).

India's achievements in enhancing E-educational facilities, distance learning and online library access are the outcome of policies regarding ICT deployment (Sein and Harindranath, 2004; Narayan, 2007; Dutton, 1996). There are numerous success stories of ICT deployment in India. For instance, installation of remote sensing satellites in combination with data processing capacity that delivers early warning to communities which are susceptible to seismic disturbances (Eleana, 2010; Joshi and Singh, 2011), deployment of ICT for land reform and for crop cultivation (Saravanan, 2010; Blessing, 2012) and so on. There are a few successful cases that demonstrate the integration of health care facilities with ICT and resultant improved remote access to the best diagnostic and healing practices in a village community.

UNESCO (2007) defines ICT, "as forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. This broad definition of ICT includes technologies such as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware

and software, as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail and blogs."

With over 3.2 billion subscribers worldwide, mobile phone has become the most widely used interactive ICT. It is estimated that approximately half of the people from developing countries have possessed one mobile phone connection (GSMA, 2012). Mobile phone has potential to show how developing economies, i.e. India deliver essential social and economic services to people and to attain sustainable growth. With speedy evolution of communication technologies and an increasingly higher penetration of cellular network and hardware platform made mobile phone to emerge truly as ubiquitous and affordable ICT.

Mobile phone is the multifarious system of diverse technologies that support various applications to ensure fastest communication and information delivery irrespective of time and space covering a large geographical distances. Hudson (1997) defines mobile phone technology, "The plurality of technologies, complicated by various content, information resources, services and applications that the individual could access via an infrastructure, which has further made it inherently complex and highly malleable."

UNESCO (2007) recognizes mobile phone as a technology that is digital, easily portable, usually owned and controlled by an individual rather an institution. It is a device with multimedia capabilities which could access the internet and could facilitate completing large numbers of tasks specially those related to communication. Many studies use mobile phone technology and telecommunication interchangeably (Seth,2001 ; O'Neill and Peter, 2003; Thompson and Garbacz, 2007; ITU, 1997;1998).

A few literature have used the terminologies, 'mobile phone' and 'telecommunication' interchangeably (see e.g. Fox,2001; Kumar and Thomas, 2006; Sridhar and Sridhar, 2006). Many literature have used the term telecommunication as a crucial tool for the development of rural India (see e.g. Rao and Pattnaik, 2006); as tool for economic growth and economic development of the country (Kaur and Malhotra, 2014). Other studies stress on the importance of telecommunication infrastructures as a remedy to rural-urban telecommunications gap (Courtright, 2004; Alleman et al,2012). I have used both the terminologies: 'mobile phone' and 'telecommunication' in my thesis aligning it to the goal of the thesis, to find out the dynamics of uses of mobile phone by women

while locating the significance of mobile phone in telecommunication industry and various government policies on telecommunication.

The expression 'Telecommunication' represents the transmission of signals in the form of voice, data, video or images over a distance which is further broaden by the telephone industry while embracing other types of transmission facilities. The term telecommunication is much broader as it encompasses 20th and 21st century technologies for long-distance communication and electrical and electromagnetic technologies, i.e. telegraph, telephone, and tele-printer, networks, radio, microwave transmission, fiber optics, and communications satellites. Telecommunication has been undergone serious transformation from telephone to mobile communication over the past decades. The transformation of telephone to mobile phone and the emergence of latest smartphone have resulted old-style telephone industry model to an exceedingly competitive and complex ecosystem composed of device manufacturers, network operators, content developers, and software and service providers. The remarkable shift in the fundamental nature of telecommunication from phones that eventually supported data services, to complex multi-purpose, multi-context ubiquitous communication system or information system has brought complex issues related to universal access to information and meaningful use of information. The landscape of telecommunication has transformed into highly complex, multi-purpose mobile media ecosystem with regular competitions among handset manufacturers, network operators, software and content developers and service providers. The centrality of voice communication has been supplemented by visuals (video-conferencing). Similarly, data communication has been supplemented by different applications (Facebook, what's app, shopping app, bill paying app- paytm and so on).

The cellular concept was discovered in 1947 at the Bell Labs, followed by commercialization during 1980s with analog cellular networks. In early 1990s, digital technology entered into consumer mass markets with rapid specialization. At the end of 1990s, the leading European mobile vendors developed Wireless Application Protocol (WAP) [1] as an open international standard for applications using wireless communication. In 2001, with the introduction of Universal Mobile Telecommunications System (UMTS) [2] in Europe and 3G in the United States as preceded by NTT DoCoMo's [3] service innovation in Japan and worldwide mobile market witnessed multimedia cellular services (Steinbock, 2007).

The new technologies such as internet and mobile phone are known as 'labor-saving' devices. Information and communication technologies have offered new employment opportunities for women in call centers, software industry and help them to get self-employed. Liberating power of ICTs has been highlighted by many studies (Goldin, 1990; Hafkin and Taggart, 2001, Mpogole, et al. 2008). A few existing literature (Gillwald, et al. 2011; Hafkin and Taggart, 2001) have argued that mobile phone can contribute to gender equality by giving them equal access to information, employment and income. Dependent housewives often face challenges in regard to long distance travel owing to gender based barriers and concerns, heavy domestic workload etc.

Access to mobile phones certainly expands their array of choices to obtain information within the limits of home. Existing line of studies have also proved that women can leverage the portability features (Lee, 2009) of mobile phone to save labour and to liberate themselves from traditional buckles. According to social shaping of technology, the domestication and uses of technology determines the user's agency the way they define, interpret and appropriate a technology in everyday life. This reconfigures gender bias of technology or vice versa (Wajcman, 2004). As techno feminism exposes, women have been excluded from the practice of designing and innovation of technology. Access to ICT has been the right of an individual (Ahuja, 2002). It is imperative that women have to be involved throughout the process and practice of technological innovation. Feminist approaches of 1990s and today share the optimism of information and communication technology in transforming gender relations. Manuel Castells (1996) and Nicholas Negroponte (1995) reinforce the potentialities of information and communication technologies (ICTs) in rooting out the knowledge and information barriers and creating a free space for women. Digital technologies have configured the identities, needs and priorities of women (Butler, 1999).

Lee (2005) argued in his study that the family environment and social influence shape woman's unfriendly attitudes towards technology and their fear of embarrassment. Woman's experience in technology domestication within and outside household can challenge the negative societal attitudes towards women as passive users of technology. The commonality of gender bias in family and societal attitude towards women is reflected when women are treated as ignorant of or incapable of dealing with a technology. Gender equality issues are getting highly valued in India, as of late and there

is a stated priority to reduce the 'gender gap' in ICT competences across policy paradigm. According to Lee (2009), access to and owning a mobile phone ease fear, isolation, loneliness and boredom of women by helping them to adjust within the confinement of home without worrying much about physical separation from the near and dear ones to them. Mobile phone can be a substitute to a larger digital divide and can be an instrument to empower women to increase her autonomy in family and community.

Government of India recognized the need of integrating ICTs into wider processes of institutional reform and organizational change. The information society, which is the center of attention of the ICT policy, is said to be a society where citizens are empowered. The empowerment includes participation through ICT that allows "genuine participation of citizens, including traditionally marginalized segments of the population into decision making activities". In a primarily oral society, oral attributes of mobile phone has taken predominance in society. Equally the potentials of mobile phone to be the key instrument to empower large number of illiterates' women cannot be denied especially when reportedly 300 million women use mobile phone as per recent statistics (ITU, 2010). Various organizations e.g. State Bank of India, Hand in Hand, Barefoot [4] College, CGNet (Cruise Control. NeT) [5] have provided instances by adopting mobile phone to empower women at large for financial inclusion. Government of Bihar has enabled Right to Information (RTI)Act with IVR (Integrated Voice Response) system to lodge RTI application orally thus has empowered not only rural poor but also rural women. Government's largest program called MNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) has adopted mobile phone to disburse money to control corruption at the bottom of the pyramid. Even some state governments are taking steps by disseminating information about which mobile phone to purchase, radiation effects etc. through CRS (Call Register Service) and toll free numbers.

Post liberalization has accentuated pro-private environment, deregulated and sufficiently competitive market, as a result of which experiencing universal access to ICT services especially in rural areas seems no longer a distant dream. Liberalized market has not only proliferated numerous technologies in society but also induced competition among market players for cheap access to ICTs and more expansion of market. Payphones and phone shops are multiplied in numbers in India and are found to be financially viable for most of the rural private entrepreneurs. However, ease of access and affordability has

remained unsolved issue for the rural poor while using ICT services either collectively or individually. On the other hand, relative disadvantages of women compared to men and competing demands on their time both as homemakers and workers inhibit their access to ICTs. Relatively higher levels of illiteracy among the female population, lower level of female participation in the formal economy further exacerbated gender inequality for access to ICTs. The danger of the policy debate lies around the capabilities of emerging technologies over the real information needs of the poor. The poor use to suffer from constraints such as assessing and applying information through ICT. Lack of human cognitive capabilities, locational disadvantage in terms of geographical barriers of urban and rural location, gender inequalities and affordability tend to aggravate the problem more.

Interpersonal communication is based on confidence, and assurance however, information exchange through interpersonal communication is unrecorded. Hence, susceptibility of rural poor towards erroneous, deceptive, irrelevant, anti-development information is more than average urban people. Even rural people value the informal information sources such as family, business and friend's networks more than modern means of mediated communication. The embedded attribute of voice communication, a means to easy and quick interpersonal communication has enabled mobile phone to make unprecedented penetration in rural India. However, unlike television, radio and print, modern means of communication such as mobile phone and internet requires digital literacy, technical skills along with formal literacy. With over 919 million subscribers by the end of March 2012 (TRAI, 2014) that outnumber the score of landline phone has inevitably made India a player of telecommunication revolution. The tele-density in India has increased tenfold during last decade and currently, grown up to hundred percent roll out across the country. The use of mobile phone, which was restricted to urban areas a decade ago, has started penetrating rural areas of India at full pace. Escalating rural tele density with an impressive growth rate from 1.9 percent in 2005 to 38 percent by 2012 indicates that villagers are no longer unreachable (TRAI, 2014).

According to the Indian Census of 2011, 69 percent of the total Indian population lives in rural areas. Numerous challenges such as a high degree of poverty, low per capita income, lack of livelihood opportunities, poor infrastructure, low literacy, poor

healthcare facilities, nominal provision of inter and intra community communication have pigeonholed development paradoxes in rural India. Income losses owing to asymmetric access to information, costly communication for accessing relevant information have perplexed socioeconomic development. When small producers, fishermen or farmers, could not able to secure relevant and timely market information, price information to sell their products, then, mobile phone emerges to be a solution (Aker and Mbiti, 2010). Given the enabling role of mobile phone as a contemporary potent tool to breakdown the rural–urban development gap viewing the information that could address diverse economic and social challenges, there is an earnest possibility to take mobile phone as an instrument for development. Mobile phone has not only enabled but also eased obtaining need-based user-centric information and services at an affordable cost.

An array of services that include wide-area wireless voice telephone, video calls, internet access in mobile phone and mobile TV have evolved with the rapid upgradation of network technologies especially with the transition from 2G to 3G technology[6] are available at customer's end. Certain modes of communications are inalienably become daily necessity for people, i.e. voice, video, email, listening to music have compelled companies to make packages including all services in one that are directed towards gratifying needs of consumers at all levels of communication. Services are varied and complex unlike voice, a simple service concept prior to the late 1990s. Since 2004, the content package starts getting more emphasize in any service provider's strategy to delight its customers, to improve customer loyalty at all touch points and to achieve customer preferences to the service brand. Arrays of government and commercial innovations in services such as mobile education, mobile health, and mobile entertainment have already been foreseen to make full-fledged practices in India. The potentialities of mobile phone to address numerous issues and to establish an improved society by empowering and emancipating socially marginalized and enslaved women folk can't be ignored. Governments and international agencies spend huge amounts of money on projects aiming at promoting the use of mobile phone as the latest information and communication technology in developing countries. The immediate aim of such investment on projects is to bring economic growth which could be realized by increasing employment and well-being, improvement in the standard of living of the members of society.

Penetration of Mobile Internet in India

Although there is a divide related to access to mobile-cellular penetration in developed and developing countries, diffusion of mobile phone has reached to 90 percent in developing countries during the year 2014. The penetration rate of mobile cellular in developed countries is higher compared to developing countries and it is recorded to be 121 percent. There is an escalation in world wide mobile phone subscription which has reached to 7 billion in 2014 from 738 million in 2000. More than half of total world wide mobile phone subscribers in 2014, 3.6 billion are from Asia –pacific region. On the other hand, Mobile Internet users in India have reached to 306 million by the end of December 2015, an increased from 238 million in June, 2014 (IAMAI, 2013).Of the 306 million internet users, 219 million are urban users with a year on year growth rate of 71 percent.

Mobile Internet users growing at a rapid pace across the world; India has 85.6 million Mobile Internet users by March 2013 has continued to grow worldwide at an impressive rate of 36 percent from 1.1 billion in 2011. This translates to penetration levels of 12.2 percent of the active mobile voice subscribers or 6.9 percent of the total population. Around 3.2 billion people worldwide have accessed to and use Internet by the end of 2015, of which 2 billion users belong to developing countries as per the report of Telecommunication Development Bureau, ITU, 2015. The number of households having Internet access at home has increased from 18 percent in 2005 to 46 percent in 2015. During 2000-2015, global Internet diffusion grew seven fold from 6.5 percent to 43 percent (ITU report, 2015).

For every Internet user in the developed world there are 2 in the developing world. Of the 940 million people living in the least developed countries (LDCs), only 89 million use the Internet, corresponding to 9.5 percent penetration rate. Mobile broadband is the most dynamic market segment; globally, mobile broadband penetration reaches 47 percent in 2015, a value that increased 12 times since 2007. Fixed-broadband uptake is growing at a slower pace, with a 7 percent annual increase over the past three years and reaching 11 percent penetration by end 2015 (ITU report, 2015). There are around 90 million PC-Internet users (with 40 million heavy users) and 86 million active mobile Internet users (with 22 million heavy users on 3G). The market analysis indicates that Indian 3G penetration is 10 years behind that of the mobile voice adoption rates. At present active mobile Internet subscribers comprise both 2.5G and 3G users constitutes

around 85.6 million which could expand to 266 million by 2016 based on 3G subscriptions (UMTS World, 2015).

As per ITU report, "3G population coverage has reached to 69 percent of 7.4 billion world population in 2015. 3G rural population coverage counts 29 percent of 3.4 billion of world rural population. On the other hand, 3G urban population coverage has reached to 89 percent of 4 billion world urban population, in the year 2015." Traffic estimates released by Comscore and Cisco indicate that mobile data traffic in India is around 9 percent of total Internet traffic (2012). Cisco projects this number to grow to 28 percent of the overall traffic share by 2015 in India. As per Comscore data for March 2013, the share of mobile data traffic was already hovering at 14.2 percent which indicates that mobile traffic in India will most likely outgrow Cisco's projection of 28 percent by 2015.

1.02 Telecommunication for Development

There is a direct correlation between increase in tele-density and growth of Gross Domestic Product (GDP). Universally, most of the states or local governments miserably missed the reported observation by World Bank that 10 percent increase of tele-density would lead to 1.4 percent increase in GDP. Nevertheless, tele-density of the North East region, particularly of Assam is still much lower than the national average. State-wise average penetration rates of mobile phone in Assam is 13.67 percent out of which rural mobile phone tele-density counts for 3.85 percent as oppose to 72.46 percent of urban mobile phone tele-density (DoT,2009). According to Department for Development of the North Eastern Region (DONER) estimate, the overall tele-density in Assam is only 10.65 percent compared to the national average of 20 percent. This indicates the existing huge disparities in the country with uneven distribution of telecommunication access.

In the seventh special North Eastern Council summit on IT (Information Technology) and Telecom in 2007, it was insisted on to work towards a 'One India Plan for Bandwidth' in order to lessen the suffering of North-East States of India in the face of higher cost of bandwidth in the region compared to the other regions of the country. It was decided that both North East Council and Power Grid Corporation of India would work in co-action for funding and for laying down the over ground network cables by using network of electric towers and poles respectively. This decision was taken to

address the problem of laying underground optical fibers in hilly terrains of India (TRAI, 2013). 'North Eastern Region Vision 2020' lays special emphasis on advancing of telecom facilities in the region of North East, India in line with the accelerating economic welfare of the region. Although various endeavors have been taken from time to time in order to improve telecom connectivity and tele-density in the region, the results have not been very promising so far.

The policy initiatives of the Government at different periods of time and the recommendation of TRAI (Telecom Regulatory Authority of India) have brought forth distinguishable growth of the Indian telecom sector. Liberalization of Indian economy during 1990s had brought the realization that access to telecommunication is of utmost important for the achievement of country's socio-economic goals and effective communication for the citizen. National telecom policy facilitated India's vision of becoming an information technology state. National Telecom Policy has enabled Indian telecom companies to become truly global players by creating modern and effective telecommunication infrastructure for the convergence of IT, Media, Telecom and Consumer Electronic applications and by achieving efficiency in spectrum management. The increasing number of operators, both in basic and mobile service segments have witnessed progress in higher quality of service, improved consumer awareness, significant lowering of tariffs, and substantial increase in inflow of foreign direct investment (FDI) and in sizable expansion of tele-density both in urban and rural areas. Through the expression of universal service obligation, providing access to basic telecom services at affordable and reasonable prices to all uncovered areas including rural areas was introduced.

Current Government Initiative towards Telecommunication for Rural Development

India's debt-ridden telecom industry has been battling with regulatory uncertainty for over a year. Of late, Department of Information Technology has stressed on building a supportive ecosystem for the growth of electronics and telecommunication manufacturing activities in the country. In the inaugural session of annual India Telecom summit, Prime Minister Manmohan Singh articulated the startling estimation of India's import of electronic products which will worth about 300 billion dollar by 2020, which will be more than the value of oil imports (TRAI, 2011). Government formulated

preferential Market Access policy to improve domestic sourcing and to develop local manufacturing ecosystem. The policy put a mandate on government departments to procure equipment locally.

UPA (United Progressive Alliance) Government has launched a Mobile Seva initiative in 2013 to enable all state and central government departments and agencies to offer their services closer home to all the citizens through mobile based delivery channels. As on date, around 833 departments of Central and State Government are reportedly using Mobile Seva to utilize the benefit of optimized SMS services for interdepartmental co-ordination, and more than 55.25 crore SMS notifications including various services have been sent to citizens. Mobile Seva enables the integration of the mobile platform with the common e-Governance infrastructure consisting of State Data Centers (SDCs), State Wide Area Networks (SWANs), State and National Service Delivery Gateways (SSDGs/NSDG). Mobile Seva enables a government department to integrate both web and mobile based services seamlessly and enable citizens to directly interact with Government Departments through SMS (DoT, 2006).

DeitY, Department of Electronics and Information Technology developed Mobile Applications Store (m-App Store) as part of Mobile Seva and currently hosts over 240 live mobile applications, which can be downloaded and installed free of cost on a mobile phone by any person. About 254 public services are made available through SMS on 166 and 9223166166 via mobile apps.

Recently, Central Government has rationalized taxes on mobile phones and considers mobile phones and tablets as goods of special importance under Central Sales Tax (CST) Act of 1956. This leads to reduce cost of the gadgets by 7-8 percent and restrain state governments to levy tax on the goods or products of special importance to 5 Percent in place of 12.5 Percent under CST Act, 1956. Selected states of India including Maharashtra, Gujarat, Tamil Nadu, Chhattisgarh, and Madhya Pradesh are recommended to practice this rule (Ministry of Finance, 2013).

The telecom Secretary MF Farooqui stated that only 2G airwaves in 1800 MHz, 900 MHz, and 45MHz bands units in respective states of Delhi, Mumbai and Kolkata will be available for auction. However, government was indecisive about auctioning of the 2300 MHz band to carry high speed data to support 3G services. The UPA Prime Minister

Monmohan Singh stressed on the need to bridge the rural-urban divide in the area of electronics and telecommunication during 2013-14. Accordingly, a program to provide financial aid from the Universal Service Obligation Fund would offer mobile communication services in as many as 56,000 uncovered villages of the country. In Phagi village of Rajasthan, as per the decision of the Ministry of Communication and Information Technology, about 1,000 below the poverty line (BPL) households have been received free cell phone and free BSNL sponsored mobile connection as a part of a corporate social responsibility initiative("Mobile phones to", 2014).

DoT has opted for distributing handset on a conditional basis when at least one member of every rural household complete 100 days of work under the MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) in 2012 is to be provided with a mobile phone ("Net-enabled mobile",2013).The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme proposes to provide net-enabled mobile phones to 2.5 crore people with a recharge of Rs.30 per month will be provided for free for two years. This will entitle the users 30 Mbps net or data usage, 30 minutes of talk time, and 30 SMSs per month.

The Government introduced another scheme in 2013 called Har Haath Mein Mobile (a mobile in every hand) ushered in Bharat mobile scheme to cover six million families living below the poverty line with a mobile phone worth Rs. 200 with local talktime. In all probability, 50 percent of the expenditure would be borne by the bidder to provide the service and the rest from the USO fund (Brindaa, 2013). Although most of the Government scheme on to freebies such as laptops and television sets is periodical in nature which come to exist during election with the pursuit of increasing vote arithmetic of the political party, distinct beneficiaries have able to get access to the welfare programmes of the government. The Government of India's decision to distribute millions of phones to the poor under the Bharat Mobile Scheme for free has created favorable market for local indigenous cell phone manufacturer to promote "Made in India" products and to entice some of the players to set up manufacturing units in India. Telecom merchants with their manufacturing units in India are also eligible to participate in the bidding process for the Indian government's plan to distribute free mobile phones.

Department of Telecom has emphasized on to yield many new Indian brands and to get legitimized among increasingly vast mobile phone user base. Currently Nokia and

Samsung have manufacturing units in India and many cell phone brands are imported. In 2013, two domestic handset firms Karbonn and Lava International launched their smartphones, while another domestic company, Maxx Mobiles introduced low cost feature phone targeted at the rural market. Maxx Mobiles GPRS enabled feature phone with utility function of a dual SIM slot, expandable memory up to 16 GB, camera, and a LED torch is priced at Rs. 1,932, which is specifically targeted for the rural customers ("Maxx Mobile", 2013). New Delhi has decided the disbursal flow of Rs. 10,000 crore funds to promote local telecom manufacturing, of which a whopping Rs. 9,000 crore will be channeled to Indian telecom product companies (TRAI, 2011).

The Government of India proposes another mega scheme to woo the poor in order to bridge the digital divide in the country. According to the scheme, Central Government would spend Rs. 7,860 crore to distribute 2.5 crore mobile phones and 90 lakh tablets free of cost to targeted beneficiaries over the next four years starting 2014-15. Bharat Sanchar Nigam Ltd has implemented the programs on behalf of the Government. The administrative and distribution charges for each mobile phone that worth Rs. 320 with talk time for 75 minutes, a package of 75 SMSs and 500 MB data usage per month. Tablet beneficiary will get device and data connectivity for a maximum period of 2 years for Rs. 900.

Another scheme which disbursed the amount of Rs. 4,850 crore under Universal Service Obligation Fund (USOF) proposes to benefit women member of the family. Universal Service Obligation Fund reinforces the obligation of government to make the access to telecommunication services universal to people in rural and remote areas at an affordable and reasonable prices. Thus, in the first initial year, twenty five lakh people will be provided with the handsets, while another 50 lakh more beneficiaries will be added in the next year. According to the proposal, the scheme would enable people in rural areas to access information related education, healthcare to agriculture, financial services, employment and skill development. The operators will take responsibility to provide the connectivity, the devices with accessories, as well as warranty for three years.

The customized embedded opening screens of the mobile phones will give details of the scheme and the allocated number will act as a level of authentication to provide access to health records, land records and payment transfers, according to the presentation. India has 260 million unique mobile users across cities and villages. The total number of

handsets counted in 2012 was just 221.6 million units. The numbers of unique mobile users in villages are found to be nearly 104 million that indicates 40 percent mobile penetration in rural India. Out of 38 million internet users in rural India, only 12 percent could access internet on their mobile phones as of June 2012 (IAMAI, 2013).

Telecommunication in North Eastern Region

As per the current licensing scheme, the states of North East Regions are distributed in three Telecom Licensed Service Areas (LSAs). The North East Telecom Licensed Service Area includes six states of North East excluding Assam. The State of Assam comes in Assam LSA. The slow and constricted telecom services in the NER as compared to other states of India made the Department of Telecommunication to raise concerns. Of the total 45,214 villages of NER, 9190 inhabited villages do not have even basic voice coverage (TRAI, 2014).

The low tele-density and the pitiable existing Quality of Services (QoS) as rendered by Telecom Service Providers (TSPs) have characterized the North Eastern States. The challenges that the North East Region have been suffering count in poor quality of existing transmission bandwidth at the State Capital and District Head Quarters. Until the year 2012, existing infrastructure in the region could not even support the basic 2G mobile coverage. Telecom Regulatory Authority of India have put forth in its recommendations for a comprehensive Telecom Plan after analyzing various gaps regarding the telecom connectivity and poor quality of services in the North East Region. Accordingly, NER is prioritized for 'state-of-the-art' connectivity for data and the existing infrastructure under the TRAI Act of section 11.

Status of Telecommunication in Assam

The state of Assam consists of 33 Districts, 80 sub-divisions, 219 Community Development Blocks and 2202 Gram Panchayats. The total population of Assam is 2,53,55,528, as per 2001 Census, of which rural population accounts for 2,19,76,940 (86.68Percent) and urban population records 33,78,588 (13.32Percent). The state of Assam consists of total 26312 villages as per 2001-Census, of which 25124 are inhabited and remaining 1188 are un-inhabited. The average household size varies from 5 to 6 members per household in Assam. The Tenth five year Plan (2002-07) has designed the

expansion of telecom network in rural areas. Accordingly, the phone penetration in rural areas increased to 494.06 million by August 2009 from 9.01 million in March 2002. All India rural tele density has improved from to 17.12 percent by August 2009 from 1.21 percent in March 2002. However, registered rural tele density at national level is lesser than urban tele density of 98.70 percent in August 2009 (DoT,2009).

The Assam Telecom circle was formed in January 1987 after bifurcation of the erstwhile North-Eastern Circle. Telecommunication facilities in the state have been growing steadily in recent years. The corresponding Assam tele density figures are about 14.9 percent (rural) and 75 percent (urban). The tele density of Assam records 1.84 percent as oppose to 3.8 percent of tele density at all India level. The total numbers of telephone exchanges in the State were 567 as on 31st March 2003, of which 153 are based in urban areas and 414 in rural areas. The registered working telephone connections in Assam were found 4.79 lakh by March, 2003. Nearly 14 internet stations (nodes) with 9238 connections were found in Assam till March, 2003. The total revenue realized during the year 2002-2003 was Rs 274.44 crores (DoT, 2009). Access to voice and data services can play a crucial role in the overall development and growth of rural areas. This necessitates the need to address the lack of widespread telecom connectivity across North East and to build infrastructure in rural/ remote areas. Northeastern summit on IT and telecom in 2007 suggested that 8652 villages without a Village Public Telephone (VPT) would be considered to be the recipients of telephone on wireline/ fixed wireless terminals while 279 villages which are remotely located and cannot be provided telephone on conventional technologies shall be provided VPTs using Digital Satellite Phone Terminals (DSPTs).The above statistics of the density of telephone in Assam shows the rate of growth of number of people having telephones at home. With such rate of growth and various schemes and policies of the government especially for the north east region has made communication more feasible in the state.

Wireless Tele density of Assam

As on May 2013, there are 1,45,48,912 number of wireless subscribers in Assam and wireless tele-density of the State notches 45.36 percent. Of the 27 District Head Quarters (DHQs), 20 are connected by OFC ring, whereas 6 DHQs are on linear OFC. The digital microwave connected DHQs and towns in Assam are compatible to 2G mobile network. Out of total 25496 villages in Assam, 22611 villages are covered by 2G mobile network. Still 2885 villages do not have mobile coverage to date. Even the USOF funded project that aims to connect DHQs to Block Head Quarters has also suffered in Karbi Anglong and Bring Dima Hasao Districts. About 40 percent of the BTSs have been proposed for Karbi Anglong and Dima Hasao district. Installation of new BTSs, as proposed, has been a challenge in these districts of Assam. The roll-out of 3G services in Assam is largely limited to DHQs. High reserve price for spectrum have made the operations of Tata Teleservices unviable in the circle of Assam, J&K (Jammu and Kashmir) and North East. Bharti Airtel has launched 3G services in Assam telecom circle in 2012-13 which claim to have fast and speedy internet access through mobile phone, video calling, video streaming, mobile TV, social networking, and high definition game. Trailers of various Assamese movies on the mobile phones are offered at high speed .The charges of 3G local, STD and Roaming Video Call has reduced to 5 paisa per second as offered by Airtel.

In Assam, Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL), have launched 3G spectrum. Reliance Communications has already launched the Reliance 3G Services in **Assam** and **North East** Telecom circles. In the first phase, Reliance launched High Speed Wireless Broadband services with a speed capacity up to 28 mbps, live mobile TV service in Guwahati, Jorhat **(Assam)** and Shillong **(North East).** Reliance tossed Combo plans of 3G service and 3G Data Plans in Assam and Shilling that include Voice, Data and SMS, starting from the tariff of Rs.199 (Bafna, 2011). Reliance Jio Infocomm Ltd has installed about 800 mobile towers across the state of Assam. The company has started laid down optical fiber network (OFC) for rolling out 4G networks services in two telecom services of Assam and Northeast region in 2013. The developmental goal of rolling out 3G and 4G services will be realized in the creation of job opportunities for the users of the region.

There has been glaring gap in the existed telecom infrastructure and of essential telecom service rollout in the North Eastern Region States and in other parts of the country. Absence of adequate connectivity from transmission media (OFC, Microwave, and Satellite) lead to inadequate bandwidth for high speed broadband capable transmission of data.

Broadband for all in North East Region

In order to achieve the pursuit of 'broadband for all', Bharat Broadband Network Limited (BBNL) has implemented National Optical Fiber Network (NOFN) as a gateway to rural development. BBNL unlike BSNL has partnered with private sectors for providing other services in the remote places on a viable business model. BSNL, PGCIL (Power Grid Corporation of India Limited) and RailTel Corporation [7] of India have significant contribution in laying down OFC network across India. Bharat Broadband Nigam limited (BBNL) has emphasized on incentives around useful and priority services via NOFN infrastructure and not to make this high capacity access network bandwidth free for citizens. Presently, BBNL implemented two projects- one of which is connecting District Head Quarters (DHQs) to Block Head Quarters (BHQs) as funded by Universal Service Obligation Fund and another for connecting BHQs to Gram Panchayats (TRAI, 2013). Pilots to install OFC based connectivity have already been executed in three states- Ajmer (Arian Block covering 30 Village Panchayats), Vishakhapatnam (Paravada Block covering 17 Village Panchayats) North Tripura (covering 17 Village Panchayats under Panisagar Block).Companies like Reliance, Airtel have made significant amount of investment establishing access network in Assam and other NER complementing the NOFN infrastructure and designed commercially viable models to offer citizen services.

Universal Service Obligation Fund has prioritized the development of common infrastructure to make telecom facilities accessible in rural and remote areas of North East Region. As part of this venture, USOF addressed the gap between Block Head Quarters and District Head Quarters regarding fast connectivity through Optical Fibre Cable. An agreement was signed with BSNL on 12th February, 2010 (based on open tender) in order to augment, create and management of intra-District SDHQ-DHQ OFC network for carrying rural and remote area traffic on bandwidth sharing basis in the Assam LSA. This OFC Scheme has been undertaken on a Build, Operate and Own

(BOO) basis**.** Accordingly, BSNL has to center on building, operating, owning and managing OFC network and other infrastructure across intra-district. Telecom Service Providers in the Assam LSA will be sharing 70 percent of the subsidized bandwidth at a rate of 26.22 percent of the current ceiling tariffs as approved by TRAI. Another agreement has been signed with Railtel in January 2012 for expansion, construction and running intra-district SDHQ to DHQ OFC network for Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura (TRAI, 2013).

1.03 Research Problem

I have not found many available literature by scholars on Assam, compared to literature from other part of India (see e.g. Sreeramulu,2006 ; Suguna, 2006) that have claimed a space for women to make women feel empowered and have provided with some strategies and indicators to empower women. Most of the literature I studied of the scholars on Assam and some of India project women as illiterate (Sarma,1996) with limited education for girls (Choudhury, 1996); marginalized due to globalization, new economic policy and economic reforms (Ghosh, 1996; Dewan, 1999; Ganguli-Scrase, 2000); invariably focusing on the pattern of inequality and of high fertility (Deka, 1996); subordination and oppression due to power relations and ideologies embedded in the complex yet interdependent social, political, economic and legal structures as well as in patriarchal structure (Deka,2013 Bhasin, 1993). On the other hand, geography of Assam and North East India region is understudied in the discourse of gender and technology except a few across the nation (e.g. Ahuja, 2002; Balasubramanian et al, 2010).

The projected picture of marginalization and disadvantaged position of third world women (I argue to include women of Assam as well as of India) in the available literature and of my (researcher) personal experiences could be summarized below.

Women do not enjoy equal amount of right as men do. Entitlements of civil and political rights and economic rights that includes right to property, rights to make a contract, rights of association, mobility, and religious liberty are not equally enjoyed and exercised by women. All the more, housework and child care responsibilities have obstructed women to fully participate in community activities. Their confinement into the four boundaries of household deters women from taking advantages of the available opportunities which takes a toll on their overall emotional wellbeing. The constitutional

provision of equality before law and equal protection of law has not been duly exercised. Women always lack opportunities to develop imaginative and cognitive faculties. The capabilities of women are not fully realized due to deeply rooted unequal beliefs and unfavorable social and political circumstances. Disparities against the girls start in the natal family of a woman when she is made to be treated dispensable based on an assumption that she will leave anyhow and will not support parents in their old age. On the other hand, a woman is considered as a mere adjunct of a beloved son, a means to (especially male) grandchildren, and an addition to the number of household workers, and as a device to extract money in dowry payments from her parents for her in laws. Even in a condition of extreme dependency, women are the primary and usually only caregivers for from young to the elderly. Poverty when combines with injustices would result acute failure of central human capabilities.

Most of the rural women are found to face the disastrous impact of poverty which drives them to engage in unorganized economic activities e.g. domestic work, construction work, small trades like brick making, coir and basket weaving, household industries, other agricultural activities, dairy, fisheries etc. to eke out a living. Sluggish and unproductive formal sector has led to the growth of informal sector s which is regulated by market demand and wages. The informal sector as a viable strategy for social development has escaped recognition for a long time by both social scientists and policy makers. As a result, the contribution of women participants in the informal sector has not received acknowledgement. In this regard, it is important to empower women by making them economically independent, create a recognition for what they do, to have a say in household decision making and to make them enjoy due rights.

The study investigates the role of Community organizations to empower women and to build the transformative capacities of women of rural dwelling households in the wake of new information and communication technology i.e. mobile phone technology and mobile phone enabled services, to say. The study attempts to find out the positive transformation of women after the acceptance and meaningful use of mobile phone by housewives, especially women of rural dwelling households in the institutional arrangement of household and of community. The study further attempts to find out if acceptance of mobile phone by housewives, especially the women of rural dwelling household could empower them to enhance their personal agency; self-confidence; their

cognitive and imaginative capabilities; accountability and local organizational capacity by helping to participate effectively in household and in community. Moreover, it is to probe if acceptance of mobile phone could address the seemingly intractable gender gap in society and help women to build social identity, self-esteem and capabilities.

My study attempts to find out the dynamics of use of mobile phone and mobile enabled services by women and to explore the conditions under which the meaningful use of mobile phone and mobile phone enabled services could lead to women empowerment. I have not generalized 'women of Assam', as a whole, as marginalized, disadvantaged and disempowered population. Rather I have used the expression housewives and rural women not only from Assam (Sonitpur District), but also from the villages of Uttarakhand, Uttar Pradesh and Tamil Nadu, a homogenous group, however, diversified by class, caste, religion, by treating them relatively disempowered, circumstances of who have similarities as described by feminist epistemology .

The study focuses on rural women. Women represent half of humankind and 48 percent (Vijayalaxmi, 2012) of India's population. Rural women are found to be at the intersection of manifold oppression: as women, as unorganized informal workers who use to overwork with minimal returns, as politically powerless with multiple burdens. Rural women are identified more with poverty, ignorance, superstition, lack of awareness and information of her rights. Most of the rural women are illiterate, having no or low access to ICT, land, training, education, finance, with a lower skill base, having low access to income generating assets and employment opportunities. Rural women work per day 15 to 18 hours and of this, they spend almost 8 hours in domestic work. Rural women and many housewives in rural Assam are seen engaging in sowing, harvesting, weeding, grass-cutting, feeding animals, fetching water, collecting fuel and fodder, cooking, washing, feeding, nursing and looking after family. However, most of the work women do is invisible. In a family, women work to substitute their labour and time for care activities and income earning activities for the family. Hence, in order to ensure overall socio-economic development of women, it is important to recognize and support the needs of women.

The important contribution that ICT can make in bridging the gender divide and empowering women (Hafkin and Taggart, 2001) has been recognized by the International Telecommunications Union of which India is a member country. Ending

gender discrimination by 2015 is one of the Millennium Development Goals (World Bank Report, 2000). There is still much work to be done to end discrimination against women and girls in education, at work and in promoting health and safety for women. Information and communication technologies (ICTs) can be used to close the gender gap by creating new jobs for impoverished women. Deployment of ICTs could ensure health and wellbeing of women and to promote learning and education for all.

1.04 Rationale of the Study

A couple of literature on mobile phone has been focused on policy-oriented objectives, such as addressing the issue of digital divide involving economically disadvantaged communities (Alkalimat and Williams, 2001; Bertot and Mcclure, 1997; Rose, 1997) providing meaningful access to communication technology and complimentary education (Breeden et al. 1998; Campbell, 1995; Chow et al. 1998; Mark et al. 1997) and so on. There are only a few studies that assume case-based assessments of efficacy of schemes and policies. On the other hand, there are meager literatures in the diffusion and participation research on the gender specific uses of mobile phone technology in a context where household and community involves. Astounding figures on the ascending growth stats of telecommunication has predicted the growing interest of government of India towards telecommunication for development. Both Government and private funding agencies have prioritized investment on mobile phone technology over the past decade. Of late, the government in collaboration with private sector has prioritized on gender equality agenda with a stated weightage to reduce the 'gender gap' in mobile phone competences.

However, areas related to mobile phone technology for development has been remained as the under-researched and contested subject matter in India. Even the gradual importance of 'Universal Access' in policy solution of Government of India has not succeeded to address the digital divide on a mass scale where access has not led to meaningful use of technology. The unsettled status of mobile phone technology as an enduring policy instrument for achieving improved access to livelihood, education, health care services strike down the significance of 'mobile phone technology for development' as a substantive 'research' area with a theoretical lens. Given this context, it is important to explore the relationship between the meaningful use of mobile phone

technology and woman's participation in household and in community activities, which becomes the general pursuit of the study.

Information is not an equitably available commodity. Acquisition, application and use of information although dynamic has been complex and granted only to privileged one. The effectiveness of mobile phone based information system has to be assessed alongside existing information systems in a region and the interaction between these information systems within the pre-existing organic information environments. The applicability of ICT-mediated information to the existing narrow limited local knowledge base has been a challenge to the adoption of ICTs.

Currently available literature on the access to information and communication technologies and use of mobile phone technologies and services, functioning of household across the developing and developed countries includes descriptive or explanatory objective and uses case study method. A good number of the available studies are survey based and the questionnaire is the most frequently used means of data collection. In many studies, the researchers have analyzed the relationship between various variables by testing different hypotheses. Such testing assumes relatively well developed theories and conceptual models, which to a large extent are lacking in the existing researches on the use of mobile phone for development as well as in household research.

Government has implemented various projects in collaboration with NGOs and other private sectors in order to improve the accessibility and availability of mobile phone among women, BPL households and villagers. There are limited studies which scale the success of various projects and assess the actual implementation and target benefits of those projects in an unbiased manner.

The importance of accessing business-critical information in rural areas in order to support the livelihood of farmers has been realized of late which has popularized the value added services in rural areas. Lack of infrastructure has hindered the rural households of Assam in accessing a plethora of basic services offered by government. The North East region is plagued with barriers and disadvantages such as locational disadvantages, regulatory uncertainty, lackadaisical attitude of Central Government in addressing issues seriously etc. All these lead to have a negative implication on easy

accessibility of telecommunication services in the region. The score of Northeast Region shows above-average on social indicators such as on literacy and infant mortality. However, North east region is still falling behind in infrastructure development, road density and per capita electricity consumption. Cellular phone services were introduced in the North East after a delay of eight years (TRAI, 2013). Most of the service providers also face problems in getting permissions to lay cables and in getting land for installing base trans-receiver stations. Frequent bandhs and road blockades also lead to time overrun and cost escalation.

Cumulative empirical evidences from academic investigation have strengthened appreciation among policymakers that extensive diffusion and innovative uses of mobile phone is important for country's economic development and social progress. Adoption decision of mobile phone technology will help policy makers' to design effective user friendly regulatory policies which could ensure benefit to users. Further, adoption decision can influence telecommunication operators to develop inclusive strategies to bring the laggard and marginalized one to the limelight of development.

As the concepts of gender equity and gender mainstreaming are diverse and numerous, hence, I have restricted to work only on empowerment indicators and transformative capacity of women through the meaningful use of mobile phone and after getting locally organized instead of working on the concepts of gender equity and gender mainstreaming.

The study attempts to find out the empowerment of women facilitated by the access and the extent of acceptance and use of mobile phone correspond to situations where meaningful use/engagement with communication technologies arise. The area emphasized more in the study is Assam (Sonitpur District) where only I attempt to scale the success of the projects on community intervention of NGOs in the villages outside Assam. It is attempted to replicate and to apply the learning of the case study of Tamil Nadu, Uttar Pradesh, Uttarakhand to the survey areas of Assam.

The gender inequalities are primarily discussed in general in terms of existing gap in accessing digital technologies and it is connected to TAM framework (Chapter 7). Further, gender inequalities are discussed in terms of lack of access to information, basic

services, and infrastructure facilities, enjoyment of rights and privileges, ownership of land and property by women.

The role and identity of housewives are attempted to explore from the neoliberal perspective while discussing various neoliberal trends and challenges to women in specific, i.e. decreasing fertility; competing identities of women at home; feminization of the labour force due to economic restructuring and so on.

Growing numbers of studies continue to show that the impact of globalization and neoliberalism on labour markets and employment of India have had a highly uneven impact (Patel, 2002; Ganguli-Scrase, 2001; Ghosh, 2005) for instance, greater social inequality (Shukla, 2005), negative impact on female employees, especially in rural areas (Ganguli-Scrace, 2003). Some studies (Shukla, 2005; Power, 2005) furthermore suggested that the new economic policies have affected women both directly and indirectly.

On account of trade liberalization, large multinational corporations have availed employment opportunities for women. Impact of trade liberalization in technology import has resulted declining of low skilled jobs for women. Uneven economic developments are arisen from neo-liberal policy, as claimed by the critique of Neoliberalism (Smith, 2007) that have produced greater gender inequality and increasingly marginalized women.

1.05 Theoretical Framework of the Study

The study uses two theoretical frameworks which substantiate the study viz., (1) Technology Acceptance Model (2) Communication Infrastructure Theory. Technology Acceptance Model is applied to study the acceptance of ‘mobile phone technology’ and its ‘applications and services’ among housewives and women of rural dwelling households and to assess the findings of the survey. Communication infrastructure theory is applied to assess the available community based communication access conduits which could set the context and action of communication among housewives and rural women. Communication Infrastructure perspective provides valuable insights to find out the accessibility of infrastructure and services in a village or a community.

Development approach such as community driven development and SEAGA (Socio-Economic and Gender Analysis) approach are applied to study the role of intervening NGOs and community organization to involve women in development activities and ensure the capability development of women. The study discusses on the perspective of Woman in Development (WID), Women and Development (WAD) and Gender and Development (GAD) to assess the role development centric programs and policies on women. Feminist readings especially third world feminism is used to explore the role of self-help groups and NGOs in women empowerment.

The dichotomous reflections between western feminism, 'third wave' and third world feminism are provided in order to explore the situation of rural women. On the other hand, critical literature on the concept of digital divide, universal access parameters and hierarchical access rainbows have been discussed to examine the existing barriers (personal, structural and gender based) and challenges of accepting and using mobile phone and internet services.

The study proposes a conceptual model (Chapter 6) drawn upon the institutional theory (DiMaggio and Powell, 1983). The model seeks to better understand how the institutional forces influence the acceptance of mobile phone use by housewives. The institutional theory identifies three factors that promote structure and process, namely, (1) coercive, (2) normative, and (3) mimetic, details of which are discussed in the application of communication infrastructure theory framework (Chapter 7).

Technology Acceptance Model (TAM)

The constant evolution and growth of ICT related applications create a real impasse to make the choice of acceptance and rejection of a technology. Out of many models that have been developed to shed light on the effective use of technology, the Technology Acceptance Model (TAM) stands out in examining issues affecting users' acceptance of modern technology. TAM is an expansion of Ajzen and Fishbein's Theory of Reasoned Action (TRA) which was a theory initiated by Fred Davis in1986 and since then it has gone through several modifications and validation. The aim of the theory is to describe factors that determine technology acceptance, information technology uses behavior and to provide a theoretical explanatory model. Acceptance can be viewed as a function of user's involvement in technology use. "Acceptance can be described as the critical factor

in determining the success or failure of any technology and has been conceptualized as an outcome variable in a psychological process that users go through in making decisions about technology" (Chau, 1996). Acceptance of any mobile services depends on the worth and values it gives to its user. Users in order to accept a technology or a service consider while such services enhance user performance in doing a particular task or not.

TAM is a prominent theory that seeks to investigate the attributes that influence technology adoption. An approach to the theory of reasoned action (TRA) posits that the adoption decision of a technology is influenced by attitudes toward the use of the innovation (Fishbein and Ajzen, 1980). TAM replaces many of TRA's attitude measuring parameters with the two technology acceptance measures—*ease of use* and *usefulness*. Technology Acceptance Model (TAM) asserts that adoption is affected by the perceived usefulness of the innovation of the technology and the perceived ease of use of the technology by the community. Perceived Usefulness is seen by Pantano and Di Pietro (2012) and Teo (2013) as a subjective prospect that specific application of the technology will increase job performance which is equivalent to 'performance expectancy'. Wen and Kwon (2010) observed that Perceived Ease of Use is anchored on the belief that it would be effortless and hassle free to acquire a particular skill which is also known as 'effort expectancy'. Nanthida (2011) enumerates certain factors to consider when evaluating Perceived Ease of Use e.g. computer self-efficacy, perception of external control, internet self-efficacy, information anxiety, perceived enjoyment, usability and behavioral intention to use. Many studies (Dickerson,1983; Hong, et al., 2006) have been conducted to reveal the relationship between computer self-efficacy and technology acceptance as a psychological quality.

In the view of Nanthida (2011), external control is a function of available knowledge, ease of use of relevant resources, dexterity in the use of new skills and modern technology, and a proficiency that is required in carrying out a particular task. Therefore, if women have accessed to definite resources and have an increased knowledge base, the level of control in carrying out certain tasks will be increased significantly.

According to Hong et al, (2006), internet self-efficacy enriches to self-conceptualize the operation of a technology, thus facilitates the understanding of technology acceptance, performance, and use. On the other hand, technology phobia includes the fear,

apprehension and anxiety toward the use of mobile phone, computers and internet which deter interest in personal development and only form negative attitudes towards technology acceptance. Anxiety or nervousness regularly takes place when new knowledge is being acquired. Dupin-Bryant (2002) holds that the inability to adapt to change and resistance to transformation can lead to negative effects on cognitive performance.

Behavioral intention is an important component of TAM that can also be used to envisage and predict the eagerness and motivation to perform behavior and a number of skills. Such intention is determined by three factors: the first is personal in nature which reflects human attitude, the second is a subjective norm which shows social influence and the third is called perceived behavioral control (Kumar, and Ravindran, 2012).

Theory of reasoned action justifies the acceptance of innovation irrespective of gender, age, experience, facilitating condition and social influence. The perceived relative advantage constitutes (i) having access and no access to technologies and (ii) comparative advantage of having access to mobile phone technology vis-à-vis other forms of access to information, i.e. TV, radio, newspaper, internet or other digital technologies available in households and in community. Compatibility factor too stresses on the adoption of mobile phone, mobile enabled services and application by housewives and rural women. User's (housewives of rural dwelling household) compatibility can be determined by the exposure to other forms of technology, skills to use a technology, literacy to understand, operate and to have the awareness of the benefits of using a technology, needs that could motivate them to use a technology, financial status to afford to use a technology as accompanied by daily ways of doing things as well. Similarly user's (e.g. housewives of rural dwelling household) possession of financial resources, skills and knowledge aid to count on effortless and affordable test of an innovation or to accept a technology. Testing an innovation helps to make purchasing decision. Observability or visibility of the innovation among the member holds to be another factor of technology acceptance. Any invention which is perceptible by the eye of the individual can influence the believe system of the viewer and subsequent behavioral intention could lead to technology acceptance.

Few studies reveal contradictory results while analyzing the factor perceived ease of use of the technology acceptance model. The studies of Chau and Hu (2001) on telemedicine; Pavlou (2003) on mobile commerce and Yu (2009) on online banking have concluded that perceived ease of use is less likely to be a factor of attitude and intention to use a technology. Chau (1996) included in his study, two types of perceived usefulness: short-term and long-term. The study conducted by Sun and Zhang (2003) found voluntariness can be factor in determining the behavioral intention to use. Ervasti and Helaakoski (2010) have developed a model based on TAM and TPB (Theory of Planned Behavior) to understand mobile service adoption which states that perceived usefulness is the strongest factor in adoption. Yi and Hwang (2003) asserted the strong relationship between perceived usefulness and behavioral intention among goal-directed users.

Many studies on acceptance research have developed and revised the existing models to predict the acceptance pattern of the users by adding new variables to TAM. The study of Venkatesh et al. (2003) is found have proposed modification of TAM by adding variables like experience, self-efficacy, perceived risk and social influence. The Theory of Reasoned Action (TRA) embraces the subjective norms of the society as per social norm theory that represents social influence. The factor such as social influence takes into account the role of opinion leader in motivating an individual to adopt an innovation.

Pavlou (2003) added new variables perceived risk and trust that play an important role in accepting e-commerce. He combined the Technology Acceptance Model with Theory of Planned Behavior, perceived risk and perceived benefit to understand the adoption of internet banking. Yi and Hwang (2003) stressed on self- efficacy, enjoyment, learning goal orientation that predict the use of web based information system. Moon and Kim (2001) in their study on World Wide Web has introduced the variables playfulness to TAM. Studies of Agarwal and Prasad (1998), Karahanna (1999) have incorporated cognitive absorption, playfulness and self-efficacy to the TAM model. Van der Heijden (2000) added perceived entertainment value and perceived presentation attractiveness are the two factors for individual acceptance of the uses of the website. Chau and Hu (2001) combined the factor of peer influence with Technology Acceptance Model.

Evolution of mobile network, improved bandwidth, innovation in services and applications in mobile telephony has been diffused among people in a fixed social system over the years. Rogers (2003) stated that diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. Social system represents household, community or society based on geographical precincts where the individual members are characterized by gender, age. Channel of communication represents the intensified interpersonal communication among the members, the role of opinion leader among members, member's exposure to mass media, folk media and information and communication technology.

The essence of technology holds different meaning to different social groups of users. The historian David Edgerton (2010) examines what is precisely meant by 'technological determinism' and 'progressivist' accounts of innovation in technology. The socio economic dominance of steam and coal power which was once widely circulated and diffused technology has been replaced and superseded by the ascendency of newer technologies, nevertheless represented the gradual control and practice of technological determinist perspective (Bijker, et al., 1987). 'Innovation' and 'use' represent different phases of the life of a technology. Innovation centers on novelty by representing newness or maturity of a technology, which is differing from competitors and a source of potential wealth generation. On the other hand, another explicit social construction of 'technology-in-use' tend to center on the grounds of ease of use, cheapness and durability with preferably taken notion of deployment and adoption of technology is more of 'in the wild' concept, specially by the people for whom innovation is of less significance. 'Technology in use', on the other hand, embodies an established technology which is often adapted by users to meet local needs. For instance, in parts of Africa, mobile phones have been developed into systems for remitting money between dispersed family members (Sey, 2006).

Communication Infrastructure Theory

Communication infrastructure theory looks at how the practice of everyday communication and connectedness to media technology serve to construct the social environment. More than the media technologies that can serve as an infrastructure to

enhance communal or local associational ties, the context and action of the participants involved are unique to communication infrastructure theory.

Communication infrastructure theory provides an empirically-tested model illustrating the communication processes and communicative action of a community within the ecological constraints of technological and socio-economic factors. The perspective put into place the interplay between interpersonal and mediated storytelling systems and its context (Ball- Rokeach et al., 2001) which analytically incorporates both the context and networks of communicative action. The communication infrastructure theory recognizes the dependence that rural residents have on connectedness to information about their community through interpersonal communication or local and mass media.

Existing studies of communication infrastructure theory emphasize predominantly on 'outcomes' of technology access to all that includes sustainable livelihood of a community and individual attainment (O'Neil, 2002). Communication infrastructure theory represents a new phase of technological integration into communities through SHGs. The study has investigated how mobile phone technology is becoming an integral part of everyday practices of communication of women members of local community groups.

The policy-oriented intents of previous studies on communication infrastructure theory stress on facilitating training and capacity building opportunities to the community so that the community can make meaningful access to communication technology (Breeden et al. 1998; O'Neil, 2002; Fisher,1989). Many of such studies address the issue of the digital divide of economically disadvantaged communities (Alkalimat and Williams, 2001; Bertot and McClure, 1997; Hills, 1989; Davies et al. 2003).

When there is lack of access to information and communication technology, SHGs or local community organization/groups can be functioning as access points for individuals and can serve as important venues for social interaction. Community organizations or SHGs can be positioned in larger community-centric communication infrastructures and make it an integral component of communicative action of a community. SHGs and local community groups/organizations have the capacity to build a community which it will perform by leveraging mobile phone technology and mobile enabled value added services.

‘Netville’ a community of wired households in Toronto exemplifies the theoretical framework of communication infrastructure. Hampton and Wellman (2003) in their work argue how adoption of technologies helps to create a neighborhood, enrich the feel of ‘neighboring’, and ‘belongingness’ to the community. Craig Calhoun notes the importance of positioning community and practice first when assessing the impact of technology:

*“*Look first for communities and then study the role of computers and other media of communication within them. More generally, study the range of different forms of social solidarity – community, movement, work organization, nation, and party. What are people doing? How and how much do they use CMC to do it? How does this matter?” (Calhoun, 1998)

Taking Calhoun’s perspective into consideration, the role of SHGs/community organization/community groups is theorized by communication infrastructure theory as a unique component of a locality or community which facilitates connectivity and communicative capacity for the essential community components of a rural local environment.

Yong-Chan Kim and Sandra Ball-Rokeach emphasized on the importance of the practice of telling stories in order to build a community. Community infrastructure theory as proposed by Yong-Chan Kim and Sandra Ball-Rokeach highlights the role of media technology in community building through the act of storytelling and timely, relevant information dissemination. Availability of basic amenities in villages i.e. community enterprises or groups such as SHGs , CIC, SAHAJ, Arunodoy Kendra, Cooperative and Credit Society, Village library, PHC are the premise to build resources for storytelling about the community (Kim and Ball-Rokeach, 2006). Without the available basic amenities and its accessibility, household residents of a village community cannot participate to construct stories about the local community and share them. The three principle agents of storytelling that the communication infrastructure theory provides stand at macro, meso, and micro levels. Media at national level constitutes the macro storytelling agent which reports, broadcast and print stories about one geographic region i.e. the city, state, or even the entire country with specific reference to local issues that involve concerns related to development.

Meso-storytellers such as “meso level” organization or intermediary organizations, e.g. NGOs, technology solution companies, college and universities, hospital, state wide media institutions that provide stories about respective localities. Individual resident of village households (women of households) functions as a micro-storytelling agent. Neighborhood association/local community organizations e.g. local community enterprises or groups, village co-operative society, SHGs constitute micro storytelling platform. In an ideal community, meso- micro linkages facilitate to build an integrated network where each women storyteller stimulates others to talk about their issues and concerns (Kim and Ball-Rokeach, 2006). According to Kim and Ball-Rokeach (2006), “when residents discuss and chat about their community in neighborhood council meetings, at the dinner table, or over the fence with neighbors, they become local storytelling agents – participants in an active imaging of their community.”

1.06 Household as a Unit of Study

Bergstrom (1997) defines household as a group of more than one individual who share economic activities necessary for the survival of the household, a space that generates common welfare and mutual concern for the wellbeing of each member. Family nurtures inter-household relationship between members. Family maintains a mutual relationship of the members with the economy and society of its immediate location.

Bergstrom (1997) claims that it is extremely difficult to develop a fairly comprehensive household approach which can strengthen the salient identity of women by increasing participation in household. According to Becker (1981), household research rests basically on economic and social theory. Many theories or disciplines – most notably, sociology, psychology, anthropology, and economics have contributed to the scientific study of families and households. Serious and conscious efforts to develop family research methods and empirical data about families were started slightly more than 60 years ago (Strauss, et al. 1995). Household as a ‘Collective’ (Harold,1995) attempts to apprehend dissimilar preferences of household members and existing inequalities in joint decision making process of household. It stresses on mutual benefits out of the sought after reciprocity among the members of the household.

‘Care’ and ‘consumption’ are two sides of the same coin are expected from each other in a household (Schultz, 1948). Becker (1965) emphasizes the importance of time as the

scare resource in the decision making process of a consumer. Time in household is classified into labour time and consumption time by Becker. Becker introduces analogy of the competitive firm by relating household with a small factory or a unit of production which produces non-material, non-tradable goods and services such as children, shopping etc. Becker presented the production function of a household, the way it generates human capital and increase productivity and efficiency of household work. Human capital [34] affects directly or indirectly the wellbeing of an individual and household by promoting self-sufficiency of each members within households. New conceptualization of household economics emphasizes on the time spent on interaction with each other and people from outside domains which further generate human capital. New concept argues that market price cannot be used to represent the value of human capital. Nor the time spent by the housewives in household chores may be regarded as the lost time and may cause loss of earnings. Acts like caring for elderly and for infants are economic by nature as it requires an allocation of scare resources i.e. time. Human capital represents income, education, participation in market, role playing, decision making etc. which is often distinguished as traditional in nature (Livingstone, 1997).Modern notion of human capital includes altruism, a combination of emotional and rational self in order to generate love, kindness, sympathy which has no market value (Schultz, 1974).

Konkka (2003) mentions about complexity and fragmented dimensions of mobile phone research, the dynamics of which often keep changing. Mobile phone is found to create new realities, walking on the boundary between destabilizing existing situations with use and non-use and actualizing implicit possibilities for socio-economic development in a new context. This entails to examine the practice of accessing and using mobile phone technologies and services.

The study has taken household as the central unit of analysis and attempts to find out how the use of mobile phone improves individual capabilities and participation of members of household specially of housewives in household activities and heighten their sense of community belongingness, at the same time. Based on the review of literature, the study pursues the assessment of various dimensions of participation in household and community which can be enabled and increased by mobile phone.

Families in India: Trends, Composition and Challenges

The institutional structure of the family is reflected in the existence of hierarchy, degree of influence and authority that the family exercises over the members in the midst of bond that ties the individual to his or her family. The family is the first network in which a newborn is integrated and it extends its relational capabilities to the community, assists to identity formation in and through given networks and by our voluntary commitment to others. Relational capability stresses on the quality and quantity of relationships among people generated through social networking. Mobile phone is viewed as an item of club commodities (Jackson and Wolinsky, 1996) considering its networking capacity. Infinite value of mobile phone is reflected prominent when household members talk to other ten to twenty people instead of simply owning a mobile phone. Neo-liberal challenges have weaken a family to cope with the pressures of the modern life that are manifested more in cities and in urban spaces than in rural areas. Occupation at a distance and being away from geographical proximity has not altered the sense of support and togetherness among members of the family.

According to the statistics of Ministry of Home Affairs, Social Studies Division, 1991, the total population of India counts 846 million and there are 152 million households. Households in India are grouped into rural and urban categories where numbers of rural households count for 112 million and 40 million are recorded as urban households. 43 percent of the all rural based families living below the poverty line and almost half of the urban poor families are residing in slums (Gulati, 1995). According to Census of India, 1991, Indian families constitute largely of nuclear families with joint families forming about a fifth of the total households (Census of India, 1991). Around 46 percent households are found as belong to nuclear type while 27 percent households are found as belong to joint type as per census survey of 1992-93. In the preponderance of joint family system, the female-headed household was quite an uncommon phenomenon; however, about 10 percent of all the households are reportedly headed by women (National Family Health Survey, 1994). There are approximately 15 million female headed families in India (Singh, 2004). The phenomenon of female-headed household represents change in authority structure within the family characterized by the absence of husbands either by separation or death, by transfer of job and by swelling migration of men for employment (Hakim, 1996). An alternative pattern in the Indian family system

has been noticed over the last fifteen years with conspicuous presence of single parent families, female-headed families, families of dual earners and childless families (Dev, 2004).

Gradual transformation of demographic characteristics and socio-economic-political-cultural milieu of the society have influenced the structural change in family. As a result, the family members, their roles and relationships along with accompanying values have been.re-configured.

In Sonitpur District of Assam, patriarchal authority is found to differ among families, with the existence of both 'traditional' patriarchal authority and modified patriarchal authority as influenced by education, occupation and income. As compared to 1981 census, the pattern of change in different types of families in urban areas is almost the same as in the rural areas in 1992-93. As per 1991 census, around 112 million out of 152 million families are rural based that constitute 74 percent of total families in India and 43 percent of rural families are under BPL category (Census report, 1991).
Predominance of rural families and problem of poverty have not ebbed down even after liberalization and accelerated urbanization in India. Around 21.2 percent of rural families and 17.1 percent of urban families constitute joint families in India. On the other hand, half of the rural families in India are nuclear in size and composition. Recent trend has observed the increasing numbers of single member households and female headed households. The proportion of very large size families (10+) have virtually disappeared whereas number of large sized families (6+) are existed without much variation.

According to Atul Kohli (1989), poverty is as high as 92 percent in female headed households. There are more numbers of poverty stricken female headed households in villages as compared to urban areas. These poor female headed households are mostly belong to agricultural labour class and scheduled castes. Widows comprise of 56 percent of the total aged women, which is four times higher than aged men with loss of wife. Studies (Sinha, 1984; Nayyar, 1991) state that landlessness and poverty are strongly correlated in rural India. In a family, woman's rights to land are either not assured or least assured. Panelli, Kraack and Little (2005) have projected a dismal picture of rural women with higher incidences of joblessness, seasonality of work and wage discrimination etc. Degree of illiteracy is also high among rural women. Rural women

are often become the victim of violence within and outside the household. Even displacement is more of a female phenomenon on account of migration. Percentage of displaced women is higher than the men as migratory women constitute 44.3 percent than 17.8 percent of men (Census Data, India on Migration, 2011).

India was the first country to formulate a National Family Planning Programme in 1952. The programme pursues the objective of achieving stabilization of the population by reducing birth rate at a level consistent with requirement of national economy. The First Five-Year Plan has emphasized on family planning with stated objectives on improving health status and welfare of family. Early Health policies of India brought into attention the health care services for women and children and put focus on contraceptive services as a part of family planning programme.

During Ninth Plan period [35], the Department of Family Welfare has shifted its focus to decentralize planning at the district level by stopping centrally defined technique on specific targets for family planning. The focus of the Department of Family Welfare was to assess the needs of the community and to implement programs aiming to fulfill the needs of the community. Efforts were streamlined to improve the quality and content of the family oriented health and welfare services by organizing awareness camps in villages, recruiting and training of nurses and midwives in villages, upgrade skills on advance ICT for all personnel and to building up a referral network for speedy delivery of information on health, nutrition and family planning for rural households.

The impact parameters of various state specific goals of family planning programmes such as contraceptive care, maternal and child health are evaluated. Moreover, other auxiliary factors for family welfare such as education for women and empowerment of women from all spheres are taken care of by introducing various social security policies for people at grassroots level with due emphasize on progress monitoring.

Care Economy and Housewifization

Women have been the mainstay of care economy and household production. Care economy has challenged the concept of economy as composed only of two producing sectors - firms and government. Diane Elson (1995) brought households in line with private firms and government by asserting that each of the three sectors includes both

consumers and producers. In India like other developing countries, the trend is noticed over the years which indicate that increasing numbers of middleclass women are turned into consumerist housewife. The idea of housewifization gained prominence with capitalist exploitation of source of production, explicit gender based division of labour across work - household sphere and formal - informal sector (Oakley, 1974). Even in socialist societies, the housewife concept that is implicit in the sexual division of labour has not fully been overcome despite large proportion of women participating in the extended production processes. Any effort to fight against housewifization is equivalent to fight against drowsy consumerist self of women. This attempt is amount to build a decentralized, labour intensive society. Women in that society are informed about their needs with no polarization of hand and head, sexual division of labour, and class.

1.07 Conceptualizing Women Empowerment

'Empowerment of women' emerges to be a major aim of many Third World countries' planning and programs (Moser, 1993). The discourse on Empowerment came into attention to the scholarly debate during Second Wave Feminism of the 1960s.The Government of India has adopted different policy measures from time to time to promote women empowerment. There are challenges involve in conceptualizing empowerment and making sense of empowerment in real term which could be widely and liberally applicable.

Empowerment is an umbrella concept, often used to justify development intervention in development discourse and language among academicians, labour organizations, health professions and many others (Nelson and Wright, 1995). Source of the term 'empowerment' exists in definition of power, a set of active and multivalent practices and situations (Raghuram et al. 1997). Post-structural perspective of power found in the work of Michel Foucault (1978) that seeks to interrelate power of those who 'owns' it in everyday interaction with others in a particular context. Foucault (1978) concluded that power cannot be held being locating it in a person or a place as an attribute to be owned or placed. Power can be realized when exercised because it emanates from everywhere. Mike Kesby (2005) locates power in a complex network of social and institutional interaction, relationships, everyday practices, and discourses. The power is a ubiquitous force operating everywhere; the dynamics can only be defined once it is disseminated

through complex networks. Kesby (2005), in his work, emphasizes upon the enabling condition that power creates to act and to take action. He denounces the negative dimensions of power by saying that power dynamics cannot be interpreted as inherently negative, limiting, or repressive.

Allen (2003) points out to the inherent spatiality of power how space determines the role of power to a large extent. He puts his argument forward by stating that "people are not placed by power, but they experience it at first hand through the rhythms and relationships of particular places" (such as the home, the classroom, the street). Power underpins the dynamic of everyday practices and the social and political organization of a whole host of institutions disseminated across the contemporary geographical space (Allen, 2003). Different social scientists, such as Gilles Deleuze, Hannah Arendt, Michel Foucault and Max Weber contextualize the diverse vocabularies and constitutions of power (drawing on the reasoning of Weber and Arendt) such as those of domination, authority, seduction, manipulation, coercion and the like. Different modes of power are distinguishable as each mode has own characteristics and narration. Virtue of Empowerment could be comprehended in enabling dimensions of power as a means of act (power to) as opposed to 'power over' (someone) (Rowland, 1995). Rowland's (1995) empowerment functions at different level through transmission of power unravels this interwoven notion of power by identifying four discrete categories: power over (power by men over men; men over women, that is, coercion and ability to influence); power with (power from collective action); power to (arrange to change the existing hierarchy) and power within (individual consciousness, that is, sense of self-worth and self-knowledge of a person).

Rowland (1995) examines three key dimensions of empowerment from a wider perspective : (1) personal or individual dimension of empowerment represents personal confidence and capacity by conquering oppression and enhance the sense of self ; (2) empowerment in close relationship could be realized how proficiently relationship is maintained through decision by exercising control and conciliation; (3) collective dimension of empowerment represents the enhancement of the capability of people to work together and to live together productively and effectively. Collective action through cooperation helps to form the social identity of the individual which bear political significance. Furthermore, Kesby (2005) re-conceptualizes empowerment from partly

poststructuralist perspective. Empowerment is enlightening as it builds reciprocal relationship instead of 'hierarchical' relationship in a system of patriarchy. Empowerment makes a person 'accountable' rather than 'dominating'. The conditions and context of empowerment is always 'lateral 'instead of 'vertical', and 'facilitating' rather than 'exploitative'. Of late, there is an increasing use of the lexicon of empowerment by scholars who are interested to examine and discover different practices of women in the developing world. Rowland suggests 'empowerment' to be endowed with power which further defines empowerment of women as "decentering of decision-making power" (Rowland, 1997). Sreeramulu (2006) explains empowerment as a process by which disempowered individuals and groups gain the power to control their lives and the ability to make strategic life choices. The empowerment of women could be defined as a continuous process rather than a state to be achieved (Shukla, 2005). Empowerment is context dependent as it received different manifestation in different gender theories across the world. Hence, empowerment holds different connotations in different cultures (Mohanty, 1991). In a developing country like India, the basic requirements for the majority of population are food, clothing and shelter. Moreover, the society features a number of hierarchies and sub-hierarchies of caste, class, creed and religion. In such a complex situation the gender politics in India obviously differ from the West. Therefore, the parameters of western gender theories must be re-constructed in order to conform to the sociocultural milieu of India.

Women Empowerment in Indian Context

Women empowerment is more of a politicized jargon to represent Indian women movement. At the same time, women empowerment has superseded official terminologies such as 'women welfare', 'women development', and 'women upliftment'. Various strands of the government and major donor agencies that support activities towards marginalized women have been politicized and rationalized under the umbrella term Women Empowerment'. Most of the third wave works of feminism go with marginalized women define empowerment as a process, and the results of a process which transform the power relation between individuals and social groups (Kesby, 2005). The two strands of empowerment, political as well as economic are made to be realized through 33.3 percent reservation of women at the grassroots level of local self-government bodies. Under the rubric of neo-liberalism since 1990, woman's

empowerment turns to be conceptualized rather (re)politicized around self-help groups, microcredit organization and reservation of women at grassroots level.

My thesis looks at women empowerment by focusing on the intervention program of NGOs such as integrated rural development and kinds of transformation that participation of women in such programs could brought. Empowerment is a process of increasing confidence, rights and status, the dynamics of which involves shifts in political, social, and economic power between and across both individuals and social groups (Kesby, 2005). The program such as Integrated Rural Development involves economic interventions through Self-Help Groups and the Micro-Credit Organizations, awareness building among women, capacity development and skill development that help women to expand, enlarge and redefine them.

Empowerment is described as an agency of change for women when they themselves able to identify key changes that had occurred in their lives (Calman, 1992). Empowered women experienced these subtle changes in power relations when they started interacting with their increased agency. As a result, they experience tangible outcomes, such as increased income for themselves and for their families. 'Agency' is stronger if the women in self-help groups had a direct role in some of the institutional processes of the organization that facilitated that change (Suguna, 2006). The thesis investigated a few indicators of changes in the lives of women of rural dwelling households who participate in community groups and organization. These indicators are categorized broadly as: (1) autonomy of action; (2) participation in family decision-making; (3) participation in community decision-making; and (4) advocacy on broader social issues. These indicators have provided insights about empowerment is perceived and experienced by women members of the local community groups. The kind of empowerment, women perceive and experience is dealt with improvements in the 'agency' of women.

Agency is the capacity to make meaningful choices. Alsop and Heinsohn (2005) define empowerment as "enhancing the capacity of individual or group to make choices and to transform those choices into desired actions and outcomes." Along with improved agency, the degree of empowerment depends on opportunity structure that is the ability to make choices given institutional constraints.

Alsop and Heinsohn (2005) identify three main institutional domains that can provide both opportunities to exercise choices as well as constraints: the State (civic activity), the Market (economic activity), and Society (social activity), and three main levels: Local, Intermediary, and Macro.

Women Empowerment is understood as realizing the identity of self as well as gradual withdrawal of factors such as alienation and limited rationality that hinder woman's emancipation. The concept of 'empowerment' is well connected with development. In fact, women empowerment is impossible without development that enables them to overcome oppression and alienation (Batliwala, 2007). The women movement in India embraces an approach of 'women and development' (WAD) whereby diverse local organizations and institutions seek to challenge class, caste and gender inequalities (Patel, 1996). Gender issues and woman's rights cannot be separated from the developmental issues of India. Empowerment lies in providing opportunities for realizing human potential and develop personal agency to withstand unwarranted isolation and oppression. Any intervention policy that induces access and welfare can lead to increase capabilities to emancipate women, empower them and to make them contribute to development.

The study has examined the phenomenon of empowerment from the perspective of home-maker or housewife. The narratives of personal changes when they experience with increased self-esteem and self-respect since their participation in SHGs/ community groups/community organization are compared to former segregation and exclusion in everyday spaces. The 'empowerment' is examined with respect to everyday practices through meaningful use of mobile phone in a space which could provide women the scope to act as an agent of transformation. Similarly, women could challenge the 'power over' by actively participate in SHGs and other community enterprises. At different space home-private and community-public space, uses dynamics of mobile phone technology could make women aware of their 'power from within'. Women residents after using a mobile phone could realize their capabilities or 'power to' pursue financial independence. Simultaneously, the study examines different narratives on meaningful uses of mobile phone technology through everyday practices and the transformation that access to mobile phone has brought in the life of women.

1.08 Community as a Unit of Study

The noted sociologist, M.N. Srinivas perceives the village community as "a body of people living in a restricted area, at some distance from other similar groups, with extremely poor roads between them, the majority of the people being engaged in agricultural activities, all closely dependent upon each other economically and otherwise, having a vast body of common experience, must have some sense of unity."

The census of India considers those areas as rural where the population is below five thousand and the density of population is less than 400 per square kilometer. It further provides that in such areas at least 75 percent of the males of the working population are engaged in agricultural pursuits.

The richness of one community can be defined by the existence of basic amenities available, i.e. co-operative society, commercial bank, agricultural bank, pucca street, street light, credit society, adult education courses , self-help group, and the proximity to police station/medicine shop-phc/mandi-market/primary school-secondary school-higher secondary school/Post-office, PCO/co-operative society.

1.09 Women Empowerment through Organizations

Organizations are not some instruments for the implementation of certain aims and objectives. Rather organizations are shaped by the people by their actions, ideas, and histories that contain memories of their past, origin, traumatic splits, of dramatic campaigns, of hope and despair. Organization by selecting a structure, in the process to achieve the vested aim, reflects political consciousness.

There is no single representative organization of Indian women movement although there are hundreds of organizations to embody this movement. Enumerable numbers of organizations happen to be the part of Indian Women movement. Several of them have a partake in public charities and trust, welfare boards and Mahila Mandals, some are recorded as trade unions, cooperatives, media organizations or even as one of the hundreds of unofficial, unregistered groups. Often it is difficult to know if an organization is hundred years old, recently established, alive only on paper or a mature group. Variety of organizations are listed as belonging to the present phase of Indian

Women Movement that include support groups, agitation groups, grassroots groups, wings of political parties, professional women group, research and documentation center and so on(Gothoskar and Patel, 1982). Most of the women group, new or old, service and agitational in purpose had to opt for an organization politics, where structures suit their vision and goals. The AIWC (1927) was more agitational, with politically active in demands. Trade unions, mass organizations and women wings of political parties have existed since the emergence of the multi-party system in India. In 1975, women organizations were hopeful that national committee on women with its special bureau monitor the implementation of laws would usher in an era of collaboration between the government and the groups (Gothoskar and Patel, 1982). Almost ten years later, Rajiv Gandhi government held out hope in the form of a separate department of women and child development within the Human Resource Development Ministry (Sridevi, 2005). It indicated that for the first time, women were assuming importance in inter-governmental plans. Programs were drawn up and huge budgets allocated for women such as series of hostels in every major cities and town; series of employment schemes emphasizing on non-traditional work for women, short stay shelters and women development corporations. Women group found an echo of their concepts and language coupled with genuine sympathy. Some groups were comparatively successful in getting state funds, others faced with bureaucratic delays.

The idea of 'empowerment of women' gained currency by the mid-1980s and NGOs started subscribing it (Patrick, 2010). During that time, efficacy of NGOs in terms of vision model, approach, intended outcome and support that is derived from government was probed. Since mid-1980s, programs and activities of NGOs have been directed towards achieving gender equality which is implicit in most of NGOs' objective. NGOs since then invested in materializing self-help group program to target women beneficiaries. During 1990s, NGOs shifted its focus on a relatively narrower dimension that includes income generation and saving program within a group while embracing self-help group model (Vijayalaxmi, 2012). The implied gender concern in the programs of SHGs is saving centric which results access to additional credit. This invariably demonstrates the new aspects where the investment of time and money of women in high labour, low value products of household could be turned to assets for income generation. Microfinance or income generation programs were the agenda to achieve gender equality

during early 2000. Fewer NGOs worked to directly address gender-based violence, alcoholism, access to work and other strategic gender needs.

Community Based Organization (CBO)

Community-based organization (CBO) is a generic term applied to all organizations controlled by a community. Community organizations operate at community level and are controlled by their members. Community groups or organizations are collective of some members of the community that come together to achieve a common purpose, e.g. village development committees (collective governance of a community), micro-finance institutions (specialized in savings and lending). Community organizations are public locations where members of community assemble for group activities, social support, public information, and other purposes (Leach, et al. 1997). They may sometimes be open for the whole community or for a specialized group within the greater community. "Community" itself suggests formal or informal institutional arrangement that governs the kinship, marriage, inheritance of a household or family at community level. Institutions might be formal, structured, i.e. village cooperative, SHG, women groups, youth groups and informal, unstructured, i.e. caste, gender, social or socio-cultural institutions.

CBOs generally fall into two broad categories: (a) institutions such as the Village Development Committee (VDC) that have "public" functions at community level and are meant to represent the interests of the entire resident population (Pinkett, and O'Bryant, 2001), and (b) Common Interest Groups (CIGs) that have "private" functions, and represent the personal interests of the members. Examples of the later might be a women group or a farmers' association or a village savings cooperative.

The Community Based Organizations have been playing a significant role in the process of development in India. Many community organizations are engaged in dealing with various problems concerning socio economic development and livelihood enhancement of the village community, i.e. employment, agriculture, poverty, environment, water management, gender and socio-economic issues (Suarez-Balcazar et al, 2014). There are multiple instances when community organizations are using media technology for designing messages for development in order to empower deprived and marginalized communities.

In the first Five Year Plan, (1951-56) Community Development Program (CDP) started in 1952 ("Community Development", 2014) .The block came to be established as units of development administration. CDP stressed on the development of community so that it could decide upon its felt needs, mobilize local resources and take interest in the completion of works successfully. Later it is followed by National Extension Service (NES) to build up the administrative system to tackle the programs of growth and development at the local level. In 1956, a regular Ministry of Community Development and Co-operation was established. In 1957, the planning Commission appointed a committee on Plan Projects and National Extension Service, which popularly known as Balwant Rai Mehta Committee to investigate the reasons for not getting the desired success in CDP and NES and to suggest ways and means for making the scheme a successful one ("Community Development", 2014).

Local Self Governance

Local self-government means, 'administration of a locality, a village, a town, a city or any other area smaller than the state, by a body representing the local inhabitants, possessing a fairy large amount of autonomy, raising at least a part of its revenue through local taxation and spending its income on services' (Maheswari, 2006). Local government is that part of the state government dealing mainly with local affairs, administered by authorities, subordinate to the state government. The local authorities may be elected independently of the state authority by qualified residents. It emerges with the transfer of authority to the locally elected body with a statutory right to make, unmake and remake local decisions for which they are politically accountable to the local electorate (Kavante, 2000). Local Self Governance, in general, is conceptualized as a territorial, non-sovereign community possessing the legal right and the necessary organization to regulate its own affairs.

Literature on ancient Indian Polity (Altekar, 1977) testifies the existence of village administration. Village council appears as regular bodies during Maurya and in the Gupta period in India as per the memoirs of the archeological survey of India (1904-1905). Originally villages were completely self-governing and free from central control. With the increase in the business of the community tightened the central control and this state of affairs inveighed against the importance of villagers. The Central Government

derived its power from the villages i.e., community and not vice-versa. Though the villages lost their original importance in the later period, villages were never subjected to the strict authority of the king in ancient India. Panchayat system during Mughal periods continued to be self-governing as in the past.

Hugh Gray (1969), on panchayat provided importance to arrangement but less of a purpose. According to him, panchayat is a technique of seeking agreement through consultation, hallowed according to tradition by divine sanction, "Pancha Parmeshara". ..… "when God speaks through the fame and official publications speak of 'village republics' as established historical facts but do not list any source for this well established myth."

A. S. Altekar (1977), on the other hand, put panchayat in a positive light signifying the importance since historical times. Since the earliest times, the village has been the pivot of administration in India. The importance of Panchayati Raj Institutions was naturally great in an age when communications were slow and industrialization was unknown. The vedic polity treated the village as an institution next to family in importance.

Panchayati Raj or Local Self Government has the power to make its decision within its jurisdiction, through participation of the community (Maheshwari,2006) . It has the freedom to act independently of national or regional authority and to raise finance by contribution or taxation. Local Self Governance is an organized social entity with the feeling of oneness. In political terms, it is concerned with governance of rural area, constituting a political subdivision of a nation or state. In the performance of its function, it acts as the agent of the state. The economic dimension of panchayati raj has a bearing on its economy to deliver not only civil services but also to participate in the economic development of the nation (Maheshwari, 2006).

Balwant Rai Mehta Committee suggested three tier system of democratic decentralization at village, block and district level (5 year Plan, Planning Commission). PRIs are considered as a platform to achieve twin objective of economic development and self-government at rural level to help the national economy and administration. There is an arrangement of genuine transfer of power and responsibilities to these bodies. Adequate financial resources are made to be transferred to these bodies to enable them to

discharge their responsibilities. All welfare and development schemes and programs at three levels are made to be channeled through these bodies only.

The 73rd Constitutional Amendment Act passed in 1992 that strengthening the PRIs in the country (Kavante, 2000). Article 243 D of the Indian Constitution provides reservation of seats for SCs and STs in every village panchayat, not less than one third of the total seats are reserved for women belonging to SCs and STs. The primary function of Gram Sabha is to promote harmony among all sections of the people in a village, finalizing the beneficiaries under anti-poverty programs including land reforms etc. According to article 243-K, the responsibility to hold elections to the panchayats including control of preparation of electoral rolls vests with the state election commission headed by a state election commissioner appointed by the Governor (Kavante, 2000). Finance commission was appointed by Governor to distribute the state's resources between the state and local bodies and recommend grant- in-aid for the purpose of providing services. State legislature provides grants in aid to the panchayats from the consolidated fund of the state. State legislature authorizes the panchayat to levy, collect and appropriate taxes, duties, tolls and fees in accordance with procedure and subject to limits.

It is on to local self-governing bodies to design innovative plans for people's involvement in village development. The Gram Sabha aims to inculcate the responsibility among the people for all development activities in a village and to ensure concrete benefits to rural people from various plans and programs etc. The support of local self-governance is prerequisite for the effective functioning of community groups and organizations.

1.10 Indian Government Approach to Telecommunication for Development

Telecommunication was not perceived as prioritized sector for investment by the Government during the immediate post-independence formative years of the Indian economy. Telecommunication was not considered as one of the key infrastructures for rapid economic development as a result of which the quality, quantity and range of services provided by the Government was poor, inadequate and unequal for the users (Singhal and Rogers, 2000). The structural shift in Indian economy from the production of merchandise such as agriculture, manufacture to service recognized the role of

information for rapid economic and social development of the country. It also recognized the importance of world class telecommunication infrastructure which has already witnessed rapid changes in the last five years in India. This leads to far reaching developments in Information Technology (IT), consumer electronics and media industries across the globe.

Liberalization created an expectation that the participation of private sector in the Indian telecom industry can provide a fillip to technology up-gradation and help to bridge the gap in adoption of new technology. 'Valetta Action Plan' (VAP)[8],a four-year strategic plan was adopted in 1998 by World Telecommunication Development Conference (WTDC) and it involves International Telecommunication Union (ITU) to accomplish the goals (Pigato, 2001). The path towards technology-induced development in India with a particular focus on Information and Communication Technology was introduced in 1984 by the Congress Government under Rajiv Gandhi. After liberalization most of the telecommunication policies were framed in macro level focused on sectorial development of telecommunication in the form of licenses instead of any social induced development by employing telecommunication in various developmental programme.

The Tenth Five-year Plan (Government of India, 2001) identifies telecommunications as a critical part of infrastructure in an emerging knowledge-based economy. The plan strategized the development parameters, directed towards increases in GDP or per capita income and overall human development. To maintain the comparative advantage of telecommunication over other information and communication technology in India, the telecommunication policy of the Government has to prioritize the convergence of data, voice and image transmission, the use of bandwidth and high-speed internet connectivity. Government of India has been increasingly stressed on the use of Information and communication technology to produce wealth for the nation and to enable development. Further, much importance has been given to harness the opportunities provided by convergence of communication technologies and to facilitate the use of mobile phone and internet to optimize the services of Electronic Governance.

Historical development of Universal Access and Mobile phone

There are sufficient evidences of rising income inequalities that suggest that utilization of ICT imply large amount of cost when people have to pay for information that is to be

available for free in most countries around the world. The simple but awkward question is if ICT benefits can be equitably distributed in a world where 500 million of India's total population live below poverty line, where 75 percent healthcare resources are concentrated in urban India, where more than 287 million adults are illiterate (Oxfam India) and where there is no access to schools for 263 million children worldwide ('UNESCO Report' Thomson Reuters Foundation, July 15, 2016).

Universal access has been a multilayered, contextual and socio-technical phenomenon. Universal Access (UA) refers to reasonable means of access to a publicly available telephone and emergency services in their communities (ITU report, 1997; European Commission Report, 1997b, Burgelman, 2000). The universal access is possible when more than 95 percent of the total population is economically reachable with mobile phone network and the access which can make the vast majority of countries mobile (Eide ed., 1993; Simmons, 2000).

The effort of Napoleon III during the Conventions of ITU, 1865 to promote the international standardization of telegraphy resulted establishment of the international telegraphy union (Holmes et al,1996). This convention led to the conclusion of first international pact on telecommunication and shaped the fundamental factors that determined the basic standard of international relations between countries. Twenty European countries signed multilateral accord to decide on the universal access to telecommunication services to every-one. In 1961, a resolution passed by developed countries on space communications set a milestone to make telecommunication services available in respective state (Holmes et al,1996). For the inventor Alexandere Graham Bell, the significance of universal access implies "a situation when the poorest man cannot afford to be without his telephone" (Hills, 1989). Universal access has been synonymously considered as affordable access to basic voice telephony or its equivalent for all those equitably need irrespective of geographical location of their domicile (Hills, 1989).

Central to telecommunication progression and expansion programs and policies is the increasing equitable access to advance telecommunication networks and information services. Hence, debate around universal access no longer limited to exclusive focus on access to telephony or plain old telephone service (POTS). The perception of universal access has been expanded and became fairly complex in recent years as it has given more

focus to inclusion of internet and multimedia services converging with telecommunication. The differences in the scope of access between developed and developing countries is typically determined the broadening of scope of access. Developed Countries emphasize more on telephone in every household while developing countries have given attention to telephone within reasonable distance primarily driven by the syndrome of global ICT inequity and the prevailing disparities available in developed and developing countries in terms of access to ICT and telecommunication (Flichy, 1995; European Commission, 1997). However, policy articulation of the meaning and execution of ICT necessarily contextualize the capacity and condition of developing countries. This represents a shift in policy emphasis of developing countries towards community service instead of individual service based on communitarian ideal. Past studies on universal access are found to use household as a unit of analysis in terms of individual access (Campbell, 1995; Dutton ed., 1996). Later studies have broaden this definition of Universal access and encompass access to services that telecom can deliver to individual residents through community or institutional access (see Narayan, 2007). As per telecommunication expert H. E. Hudson, (1997), universal access not only applies to individuals but also to institutions.

'Universal Access' is designed and backed by Government with a pursuit to offer basic telephone services to every household. Role of government can be taken as intervening or supreme in order to make tele-density score high in target (urban or rural) areas, where people are socially and economically disadvantaged being excluded from private access.

Growth of Mobile Service Portfolios

At present, the mobile service portfolio comprises rich voice service, messaging, internet services and personalized content. Steinbock classified mobile service portfolios into generic, expected, augmented and potential services (Steinbock, 2007). In 1980s, mobile telephony was only occupied with voice services and short messaging services (SMS) dominated the scene in 1990s. The generic service portfolio includes voice, mobile internet, and a set of content services which render the basic 'look and feel' of wireless mobile phone services. Expected services involve customer's minimal expectations usually differ in ranges from region to region.

Originally designed as a part of the GSM (Global System for Mobile Communications) digital mode standards, SMS or text messages are now available on a wide range of networks, including the nascent multimedia networks. New SMS services offer automated 'alerts' sent on a regular basis giving news, weather information, financial information, sporting event scores and other information. Some vending machines allow payment by sending an SMS and the cost of the item bought is added to the user's phone bill. Few services add to the existing service line and an improvement to existing service is influenced by the cost driven modifications to services. For instance, model of i-mode2 has received acceptance from the users because of its affordability, easy to use features which added value to life style, and contributed to productivity. I-mode2 provides a whole new range of capabilities to mobile phone users and keeps them connected to the internet with easy web access through mobile phone. Through the persistent net link, users can subscribe panoply of Web-based goodies such as e-mail and chat, calendars, games, online horoscopes and customized news bulletins.

Universal Mobile Telecommunications System (UMTS) technology, a 3G standard has unified the disparate standards of today's wireless networks and enabled multimedia services (UMTS world, 2015). The UMTS technology delivers robust telecommunication network infrastructures to telecom carriers enabling them to provide diverse services to consumers. After the augmentation of LTE [9] (Long Term Evolution) technology for mobile broadband system, most of the telecom carriers' have moved towards LTE technology in order to increase the capacity and speed of mobile telephone networks to enhance and improve multimedia services (Steinbock, 2005). Conventional mobile services were offered only from telecom carriers' portal; however, with the arrival of first official App-Stores [10] in 2007, mobile users have started obtaining mobile service applications via the app-store. Device manufacturers, like Nokia, Apple (iPhone) [11], HTC, BlackBerry [12] have entered to mobile service market and started offering high-end application on the user handset.

Indian players have tie-ups with most Telco's which has provided them a strong presence in the local market. Global players also work through tie-ups with Indian content players. The share of feature phones shipments at Indian market is 88 percent whereas traffic and revenues come from smart phone users' stand at 50 percent (Avendus Report, 2013). Apple has registered significant impact on the paid apps market in India with increasing

number of Apple devices and higher percentage of paid apps downloads. In June 2013, 1.42 million and 0.38 million paid apps downloaded respectively by iphone 6 and ipads users (Apple Inc. report, 2013). Other internet service providers such as Facebook, Google and Skype have entered mobile market by providing innovative service solutions to users, however, unable to ensure the highest Quality of Service (QoS), customer privacy and security. Instant Messaging (IM) allows users to send short and simple messages that are delivered immediately to online users. Empowering people rather than places, instant message receives quick acceptance among the SMS users. The essential point is not the technology used, but the connectivity that allows the IM user over different access based on GPRS, 3G, and so on.

The popularity of free Instant Messaging apps such as WhatsApp [13], WeChat [14], LINE [15], BlackBerry Messenger (BBM), Viber [16] etc. for smartphones is on the high for last one year. Ease of access, superfast service, and the rising need of social networking among the youth are some of the factors leading to the skyrocketing popularity of these apps, and steady downfall of the once revolutionary SMS. WhatsApp by competing with other Asian based messaging services such as Kakao Talk [17] , LINE manages an upward increase of ten billion messages per day as of August 2012 from two billion in April 2012 (IAMAI Annual report 2012-13). By August 6, 2013, WhatsApp has shared 325 million photos over 300 million active users each day. WeChat registered around 300 million users by January 2013. By January 18, 2013, Line application had been downloaded 100 million times worldwide. LINE mobile application is made available in BlackBerry, Nokia Asha and Windows Phone during 2012- 2013. The number expanded to 140 million by early July 2013 and to 200 million by July 21, 2013 (IAMAI Annual report 2012-13). Diverse communication via chat groups or dedicated discussion site over internet was limited only among BlackBerry device users until 2013. The release of BlackBerry Messenger 5.0 allows users not only to simply use email and numeric PIN identification, but also to use a QR [18] Code to add each other to their respective friends' lists. BlackBerry Messenger 7.0 which was released in December 2012 introduced additional traits such as voice chat and 'BBM Voice Call' (Blackberry messenger, 2014). Kaiser Family Foundation's (2005) survey of youth media use during 2003–2004, reveals that Instant Messaging had become the second most popular computer activity after computer games, averaging 27 minutes per day among 15 to 18-years old.

Transactional Service Portfolio

The lack of access to banking and payment services affects consumer's purchasing behaviors. The limited penetration of financial industry in provisioning technology, lack of standard technology on mobile banking, security of financial transaction at the data encryption level suggest that it is imperative to leverage mobile telecom's existing distribution channel and networks' ability to scale and transcend boundaries (Siau et al, 2001). Rapidly growing mobile tele-density, increasing familiarity and receptivity towards prepaid payment instruments suggest that the mobile phone based payment can possibly transform the banking scenario in India by serving India's underserved rural population. Large number of under-banked and disadvantaged rural household of low income group can make transaction at an affordable cost in a transparent and fair manner with the support of mobile money (Banzal, 2010). Immediately accessible, cost effective, mobile banking can help rural customers to save travelling time and money to visit the distant branches for money transaction. Many services are already made available through mobile banking by financial institutions in India. These amenities includes automatic updates on bill payments, electronic fund transfer-both domestic and international, account balance, scheduled alerts on transaction activity, loan access, mobile recharging service, card statements, support services such as email, cheque book requests, location based services such as ATM location, content services, personalized alerts on security prices, loyalty services and so on (Corporate Essvale, 2011).In order to achieve financial inclusion, Reserve bank of India has issued guidelines for running mobile telephony based financial services. The guidelines include anti-money laundering; know your customer; combating the financing of terrorism; prohibition of cross border outward and inward transfer (Gupta and Mittal, no date).

Various schemes related to mobile banking have been successful in many countries of the world. Various banking, financial and investment services in India, i.e. SBI (State Bank of India), HSBC (Financial Service Company), ICICI (Investment Service Company), Standard Chartered (Financial Service Company) have provided service alerts on mobile phones via SMS about money deposits and withdrawals, and cheque clearance. Business news channels in India, such as NDTV profit, CNBC have information service applications that offer stock updates and market news to users. Utility and assumed benefits of both UID card (Unique Identity Data Card) and mobile phone are different; still, any attempt to distribute free mobile phone can have

comparatively better edge over free distribution of UID card among the rural masses. Of late, the Unique Identification Authority of India (UIDAI) has integrated with various handset manufacturers (such as Nokia) and operators (such as Bharti) in order to figure out the execution of electronic authentication using mobile phones. Mobile phone technologies by leveraging UID and prepaid could distribute government services and social benefits at a low-cost. Prepaid approach to mobile payment [19] has been an emerging trend in BRIC [20] countries. The registered UID number helps to open an account connected to a reloadable prepaid card and would allow rural recipients to expect services. Electronic payment transactions and credit-based services can accelerate the volume and value of services and goods exchanged across rural India.

RBI grants license to Bharti Airtel to use the Semi Closed Wallet [21] among the private mobile phone service providers. Moreover, players such as ICICI's iMobile [22], NGPay [23] MChek [24] are offering information and payment services via basic applications. Airtel in collaboration with Axis Bank has launched its mobile wallet [25] (Airtel Money) [26] across 403 cities in India and allowed cash withdrawal from the bank account on Airtel Money. Following this development, SBI has launched its own mobile wallet Mobicash Easy [27] in Delhi and Mumbai with a future vision for national roll out (SBI Report, 2014). Other non-bank and non-telecom players include Oxigen [28], Zipcash [29] etc. have too sprung mobile wallet services in India. Development of the mobile POS [30] an innovation driven by US-based Square Inc. has revolutionized the card acceptance market. E-commerce merchants have been active in launching their own mobile wallets. After Flipkart took the initiative to use mobile phone to pay for its digital store, Flyte, BookMyShow, Cleartrip, Infibeam and others have started their respective wallets . Considering recent initiatives, government of India seems to have realized the potentialities of M-Commerce to promote financial inclusion and to foster economic growth for the large section of Indian society (Kumar and Ravindran, 2012).

Mobile Value Added Service (MVAS) for Development

The Indian mobile market is the fastest growing market in the world. It adds 8 to 10 million subscribers every month (ITU Report, 2015). As of 2009, the Indian MVAS (mobile value added service) market closed at Rs. 84 billion, forming around 11 percent of the total telecom revenue. Enterprises in India started using Short Messaging Service

(SMS) as a channel to endorse their products and to reach out to the maximum possible customers. As a result, SMS has dominated the Mobile Value Added Service (MVAS) market and conventional entertaining MVAS such as Bollywood, horoscope, caller ring back tones (CRBT) and cricket records a lion's share of 63 percent in the market (IAMAI, 2013).

Other MVAS such as mEducation, mHealth have anticipated and registered steady growth in the market. Technological innovation in mobile phone helps to create service innovation which has boosted India's m-commerce. Various government departments have already started delivering SMS based public services as a part of their e-Government initiatives. Two states of India, Gujarat and Chhattisgarh have successfully launched and maintained SMS based information on food supplies by the fair price shops under the Public Distribution System (Souter et al, 2005). Mobile communication has been used in health solutions such as patient monitoring, providing updates and alerts, etc. AIIMs, Apollo, Dr. Batras, Maestros Mediline Systems are some of the private players in the health sector in India have used MVAS. A number of experimental studies have shown effective execution of health services via SMS, telephonic calls, and other mobile content such as MVAS (Idowu et al,2003; Courtney and Shabestari, 2013).

For the spread of service innovation in the health sector, both Government and commercial initiatives are required. Mobile phones can be used as an effective channel for the delivery of basic education related services primarily value added services across the country. Innovation related to Mobile Education would aid to address the shortage of teachers in rural and remote areas by providing a platform to users to access educational content. The mobile phone based learning model promotes audio only and audio-video learning for the adults, kids and facilitate learning from wherever they are without any slog (Parsons,2012). An inspiring project, Millee uses mobile gaming technology to enhance access to literacy among deprived children of school-going age in the developing world (Kasumuni, 2011). Mobile education or MVAS on education has been adopted in different countries across the world such as Tanzania, Bangladesh, West Africa, South Africa, Kenya and China in order to support and enable the school curriculum (Mpogole et al, 2008; Sey, 2006; Kasumuni, 2011; Graham, 2012). Use of mobile phone to access information such as examination alerts, results etc. has been in vogue already. M Gurujee [31] and English Seekho [32] from Tata DoCoMo are some

initiative towards mobile education in India in order to deliver content of civil services, medicine, engineering, management on mobile phone through an interactive voice response (IVR) application. Other simple mobile applications such as SMS (short messaging service), USSD, WAP [2] etc. could also be used to assist the dissemination of both formal and non-formal education. SNDT Women University formed a strategic alliance with Indian PCO Teleservices, Tata Teleservices and Atom Tech in order to deliver mobile education to village communities in India and to those who are physically challenged (Balasubramanian et al, 2010).

Women and Pre pay Model

There are a number of areas where pre-pay mobile services has remained been a solution to all the checks and limits faced by low income households. Women segment of population specially have experienced independence in buying pre-pay mobile services with the virtual removal of all bureaucratic formalities. The simplicity of the pre-pay model lies in removal of non-monetary entry barriers to access service, low price SIM card which further helps to regulate budget for low income users. Methods of free "call-me SMS" messages and "beeping" to signal the called party enable through reverse-charge for calling is not only a cost relief for low income households but also a means to continuing interaction and socialization in between peers and poor. Enabling airtime credit transfer strategies [33] to share credit with friends and family members have allowed low income people to receive credit from peers. Many developing countries have adopted pay models to enable easy and universal access to mobile phone services.

Mobile Phone and Negotiation of Space

Some literature examines the transformation of public space by communication technology by passing along individualized, portable information. Kopomaa (2000) in his study noted that cell phones are blurring the boundary between work and private life as well as the boundary between public and private space. Wise (1997) argues in his study how the use of the mobile phone in certain public spaces makes the relation of private and public slightly different. Wise (1997) further states that the blurring distinction does not occur only between private and public spaces, but also between remote and distant places and between work and leisure. Ling et al., (2005) also notes that mobile phone favors the progressive encroachment of intimacy in the public sphere

and of extraneousness in the private sphere. Interaction through mobile phone is simultaneously private and public, impersonal yet personal (Roos, 1993). Highly personalized and emotive nature of a mobile phone represents the personality and individuality of its user.

Ling and Pedersen (2005) in their study consider that dealing with private and intimate matters in a public milieu is a sign of an uncivilized society. The mobile phone privatizes public space and at times, intrudes the private space in public. The use of mobile phone produces a mix of diverse sounds, cacophony and noises and provides new meaning to urban space. The interruption to private thoughts is perceived to be immoral which is associated with the use and enjoyment of mobile phone in urban space. The attribute of promoting a sense of proximity and closeness beyond physical presence reinforces native relations among the users although it does not cancel out distances (Goffman,1959). Mobile phone does not displace local interest; rather it directs greater attention to the outside world. Some authors argue that the disclosure of personal information in public settings is a result of the obliviousness of people around when one uses a mobile phone. Gergen describes a phenomenon called absent presence (Gergen, 2002) although in the face-to-face context which is examined by Parsons in his study (Parsons, 2012). Use of mobile phone in social setting can function as a guard against others by the owners "behind" the mobile phone which will let him or her to withdraw from the conversations and to become inaccessible. At the same time, phone users will not only be disconnected from their immediate surroundings but also invite others unconsciously to his or her private sphere. Geser refers to mobile technologies as “empowering technologies” (Geser, 2004) owing to the associated individualism with mobile phone to abate the power of controlling institutions. Geser compares the mobile phone with other media technologies that have opened the possibility for individuals to free themselves from social forces and physical locations.

Everyday space and the daily practices and routine of women are some key issues in feminist research as a means to demonstrate the constraints and confinement of women especially within the house and locale (Horden and Smith, 1998). Central to an understanding of such unequal practices of everyday life is the public-private divide. Contemporary debate on the public sphere is drawn mainly from the seminal works of Jürgen Habermas (1989). Habermas, argues “the realm of necessity and transiency

remained immersed in the obscurity of the inconspicuous private sphere dwell in needs, necessity in contrast to public sphere which is a realm of freedom and permanence."(Habermas, 1989). Habermas (1989) asserted, "In the early industrial capitalist world, family and the market economy are two main constituents of private sphere, whereas public sphere comprises of state and civil society, a realm of debate and political participation among citizens. The hierarchal development of a public-private split in the classical societies, the public domain represented the citizen's power to actively participate and debate in the political life. By contrast, the private domain represents lack of such power." (Habermas,1989).

However, the perception about 'home' as a space of care and reproduction is equated with private space and often a quiet space for women to perform unpaid labour has not been altered (McDowell, 2006; Beasley, 1999; Okin, 1989). The relationship of women with private space includes those spaces in the households, which defines their role and performances. Conventionally, some subtle elements of cultural values are accompanying the relationship of women with the household by the expectations of marriage and motherhood, housework and childcare etc. Woman's relationship with public space determines the spaces used by the women in daily exchange of routine work between home and their places of participation, for instance: neighborhood places, markets, city buses etc.

Meyrowitz defines the role of television in conceptualizing 'No Sense of Place' (Meyrowitz, 1986). His study demonstrated how television invades households and private lives, bringing the public into domestic homes. The Walkman, computer and tablet have contributed to producing a personal territory for an individual user and altered the space at home. Ray Oldenburg's Third place embodies similarity with the non-places of Marc Augé. Third places are virtual meeting places where individual spends time to relax (Oldenburg, 2009). Third places such as bars, pubs, cafes, clubs, and shopping centers are featured by therapeutic power and the desire for change, youthful humor, comradeship, flirting and courting, freedom from social bonds and obligations. Kopomaa (2000) describes how does the use of mobile phone give new meanings to dead times and transitional spaces allowing escape from boredom. Mobile phone produces a flexible mobility that can negotiate and renegotiate space and situation with the ability to adapt to impromptu changes (Kopomaa, 2000).

1.11 Structure of the Thesis

Chapter 1 presents the background of the study starting from the how ICT becomes the everyday aspects of life and a tool to economic growth; how mobile phone becomes the most ubiquitous and widely used ICT, about the transformation of telephone to mobile phone and the emergence of latest smartphone, statistics of penetration of mobile internet in India. The chapter addresses the problem of the study; define the statement of purpose and the focus of the study. The chapter describes the concept 'empowerment', presents the unit of study of the thesis, i.e. household, community, community organization, local self-governance and the theoretical frameworks that are used in the study.

Chapter 2 reviews roughly 300 existing literature on diverse usage of mobile phone, various trends, impacts and challenges involves, literature on family, gender studies, liberalism and government reports on telecommunication in India. Existing studies on mobile phone mostly derived from essentially techno-social, techno-cultural, techno-political and techno-economic and techno-psychological dimensions. There are other variant of studies that stem from the above dimensions which rest on hedonism, consumerism etc. However, the end debate lies in technology shaping society or social shaping of technology. Broader framework involves the uses differences between developing and developed countries, technology and social change, technology and empowerment.

Chapter 3 outlines the research design and methodology of the study the research. By employing multi- method approach that includes survey method and case study, the study carried out field survey and picked out cases across the fields of Assam, Tamil Nadu, Uttar Pradesh and Uttarakhand. The study choose 640 households from the rural urban spatial contexts of Sonitpur District of Assam and 65 beneficiary households of select villages of Tamil Nadu, Uttar Pradesh and Uttarakhand state of India.

Chapter 4 discusses different approach to Development including WAD, WID and GAD. Community driven development is possible through the intervention of NGOs via SHGs or Community groups which are premised on the conceptual framework of SEAGA (Socio-Economic and Gender Analysis) and sustainable livelihood.

Chapter 5 analyses the utility and meaningful uses of mobile phone by women and existing internet access point in a village and its contribution to bring effective

participation among women. The study examines the uses of mobile phone for various purposes and adoption of mobile phone related innovation by households, Gender divide in mobile phone uses, barriers to individual efficacy and barriers to effective use of mobile phone in Sonitpur District of Assam, select villages of Tamil Nadu, Uttar Pradesh, Uttarakhand. The Chapter further discusses cases of four NGOs of Tamil Nadu, Uttarakhand and Uttar Pradesh and studies the local contexts where these NGOs are working. The cases highlight the components for an effective programme on empowerment of women examining the NGO accountability to the recipient groups.

Chapter 6 outlines a conceptual framework of a model based on connecting rural women who joins SHGs-NGOs through mobile phone and mobile enabled value added services. The model represents the community building capacity of women in community by leveraging the acceptance benefits of mobile phone technology.

Chapter 7 deliberates on universal access to telecom network and meaningful use of mobile phone by applying the framework of digital divide, conceptualizing through technology acceptance model. Some positive indicators of survey findings regarding the transformative capability of women of rural dwelling households' are discussed. Further, the chapter examines how communication infrastructure theory framework that helps to build the grounds of institutional approach that could facilitate the acceptance of technology by women of rural households.
The Chapter presents the implications of neoliberalism. Neo liberalism has intensified women labour force participation by increasing feminization of labour force which leads to have consequences in marriage and decision to take child. The chapter discusses the participation of women of rural dwelling household in community organizations or informal economy tends to be a survival strategy for them and can possibly result concerted effort to elevate the status of women.

Chapter 8 concludes with future prospect of the study. Drawing on data from rural urban divide, the chapter focuses on how do the roles, identities and practices of housewives and the women of rural dwelling households develop and rework with the use of mobile phones. Some recommendations are put forward for the improvement in the scenario of NGO-SHG backed women empowerment in the wake of mobile phone technology.