

BRIDGING THE LAST MILE: AN EXPLORATION OF ICT POLICY THROUGH
BHARATNET

Deepti Bharthur

A Dissertation

Submitted to the Graduate College of Bowling Green
State University in partial fulfillment of
the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2015

Committee:

Radhika Gajjala, Advisor

Shannon Orr
Graduate Faculty Representative

Oliver Boyd-Barrett

Clayton Rosati

© 2015

Deepti Bharthur

All Rights Reserved

ABSTRACT

Radhika Gajjala, Advisor

India is brimming with new optimism about its economic growth potential and ability to enhance its status. Democratic and demographic dividends play a crucial role in its aspiration. As a key IT player with regard to the services and allied sectors its transformation from telecom as a luxury to appreciable levels of teledensity is a narrative in itself. Its tryst with harnessing communication for development integrates the modernization approaches with all the consequent set of problems and issues. The liberal framework in which telecom reforms were initiated have spread the vision of modern handheld communication devices as harbingers of empowerment, entitlement and entertainment. Connectivity and access in the last mile is no doubt a significant variable and required a major policy articulation and push by the government. It was against this reality shared by many other nations that incremental articulations for broadband access in keeping with the vision of creating an information society were made. Through a historical institutional analysis, this study unravels the pattern leading up to one of the major initiatives by any country in the world, the *BharatNet* project. The rollout processes of *BharatNet* examined by applying academic perspectives that draw from three major strands of studies: the discourse of communication, modernization and development; the relationships in policy formation and implementation through political economy framework with regard to information and communication technologies, networks and knowledge societies and the time and space approach with regard to the dichotomies of urban and rural spaces and factors of exclusion and inclusion. The study posits an argument that discourses within a paradigm necessitate choices of technology and articulations of beneficiaries that may or may not factor them. It also reveals the

many pulls and pressures are commercially dictated and pose inherent contradictions for a state that espouses a consciousness towards welfare within a larger neoliberal framework.

For Amma, *Appa* and *Appu*, the tiny personal universe that keeps me going in this big, infinite world.

ACKNOWLEDGMENTS

This dissertation would not have been possible but for the efforts and assistance of a number of people who have helped me immeasurably, since I have embarked on this process five years ago.

To my advisor, Radhika Gajjala for taking me under her wing and helping me in the process of developing and honing this project into what it is today, for her boundless support, and for placing in me, unshaken confidence and trust, as we went back and forth on things over endless cups of Turkish coffee.

To the members of my committee, my co-chairs, Oliver Boyd-Barrett, Clayton Rosati and external representative, Shannon Orr for their valuable insights, excellent feedback and intellectual stimulation over the last two years from each stage of the doctoral process to the next.

To Srinivas Melkote, who urged me all those years ago in a small office at the University of Hyderabad, to consider doing a PhD and for assuring me that I *could*.

To the graduate community at BGSU, faculty and students, for being a supportive and collaborative networks of colleagues, friends and mentors.

To my family, my parents and my sister for being the best support system that anyone could ever hope for, for being the bedrock of my sense of self, always.

To my extended family in the US - Shalini, Hari, Shray and Saath for sharing their home and hospitality with me, making the last few weeks of this process the easiest in the dissertation process.

To countless others who have shared my journey, before I ever embarked on a Bangalore - Paris- Detroit one-way Air France flight...

I am deeply and eternally grateful.

TABLE OF CONTENTS

	Page
CHAPTER I. INTRODUCTION.....	1
Notes on a Phone Booth	1
Introduction.....	4
Statement of Research.....	6
Description of Case.....	8
Research Framework.....	10
Theoretical Framework.....	12
Methodological Framework.....	13
Policy Analysis.....	14
Thematic Media Content Analysis.....	15
Rationale and Implications.....	16
CHAPTER II. LITERATURE REVIEW.....	18
International Development, Policy and Communication Technology:	
Unpacking the Meta Discourse.....	19
The Modernization Paradigm: The Creation of Development as	
a Third World Problem	19
Dependency School and the Media Imperialism Critique.....	21
Neoliberalism and the Washington Consensus.....	23
Liberalization of the Global Telecommunication Sector.....	25
The Informatization Approach.....	26
The Participatory Paradigm.....	32

Universal Service.....	34
The Development Question Today: A New Digital Divide.....	37
The Indian State, Development and Communication Technology: An Evolution of Status Quo.....	39
“Ultimately, What Counts is the Approach to our Rural Millions.”.....	40
Early Articulations: The Nehru-Sarabhai Approach to Communication Policy... ..	43
“You Got Mobile Phones Because Rajiv Gandhi Heard You.”.....	46
The Last Mile in India: Two Perspectives.....	48
Theoretical Framework.....	51
Theorizing Technology Through Space, Place and Scale	52
The Right to the City	58
Political Economy in Media and Communication Studies	63
Conclusion.....	66
CHAPTER III. METHOD	70
Philosophical Foundations of Study.....	70
Ontology.....	71
Epistemology	72
Researcher’s Subject Position and Background: Bridging the Personal and the Academic	76
Conceptualization of Site.....	79
Description of Case.....	80
BharatNet.....	80

Digital India.....	82
Research Agenda.....	82
Rationale and Implications.....	83
Definition of Terms and Constructs Used in Study.....	85
Discourse, Frame and Narrative: Towards a Critical Framework of Policy Analysis	89
Method.....	93
Policy Analysis.....	94
Thematic Media Analysis.....	95
Data Collection and Sampling.....	96
Establishing the Timeline	96
Post-independence (1947) – 1990.....	97
1990 – 2010.....	97
2011 – 2015.....	97
Sampling.....	98
Policy Documents and Statements.....	98
Media Sample.....	100
Content Analysis	102
Document Analysis.....	102
Thematic Media Analysis.....	103
Organizing Findings and Observations.....	104
Challenges and Limitations.....	104
CHAPTER IV. RESULTS	106

Setting the Scene: Identifying the Actors and Placing their Voice in the Discourse.	107
The Discourse Coalition.....	107
Government of India.....	108
State Governments.....	108
Gram Panchayats.....	108
DeiTy and DoT.....	109
Telecom Commission.....	109
Regulator.....	109
Bharat Broadband Network Limited (BBNL).....	110
Universal Service Obligation Fund (USOF).....	110
Expert Committee.....	110
Trade Lobbies.....	110
Multilateral Agencies.....	111
Private Sector.....	111
Telecommunications Sector in India: Background.....	112
Industry Ownership.....	116
From NOFN to BharatNet for a Digital India: Building the Policy Narrative of India’s Rural Broadband Project.....	118
WSIS Summits and the Tunis Declaration: Towards an Information Society.....	119
Early Efforts.....	122
Broadband to Panchayats.....	125
Plotting the Points of Friction.....	131

Lessons From the Pilot: Questioning Technology Choices, Feasibility and Profitability.....	131
National Security, Protectionism and the Free Market.	134
Delays and Implementation Hurdles: Clashes Over State and Government and Combatting Right of Way.....	138
Change of Power at the Center: The 2014 General Election and the NaMo Effect.....	139
Digital India.....	141
Changing the Storyline: From NOFN to BharatNet.....	144
August 2014.....	146
September 2014.....	147
November 2014.....	149
January 2015.....	149
Where we Leave the Story.....	153
Summary: Revisiting Research Questions.....	156
RQ1: What are the Dominant Narratives and Storylines Emerging From the Policy Discourses and Debates Surrounding BharatNet?.....	156
RQ2: How do the Narratives Contained Within the BharatNet Project and Position Rural Citizenship in India and Construct Notions of Access and Inclusion?	157
RQ3: How do the Narratives Contained Within BharatNet Contribute to the Indian State’s Larger Articulation and	

Posturing of Itself as an Information/ Knowledge Economic Power With Strategic Significance in the International Economy?.....	161
RQ4: What are the Dominant Schisms and Political-Economic Points of Conflict and Struggle Surrounding the BharatNet Project Narratives Emerging From Civil Society, Market and Other Stakeholders?.....	162
RQ5: How Does BharatNet as a Project Bear on the Ideological Production and Perpetuation of International Development Discourses in Terms of its Adherence to the Modernization Paradigm and Neoliberal Interests?	163
CHAPTER V. CASE STUDY	166
Access versus Access: Airtel Zero, Interent.org and Net Neutrality	166
TRAI Consultation on OTT Services.....	167
Airtel Zero.....	172
Internet.Org.....	174
Analysis.....	176
CHAPTER VI. CONCLUSIONS	179
Summary.....	181
The Inevitability of the Public-Private Partnership Model?	183
The Space of the Rural	184
Government to Governance	185
What of Access?	186

Future Directions for Research	188
REFERENCES.....	190
APPENDIX A. LIST OF POLICY DOCUMENTS.USED	211
APPENDIX B. GLOSSARY OF TERMS AND ABBREVIATIONS.....	217

LIST OF FIGURES

Figure		Page
1	An Illustration of the Discourse Coalition on BharatNet.....	113
2	BharatNet: Flow of Scale of Operations Involved.....	165

LIST OF TABLES

Table		Page
1	Tele Density Statistics in India -2015.....	116
2	Internet Subscriber Base and Market Share of top 10 Service Providers - March 2015.....	118
3	Timeline of Telecom Policy Events in India	154
4	Cost summary of BharatNet: Expert Committee Estimate	164

CHAPTER I. INTRODUCTION

This chapter provides an overview of this study. First, it outlines the statement of research and the major questions that forms the basis of inquiry of this dissertation. Next, the chapter provides a brief synopsis of the theoretical and methodological frameworks that inform this study. A rationale for the research and its implications are discussed at the end.

Notes on a Phone Booth

“Once upon a time under the blistering sun in the middle of the Mojave Desert stood a lone phone box, ringing and ringing and ringing...” (BBC, 2006).

In the late 1990s, before the era of smartphones and selfie sticks, a telephone booth in the Mojave Desert in California, eight miles away from the nearest road became the center of unprecedented online attention. After being featured in an obscure underground zine, the phone booth attained cult popularity when Godfrey Daniels, an early adopter of the Internet put it on the map by dedicating a tribute website to it. The now defunct phone booth which was located on the premises of the Mojave National Preserve in California became a phenomenon unlike any other. It soon spurred a wave of tribute and “tour” sites and eventually attracted mainstream media coverage in outlets such as the BBC and the New York Times. Enthusiasts would take trips to the middle of the Mojave Desert to witness the phone booth in all its outdated romantic glory and have conversations with people from various countries who would call in to the number. They would leave mementos and signs for other visitors and cover the bullet holes in the booth with Band-Aids. A man from Texas allegedly camped for 32 days and attended over 500 calls pouring in from all corners of the globe (Los Angeles Times, 1999).

In 2000, the line was deactivated due to pressure from the park authorities and locals who had taken up issue with the disproportionate vehicular and foot traffic the phone booth’s

popularity had incited in the area, not to mention the negative impact it was having on the delicate desert ecosystem. In 2013, the number for the phone booth was revived by a prominent phone break in California. It now dials into a conference where strangers can talk to one another from various parts of the globe as they did with the phone booth (Daily Dot, 2013). A Kickstarter campaign in 2014 was started to raise funds for a book project on the Mojave phone booth phenomenon.

For a globally dispersed community of early techno-enthusiasts and web users living in the 1990s, the Mojave phone booth, which was once referred to as the “loneliest phone booth in the world” assumed an astounding narrative of the Internet, the power of connectivity and the chance to be part of a viral culture that today, would be considered almost common place. Ballard (2006) commenting on the phenomenon of the phone booth states “there was some strangely poetic business about this telephone booth which was still functioning. I can’t remember what the exact point of it was, but it became a kind of talismanic object,” (p. 41).

The origins and utility of this once globally celebrated phone booth, lay in simpler, much less romantic circumstances. The phone booth which had stood at the intersection of two remote dirt roads, was originally set up in 1948. It was established to service the local cinder mining community that lived in the frontier area as part of a chain of “policy stations” that were mandated by the state of California to provide connectivity to residents who lived in remote or isolated parts of the state. It was one of many such far flung phone lines that were established in the 1900s to act as communication nodes for residents who had moved to the many mining settlements across the state.

And yet, despite its blatantly staid origin story, the loneliest phone booth in the world became the object of global fascination because of the sheer absurdity of its very existence. That

there could be this otherwise unremarkable, common place communication device in the middle of a desert where no one really lived became an undeniable source of intrigue for a wave of early Internet adopters. For a large number of these enthusiasts, pay phones were already an obsolete mode of communication on their way out. By incorporating the phone booth into what Appadurai refers to as a technoscape (1990), the global Internet community transformed it into an international pop culture reference. One that would serve as a global cross road where a homemaker from Germany could call in and talk to a teenager from New Mexico.

A phone booth made special simply by virtue of where it was and who it purportedly serviced - the story of the Mojave phone booth provides an interesting insight into how discourses around rural connectivity and technology are shaped and built in popular imagination, while being driven by larger socio-economic and geographical dynamics. Over a decade has passed since the phenomenon, but the Mojave phone booth points to a larger change in the understanding of communication technology.

For the residents of the cinder mining community it serviced, the phone was a device of utility and a way of reaching the outside world. It was functional, unremarkable and simply existed. But for the world beyond the desert, for people who had already become digital migrants and were standing at the verge of an unprecedented explosion in the sphere of communication technologies, frontier line telephony aimed at last mile coverage became a chatroom craze. What in a “mainstream” environment such as New York city would have been but a regular pay phone took on almost a mythical cult status because it was out in a desert where no one seemingly lived, its existence doubtful, its utility questionable at best and above everything else, its stark, obsolete singularity in a technology landscape teeming with an abundance of cutting edge

communication options presenting such an anomaly that it was ostensibly worth spinning a whole dedicated sub-culture around.

The Mojave phone booth has two narratives – that of a basic and yet effective point of connectivity that was born out of a certain policy mandate, and that of a quirky underground gone mainstream cultural phenomenon. The fact that one community's link to the world can end up becoming an entertaining fetish for everyone else is indicative of a larger shift in perception that has taken place with respect to communication technologies and the role they perform in society. The Mojave phone booth highlights the dynamics of policy, space, place, utility and obsolesce, and the manner in which they play into the discourses of technology and lend it differing subjectivities. Transcending these subjectivities is the reality of vast regions in the world where such basic access is still part of the policy discourse.

Introduction

There is a reality that one must acknowledge before delving into this study; that the sum total of global economic and social transactions and services has increasingly moved to a digital plane of operation and execution, and has become intrinsically tied in interconnected networks (Castells, 2000). No, this is not an allusion to the overwhelming and ahistorical construct of globalization, or the ubiquity of social media, or a celebration of the virtual age and its professed ability to suture the world into a seamless connected utopia. It is merely a statement of fact. An important assumption that this study rests on. If communication and information processes have become central to the global economy, the regulation of hard and soft infrastructure that supports said services have emerged as an important policy agenda for governments and multilateral agencies (WSIS, 2003;2005;2006; Thussu, 2006).

Consider the focus of the WSIS Forum 2015 summit in Geneva, *Innovating Together: Enabling ICTs for Sustainable Development*, where various stakeholders from governments, industry, regulators, non-profits and civil society delivered policy statements on issues of telecommunication access, net neutrality, Internet governance, surveillance, censorship, financial inclusion, e-governance, and combating the digital divide. In the context of so called developed nations, initiatives to create and develop policy concerned themselves with matters of content regulation, copyright, censorship, ownership and more currently with the important issue of network neutrality and cyber security. In the developing nations, access still takes top priority (WSIS, 2015).

For some time now, scholars have been grappling with various iterations of the information/knowledge/network society, terms that are used interchangeably in common parlance to refer to the ways in which information and communication technologies have become central to everyday life, culture and the larger political economy (Bell, 1980; Castells, 1997; 2001) both in theory and practice. Based on an understanding that the global political economy primarily runs on infinite variations of ones and zeros, the information society, the term this study proceeds with, and its variants have today become the basis of our understanding of a significant if not the entire scope of human exchange and transactions.

Throughout the various configurations of the information society, what has been common is the extraordinary faith placed in technology, specifically Information and Communication Technologies (ICT) and their ability to be an agent of “desirable change” (WSIS, 2003;2005;2006). ICTs and information technology in general have been infused with almost a panacea-like quality and entrusted with leading the process of social and economic

change in development discourses worldwide. As a result of this, ICTs have assumed an important place in the policy architectures and “progress” narratives of countries (ITU, 2013).

Statement of Research

This research study engages with the ways in which the communicative practices of policymaking, deliberation and implementation construct the question of access to technology within the ICT for development paradigm. Using theoretical frameworks in political economy (Thussu, 2000; 2006; Mosco, 2009), space and scale scholarship from cultural and critical geography (Lefebvre, 1970; 2003; Harvey, 1973; 2008; Smith, 1992; Marston, 2000; Marston, Jones & Woodward, 2005), the discourse around the “Right to the City” (Lefebvre, 1991; Harvey, 2008; Mitchell, 1997), and interdisciplinary critical scholarship on ICTs, and development (Arora, 2010, 2012; Rangaswamy & Sambasivan, 2011; Arora & Rangaswamy, 2013; Rangaswamy & Cutrell, 2013) as the groundwork of inquiry, this study is a critical examination of digital policy architectures or “vision documents” on technology as brought out by states or state like institutions, through an interrogation into a rural broadband infrastructure project in India – *BharatNet*.

This study explores how technology and development policy is often rooted in a paradigm of “informatization,” i.e. the process whereby communication technologies become a focal point for furthering social and economic development, specifically in relation to digital technology diffusion and use (Rogers, 2000; Singhal & Rogers, 2001; Flor, 2008) and seeks to understand how that might in turn, have an impact on how notions of citizenship, democracy, equitable access, inclusion and social justice might acquire social meaning and shape the nature of digital inclusion and bottom line access in ways that are significantly aligned with dominant neoliberal institutional agenda.

Policy and political discourses are an important site of action. They serve as “a domain for the formulation and justification of idealized framings for representing reality, analyzing it and rectifying it.” (Rose & Miller, 1992, as cited in Karipinen & Moe, 2012). A state’s understanding of the concepts of governance and citizenry finds articulation in several different forms of ideation, language, and discourse in artifacts such as campaign platforms, policy documents and consultations, publicity artifacts, laws, acts and bills. Its deliberative and performative extensions are similarly found in parliamentary sessions and proceedings, round tables, events, campaigns, speeches and debates (Hajer, 1993; 2003; 2010). A nation finds its most theoretical conceptualization encapsulated in the constitution and /or its equivalent legislative apparatus.

In addition to this, there are institutional actors that are part of the policy process such as market interests, regulating bodies, civic society and so on. Specifically, national policy agendas that underline development and technology aided development are grounded heavily in transnational policy architectures which have been created and made towards overarching and often unquestioned goals of public good, the socially beneficial nature of organized knowledge and information, and the grand ideal of development as enshrined in instruments such as the UN millennium development goals and the Tunis declaration for an information society (UN, 2000; UNESCO, 2005; WSIS, 2003, 2005). Information and Communication Technologies (ICTs) in a national policy agenda cover several aspects: e-governance, cloud services, information and enumeration architecture and access based initiatives. An ITU report of (2013) found that over 134 countries had some kind of policy framework in place to address expansion and proliferation of Internet connectivity.

This study is structured around a close and critical examination of data and discussion from a range of policy deliberations, and secondary discourses and discussion from media outlets at the national and international levels. Using these resources, it attempts to patch together a discourse of state led ICT technology through the case of *BharatNet*, a rural broadband infrastructure project launched by the Indian state in an effort to bridge the last mile of connectivity in the country. In the process, it examines the ways in which particular subjectivities of space, place, citizenship, progress and development are shaped and perpetuated within policy discourses. In the opinion of this researcher, the case of *BharatNet* encapsulates the issues discussed in the earlier paras in tangible observable ways.

Description of Case

BharatNet or the National Optical Fibre Network (NOFN) as it was initially named is a national level broadband project in India that is aimed at providing broadband access to 2,50,000 *Gram Panchayats* in the country by establishing optical fiber networks. A *Gram Panchayat* is a local self-governing body at the village level. It forms the most basic building block of India's democratic government. Currently, optical fiber cable connectivity is available in state capitals, district headquarters and at the block level in India which oversee *Gram Panchayats*. By bridging the communication gap between the block and the *Panchayat*, the Government of India seeks to cover the last mile in terms of broadband connectivity. *BharatNet* once laid, is expected to provide access to Internet service providers, telecom operators, cable service providers and content providers on a non-discriminatory basis. Further, *BharatNet* seeks to facilitate access to various e-services and e-governance mechanisms in sectors such as health, education, commerce and agriculture.

This project, budgeted at INR 72,000 crores (approximately USD 1.0 Billion), is funded by the Universal Service Obligation Fund (USOF) of the government, which is used to fund connectivity projects in rural and remote areas where there are market gaps in service. While the *Panchayats* are local self-government bodies and fall under the purview of their respective state level governments, the *BharatNet* is a central government initiative that is being undertaken by central government agencies and public sector undertakings

A Special Purpose Vehicle (SPV) called the Bharat Broadband Network Limited (BBNL) was created in 2011 to oversee the execution and implementation of NOFN. In addition to BBNL, several agencies, ministries and bureaucratic organizations have an administrative and political stake in the project. Significant among these are the Universal Service Obligation Fund (USOF), the Rail Grid, the Power Grid and the Department of Telecommunications (DoT) which is the primary nodal agency of the Ministry of Communication and Information Technology that oversees the project.

In 2014, following the general election in India and a change in the central government, NOFN was restructured and rebranded as *BharatNet* and brought under the ambit of the ambitious Digital India project which is an umbrella public-private partnership initiative of the National Democratic Alliance (NDA) government under Prime Minister Narendra Modi. The initiative emphasizes among its many objectives creating broadband highways, ensuring universal access to mobile connectivity and creating a public Internet access program (DeitY, 2015).

The policy impetus for *BharatNet* under the National Broadband Project comes from India's National Telecom Policy (2012) which includes in its objectives the target of ensuring "affordable and reliable broadband on demand by the year 2015 and achieving targets of 175

million and 600 million at speeds between 2 to 100 mbps by 2017 and 2020 respectively.” In addition to this, the policy aims to bridge e-governance and welfare services with broadband rollout and hard-wired infrastructure. Most importantly, the NTP (2012) recognizes telecommunications and broadband connectivity as a necessity on par with amenities such as education and health, and is working towards the “Right to Broadband” as part of its larger mission.

BharatNet operates conceptually on a national scale, but its ground execution and implementation take place at the local level. In 2013, pilot projects for *BharatNet* were implemented in three states, in three different regions – Arain, in Ajmer district of Rajasthan in the North West, Parvada in Vishakhapatnam in the South and Panisagar in North Tripura district in the North East. In January 2015, the hilly forested district of Idukki in the state of Kerala became the first NOFN operationalized district under the project. Further, as of September 2015, a proposal was put forth in front of the Indian Parliament’s cabinet of ministers to expand the reach of the project and use the infrastructure project to connect urban households (by state government) with broadband speed of up to 20 megabit per seconds, and to give more freedom to state governments to come up with expansion/infrastructure projects as per the needs of their regions.

Research Framework

Through a triangulation of critical scholarship in the ICTs for development paradigm, writings on space and scale, and the application of political economy analysis to telecommunications structure in India, this research project asks/engages and lays the groundwork for possible answers to the following broad questions -

1. How does the mandate for democracy, development and access weave into policy discourses of information and communication technologies?
2. How do development policy discourses around communication technologies emerge and what interest groups and interests play a part in ideation, implementation and execution?
3. How do development policy discourses around communication technologies construct a subjectivity of access in relation to socio-economic or geographically disadvantaged groups such as the rural poor?

In an effort to examine these broad issues, the research project examines the case of *BharatNet* by applying the following set of research questions -

RQ1: What are the dominant narratives and storylines emerging from the policy discourses and debates surrounding *BharatNet*?

RQ2: How do the narratives contained within the *BharatNet* project and position rural citizenship in India and construct notions of access and inclusion?

RQ3: How do the narratives contained within *BharatNet* contribute to the Indian state's larger articulation and posturing as an information/ knowledge economic power with strategic significance in the international economy?

RQ4: What are the dominant schisms and political-economic points of conflict and struggle surrounding the *BharatNet* project narratives emerging from civil society, market and other stakeholders?

RQ5: How does *BharatNet* as a project bear on the ideological production and perpetuation of international development discourses in terms of its adherence to the modernization paradigm and neoliberal interests?

Theoretical Framework

This study uses a synthesis of different bodies of interdisciplinary scholarship to create a theoretical framework that grounds its critical axis of inquiry, drives the framing of the research questions and guides the analysis of the data. These include political economy approaches to media and communication, critical geography scholarship on space, scale and place, critical scholarship on global ICTs and development and discursive approaches to policy analysis.

Political economy analysis is ideally suited for the purposes of this study because it comes from a long tradition of research of looking at the impact of systems and structures of governance and market on the lives of citizens. This trend, which in communication and media scholarship started in the 1980s, has been used to study electronic media and broadcast structures and telecom monopolies (Schiller 1981; 1992). It has also been used to build empirical critiques of macro-level media systems and processes, of national and transnational policy formulations and regulation and business practices, creation of global communication infrastructure through satellite systems (Thussu, 2000; Pelman, 2010), privatization and the marketization of public owned media vehicles such as telecom companies (Murdock, 2006; Melody, 2011) the study of regulatory practices and frameworks in relation to issues such as ownership, production, copyright (Rice, 2008) and more recently ISPs and new media (Mansel *etal*, 2002).

The literature on space and scale (Lefebvre, 1970; 2003; Harvey, 1973; 2008; Smith, 1992; Marston, 2000; Marston, Jones & Woodward, 2005), and the discourse around the “Right to the City” (Lefebvre, 1991; Mitchell, 1997 Harvey, 2008) inform this study by providing a conceptual framework within which to situate the central question of access to technological resources as produced by policy, which often function through reification of the urban - rural divide. The ways in which theoretical constructs of space and scale help in understanding how

populations and citizenries are created and valued within the larger paradigm of the urban- rural dichotomy are particularly useful to framing the research agenda of this project. In addition to this literature allows the study to access previously unexamined points of interaction and convergence between the Right to the City as an access driven movement, and the state's push for technologization and ICT based development driven by the popular imaginations of the egalitarian notion of "information society" as outlined by the World Summit on the Information Society (WSIS).

The critical body of scholarship on ICTs that has challenged the modernization paradigm of development and its utilitarian, welfare oriented approach are particularly useful here to not only provide a theoretical counter argument to the dominant technocratic discourse of ICTs in global governance, but also to allow the study to access the grey spaces of communication and information technology that function parallel to institutional state-market operations.

Methodological Framework

This study focuses on state dictated development discourses on communication and information technology vis-a- vi access and attempts to interrogate the intersecting and overlapping spatial, global and local dynamics of such a discourse. As such, it is important to conceptualize policy struggles and production along multiple loci as to be more inclusive and cognizant of the various factors influencing the policy process. Drawing from Marcus' (1998) idea of the "multi-sited research imaginary," the study proposes a fluid understanding of site that is conducive to the analysis of local-global relations and is cognizant of the ways in which localities are connected to the outside world.

Braman (2003) tracing the history of communication research on policy issues tracks three significant shifts in the "locus of structural activities" which include the government,

international multilateral agencies and the political cultural location in question. Thus the research site for this project emerges from multiple locations including- the Indian telecommunications policy framework arising from the Government of India and its bureaucratic apparatus, the discussion and deliberations mediated among stakeholders by international regulatory agencies such as ITU, WTO, WSIS, UN, the voices of industry, lobbyists and their demands for incentives and concessions that factor into the policy making process, and finally that of civil society as enacted and conducted through the public sphere of the media. (Habermas, 1994; Jeffrey, 1994; Ninan, 2007). Patched together, these loci of activity, mediations and deliberations can be examined as a discourse around information and communication technology and technology related governance.

Policy Analysis

The primary research method that the study uses is the critical analysis of relevant policy documents and instruments on the *BharatNet* project. Policy documents are an essential component of bureaucracy and are indispensable for any legitimate action that can be undertaken by the state. They can be understood as sites of “claims to power, legitimacy, and reality” and are useful for their informational richness (Lindlof & Taylor, 2011). The study of documents as symbolic texts of analysis (Altheide, 1996) allows us to understand the process of decision-making, the scope of state power and the context within which action can be taken. It also provides us with benchmarks for assessment of said action.

Within the social sciences research tradition, there are various understandings on what constitutes a document (Scott, 1990; Altheide, 1996; Syvertsen, 2004). According to (Karipinen & Moe, 1992), policy documents act as means of politically legitimizing theoretical knowledge and ideology and provide “the intellectual machinery that serves to transform abstract

ideas into the realm of political calculation and action,” (p. 192). While traditionally, policy documents have been used in research as “source of fact,” this study approaches them as texts or social artefacts in themselves with significant political and social consequences (Fischer, 2003).

This approach acknowledges the themes and discourse that emerge from documents and instruments when a state or state like institution frames a specific policy issue that have political implications beyond that of the surface institutional rhetoric they carry. Documents are understood as frameworks of meaning with real discursive power which when interacting with larger institutions and institutional actors such as governments, regulators and other agents influence social reality. Hajer (2003) points to three dimensions of policy deliberation— an evaluation of pros and cons and an understanding of multiple viewpoints, a negotiation of the underlying implicit control structure, and the cultural politics involved in the process. Pointing to an “institutional void,” Hajer (2003) asserts that policy making and deliberation extends beyond the realm of the state and the mere mandate of rule creation, to take on a more action oriented process that involves a variety of stakeholders and is bolstered by “soft law” and multilateral regulatory frameworks.

Thematic Media Content Analysis

The media acts as an important public sphere, and space of communicative action in India (Habermas, 1989; 1994; Jeffrey, 2000; Ninan, 2007). It can be read as a space where the points of conflict and tensions that surround the *BharatNet* project are revealed in reportage and public debate, when they may not necessarily be clear in policy documents themselves. This study therefore includes a thematic analysis of sampled media content available on the *BharatNet* project in an attempt to access the voices of dissent and support on the project from

state, industry and civil society that may not necessarily be clearly visible in the policy deliberations.

Rationale and Implications

India is a complex illustration of the so-called digital divide. It is a nation which can boast of the second largest Internet user base in the world at over 300 million (ITU, 2015) and yet only have a broadband penetration rate of approximately 20 per cent (TRAI, 2015). Despite the country having witnessed a telecommunication revolution in the past decade and having a media and technology rich landscape as indicated by reports from (TRAI, 2015; FICCI, 2015), there are acute disparities in access to information and communication technologies, specifically when contrasting the urban and rural sectors (TRAI, 2015).

India's historical and constitutional commitment to rural welfare and development is often at a clash with its rise as an international Information Technology (IT) hub and a major growing economic force on the world stage. The common analogy of the worlds that separate Bharat (the vernacular name) and India which refers to its urban sectors, is often used to highlight these deep ruptures of deprivation and abundance. Keeping this in mind, the policy framework of *BharatNet* represents a well-intentioned attempt at trying to connect the last mile on paper. And yet, the execution, implementation and rollout of this project bring to light a very different reality, one that is rife with market-state conflict, government incompetence and a failure to realize the lofty ideals proposed in the policy instruments. This study in unpacking this development oriented initiative, attempts to fill in the gaps between promise and delivery, and language and action in the policy discourse.

The study is aimed at critically examining problems of technological access and information and communication infrastructure in areas that have been historically underserved

and ultimately provide deliverables on how the scope of access may be broadened. It seeks to be actionable in the field and add to the body of academic scholarship in the field of development and technology. Further, the research attempts to bring new insights into engendering rural access to ICTs within a policy agenda that takes a more inclusive view of rural citizenship. By connecting this to the larger question of expanding basic access within universal service, the research pursues questions of policy, access and the role of the state in the dissemination of information and communication technologies and how they impact macro level movements affecting the individual end-user.

CHAPTER II. LITERATURE REVIEW

This chapter involves an in-depth discussion of scholarship and research that provide the historical context and background, theoretical arguments, frameworks and methodological basis for the study. This chapter is divided into three broad sections. In the first section, a broad overview of the relevant historical and political turning points in international development policy approaches are charted, along with a discussion of key development and international communication scholarship that address technology flows- under the modernization paradigm of the post-world war II era, the media imperialism and participatory approaches, the Washington Consensus and the more recent critical user-centric approaches to ICT adoption. The objective of the discussion is to contextualize India's telecommunication journey in the post liberalization world and situate the *BharatNet* program policy architecture within that trajectory.

The second section delves into a discussion of the efforts of the Indian state at delivering communication technology to its citizenship and the major socio-economic, cultural and political impetus that have informed these initiatives over the years. Key approaches in the state's relationship with technology are detailed here with the objective to create a comprehensive background within which to examine the *BharatNet* program.

The third section focusses on a discussion of theoretical frameworks that drive the critical impetus of this study. These include space and scale scholarship in critical geography, a discussion on the right to the city, and an overview of political economy in media and communications.

The conclusion discusses the points of intersection between the three sections and the ways in which they are relevant to the scope of the study and establish the critical framework of inquiry that emerges from a triangulation of these areas of focus.

International Development, Policy and Communication Technology: Unpacking the Meta Discourse

Policy work frames development as a strategy that is aimed at bettering the lives of people, particularly in nations that became independent in a post-war era. It often involves embedding an unquestioned belief in forward looking, future oriented “progress” and an embrace of modernism as a universal goal to be advanced through an application of technocratic state dictated action (Scott, 1998). This is first achieved through the creation of a policy discourse around the problem of underdevelopment and backwardness (Escobar, 1992; 1995; Hawkesworth, 2012). It is then followed by the apparatus of rational planning, technocratic expertise, deliberation and mediation through technologies of governance that focus on means-to-end oriented measures surrounding improvement of indices such as Gross Domestic Product (GDP), per capita income and so on. This partnership between technocracy and state turns the national economy into an object of inquiry upon which a set of prescribed actions may be performed, thus stripping development of the crucial political or historical context. The focus of this section is in unpacking this central thread that runs stubbornly through the development discourse as led by communication and information technologies till this day.

The Modernization Paradigm: The Creation of Development as a Third World Problem

Development as a priority in the international political agenda acquired a consolidated focus following World War II and the wave of decolonization that accompanied it in Asia and Africa. The end of the war coincided, and in many cases contributed to, the emergence of several newly independent countries, beget with massive economic and social challenges and issues. These nations soon found themselves as targets of assistance in the form of financial aid and technological expertise for development offered by leaders of the Western world. These

overtures were made within the specific context of cold war bi-polarity and cannot be understood to be ideology free. Most post-war economic theorizing on the third world was in effect premised on the assumption that the underdevelopment of newly independent nations was in large part due to their own “slowness” and inability to adapt to the modernized world (Melkote & Steeves, 2001). Further, they were rooted in the assumption that a linear technological transfer of innovations from the West to the East, combined with an effective one-way communication plan that utilized mass media and print channels would radically transform these societies (Lerner, 1958; Schramm, 1947; Rostow, 1960; Rogers, 1962).

These initiatives and projects have been commonly referred to as the modernization paradigm. The set of communication theories (Lerner, 1958; Schramm, 1947; Rogers, 1962) that emerged from this paradigm believed that societies in third world nations were held back by their adherence to tradition and needed to discard their older ways of living and doing. They concerned themselves with transforming the values and attitudes of individuals in order for them to achieve a better quality of life, which in their view point were exemplified by modern industrial societies of Western Europe and North America. Scholars such as Lerner (1958; 1961), Rostow (1960) and Rogers (1962) were at the forefront of this movement.

In addition to dictating the course of development throughout the world for most of the last century, the modernization paradigm also led to the creation of a discourse that viewed the third world solely in terms of its success or failure to fit into its prescribed model of achievement. It entirely sidelined indigenous knowledge systems and narratives that could have posited an alternative social reality or a different path to development. There was an overwhelming tendency to assume that everybody unequivocally agreed on the desirability of modernity. Modernity was a state of mind to aspire to and the goal of development

communication was to use mass media effectively to aid this transformation at the individual and societal level (Melkote & Steeves, 2001). However, practitioners and scholars working in the field faced many difficulties in realizing this particular goal. These projects of modernization and technology transfer were largely operationalized in nations where there was a stark social and cultural disconnect between those who created, planned and disseminated communication messages and those who were its intended target. This is a trend which has seen little change even today.

By the 1970s, the paradigm had been discredited and denounced even by scholars who were once its staunch supporters (Melkote & Steeves, 2001; Shah, 2011). However, despite its many failures, the dominant paradigm of modernization has been and continues to be one of the most enduring frameworks for development, specifically in facilitating technology transfer projects in media, agriculture, health and industry. By privileging economic progress and encouraging the growth of industry, free trade and technological advancement, the modernization paradigm created undue and perhaps exaggerated expectations of technology. It also, for the large part, formulated a discourse around technology in India that tied it to a utilitarian and utopic goal of development, one that has, as will be discussed later in this chapter, endured the test of time.

Dependency School and the Media Imperialism Critique

The most vociferous critique of the modernization paradigm came from the dependency school of scholars. Rooted in Marxist historical materialism which examines shifts in society through the apparatus of economic activity, and Immanuel Wallerstein's world systems approach to international relations, dependency scholars argued against the dominant development – underdevelopment dichotomy by pointing out that the two were related. Development in the first

world was in effect a result of underdevelopment in the third world, owing to a systematic process of exploitative practices by erstwhile imperial powers. DosSantos (1971) defined dependence as “a situation in which the economy of certain countries is conditioned by the development and expansion of another economy.” Nations which were at the benefitting end of this equation formed the core, while those who fell on the other side made the periphery.

DosSantos (1971) distinguished among three historical forms of dependence: 1. Colonial dependence: where imperial powers shaped the economies of their colonies through enforced trade monopolies and military power. 2. Financial- industrial dependence: which was achieved through the domination of capital in hegemonic centers, fueled by the production of raw materials for consumer goods. 3. Technological-industrial dependence: which happened through the dominance of multinational corporations in the economies of peripheral nations.

In the developing world, while the process of decolonization led to the formation of many new nation states, the umbilical leash of imperialism remained firmly in place in the unequal patterns and flows of communication technologies and information and cultural exports from the Global North to the Global South, issues which have been discussed extensively in media imperialism scholarship (Schiller, 1969; Boyd-Barrett, 1982; 2001; 2006). This discontent in the background of the dependency movement in Latin America, emerged in the form of wide ranging debates raised at the United Nations in the late 1970s-80s, out of which came the demand for the New World Information and Communication Order (NWICO). NWICO was a move for comprehensive telecommunications policy that was fairer and more equitable to the newly independent nations of the third world. This was discussed in a UNESCO report titled *Many Voices, One World* (1980). This important document highlighted the imbalances in information flows owing to structures of communication by pointing to the monopolies of

western centric news agencies, the unidirectional nature of media exports from the west to the east and also the issue of inequitable satellite spectrum allocation. NWICO argued for the “right to communicate” (Raboy, 2004). This was one of the first attempts made by third world nations to challenge the dominant technology discourse and articulate an approach towards communication policy that came from the perspective of developing nations. While ultimately it had limited success in its efforts to renegotiate the imbalances in the global communication scenario, it represented a critical first in a supranational effort being made to formally negotiate the question of access, and highlight the gaps between the haves and have nots in their ability to access communication technologies, a thread which was to be picked up later on by the more successful dialogues of the World Summit on Information Society (WSIS) forum (Raboy, 2004).

Neoliberalism and the Washington Consensus

The period after the 1970-80s is often understood as a turning point in the world’s economic history with leaders in China, the United Kingdom and the United States advocating a shift in approach to state regulation vis-à-vis the economy and the marketplace in an effort to resolve rising problems of inflation and debt (Harvey, 2005). Thatcher, Reagan and Xiaoping, drew from the doctrine of neoliberalism proposed by Milton Friedman and the Chicago School of Economics to implement large scale economic measures in their respective nations. This doctrine which privileged economic practices that could advance individual entrepreneurial pursuit through free trade, free market and limited regulation gained widespread traction in the backdrop of the 1980s international debt crisis which became responsible for large scale economic interventions by the International Monetary Fund (IMF), the US and other creditor nations by way of the London and Paris clubs (Cohn, 2010).

As market oriented policies became understood as the best course for development, changes undertaken in developed nations were advocated to other parts of the world through the apparatus of the “Washington Consensus.” The Washington Consensus refers to a widespread approach to development that was implemented in several less developing countries or LDCs during the 1980s. John Williamson, an English economist is credited with coining the term in 1989, though it should be noted not in terms of its current connotation. It was used to refer to the primarily DC- based institutions that were at the helm of this movement, including the International Monetary Fund (IMF), the World Bank and the US treasury department and represented the idea that according to Gilbert & Vines (2006) asserted that “the combination of democratic government, free markets, a dominant private sector and openness to trade is the recipe for prosperity and growth” (p.16). The Consensus was a set of ten axiomatic policies rooted in neoliberal intellectual thought that advocated macroeconomic stabilization of countries in crisis through: 1. Reduction of inflation and fiscal deficit, 2. Opening up of economies to liberalism and international capital investment, 3. And the deregulation of domestic industry along with increased privatization (Cohn, 2010).

In an international climate that was increasingly moving towards neoliberalism, and the withdrawal of the welfare state, the Washington Consensus enjoyed some success as a viable development path for lesser-developed nations and was touted as a paradigm shift from earlier state-led development to economic policies that privileged the free market. Today, while the Washington Consensus has largely fizzled out, the neoliberal agenda that informed it stays strong and has become much more than an economic framework. Neoliberalism has become synonymous with the understanding of individual freedom and choice and a hegemonic form of discourse that has unquestionably had a deep impact on all aspects of society, economy and

governance (Harvey, 2005). The rhetoric of freedom has become successfully embodied in the efforts of corporations and members of industry in collaboration with wealthier nations, to pave the way for a global environment of free market enterprise in various countries, all in the name of delivering the democratic ideal of choice, innovation and opportunity. The institutional influence that neoliberalism yields through powerful actors such as the World Bank, IMF, WTO in being able to frame development goals and policies has become undeniable. To quote Castells (1996),

Governments themselves called for such a victory, in a historic death-wish. They did so to preserve/enhance the interests of their states, within the context of the emergence of a new economy, and in the new ideological environment that resulted from the collapse of statism, the crisis of welfarism and the contradictions of the developmental state.

(p. 147)

Liberalization of the Global Telecommunication Sector

The 1980s and 1990s also witnessed a wave of divestment from previously publicly owned telecommunication services and marked a clear shift in the operational ethos that had (loosely and rather questionably) guided the understanding of telecommunications as a public utility, with operators having an obligation to realize the goals of universal access (Hamelink, 1994; Thussu, 2006; Melody, 2011). Earlier regulatory frameworks which were drawn from historical precedent of the International Telegraph Union, had evolved around the operations of national monopolies where services were cross-subsidized. But in lieu of newer developments in fiber optics, informatics and computing, there was a growing discontent with such a regulatory framework. The national monopolies were dissolved across the board with the US leading the way with Ronald Reagan's "open skies" policy (Hamelink, 1994). Subsequently, British

Telecom (BT) and Nippon Telephone and Telegraph (NTT) underwent divestment and restructuring. By the 1990s, Europe had followed suit, and a domino effect was evidently visible in the international telecommunications sphere (Braman, 2004; Thussu; 2006). This was aided by the migration of General Agreement on Tariffs and Trade (GATT) into the World Trade Organization (WTO) and the creation of an international regime around trade liberalization and open markets, where the “free flow of information” became a euphemism for a market led telecommunication industry. The study in later sections, goes into the details of India’s process of telecom privatization and the impact it had on the country’s technoscape.

The Informatization Approach

The neoliberal turn in development of the later 80s and 90s was concurrent to the technology boom of the Silicon Valley innovations which were instrumental in centering the role of information and information based technologies in the global economy. Castells (1992) asserts that an economy can be analyzed along two axes – the mode of production and the mode of development where the former may refer to the social relationships that create the economy while the mode of development can be understood in terms of the technological apparatus through which labor produces output which may be goods, products or services (Castells, 1992). Every subsequent mode of development thus may be defined by the element that is fundamental to increasing the output of the production process. From the agrarian to the industrial, we have now arrived at an informational mode of development, in which the main source of productivity is no longer new sources of energy but “the action of knowledge upon knowledge itself.” The concept of informatization (Castells, 1992; 2000; 2002) becomes crucial in the informational mode of development thus representing an old throwback to the centrality of media and media and communication based technologies in development.

The significant relationship between technology and economy is not new, nor are articulations of globalization as an epoch of human history (Matellart, 2002). However, the key element of time-space compression (Harvey, 1989; Massey, 1994) facilitated by the growth of the Internet and the proliferation of information delivery systems has transformed the international economy and given rise to a marketplace that above all else is conceptualized in the realm of information and technology, and a global culture that privileges access to information and communication technologies to function within the same. (Castells, 1992; 2000; 2001). This phenomenon has thus elevated the importance of telecommunications and ICTs and in the development agenda to unprecedented levels especially within emerging economies such as India. Efforts of the International Telecommunications Union (ITU) were significant in this development, notable among these being the *Maitland Report* (ITU, 1985) which was a pivotal document that investigated the global shortage of telephones and underlined a correlation between access to telecommunication infrastructure and a nation's economic growth.

Of course, none of this is to suggest in any way that the information economy and techno-global culture exist independent of hard infrastructure, manufacturing, large capital and the guiding interests of military and industry, which do and always have dictated the course of technology innovation and growth, nor does it take away from more basic questions of development such as poverty alleviation, food, shelter and health which remain pressing questions irrespective of the latest iphone in the market or the advent of broadband to a rural hamlet with its touted abilities to solve aforementioned issues.

A second major factor in the growth of information and ICT centered policy initiatives is the trend of "good governance" becoming inextricably tied to the ability of a state to collect, maintain and disseminate information through intelligence and information technology networks.

Governments are constantly engaged in creating and establishing tools and apparatus for information collection, enumeration and assimilation into “intelligent intelligence networks” that can aid welfare delivery and e-governance. Harris (in George, 2003) notes that “effective applications of ICTs comprise both a technological infrastructure and an information infrastructure” and in rural settings in developing countries (where the vast majority of poor people live), it is always a challenge to install the technological infrastructure, but the task is relatively simple compared to establishing the information infrastructure. In the age of big data, information-processing projects are increasingly understood as not only beneficial but also necessary to ensure efficiency, interoperability and interconnectivity of systems that are inbuilt with capacities to track, monitor and create regimes of surveillance.

Recent international concerns over security and terrorism have further encouraged these efforts. A diverse body of literature can be found on the use of technologies in surveillance (Lyon 1994; 2003), the manner in which information and databases act as agents of power (Poster, 1990) the use of information and technologies as a disciplining force in organizational settings (Webster, 2005; Zuboff, 1988) and the role technocratic thinking plays in shaping and dominating social imagination (Virilio, 2002). While Foucault (1984) wrote little directly on the subject of ICTs, his scholarship on the relationship between technology and the structures of power, specifically his writings on the panopticon and what he referred to as “disciplinary technologies” have been influential in shaping the discourse on technologies and surveillance and its implications for government and governance. Foucault (1984) writes, “We have been able to see what forms of power relation were conveyed by various technologies. What is at stake, then, is this: How can the growth of capabilities be disconnected from the intensification of power relations? (p. 48).” This statement resonates with Heidegger’s (1962;1977) attempt to get

at a phenomenological essence of technology and the manner in which technological products and their usage lead to the emergence of independent technocratic thinking (1982) and practices or a “technicity” (Dreyfus & Rabinow, 1983). To build on this a little more, within the newer technologies of power and the patterns of thinking and behavior they create, power “is not ensured by right but by technique, not by law but by normalization, not by punishment but by control” (Foucault, 1976). Deleuze (1995) describes this as the transformation of the notion of an information society into a control society where power and control are exercised not through physical policing or confinement of people but through the use of the continuous and fluid technologies of communication.

In effect, technologies illustrate the social forms that are adept at creating and using them. Technologies and technological forms within a given sociopolitical context affect the discourse of power because of their ability to attain “truth value” in relation to their utility simply by virtue of their own structural form and the value of the form according to the group world-view adopting it (Davies & Mitchell, 1994). India’s *Aadhar* project, a biometric enabled, number identification project aimed, among other things, at keeping track of floating populations is an example of the way in which we may understand the intersections of surveillance and citizenry and the asymmetrical power relations they exemplify.

The growth of information databases as a mode of information and social control in developed economies (Poster, 1984) and the potential they hold for legitimizing surveillance as a form of “governmentality” (Foucault, 1991; Webster, 2005; Willcocks, 2006) illustrate this technocratic approach and has seen many efforts on the part of states to build information enumeration and citizen documentation objectives into their policy agendas. The creation of citizen identity and the circulation of the same within large repositories of networked databases

such as those used in social security and credit card programs furthers what Mowshowitz (1996) refers to as “endogenous” methods of social control by embedding virtual identity and group conformity in the data itself (Lyon, 2003; Lyon & Zureik, 1996).

The building of information architecture, data sets on citizens and their enumeration are considered an important component of the Network Readiness Index (NRI) built by the World Economic Forum, which assesses a nation’s ability to successfully make use of opportunities made available by ICTs on local, national and global levels. This has led to the informatization approach, a “process through which new communication technologies are used as strategies for furthering socio-economic development” (Singhal & Rogers, 2001). In the preface to the Global Information Technology Report (WEF 2010-11), Robert Grenhill, Chief Business Officer of the WEF, notes, “While changing the way individuals live, interact, and work, ICT has also proven to be a key precondition for enhanced competitiveness and economic and societal modernization, as well as an important instrument for bridging economic and social divides and reducing poverty.”

The dominant approach to ICT for development that flows out of the informatization discourse, prioritizes access to technology as the path to a better life for economically disadvantaged communities without considering that technology is a political and social institution and is not without context (Heeks, 2009). This discourse also perpetrates the digital divide issue, while failing to acknowledge that the digital divide is also an extension of the existing global economic and social inequities. ICT projects often privilege a western technocentric perspective and are executed without thought to ground realities and local context or the needs and desires of the end-user. For example, industrial labor patterns have consistently reaffirmed compartmentalization of time and space within the realms of work and leisure and

their impact can be viewed in ICTs for development (ICT4D). Utility driven discourses of utility and leisure, this odd dichotomy of what is time spent in productivity and what is time meant for pursuits of “indulgence” is set within a framework of modernity that governs a bulk of ICT4D projects even today (Arora & Rangaswamy, 2013). Leisure is not a concept free of value; it is very much produced within the political and economic relations of labor and time (Fabian, 1983). Sharma (2011) notes how the “bio political economy of time is upheld by differential investments into life by institutions of modern power.” With regard to technology and ICT usage, specifically within the ICT4D paradigm, the adoption, usage and benefits of ICTs for underserved communities has always been constructed in utilitarian terms. It is an unspoken assumption of most development practitioners that the rural poor will engage with technologies purely out of “a self-betterment” drive and access information that may benefit their health, education, income and financial outcomes.

However, studies such as the celebrated hole in the wall project, ethnographies of cyber-cafes and mobile phone users in emerging economies (Arora, 2010; 2012; Rangaswamy & Sambasivan, 2011; Arora & Rangaswamy, 2013; Rangaswamy & Cutrell, 2013) have revealed that the digital media consumption habits of the Global South are not dramatically different from that of users in developed nations and are driven by similar leisure oriented behavior such as watching videos, listening to music, texting, taking pictures and so on. Most ICT policy architectures however do not recognize these behaviors as important benefits to having technology access and continue to espouse public good, welfare, improvement in quality of life and such. Melody (2011) refers to this as unintended consequences and argues that the nexus of relations in the ICT sector work on incentives that may ultimately focus on leisure or some other variables.

The Participatory Paradigm

Historically theorizing of social processes and structures in development practice, like other fields have been carried out in the positivist intellectual tradition which has privileged a certain notion of objectivity borrowed from the physical and natural sciences. This approach while useful for a number of purposes disallowed a holistic cognizance of structural crises across societies and did not take into account the perspectives of local groups and populations that were on the receiving end of development policy. The participatory approach to development and development communication or Communication for Social Change (CSC) as is the prevalent term for this body of scholarship has emerged as a significant interventionist tradition in the international development discourse (Melkote & Steeves 2001; Servaes 1999; Thomas, 2006; 2014; Mefalopulos, 2008; Dutta, 2011; 2015; Melkote; 2012). This important paradigm of development work has emerged as a viable alternative to the dominant paradigm of modernization that guided much of development policy and practice from the 1940s through the 1960s. Participation and dialogic communication in development have had important outcomes and successes in the field of health and prevention (Basu & Dutta, 2008; Dutta, 2011), entertainment education (Singhal & Rogers, 1999; Melkote; 2012), civic planning and policy movements such as the Right to Information movement in India, community radio (Thomas 2011; 2012; 2014), and tribal land rights (Dutta, 2015).

Fals- Borda (2001) outlines the origins of participatory action research and conceptual and methodological scholarship that emerged out of the intellectual traditions of the 1970s, when academics and scholars began to seek more active relationships between social theory and practice. The origins of this discourse begin with Freire (1970) who in his seminal work the *Pedagogy of the Oppressed* addressed the concept of participation in his larger treatise on

conscientization. True participation for him was that in which subjects engaged in dialogue to create and interpret reality for themselves. Buber's (1937 as cited in Thomas, 2012) work on dialogue also contributes to the idea of participation. For Buber, an I-Thou relationship signifies dialogue and openness while an I-It relationship emphasizes monologic inequality and leads to alienation of human beings from each other. Dialogue is not simply restricted to discussing issues or communicating information, but also leads to the generation of knowledge. In the context of development, it can be understood as the "professional application of interactive methods and techniques to engage stakeholders exploring the situation and uncovering risks and opportunities that can benefit the development initiative and make it more successful and sustainable" (Mefalopulos, 2008).

Thomas (2006) defines participation as "sharing in an activity or process that was traditionally organized and implemented in hierarchical and exclusive ways...Its logic stems from changed epistemological, political and theoretical positions that emphasize a community, dialogue, reciprocity and understanding based on mutual respect." Participation emerges as a strong discourse based on its ability to allow people to become subjects rather than objects of development. Thomas (2006; 2014) argues that while participatory communication is vital to the building of a community it needs to be grounded in a realistic understanding of both the possibilities and the limits of what participation can achieve for a community. Servaes (1999) and Dutta (2011;2015) advocate a more culture centered approach to communication where the voice of the subaltern subject is not erased and instead articulates resistance to the neoliberal narratives of development from a location of organic knowledge and resistance.

A political economy approach to participation explores communication and its role in social change by taking into account the structures, ideology and power dynamics that influence it.

However, as even advocates of the approach will concede, in a neoliberal environment, participation as a concept has lost much of its radical edge and its ability to be the kind of transformative process as envisioned by the likes of Freire. Thus the approach becomes routinized into a benign form of “compassionate capitalism” as Thomas (2014) describes it, at the individual level with engagement in “ethical” acts of consumerism such as buying fair trade goods, or taking part in online forms of social activism through sharing and clicking, signing online petitions and polls. On a macro level, participation ends up acquiring a more insidious dimension as it becomes incorporated in large scale development initiatives by mammoth entities such as the World Bank and the UN, and the other NGOs. Even the World Bank in (1995) came up with a four tier definition of participation for use in fieldwork and projects. These include 1) information sharing, (2) consultation, (3) collaboration, and (4) empowerment where the first two forms are considered to be low-level participation while the latter are considered to be high-level participation. In this way participation finds itself realigned with the dynamics of aid-based, donor-recipient relationships (Wilkins, 2008; Wilkins & Enghel, 2013; Thomas 2014; Dutta, 2015) and a convenient placeholder in which to couch the rhetoric of privatization. This transformation of this mode of development work is useful in understanding the constant push for public private partnerships in the field of international development.

Universal Service

Universal service as a concept finds its origins in a very different context from how it is understood and applied in telecommunication policy today. As a term, it first gained currency in

1913 in the US, when the American government allowed AT&T to be the single service provider of telecommunication services to all US customers. Universal service in this context referred to “interconnection to all networks,” including noncompetitive phone companies, and by no means implied service to all citizens. It became a way to justify operations consolidation and establish a telecom monopoly by AT&T president Thomas Vail who through an extensive public relations campaign popularized “One policy, one system, and universal service.” Gradually, this concept evolved beyond addressing interconnectivity of telephony networks to addressing connectivity amongst people and became included as bottom line access mandate in the US Communications Act of 1934 as a national policy. In 1993, at the International Telecommunication Union’s (ITU) Second Regulatory Colloquium, the concept of universal service was debated extensively. A report of the colloquium states,

A long discussion clarified that there is no fixed and uniform definition of “universal service” ... At its narrowest, it involves plain old telephone service (POTS); at its broadest, it involves interconnectivity in the provision of all types of services, with all the sophisticated technology that implies. Politically, it can come to be regarded as an entitlement, the content of which changes. Now, newer technologies such as cellular and new satellite and wireless technologies may transform the feasibility of universal service, and make telecommunication service economically viable in many more communities, and thus widening the geographic reach of the public network, particularly in the developing countries. (ITU, 1993)

The World Telecommunications Development Report (ITU, 1998) defines universal service as “the long-term objective of making communication facilities available to every member of society on an individual or household basis, and it is used in particular in the

regulatory-legislative framework to indicate the obligation of telecommunication operators to provide their services to the entire population.” Further, it asserts that universal access is not so much an engineering or supply issue, but rather a regulatory challenge that must be dealt through policy. ITU (1998) included the following under the scope of universal service: access to telephony, availability/affordability of communication services, connecting the last mile and most importantly, universal service as provision of information infrastructure.

In most developing nations, universal service was aligned around the idea of bringing rural populations under the coverage of telecommunication services by identifying what are understood as “underserved communities.” These included marginalized groups, low-income individuals, ethnic minorities, residents of rural and remote areas and persons with disabilities. Given the target population these funds target, and the broad mandate of providing information infrastructure, development oriented ICT programs that can benefit those at the Bottom of the Pyramid (BoP) can and are often administered through universal service programs in various nations.

However, as a mechanism, universal service increasingly is being questioned as an effective way to roll out bottom line access (Navas-Sabater *etal*, 2002 as cited in Illavarasan & Srinivasan, 2014). Studies (Crandall *etal*,2004; Malik & DeSilva, 2005 as as cited in Illavarasan & Srinivasan, 2014.) show that universal service funds are constantly underused, access levies are charged at rates too high (in the case of India) and that telcos rarely meet their target obligations to service rural sectors (the tradeoff they make to be able to access lucrative telecom circles in large cities). As with other ICT oriented development efforts, there are glaring gaps between intention and execution.

The Development Question Today: A New Digital Divide

As discussed earlier, the processes of neoliberalism through the instruments of IMF Structural Adjustment Programs (SAPs), debt reduction strategies such as the Baker Plan and the Washington Consensus (Cohn, 2010) had a key role in reformulating the development processes in the Global South. This paradigm shift not only changed the approach involved in development but also redirected the discourse of development and the framing of the third world problem by reconstructing it in an entirely ahistoricized light, almost in a throwback to the modernization paradigm. (Scott, 1998; Gore, 2000 Hawkesworth, 2009).

Where historical materialism was able to create the linkages between the economic conditions of the developing economies and their histories of economic and social interaction with imperial powers, the Washington Consensus used a performance based frame that relied solely on current indicators to recast development in terms of “success” in trade, finance and other economic processes, thus eliminating social aspects of the concept entirely. In addition, where the dependency school of thought advocated a normative economic nationalism with methodological internationalism (Gore, 2000) where national economies were viewed through their connections to the global economic process, the Consensus did the opposite by calling for a normative economic international structure which were to be executed at the national level illustrated by initiatives such as the IMF’s one size fits all structural adjustment programs. Attributing the economic problems of nations to an internal cause in terms of flawed domestic policy, the paradigm redefined development practice to suit the achievement of a Liberal International Economic Order (LIEO). As a result of this, one encounters today, a transformed Global South which is a study in paradoxes. Where free markets have ushered in prosperity that is skewed in favor of few, the issues of equity, access and social justice haven’t become any less

valid and in fact, remain pertinent as ever, as the gaps between the rich and the poor keep widening (OECD, 2015).

The question of access to information and communication technology consequently has undergone a restructuring, in part due to top-down state-market actions such as telecom liberalization and in part due to the efforts of organized civil society. Gaps in access thus are no longer understood through just the national lens and involve a more user-centric perspective. (Noam, 2010; Raboy, 2004). Global capitalism has made it possible for there to be centers of wealth and finance in developing economies that have facilitated the growth and spread of expansive media and telecommunication hubs and networks of power (Hardt & Negri, 2000; Straubhaar 2007; Tunstall, 2008). Tunstall who wrote *The Media are American* (1977) in (2008) revisits some of the fundamental assumptions in his earlier book by examining the decline of American media in various markets, coupled with the rise of indigenous media industries in Netherlands, Mexico, India and China, stating, “Surely Hollywood *vincit omnia*? No, not so.”

In relative terms, it is in fact developing nations that have shown impressive growth rates in tele-density and have been successful in attracting private players into their markets (Fink & Kenny, 2003). However, the disparities between populations who can access information and communication technologies and those who can't, within both developing and developed nations continue to widen (Noam, 2010). The much touted digital divide is no longer a simplistic dichotomy of first world versus third world but of disadvantaged pockets in both the Global North and South who lack access to digital technologies. Keniston & Kumar (2003) point to the existence of not one but four digital divides based on class, location and access, knowledge of English and the ability to participate in lucrative IT sectors such as software, biotechnology etc.

So what might such a transformation mean for ICT policy? On one hand, there is an increased thrust on information centered processes as the key driver of the global economy that gives rise to neologisms such as the information society and the knowledge economy. On the other hand, there is a growing understanding that the costs of being unable to access these spaces and platforms of communication technology is more dire than it was before. The emergence of a transnational policy space like the WSIS in such a scenario makes sense, which can both venerate the information age, all the while stressing on the need to bridge the digital divide. A different sort of accountability is being demanded from states, their role becoming that of addressing those groups that fall through the cracks of an otherwise technology rich citizenry whose needs are serviced by the presence of widespread, adequately serviced for profit telecommunication sector.

This is demonstrated in the policy language of both the Digital India initiative and *BharatNet* which are aimed at “bridging” divides as will be demonstrated in later sections of the study. One would argue that in the case of India, the dream of development, as conceived by those representing the state, and the reality, as fashioned by a combination of private and ostensibly public interests, converge in the body of technology—a tool that becomes an end in itself.

The Indian State, Development and Communication Technology: An Evolution of Status

Quo

Building upon the previous section on international development perspectives and their intersections with information and communication technologies, this section focusses on India’s policy approaches to communication and information technologies and development. First, it delves into the historical policy discourse around rural India to establish social context. Second,

it provides an overview of some earlier approaches taken to communication policy in India before the processes of liberalization in the 1990s. Lastly it touches upon the concept of the last mile and a discussion on the last mile and the informal economy of communication technologies in India.

“Ultimately, What Counts is the Approach to our Rural Millions.”

This statement was made by Prime Minister Jawaharlal Nehru, the first leader to govern independent India, in 1953 in a letter he wrote to the state chief ministers of the country. He was stressing on the need for using visual mass media by way of documentaries and films that would travel in mobile vans to the villages and showcase the developments of a new India – its dams and power stations and other measures of progress, something Nehru was despondent so few rural Indians seemed to know about (Jeffrey, 2008).

The rural-urban policy predicament in India has deeper and longer roots that go beyond the mediations of technology. The village has always been a central category to the imagining of the nation of India. Historically it has been central to the discourse of development, the traditional social order and has formed the building unit of India’s democracy, its social ethos and its true “self” (Srinivas, 1955; Beteille, 1980). This rural ideal has its origins in the Indian independence movement. Woven into the tapestry of national revival and the quest for a lost identity within the independence movement, the rural as a category was lent pastoral charm and authenticity (the allusion to a real India) primarily through the views of Gandhi who has been noted as the former ideologue of India’s rural life (Jodka, 2002). In a letter to Nehru, Gandhi in 1945 is quoted as stating, “For me, India begins and ends in the villages.”

Several of Gandhi’s writings and speeches dealt extensively on his despairing views on urbanization and its unyielding embrace of modernity. For Gandhi, cities were an extension of

the British Empire, in collusion with the interests of imperialism and their rise was at direct cost to the villages and their economies. It was Gandhi who pushed for the concept of “*Gram Swaraj*,” the idea of local autonomy and self-governance centered around the village as the base unit of the state. This became the driving impetus behind the formalization of the *Panchayat* system which had hitherto existed in several variations and forms. He advocated a return to the rural rather than a right to the city. In a speech in 1934, printed in *Harijan* he states-

This cry of “back to the village,” some critics say, is putting back the hands of the clock of progress. But is it really so? Is it going back to the village, or rendering back to it what belongs to it? I am not asking the city-dwellers to go to and live in the villages. But I am asking them to render unto the villagers what is due to them. (p.7-12)

In staunch opposition to this valorization of village life was the perspective of Babasaheb Ambedkar, who was the principal architect of the Indian Constitution and a pivotal figure in the anti-caste movements in India. Ambedkar’s views on privileging the rural sector were starkly different and less favorable from those of Gandhi, someone he vastly differed from on a number of political issues. Ambedkar not only spoke from the lived experiences of caste discrimination which was indisputably prevalent in Indian villages, but was also a trained economist. He held that “the love of the intellectual Indian for the village community is of course infinite, if not pathetic.” For Ambedkar, favoring the rural as the focus of the state was to steer away from the path towards progressiveness. In a constituent assembly debate in (1949), he states;

I hold that these village republics have been the ruination of India. I am therefore surprised that those who condemn provincialism and communalism should come forward as champions of the village. What is the village but a sink of localism, a den of ignorance,

narrow-mindedness and communalism? I am glad that the Draft Constitution has discarded the village and adopted the individual as its unit.

The Constituent Assembly of India in debates over the draft constitution between 1946 and 1949 (parliament.nic.in, 2015) went back and forth over the question of rural India and ultimately, steered by the efforts of Ambedkar and Nehru and other leaders of the Indian National Congress who were more pragmatic and less idealistic in their outlook did not privilege the Gandhian vision of village republics and instead tilted the balance of power firmly to the center. However, provisions for social and historical forms of local governance were made, much in the same way the British colonial administration had seen fit to let the old ways prevail in the villages.

The *Panchayat* was a political system of local governance prevalent in the Indian sub-continent. Historically, it referred to an assembly of five local revered, respected elders of the village who often weighed in on matters of village administration and local disputes. Post-independence, this method of local governance was coopted into the Indian state system through Article 234B of the Indian Constitution with some modifications. Provision for democratically elected *Gram Panchayats* were made at the village level, *Panchayat Samitis* at the block level, and *Zila Parishads* at the district level.

In 1992, through the seventy-third amendment, this three tier system of governance was formalized and given constitutional status and their functions and powers were further clarified. The *Gram Panchayat* now serves as a significant site of intervention for development policy building and execution. In addition, the Constitution of India has outlined several advisory Directive Principles of State Policy which stress on rural welfare, egalitarianism and justice. These have had a bearing on the way rural development was positioned in governance.

Early Articulations: The Nehru-Sarabhai Approach to Communication Policy

The idea that modern states are built on the basis of modern communication technologies has been discussed in scholarship and writing through the historical mapping and analysis of communication and transportation systems such as the railways, telegraph, postal service, radio, satellites and so on with the consolidation of imperial power (Thussu, 2010; Rajyadakhse, 2011). Chatterjee (1997) briefly discusses the construction of the Indian state through the legacy of colonial government apparatus and technologies that sought to govern the citizenries. Anderson's (1990) concept of imagined communities which looked at the role of print capitalism in nation formation in Europe is useful in understanding this discourse. McLuhan's (1964) notion of technological determinism that asserts rather infamously that the message was irrelevant and it was the medium that mattered illustrates the manner in which a state's vision is articulated through the ideation of its technological apparatus. Extending this argument, it is almost irrelevant what specific role technology performs. Technology functions simply by existing, by lending credibility to and strengthening the image of the modern state and enhancing the promise it makes to efficiently deliver public welfare.

Optimism about the influence of technology and its exaggerated power to transform society for better is not a new concept. Since the industrial revolution in Europe and the major shift that occurred in the mode of production from manual to mechanical, the era of technological utopianism has been heralded time after again. Early effects based models of communication such as the flawed hypodermic needle model, which functioned on an unquestioned assumption about the overwhelming influence of mass media technologies informed a majority of propaganda communication efforts during World War II. (Lasswell, Schramm, Shannon & Weaver as cited in McQuail, 2010).

This premise, perhaps diluted over time, was absorbed into the larger first world narrative of free market capitalism and “innovation” which would later dovetail with significant advances in research and development by the military, and lay the foundation for computer engineering, informatics, ARPANET and sophisticated satellite based communication networks and systems in the US. On the other side of the iron curtain, technology was positioned as an aggressive marker of communist efficiency and egalitarianism, a “dehistoricized” agent of progress to fit with a radical new world as envisioned under Soviet socialism (Ganley,1997). Both sides agreed on one aspect – technology could be transformative.

In the early days of independent India, the role that technology would perform in society was modeled heavily after the Soviet perspective and flew out of the modernization paradigm discussed in earlier sections of this chapter. Technology was considered an extension of the state, an apparatus to aid welfare delivery and public sector development initiatives. In newly independent India, communication was positioned as a tool in the up-hill task of nation building and was tightly controlled, given that here was a patchwork country of colonial provinces and princely states, having already had its precarious sense of diversity challenged by the unnerving episode of partition, poised to be the world’s largest democracy (Mehta, 2008).

Nehru, known to be an aggressive modernist (Jodka, 2005), a leader who once went as far as to (it was a stance he was to revisit later) celebrate dams as the “temples” of modern India. (Guha, 2005) placed an inordinate belief in the role of mass media as a transformative agent in society. A socialist by political persuasion, and a passionate defender of the free press, where he was loathe to coopt the newspapers into government mouthpieces, the broadcasting medium was fully brought under state control. Specifically, radio became an important platform for information dissemination in line with his modernization agenda (Jeffrey, 2008). Under Nehru,

the National Planning Committee which was the centralized body of policy making in the government, took a view of modern communication as an important resource for development. Radio was used extensively in towns and the countryside to give out information about development programs.

To briefly discuss broadcasting in state policy in relation to the focus of this study, India inherited a public service broadcasting ethic that was informed largely by paternalistic Retithean values modeled after the BBC where the masses were to be “improved” through carefully curated content and information that would not cater to populist taste and instead educate and inform masses. All India Radio (AIR) was thus give the mandate of broadcasting programs that worked towards the goal of promoting nationalism, imparting development information and promoted the national language and culture (Pavarala & Malik, 2007; Jeffrey, 2008). It should be noted though that this enforced self-betterment and consumption of high culture was not passively accepted by audiences. Awasthy (1965) amusingly notes that a listener survey conducted in the 1950s found “nine out of ten houses in every street . . . tuned to [Radio] Ceylon, and the receiver in the tenth house was . . . out of order,” (p.54) referring to the popular South Asian station based in Sri Lanka which played film music for Indian audiences through its Hindi services.

The goals of AIR and broadcasting bear a remarkable similarity to current ICT for development discourse. This continuity of policy can be seen carried over to the next phase of broadcasting with India’s foray into satellite communications. Though the term ICT had not entered the international development lexicon yet, India’s first major tryst with the concept came in the form of the Satellite Instructional Television Experiment (SITE). In 1975, the Indian Space Research Organisation (ISRO) under the leadership of Dr. Vikram Sarabhai in

collaboration with NASA launched SITE, an experimental satellite communications project aimed at educating the rural population via satellite broadcasting in 2,400 villages. The professed goals of the SITE project indicated in a 1969 MoU signed between the Governments of India and US, were to “demonstrate the potential value of satellite technology in the rapid development of effective mass communications in developing countries” and, “demonstrate the potential value of satellite broadcast TV in the practical instruction of village inhabitants” (para. 3.1).

The SITE programming focused on family planning, agricultural practices, health and sanitation, adult education and “national integration.” While it did represent a continuity with dominant modernization oriented development approaches and a linear delivery model flowing from technocratic experts to the masses, SITE was notable for taking satellite television to the poorest Indian districts at a time when it was still a rare medium in urban India, and for creating a push for investment and research in satellites in India leading up to the INSAT program (Gupta, 1995).

“You Got Mobile Phones Because Rajiv Gandhi Heard You.”

This contentious statement was made by Congress party leader Rahul Gandhi (son of former Indian prime minister Rajiv Gandhi) at a political rally in 2013, in an attempt to link political legacy to the telecommunication boom that the country had witnessed since 2000 (Mint, 2012). It is a bold claim to make considering that there was a long gap between Gandhi’s reign in the later 1980s to the time when cell-phones began to appear on the Indian landscape in early 2000s. However, it should be noted that Rajiv Gandhi’s administration was the first to look into the telecom sector (Gupta, 1995). Under Sam Pitroda, an expatriate Indian who had returned to India to explore the telematics sector (later appointed Technical advisor to the Prime Minister and advisor to the Prime Minister of India on Public Information Infrastructure & Innovations)

and ironically the self-declared “man behind India’s telecom revolution” (Mint, 2013), the National Technological Missions (NTMs) were set up in the country (Sethi, 1988). The NTMs which covered critical areas such as drinking water, immunizations, literacy etc., focused for the first time on India’s struggling telecommunication sector, a relatively underdeveloped sector in comparison to the mass media such as the press and cinema. The arrival of Sam Pitroda into the telecommunications story of India has been marked as a turning point for the sector, with many crediting him with being responsible for the infrastructure and regulatory framework that went onto to create the telecom boom of later years. Sethi, in (1988) wrote on the NTMs:

Pitroda, with his brilliant handling of the media seems to have concocted a cocktail, with its buzzwords of national self-reliance, efficiency, service and accountability-- that is undoubtedly attractive. And perhaps because what is being promised is not another panacea, a new populist package that will transform the face of the country, but a limited, time bound, targetable and achievable set of objectives in a few sectors, it carries with it greater belief. (p.999)

The telecommunications sector under the NTMs saw the formation of the Centre for Development of Telematics (C-DOT) to manufacture electronic telephone exchanges and the separation of the Department of Telecom (DoT) from the Indian Post & Telecommunication Department. Pitroda (1988) was a vocal voice on the importance of telecommunications and information technology and the latest in a series of technocratic elites who operated on the technology as development paradigm. Writing for the *Harvard Business Review* in (1993) Pitroda weighed in on the guns versus butter debate on development i.e. the task of providing basic amenities versus the task of connecting people to information technologies, stating rather grandly that,

As a great social leveler, information technology ranks second only to death. It can raze cultural barriers, overwhelm economic inequalities, even compensate for intellectual disparities. In short, high technology can put unequal human beings on an equal footing, and that makes it the most potent democratizing tool ever devised. (para.8)

While the efforts of Rajiv Gandhi and Pitroda made some headway, it was the National Telecom Policy of (1994) followed by New Telecom Policy of (1999) which truly became the policy game changer that had a significant and transformative impact on the telecom sector in India. These regulatory frameworks which led to a freeing of the telecom sector from the exclusive purview of the state and opened it up to private capital and foreign investment. Keeping in view the larger international developments that followed in the global telecommunications sector (Hamelink, 1994; Thussu, 2006; Melody, 2011), telecommunications became delinked from the idea of public utility and took on a more consumer oriented approach.

The Last Mile in India: Two Perspectives

The linear model of state development has enjoyed an unshakeable resilience within the apparatus of the Indian government structure as evidenced by the previous discussion. Despite its many visible flaws, rampant issues of corruption, and cracks in the system, the commitment to this technocratic model of development persists in several rural outreach schemes, welfare measures, documentation and identification processes till today. Amartya Sen (1992) writing on this trend, critiques the Indian state's policy of "targeting" beneficiaries in its professed objective of eradicating poverty.

The problem is not so much that the word "target" has combative association (but rather) the fact that the analogy of a target does not at all suggest that the recipient is an

active person, functioning on her own, acting and doing things. The image is one of a passive receiver rather than of an active agent.” (p.1)

Using the development of television technologies as an example, Rajyadakshe (2011) points out how technology in India has always been perceived as “somehow clean, as everything that the state, in its messiness, is not — where, somehow, leaving it to technology instead of to mere human beings would make it faster, easier, more accessible, and less corruptible,” (p.39). The symbolic attributes of computers and service delivery in their decisive non-humanity almost automatically in cases of projects like e-governance come to be associated with transparency, efficiency and accountability, thus firmly embedding technology with democratic expectations (IIIT-B, 2005).

Consider *Aadhar* or the Unique Identification Authority of India (UIDAI), the national identification project of India which was launched in 2009. In *Why Aadhar*, the website of the UIDAI (2015) stresses on its “centralised technology infrastructure” which will enable “anytime, anywhere, anyhow” authentication and reduce instances of fraud and abuse of the welfare system and be able to track migrant citizens efficiently. What merits attention is a singular and explicit attempt to capture and target the elusive rural citizen and render them governable through a centralized technological apparatus. The last mile problem, the rhetoric of leapfrogging, are all policy overtures that are based on this particular subject position. Rajyadakshe (2011) challenges the notion that the “Last Mile” understanding of delivering the final leg of connectivity to an intended beneficiary is exclusively a technological problem. In his monograph, he interrogates this perception and charts out the transformation of state vision over the two decades of liberalization and shift in statist configuration of technology and its equivalence to the ideal of democracy-

The classical definition of the “Last Mile” defines the final stage of providing connectivity from a communications provider to its ultimate recipient, and the commonest users of the term in this connotation have been the telecommunications and cable television industries. However, as the State has virtually reinvented itself in the very recent past and before our very eyes, the term has also come to mean something very much more. In recent years, especially (though not uniquely) in India, it has been used to map technological access upon developmentalist-democratic priorities: combining the two into a devastating cocktail of technology, development, governance and markets. From electronic voting machines to Web-based railway reservation facilities, from e-governance to e-commerce, the Last Mile has become the privileged mode of a techno-democracy, where connectivity has also been directly translated into democratic citizenship. (p.28)

In drawing this picture of India as an overbearing technocratic state, the researcher would be remiss to not acknowledge the widespread and extensive informal economy of technology that thrives in India outside of the formal systems of technology delivery. Citizen action abounds to circumvent these cracks in the top down governance systems often in the way of extralegal means, grey markets, unofficial liaisons and “fixers” who may be sought to mitigate the many problems (perceived or true) in dealing with the state (Gajjala, 2008; Rangaswamy, 2007; Rangaswamy & Sambasivan, 2011). The presence of the grey market, sharing practices in family, and peer networks of devices and network plans, and other informal modes of ownership and access to communication technologies do facilitate a different route to access in India and provide substantial alternatives to more expensive documented, post-paid access options. Low cost devices, circulation of used phones, a repair and reuse culture combined with unlicensed

pre-paid data and text plans offered through small, independent dealers on informal installment schemes, have been very successful at facilitating digital participation for many Bottom of the Pyramid Consumers. Rangaswamy & Sambasivan (2011) note -

The scapes are a fusion of new technology homing with local forms of material and informational exchanges and communication flows. This is manifest in urban economies, both formal and informal, through efforts to deal with continual interruptions of mainstream systems that sustain major economic sectors: personalized boreholes, “non-legal” taps of power, water flow, and satellite access points. Endless improvisation surrounds the distribution of scarce water, sanitation, communications, energy, and transport. (p. 556-557)

These mediations which can be read as individual and localized efforts at bridging the last mile problem function almost parallel to the government machinery by mitigating the impatience of the citizen subject with the perceived or true slowness of the state in acting on its promises, side-stepping the ever present problem of obsolescence and in its own illegal way helping the state in doing its job properly. The tendency of the citizen-subject to find ways to access technology through stop-gap fixes is part of a larger Indian culture of “*Jugaad*” or the practice of coming up with inexpensive and innovative life-hacks to bridge technology gaps (Radjou *et al*, 2012). As Lash (2002) suggests, “technological time does not so much question progress. It is too fast for progress.” (p.19)

Theoretical Framework

This section focusses on discussing two bodies of scholarship: space and scale literature from critical geography and the relevant writings on political economy of media and communication. These frameworks of literature and the arguments presented within them form

the critical basis of inquiry and inform the methodological underpinnings and theoretical assumptions to this study. Their relevance to the project are discussed in the conclusion.

Theorizing Technology Through Space, Place and Scale

In *Empire*, Hardt & Negri (2000) discuss the final frontiers of capitalist domination, those of space and time, while also referring to the multitude's ability now to be free from the burden of territorial geography allowing for rearticulating of space, place and time. "Space" is not merely a physical location, it is produced and valued under a set of political, economic and social condition and processes. Critical Geographical scholarship has long explored these intersections of place, space and scale in social justice and power. (Harvey, 1990; Lefebvre, 1991; Massey, 1994; Smith, 1990).

As applicable to this study, a starting point for theorizing space may be found in understanding the relationships between the symbolic attributes of space and the nature of social activity performed within it. Harvey (1973) examines Cassirer's (1944) conceptualization of space to talk about the different kinds of spatial experiences which may be broadly slotted into three basic categories. These are; 1. organic space, that which is biologically determined; instinctive and refers to spatial orientation and personal sense of territoriality, 2. perceptual space or that which is experienced through the neurological synthesis of various sensory stimuli such as optical, tactical, acoustic and kinesthetic perception and finally 3. Symbolic space, which refers to the notion of experiencing space through its symbolic representations which may themselves have no spatial dimension ex; understanding geometrical space.

Harvey (1973) building on Cassirer's categorization of the symbolic nature of space, makes the argument that these levels of spatial differences need not be read as separate from one another. Each form of social activity defines its space and in order to be able to understand

spatial form; there is a need to understand what the symbolic qualities of the form itself are.

Thus relationships between architecture and space such as the organization of buildings, village life, town structures and the city as a whole even, are produced through this synthesis of process and form. (Langer, 1953; Strauss 1963; Lowenthal & Prince, 1964 as cited in Harvey, 1973).

The creation of a “rural” space in opposition to the existence of an “urban” space may thus be understood by looking at the form of social activity that inhibit said symbolic, geographical and perceptual spaces.

A second important abstraction of space and spatial politics comes from the work of Lefebvre who articulated, what is possibly the first, most cohesive theory of urbanization. Research on urban experience in the 1960s was largely descriptive in nature, and aimed at encapsulating city life in institutional categories. Lefebvre (1970; 2003) attempted to change that by engaging with the question of space and understand capitalism through the prism of space. Drawing upon the unrest and social movements of the 1960s, in *The Urban Revolution*, he identifies a historical shift, from an agricultural to an industrial to an urban world, where the territorial form of the city moved from being political to mercantile to industrial, arriving at what Brenner (2003) in his foreword, identifies as the present “critical phase,” the harbinger to globalization.

For Lefebvre (1970; 2003), space can be broken down in two main ways; first, as a political location that is the site and object of various strategies (for example, the rural as site upon which political action may be performed) and second as a projection of time, reacting against and enabling us to dominate time, and consequently to exploit it. Keeping this in view, he writes about the urban experience as a construct, a metaphor and a point/ process of social transformation.

Lefebvre's hypothesis is simple: society has become urbanized, a process that transcends the physical location of a city or industrial location. The "Urban Revolution" for Lefebvre is not a singular moment in political history, but a series of transformations that affect contemporary society. The rural, thus, is irrevocably urbanized in a sense even when it does not present with the social and cultural codes of urbanism.

These transformations, Lefebvre asserts can be charted along the process of industrialization, from when critiques against the notion of growth were put forth for the first time, to the present where urban issues take precedence in the discourse of problem solving (Lefebvre, 1970; 2003). The urban thus becomes the focal point, and all modalities become developed to solve problems unique to the same. In his critique, Lefebvre also provides us with a spatial/temporal axis, one that runs from the absence of urbanization i.e. an allusion to the existence of a "pure" nature to a process of "complete" urbanization and charts a historical process that led to the dissolution of the preindustrial/precapitalist society and the creation of the industrial city as we know it today. He identifies three fields of what he categorizes not just as social phenomena but "composites of sensation, perception and time/space." These include the rural, the industrial and the urban.

Elaborating on this framework, he discusses the notion of a "blind field" which are the regions of force and conflict between fields: a field between the rural and the industrial that goes unseen even when the industrial forever is acting upon the rural and shaping its social reality and economic value. This "blindness" is a pervasive phenomenon. For example, we don't view the urban through the tools, practices and theories of industrialization and capitalism that actively create it but through the lens of the everydayness in our buildings, offices and apartments and ironically through landscapes of the rural when we replicate pastoral ethos in our suburbs,

gardens and parks. Blind fields occur due to the failure of discourse, language and perception, when “we are pointed towards a body of knowledge that sheds light on something else entirely,” (Lefebvre, 1970; 2003).

Further, in his analysis of urbanization and the urban phenomena, Lefebvre offers a system of levels and dimensions; P- the private level, or the level of habiting, M- the mixed level and G- the global level. For, Lefebvre, “power – the state as will and representation” – is administered and exercised at the global level, where representation in the form of politicians , political strategy and planning along with “will” in the form of citizens and ordinary people come together to agree upon a political conception of space. In keeping with this conceptualization of the global level, the understanding of space and the scale of action (as a unit of analysis upon which planning may be executed) the urban phenomenon becomes universal, a conflation of the physical place of the city and a scale construct of the urban.

To put this into context, Harvey (1973) building on Lefebvre’s analysis of space and the urban, talks about the Pareto optimality reasoning that is used to justify unequal distribution and access to resources, referring to the artificial “natural” nature of resources that occurs when the urban system transforms a resource into a commodity thus making it subject to the terms of economic transaction. Harvey asks us to think of the city as a “giant resource system, a geographical distribution of created resources that has significance in economic, symbolic and psychological terms.” This helps to clarify the way in which the factors of “space” and “location” affect the availability of man-made resources, communication technology in this case. A simple illustration of this can be found in the way the telecommunications sector in India is organized through a system of circles and service areas in the fixed service and mobile categories. These circles which are opened up to a process of bidding are valued through a

Metro, A, B and C gradation based on the revenue they can generate, with not surprisingly Metro service areas being the circles that cover the largest Indian cities and being the most sought after (DoT, 2015).

Another major strand of scholarship in geography has been the analysis of the function and meanings of scale in capitalist societies. Scale here moves away from its traditional cartographical connotations referring to distance plotted on maps and is understood more in terms of a social construct (Mahon & Keil, 2009) applied to examine how we might create and value units of analysis/representation using space. Scale becomes “the focal setting at which spatial boundaries are defined for a specific social claim, activity or behavior,” Agnew (1997 as cited in Mahon & Keil, 2009). *The Dictionary of Human geography* (Johnston *et al.*, 1994) defines scale as a “level of representation” (as cited in Marston, 2000). Howitt (1998) identified scale in geography scholarship as made up of three key facets: size, level and relation. For Howitt, it is necessary to understand the first two categories through a relational prism or there is a danger of oversimplification. Brenner (2001) argues that scales should be understood not individually but rather in terms of their relationship to other scales. Scale emerges through economic and political processes such as geographic strategies of capitalist firms, of political institutions such as the nation state, and of labor organizing to improve livelihood conditions in the face of challenges posed by capital mobility and or state/strategies (Mahon & Keil, 2009). Smith (1992) in his discussion of the production of scale examines a sequence of specific scales: body, home, community, urban, region, nation, global based on four factors; identity, internal differences, border and possibilities for resistance and crossing boundaries in terms of “jumping scale” the mechanism by which networks and communities can move beyond the boundaries of their given scale to achieve a higher critical mass, stating;

The construction of scale is not simply a spatial solidification or materialization of contested social forces and processes; the corollary also holds. Scale is an active progenitor of specific social processes. In a literal as much as metaphorical way, scale both contains social activity, and at the same time provides an already partitioned geography within which social activity takes place. Scale demarcates the sites of social contest, the object as well as the resolution of contest. (p. 66)

Kipfer (2009) discusses the implications of linking the question of the urban and how it is situated in the scale debates, building upon Brenner's (2000) discussion of the urban theory and the concept of scale (*échelle*) in Lefebvre's work. Marston (2000) argues for the inclusion of gendered understandings of social relations of consumption and social reproduction to broaden the scope of scale analysis. Brenner (1999) in his discussion on globalization and geographical scale, talks about the various ways in which social research and inquiry is attempting to move beyond state-centered epistemologies and the implications this has for the way we understand new territorialities. Scale can also be understood as "a chaotic concept," an idea derived from Marx, furthered by Sayer (1992 as cited in Miller, 2009) where rational abstractions from objects and relations are avoided in deference to preserving structure and form. Scale then becomes an umbrella range of constructs and processes that can be then viewed in terms of size, level or their relationship to one another. The individual citizen and his/her relationship to the nation, the village as a focal point of policy activity, the rural as a socio-economic category, the urban as the default, the institution of a state or market – these are some manifestations of scale, their value determined through the nature of their engagement with capitalist forces.

Counter to the centering of scale in geography and its framework of "nested hierarchies," Marston, Jones & Woodward (2005) make the case for a "flat ontology," or the elimination of a

scalar approach and instead, calling for an interrogation of intermeshed sites over the nested and hierarchical -- local to global -- scale framework which they claim lack sufficient explanatory power and also make presuppositions that “delimit entry points into politics and the openness of the political by pre-assigning to it a cordoned register for resistance.” Marston, Jones & Woodward (2005) point to networks and other forms of organization as alternatives to the centrality of scale. This allows for an understanding of reaction and resistance without necessarily assigning value based on scale.

But what of policy? Can we really apply a flat ontology analysis to the creation of policy? When we attempt to eliminate hierarchies in scale to free the thinking process around political action, do we then risk also losing an important ability to see the hierarchies? How should we negotiate the task of recognizing the distances and gaps between the government and the governed without essentializing said distances and gaps when acknowledging scope for resistance? Collinge (2006) in response to the idea of flat ontology argues that the scale discourse cannot simply be taken out of the geography discourse and, instead calls for a deconstructionist approach to scale. Leitner & Miller (2006) also point to the dangers of conflating verticality with hierarchy by noting that a scalar approach does not necessarily have to be top-down. To employ scale as way of understanding policy action therefore need not privilege the hierarchies it seeks to unpack.

The Right to the City

The right to the city is an idea that came out of Lefebvre's (1968) book *Le Droit à la Ville*, where he made the argument for “a transformed and renewed access to urban life.” While it has been evoked liberally by several proponents of social justice, mostly the concept in itself remains rather vague and open to a radical range of interpretations (Attoh, 2011). Explorations

of gentrification, immigration, housing, citizenship, urban public space, transportation and social exclusion are some examples where the Right to the City has been used as a theoretical entry point (Mitchell, 1997; 2003; Harvey, 2005; 2008; 2009; 2012). This study flips the norm to some extent by using the Right to the City as a way of understanding rural access.

Lefebvre (1991) argued that the right to the city includes “The right to information, the rights to use of multiple services, the right of users to make known their ideas on the space and time of their activities in urban areas.” Harvey in (2008) describes it as thus;

The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights. (p.23)

What is the right to the city? Can we understand it as the ultimate articulation of social justice? As a call for inclusion? Is it simply about fixing broken down infrastructure, of reshaping the slums and the inner city spaces that are as much a reality of our great cities as are the skyscrapers and the historicity and the markers of great civilizations? To articulate the right to the city, we must first ask ourselves, what about the urban as a space, as scale or a place is democratic, fair, equitable or accessible that justifies its prioritization in politics, governance, policy, planning and resource allocation. Why is a space of systematic exclusion and disenfranchisement allowed to develop at the explicit cost of the rural, allowed to entrap the later into a linked existence whereby the rural space (if it even can be said to exist as an entity unto its own) is recreated, remade and redesigned, disrupted in its previous modes and means of

production and labor and initiated into production practices built around principles of capital and surplus so as to cater to the needs of the city (with activities such as the growing of food, supply of raw material and so on) the very city that draws from the rural, feeds on its resources, pollutes its water bodies and soil by setting up factories and plants, encroaches upon its land by creating suburbs and Special Economic Zones and annexes its identity to create a “Greater Boston” or a “Greater Delhi” to propagate its own prosperity, depends on its populous to provide it with a cheap, floating migrant population to keep itself running smoothly but makes no efforts to accommodate them – the undocumented, the disenfranchised -- what does such a city, that takes so much, then not give back? Who does it serve, if even a majority of those who occupy this space are not ensured fair access to resources and opportunities? Is the right to such a city then worth fighting for? Subramaniam in (2002) writes on the aftermath of communal riots in the city of Mumbai in 1992 (then Bombay);

A Muslim writer, with whom I spoke in November 1995 of what he had lost in the riots during which his house had been burnt down and his family forced to flee up north, told me that he grieved most for the demise of his trust in the city. With it, he felt he had lost the right to the place. No longer, so it seemed, could one ask a question of the city in the same way. Its history, its people, its streets, all became signposts in a sequence leading up to this moment and leading away from it. *Bombay has changed*, I was repeatedly told, *it is no longer the Bombay we have known. Nor the Bombay you knew.* (p. 9)

This excerpt from *The Cities of Everyday Life*, speaks of a familiar angst, the exclusionary quality of the urban experience that most if not all city dwellers experience at some point in time, that distinct sense of not belonging, of feeling like the outsider. It is an angst that is at times paradoxical to the rhetoric of the modern city, the one that welcomes all, a familiar

narrative of pulling oneself up by the bootstraps inclusive. The writer's bafflement in this excerpt is a faint if accurate echo of the sense of quiet outrage that was witnessed throughout India, a stark disillusionment that followed the events of 1992-93 when violent Hindu- Muslim riots broke out in the city of Bombay (now Mumbai) over the demolition of a mosque in a site of religious dispute in the town of Ayodhya.

That Bombay, that gleaming beacon of Indian capitalist aspiration, home to one of largest film industries in the world, the nation's cosmopolitan hub that prided itself on its inclusivity, could have been the theatre of such virulent communal violence was a harsh unlearning of the nation's imagination (Harvey, 2009), unmasking rather painfully the myth of the non-discriminating urban space, the one that seemingly looks past one's ascriptive identities and gives the individual a fresh start, a chance to prosper, a shot at upward mobility. If the city is cruel, the myth holds, if it was punishing, then it is only a failing on part of the individual, not the city, never the city.

Mumbai is a perfect summation of the intersection of space, scale and place, the consummate poster-child of the contradictions of urban experience and the experience of the emerging economy and an entry point to discussing some of the issues of access and their relationship to political economy. Home to the world's most expensive real estate and some of its largest slums at the same time, Mumbai is hailed for its pace, its opportunistic ethic, for its cosmopolitan vibe, for being the face of India's economic success on the world stage. In the same vein, it is despised for its overwhelming crowds, for its crumbling infrastructures, for being too "inclusive" at times as is evidenced by recent local state level politics over tensions between natives of the state in which the city is located and migrants from the rest of the country over access to jobs and resources. Subramaniam (2002) investigates the intersections of modernity

and the urban experience, and the notion of chaotic collectivity to the work of Walter Benjamin and Baudelaire, the manner in which exclusion is mapped onto the idea of a “crowd,” of overwhelming numbers, that particular brand of amnesiac disdain that urban dwellers will reserve for the ever increasing numbers of new migrants forgetting that they themselves were part of the crowd not two generations ago.

To state all this is to state a simple truth, the capitalist city as a physical space is not a space of democracy or equity and must not be celebrated as such. Here a callback to Lefebvre’s theory of blindness (1970; 2003) is relevant. We do not see the urban for what it truly is, for what truly drives it – the brutal demands of capitalism. To extend the metaphor of blindness in recognizing the conflation of fields further and to tease the connections between the focus of this study and this theoretical strand, it should be mentioned that rural development policies such as the Providing Urban Amenities to Rural Areas (PURA) scheme in India carry in them an often unnoticed though not unintended motivation: to stop rural migration of unskilled labor into big cities, to stem the flow of floating populations and by extension the growth of slums, illegal developments, utility theft and so on. These connections are explored in more detail in Chapters IV and V.

To sum up, the right to the city represents an ideal extrapolation of the space/scale debate. The city is not just signified by “place.” The city is not simply about that particular space of New York or London or Mumbai. The right to the city is about reconfiguring the space of the metropolis, to reshaping them and making them more open to all sections of society, to making them more democratic spaces and not simply a collection of pockets of prosperity. The right to the city represents a right to a composite of the “better,” a fairer urban experience that is removed from physical location and the binary or the rural-urban, an aspiration ideal, a pathway

to access to “better,” better schooling and education opportunities, better infrastructure, better access to health care and civic amenities, better access to technology and technological services, to libraries, museums, galleries and theatres and to that all elusive notion of economic and social opportunity, whatever it may signify.

The right to the city is then, a right to the urban and can be framed as a question of access to resources, key among which is the access to technology and technological services, which are controlled through production and distribution structures of media and communication ownership. As we transition into a discussion of the political economy of media and communication studies, we are able to more clearly see the institutional dynamics at play that shape our scapes of media and technology (Appaduari, 1990).

Political Economy in Media and Communication Studies

Political economy has been applied to communication and media research for its emphasis on the dialectic processes that work upon the structures of society, the dynamics of power and the role of socio- economic political agents such as the state, market, corporations and national and transnational regulatory bodies. This makes it an ideal framework to apply to the study of media systems and networks (Golding & Murdock, 1996; Mosco, 2009). The field of media studies and communications lends itself well to this mode of analysis because of the very nature of mass media in society, as something that is constantly present, visible, fluid, subject to painstakingly detailed regulation and control and accorded, if somewhat artificially, a place of elevated importance and a role that it may or may not necessarily fulfill. It is a structure of power unto itself and at the same time controlled by larger power structure such as the state and market.

Political economy as a discipline attempts to address the issue of how media systems come to be, how they are produced and reproduced and what drives them to function the way they do. It seeks to interrogate the terra firma of the media as an institution and the seen and unseen relationships between power and information, by asking the central question of why media structures are the way they are. What purpose do they serve or more specifically whose purpose are they really serving? It does this because it primarily concerns itself with the question of media ownership and the implications that has for how it operates, permeates and homogenizes (Herman & Chomsky 1994; Golding & Murdock 1996; McChesney, 1999; 2000; Compaine & Gomery, 2000).

Mosco (2009) makes what is perhaps one of the most comprehensive attempts to capture the political economy of media, by bringing together the various strands of scholarship that have used this perspective, and establishing an identity for the research framework in its own right. Mosco's attempt at creating a coherent and composite field of political economy of media and communication out of seemingly incongruous bodies of scholarship serves the purpose of clearly establishing an outline and a classification structure for the body of research by identifying three key processes which can be used as guiding principles to study media. These include; 1. commodification or the invention of value; 2. spatialization i.e. the ability of mass media to circumvent space-time constraints and; 3. structuration which refers to the process of creating social relations around the axes of social and economic class and gender.

The historical perspective and an emphasis on historiography remains central to the political economy approach with regard to communication and media scholarship. This trend which started in the 1980s focused on the political economy of electronic media and broadcast structures and looked at the relationships between the agents of political powers and media

powers (Schiller, 1969; 1981; 1992; Smythe, 1977) and the emergence of dominant players in the telecommunications sector.

More recently this approach has been used to study the emergence and entrenchment of media systems (Hallin & Mancini, 2004; 2012), and build empirical critiques of macro-level media systems and processes, of national and transnational policy formulation and regulation and business practices such as the creation of global communication infrastructure through satellite systems (Thussu, 2000). Other notable examples include, the privatization and the marketization of public owned media vehicles such as telecom companies (Murdock, 2006), the study of regulatory practices and frameworks in relation to issues such as ownership, production, copyright (Rice, 2008), critically examining the narratives of media history (Curran, 2002), studying the patterns of cultural and economic imperialism through media and the technologies and tools of communication (Innis, 2007; Boyd-Barrett, 2006) and issues of media ownership and public interest (Croteau & Hoynes, 2006).

Similarly, political economy scholarship in the field of new media and technologies span a diverse range of perspectives. The positive impact of the Internet on economic and social relationships and its ability to offer individuals and communities a space of negotiation and articulation have been discussed by (Castells, 2001; Van Couvering, 2003). Garnham (1990, 2000) has focused on the production structures of technologies and services and the ways in which they explain the legitimation of social structures and hierarchies, demonstrating the manner in which the spread and consumption of transnational networks and information flows in the digital age are determined by power considerations and relations and the implications that has for consumers (Garnham 2000; Mansell *et al*, 2002). Mansell (2004) in a study of ISP providers, critiques the dominant trend of new media scholarship to celebrate the profusion and diversity of

products and services without looking at the power structures that shape the process concluding that new media technologies are prone to the same monopolistic tendencies and practices. The links between knowledge and power in new media production and consumption has also been studied (Mansell, 1999; 2003).

Conclusion

This chapter brings together the historical and the theoretical strands of scholarship that ground this study. The section on international development traces the important paradigmatic shifts in the discourse of development and the role that technology has played in it. The ideas, strategies and theories discussed in the first section are highlighted and illustrated through the focus on India's communication policy history. The section brings to light two major observations. One it highlights the fundamental ethic that has driven all communication policy efforts in India up until the era of liberalization - that of highly centralized development oriented approach to communication infrastructure with a focus on rural outreach and welfare outcomes based on the ideas of the modernization paradigm. Second it points to a continuity in a unilateral, technocratic discourse of technology in development symbolized by elite leaders talking for and on behalf of the "uninitiated" masses. Establishing the historical and political context of state vision on technology in India thus allows this study to observe the points of convergence and divergence in the policy framework of *BharatNet* from these historic discourses.

The literature on place, space and scale discussed here (Lefebvre, 1970; 2003; Harvey, 1973; 2008; Smith, 1992; Marston, 2000; Marston, Jones & Woodward, 2005), and the discourse around the "Right to the City" (Lefebvre, 1991; Harvey, 2008; Mitchell, 1997) inform this study by providing a conceptual framework within which to situate the central question of access to technological resources as produced by policy, which functions through reification of the

rural-urban divide. The NOFN project's objective to bring connectivity to villages and bridge them into the virtual/ global community of Internet can be read as a top-down effort by the government to induce a predefined scale jump (Smith, 1992; Brenner, 2009) that is articulated within the urban-rural ICTs for development paradigm.

There is as of yet, little literature that explores the connections of space and scale literature with political economic analysis of media, scholarship on mass media being more "time-centric" (Rosati, 2007). However, it is possible for space and scale analysis to be used to look at issues of media and accesses in emerging economies with this study making such an attempt. A significant application of scale literature can be the use of scale jumping (Smith, 1992; Brenner, 2009) to understand the intersections of social justice movements, media and communities in emerging economies. Escobar (2000) attempts to look at the relationship between power, development, and communication from a critical development perspective by looking at two key processes: the growing importance of technological networks and the defense place against delocalizing and globalizing. For Escobar, both place and networks are connected by relations of power.

Further, the changed connotations of time and space are examined to understand better how one might know relationships between local and global in a communication network. We can look at how scale and territoriality come into play when trying to analyze the linkages between space in a "physical" sense and "virtual space" where the technologies of media often function. The issues of governance and the access to the Internet and the development of an international Internet policy which is cognizant of issues of territoriality presents us an opportunity to combine the frameworks of space and scale with that of political economy. What does it mean for instance, when the Government of India asks its officials to stop using Gmail for

any official communication, in lieu of the NSA surveillance scandal (Economic Times, 2013)? How does one factor the seemingly “virtual” location of Google as different from its physical location of production in North America and elsewhere and connect it to the exercise of territoriality and by extension that of sovereignty, being made by the Indian Government which is currently in talks with international tech giants such as Google, Facebook and Microsoft on a range of public-private partnership projects.

Christophers (2009) in his analysis of the spatial organization of the television industry argues that geography, power and knowledge intersect in significant ways and play a role in the process of accumulation of media capital. The discourse of globalization and the oft-touted move away from the state (Sparks, 2007) and its impact on the structures of media ownership and consumption, the linkages between the locations of media production and the locations of media ownership, the patterns of global consumption of media, the creation of telecommunication networks and regulatory frameworks in developing economies and the impact of regional scale conceptualizations such as the BRIC model and ASEAN situated within the epoch of neoliberalism, and the reconfiguration of the Global South (Harvey, 2005) are other issues where an analysis informed by the literature on scale could bring new insights into our understanding of media and communication networks in developing nations.

Recognizing the interconnectedness of social interactions on a global scale (Brenner, 1999) asks us to reject space as static and rather view it as “historically produced, reconfigured, and transformed” and argues that current forms of globalization have “radically reconfigured the scalar organization of territorialization processes under capitalism, relativizing the significance of the national scale while simultaneously intensifying the role of both sub- and supra-national forms of territorial organization.” The state-centric approach that dominates most thinking can

then be opened up to allow for a new conceptualization of territoriality at sub and supra national scale as transnational capitalist forms of organization under neoliberalism keep expanding. The global capitalist market, as described by Marx, becomes both a product of capitalism's historical processes and simultaneously its geographical expression (Brenner, 1999).

While the fixity of geographical, territory bound space has been thrown into considerable flux through processes of globalization and consequent space-time compression, it is at the same time, important to acknowledge the presence of immobile spatial organizations such as urban buildings and spaces, transportation networks, and fixed infrastructure grids whose presence then allows for geographical expansions and conceptualizations that seemingly are unbound by constraints of time and space. As Harvey (2006) points out, spatial organization in its own way allows us to overcome space. Keeping in view these dichotomies when attempting to understand the new urban space and the rural-urban divide, it must be noted that while the urban space exists in "fixed" concrete terms through traditional forms of urban planning, development and infrastructure and can be defined territorially, the urban is also a generalized global condition, and the convergent point of regulated political-economic life, capital accumulation and everyday social interactions between and amongst the privileged and the marginalized thus becoming a site of struggle, aspiration and contestation for the future all at the same time.

Further in the current context, political economy which has traditionally looked at the issues of the developing world, if one can hold those strict geographical distinctions anymore, in terms of what is lacking, can be reconfigured to question the contradictions of access and availability that can be observed in most developing nations and observe the schisms between state market and civil society within the *BharatNet* rollout.

CHAPTER III. METHOD

This chapter focusses on outlining the research design of this study. First, an overview of the philosophical foundations, including the ontological and epistemological stand of the study is discussed. Next, the details of the case and research questions are offered, along with a definition of the relevant terms and constructs, as used and operationalized in the study. The methodological frameworks used to approach this study are detailed along with a rationale for their application. A breakdown of the research design is offered with specifics of method used to address the research question, protocols of data collection followed, and methods of analysis applied to the data. The conclusion includes some reflections on challenges, limitations and the issue of researcher reflexivity.

Philosophical Foundations of Study

This study follows a critical, qualitative method of inquiry that is based on inductive principles of research (Lindloff & Taylor, 2012). It does not claim to purport or arrive at any immutable, singular truths, but rather focusses on gaining fresh insights on the proposed research questions through a process of engaging with contested concepts of governance, citizenship and technology that are constantly being reconfigured and will continue to be reinvented, long after this project has commenced. Further, this study draws its observations from an ideological stance. It is the belief of this researcher that in the present day and age, access to communication technologies such as the Internet is a fundamental right, an idea that has been supported by the UN (2011), and that nations across the globe have a responsibility towards their citizens in providing/facilitating and mediating access to inclusive, barrier free communication and information technologies. It is also the belief of this researcher that while the role of communication technology in facilitating/aiding the process of development is desirable, that

citizens” access to technology should be defined and facilitated in ways that are less top-down and treat rural citizens as stakeholders rather than “targets” of development and an exercise in improvement of macro level indices (Sen, 1992; 1999).

Ontology

The ontological premise that informs this study is three-pronged. One, it recognizes the discursive nature of reality specifically with regard to its positioning of policy as a communicative practice with real social, political and economic consequences for the populations it is directed towards (Fischer, 2003). Second, it identifies that policy and the process of ideation and execution involve actors such as the state, market powers, civil society, and multilateral agencies. These take place based on certain taken for granted but increasingly questionable assumptions about state sovereignty, nation, citizenship and the rule of law that are commonplace to most understandings of modern governance and social life, or what Searle refers to as “institutional fact” (1979 as cited in Schmidt, 2009). Searle (1995) refers to institutional fact as those objects that exist owing to a collective agreement on part of society on what counts as an institution – money, marriage, government and so on (Schmidt, 2009). These objects created through speech and action outgrow their purely argumentative origins and evolve alongside historical and economic processes. They are becoming and being at the same time.

It follows, that these concepts, achieved through historical processes of mediations and negotiation, are knowable and observable through their symbolic representations in the form of institutions and institutional mechanisms and the artifacts they produce (Hajer, 2003). As such, they may be engaged with as a form of social reality. A concrete illustration in the context of this study is India. To investigate its policy processes this study relies on the institutional facts of India as a sovereign democratic state with an elected government and clear distinction between

the executive, legislature and judiciary. The constitutional framework provides for legitimacy to the state and rights of citizens. Even while stating this, the researcher is cognizant of the many discrepancies that arise between the letter and spirit of law, the lacunae between objective and implementation, the gaps between promise and delivery. These shortcomings of the instruments of governance are taken into account.

The third major ontological presumption that helps situate this study is the recognition of the pervasive nature of neoliberal ideology (Harvey, 2005) and the international, ubiquitous ideological apparatus of neoliberalism that function in seen and unseen way. That it is a constant is taken for granted, though by no means not uncontested or unchallenged, tenet of trying to analyze any form of socio-economic reality.

Epistemology

If truth (s) be variant and co-created and a product of discursive and deliberative actions, processes and institutional forces, how might one access such truth (s)? By unravelling and seeking the process behind the product. To do this, this study looks to theoretical and methodological frameworks from a synthesis of interdisciplinary bodies of scholarship. It begins by attempting to establish and analyze the dynamics that govern the actions and relationships of the state and the market. For this, it employs the theoretical approach of political economy of media, a body of literature that has been discussed in Chapter II. The discussion is picked up here again to reiterate its relevance to the methodological conceptualization of this study.

The study of political economy comes from a long tradition of research and knowledge of looking at the impact of systems and structures of governance and market on the lives of citizens. At its core, it is a study of power, of structures of power and their relationship to society, of how these structures are created and gain critical mass and how they are maintained

and reproduced through political, social and economic mechanisms of control. Political economy is both an expansive and interdisciplinary body of knowledge having significance for various fields in itself and simultaneously acts as an epistemological framework within which to situate research and research questions examining macro level issues (Mosco, 2009).

There exist several perspectives stemming from various schools of thought, practice and philosophy that look at political economy (Cohn, 2010) with very disparate approaches ranging from conservative to the highly critical. Notable among these approaches to studying relations between state and market being;

1. Liberalism; as espoused by Adam Smith in *The Wealth of Nations* and its subsequent variants involves an understanding of state market interaction based on openness towards the market and a restricted role for the state. Smith's major argument is against the tendency of economic protectionism where he alludes to, if not clearly develop the principle of comparative advantage which was later proposed by David Ricardo.

2. Realism; commonly understood as the oldest theory of international relations and by extension that of political economy, realism's intellectual roots can be traced to mercantilism and the ideas of economic nationalism as promoted by economist Alexander Hamilton (Cohn, 2010). It promotes a state-market equation where the market serves the state in its quest for seeking and maintaining power.

3. Historic-Materialism; the third theoretical perspective and the one that has perhaps most extensively been used in media and communication studies, this is a critical perspective situated primarily in a Marxian bent of analysis, it has spun a range of variants and focusses on looking at the relationship between the state and the market as dialectic and process oriented,

thus making it a suitable frame to approach policy making in the field of communication and media technology.

Mosco (2009) defines political economy as “the study of social relations, particularly the power relations that mutually constitute the production, distribution and consumption of resources, including communication resources.” A more general definition suggested by Smythe which defines political economy as “the study of control and survival in social life,” control referring to that process by which societies organize, adapt and administer their affairs (as cited in Mosco, 2009). Murdock & Golding (2005) identify four central qualities that make up the political economy framework that include; social change and history, social totality, moral philosophy and praxis.

As a methodological approach, political economy values historical and political context, particularly dialectical analysis. However, it is not positivistic social science and understands reality as being constituted through multiple sources and forces, rather than as an objective truth that exists of its own volition and thus can be observed and encapsulated as such by the scholar. The separation between what can be observed and what can be intervened in is not as clear cut as it with positivistic traditions of social scientific research (Mosco, 2009). In addition, it is not ideology free inquiry either. It goes beyond technical issues of efficiency and content to engage with basic moral questions of justice, equity, and the public good (Golding & Murdock, 1996) and operates with an underlying assumption that the media should act in public interest, an interest which political economists believe is rendered automatically inadequate when it acquires a commercial nature.

Much of, or at least much of this study takes under consideration when we look at political economy as applied to media is heavily influenced by Marxian thought and material

dialectics. It presupposes the existence of capitalism and centers the issues of inequality in accordance with that. Several writers including Schiller (1969), Golding (1978) and McChesney (2000, 2007, 2008) have been concerned with capital accumulation and the dynamics of production and the ways in which power is expressed in such systems and the nature of media industries it gives rise to. Garnham (1990) writes that political economy is “always concerned with analyzing a structure of social relationships and of social power. But it is particularly concerned to analyze the peculiarities of that system of social power called capitalism,” (p.7). While one is loath to generalize, it can be argued with some amount of conviction in the case of critical political economy that it may not wholeheartedly be able to embrace any research question that does not in some way or the other address capitalism.

A second layer of theoretical inquiry that informs the study is the literature on place, space and scale (Lefebvre, 1970; 2003; Harvey, 1973; 2008; Smith, 1992; Marston, 2000; Marston, Jones & Woodward, 2005). If political economy addresses the interactions between state and market structures as they relate to a policy discourse on communication technology, space and scale literature create a conceptual framework in which the study attempts to situate this discourse i.e. how a capitalist, technocratic mode of governance through its policy apparatus bears upon the social, political and economic subjectivity of space; how a rural versus urban dichotomy is created/perpetuated and affects the citizenship that occupy, engage said space. The ways in which theoretical constructs of space and scale help in understanding how populations and citizenries are created in governance and valued within the larger paradigm of the urban/ rural are particularly useful to framing the research agenda of this project. The rural as a spatial category is central to the NOFN/*BharatNet* project in every stage of its policy conceptualization, implementation and execution.

The Right to the City (Lefebvre, 1991; Harvey, 2008; Mitchell, 1997) discussed in Chapter II is a nebulous cluster of ideas that arise out of an examination of inner city life, gentrification, failing public health and education resources and institutions, and a fundamental social justice argument that speaks out against the ways in which urban/global spaces and institutions of modernity are coded, planned and governed to deny access to those that are deemed undeserving of inhabiting it -- the homeless, the poor, and anyone who cannot “participate” in the social economy of the urban capitalist space. This study attempts to build on this argument in two ways. One as discussed in earlier sections, it articulates the right to access and the right to the technologies of access as an extension of the Right to the City. Secondly, this study uses the critical framework of the Right to the City to understand an often unseen but important objective that is historically embedded in the rurally oriented development policies in India, which is to stem the flow of rural to urban migration.

Researcher’s Subject Position and Background: Bridging the Personal and the Academic

Childhood memories are shaky and more often than not, a selective perception of a time and place. And yet, there is a particular, rather insignificant conversation that I remember from a long time ago that I often find myself crediting as my first tryst with the imaginative power of the Internet. In my grandparents’ home in the city of Bangalore, a place which on account of its cosmopolitan reputation has always represented to me the epicenter of everything that was new and exciting, I first learnt of the existence of the Internet, as my cousin told my father about his friend, who had recently gotten a dial-up connection and how the friend was in trouble because the phone bill had been astronomical that month.

That the Internet was something that tied up the phone lines and drove up the bill was the only takeaway I had from the conversation, to which I confess I paid little interest to and to

which was I not even directly party to. It was not until a couple of years later, at the age of twelve, when I was surfing the web to my heart's content at all the speed that a dial-up connection could support, and having my own parents reprimand me for tying up the phone lines for too long, that I truly understood what the Internet meant -- escape, freedom, possibly the greatest time sink ever invented by humankind. It was the Internet where I discovered the guilty pleasures of fan-culture, the addictive thrill of conversing with total strangers on chatrooms, the explosion of audio-video content through media streaming, the existence of Wikipedia and later the all-pervasive world of social media and cloud computing. Thus was born a life-long fascination with the Internet and everything about it and its power to open doors of information, a fascination that lies at the heart of this academic, research based study.

As a researcher, I find it important to note that I am informed by the perspectives of my own technological experiences as these have helped me shape, construct and ideate my research agenda. Being a digital migrant who had the opportunity of being on the cusp of India's telecommunication boom, I went from being in an environment of digital scarcity to one of extreme abundance in a period of few years. Growing up in the 1990s and the 2000s shortly before the Internet and later cellular telephony had its moment of arrival in the country, I share a unique advantage with the peers of my generation in having been able to experience an important transition in the socio-economic history of India. I have lived through a time when obtaining a landline in the country could take as long as six years to a time now, when the local general store dispenses pre-paid sim cards for cellphones along with provisions such as laundry detergent. These disparate experiences of insufficiency and excess have had a significant bearing on my worldview about technology, both as a user and, upon my evolution as a scholar.

I remember the singular experiences of my own fascinated encounters with communication technology, my delight at having a home phone for the first time at the age of nine, my many visits with my father to the university's computer center from where he would send his emails, a concept I had little to no understanding of back then. I recall my own experiences of setting up an email account, of owning my first cell-phone and the joy of discovery that has accompanied each such moment going forward. From my days of adolescent wide-eyed wonderment, a large part of which I confess, I still retain to this day every time I have the opportunity to play with a new gadget or technology, I have grown to appreciate and understand the significant role technology can perform in bettering the lives of individuals through access to knowledge, information, opportunities and networking.

While stating all this, I recognize that the discourse of technology as with anything else, is not value free and contains embedded subjectivities that merit critical attention. I do not advocate a deterministic view or believe that technology is a panacea to all problems in itself, but I do take a positive view of communication technology and emphasize the necessity of facilitating access to the same. My inquiry into the *BharatNet* project tries to unravel the issues present in technology access initiatives but does not question the necessity of access itself.

In attempting to interrogate the nature of rural discourses on technology, I wish to acknowledge my own privileged socio-economic background and my location as a resident of major cities such as New Delhi, Bangalore and Hyderabad in India, that have afforded me unfettered access to communication technologies and thus no doubt shaped my own *must have, always on* perspective on them. I do not have the lived experiences of a rural citizen of India and cannot claim to share their realities in any way, shape or form. Nor can I claim to speak for them or articulate their needs. As such, I have made all attempts in this project to be reflexive of the

intentional and unintentional biases this irreconcilable distance from my chosen site of study might present through constantly self-checking assumptions, and reassessing my motivations in doing this study. While acknowledging the realities of power disparities between the rural poor and neoliberal forces, I have tried to engage in the process of mounting institutional critique without losing sight of the people who are at the core of these processes, or treating them without agency.

Conceptualization of Site

Building upon Massey's conceptualization of "place" (1994), to the idea of the research site, allows us to see and analyze connections among sites as lived social relations. Place is not merely geographical, but an intersection of social relations without necessarily a fixed boundary. This study focusses on state dictated development discourses on technology via a vi access and attempts to interrogate the intersecting and overlapping spatial, global and local dynamics of such a discourse. It therefore situates policy struggles and production along multiple loci in an effort so as to be more inclusive of the various above mentioned factors. Drawing from Marcus' (1998) idea of the "multi-sited research imaginary" and Massey's (1994) aforementioned concept of place, the study proposes a fluid understanding of site that is conducive to an effective, critically oriented analysis of local-global relations and is cognizant of: the ways in which specific localities are connected to the outside world, and the ways in which global processes impact local places (Burroway, 1991; Tsing, 2005)

Braman (2003) tracing the history of communication research on policy issues, tracks three significant shifts in the "locus of structural activities." These include 1. the government, 2 international multilateral agencies and 3. the political cultural location in question. Keeping this framework in mind, the research site for this project is drawn from multiple locations including-

the Indian telecommunications policy framework arising from the government, the economic and social development approaches taken by international regulatory regimes such as ITU, WTO, WSIS, UN, and from the political/culture location of the rural citizenship of India where these two levels of governance may intersect to create action, outcome and event.

These loci of interactions converge in the *BharatNet* project and are applied to the rural which as a space of governance becomes defined through the political boundaries of the *Gram Panchayat* (as defined by the constitution of India) and the ways in which it is positioned in welfare politics, and as a location where problem, action, outcome and representation are being defined through the rhetorical, political and economic instruments of policy discourse through the larger institutional processes of the state and the market.

Description of Case

BharatNet

The focus of this study is *BharatNet* or the National Optical Fibre Network (NOFN) as it was initially named in India. *BharatNet* is a national level broadband project that attempts to provide broadband access to 2,50,000 *Gram Panchayats* in the country. A *Gram Panchayat* is a local self-governing body at the village level that forms the most basic building block of India's democratic government. A *Gram Panchayat* comes under a "Block," a sub-division of the District level. Together these three layers make up the basis for rural administration in India.

Currently, optical fiber cable connectivity is available in state capitals, district headquarters and at the block level in India. By bridging the infrastructure gap between the block and the *Panchayat*, the government of India seeks to cover the last mile in terms of broadband connectivity. *BharatNet* once laid, is expected to be available for all service providers such as telecom operators, cable television companies and content providers on a non-

discriminatory basis. Further, *BharatNet* seeks to facilitate access to various e-services in sectors such as health, education, commerce and agriculture.

This project is funded by the Universal Service Obligation Fund (USOF) of the government and is budgeted at INR 70,000 crores (approximately USD 1.0 Billion). While the *Panchayats* are local self-government bodies and fall under the purview of their respective state level governments as discussed earlier, the *BharatNet* is a central government initiative that is being undertaken by central agencies and public sector undertakings.

A Special Purpose Vehicle (SPV) called the Bharat Broadband Network Limited (BBNL) was created in 2011 to oversee the execution and implementation of the project. In addition to the BBNL, there are several agencies, ministries and bureaucratic organizations that have administrative and political stake in the project. Significant among these are the Universal Service Obligation Fund (USOF), the Rail Grid and the Department of Telecom which is the primary nodal agency that oversees the project. The policy impetus for *BharatNet* under the National Broadband Project comes from India's National Telecom Policy (NTP, 2012) which includes in its objectives the target of ensuring "affordable and reliable broadband on demand by the year 2015 and achieving targets of 175 million and 600 million at speeds between 2 to 100 mbps by 2017 and 2020 respectively."

In addition to this mandate, the policy aims to bridge e-governance and welfare services with broadband rollout and hard-wired infrastructure. Most importantly, the NTP (2012) recognizes telecommunications and broadband connectivity as a necessity on par with amenities such as education and health and is working towards the "Right to Broadband" as part of its larger mission. *BharatNet* operates conceptually on a national scale, but its ground execution and implementation takes place at a local level.

Pilot projects for *BharatNet* were tested in three states, in three different regions – Arain, in Ajmer district of Rajasthan in the North West, Parvada in Vishakapatnam in the South and Panisagar in North Tripura district in the North East. In 2015 at the time this dissertation was being completed, phases I and II of the project were underway. Further, as of September 2015, a proposal was being put forth in front of the Indian Parliament's cabinet of ministers to expand the reach of the project and use the infrastructure project to connect urban households (by state government) with broadband speed of up to 20 megabits per seconds and give more levy to state governments to come up with expansion/infrastructure projects as per the needs of each region.

Digital India

In 2014, *BharatNet* was included in the larger Digital India project of the Modi administration (DeitY, 2015). Digital India is a multi-aspect initiative of the Indian government to create large scale digital infrastructure, deliver e-governance services in health, education, welfare, and improve digital literacy and bridge citizen identification. The high-speed Internet project is focal to these efforts and is being regarded as the first step in the Digital India initiative (DeiTy, 2015). Digital India has been acknowledged as a top priority of the Modi administration and the *BharatNet* project has been publicly noted by the Prime Minister as being the infrastructure backbone to rollout the initiative (Economic Times, 2015). Digital India as a meta narrative of development, technology and governance in its subsuming of the rural broadband project, lends it new subjectivities, focus and a renewed lease of life. These connections are discussed in Chapter IV.

Research Agenda

This research project asks/engages and lays the groundwork for possible answers to the following questions through an exploration of the case of *BharatNet*.

RQ1: What are the dominant narratives and storylines emerging from the policy discourses and debates surrounding *BharatNet*?

RQ2: How do the narratives contained within the *BharatNet* project and position rural citizenship in India and construct notions of access and inclusion within the larger paradigms of market oriented efficiency and leisure?

RQ3: How do the narratives contained within *BharatNet* contribute to the Indian state's larger articulation and posturing of itself as an information/ knowledge economic power with strategic significance in the international economy?

RQ4: What are the dominant schisms and political-economic points of conflict and struggle surrounding the *BharatNet* project narratives emerging from civil society, market and other stakeholders?

RQ5: How does *BharatNet* as a project bear on the ideological production and perpetuation of international development discourses in terms of its adherence to the modernization paradigm and neoliberal interests?

Rationale and Implications

The so called telecommunication revolution (Mint, 2013) in India is a narrative that captures the imagination. Over the past two decades, India has assumed an increased significance on the world stage owing to its rise as an economic power particularly in the BRICS context. This has been in part due to its growth as a key hub in the IT sector. The country has seen major investment in knowledge and service economy enterprises and witnessed a noticeable boom in the telecommunications sector (FICCI, 2015). These developments have foregrounded the question of technological access in the policy agenda, particularly in an effort to compliment larger, supranational and multilateral efforts led by the WSIS, the UN and the ITU to center the

right to technology by policy initiatives such as the Tunis Commitment (2004) and the Right to the Internet movement (UN, 2011). A secondary push towards such initiatives comes from India's own posturing in international fora as an information economy hub and the state's desire to tap into human resources and capital. Looking at *BharatNet* affords an opportunity to gain insights on these two aspects. It also allows one to unravel a particular friction in the Indian political process. That is the ways in which the Indian state is attempting to negotiate the contradictions of a long, deeply entrenched legacy of welfare politics and state mediated access (discussed later in the study) that have always been crucial to the democratic processes of the nation and are central to maintaining loyal vote banks in the rural sector, with the increasing and concentrated efforts of the state to develop and strengthen the lucrative urban centric economic sector with market oriented policies and regulation. The issue of state rollback and the debate of balancing welfare concerns with those of growth is an issue that has parallels world over.

On a broader note, access to communication and information technology and more specifically access to the Internet has become a key agenda for almost anybody who has a stake in the communication and technology sector. Members of industry, content and service providers, regulators, governments, inter-governmental agencies, civil society activists are all currently engaged in the process of negotiating, contesting and preserving the right to access the information and communication technologies. The years of 2014- 2015 have seen a wave of net neutrality debates in the US and India. In the same time period, technology giants like Google and Facebook have rolled out contentious projects that are aimed at facilitating access to the Internet in nations and regions where people lack technological access through projects such as Loon and Internet.org. All these debates and efforts whether they be from industry, civil society or governments are centered around answering the basic question – how should we understand

access? It is the hope of this study to get at some angles of these debates through the analysis of *BharatNet*.

The study is aimed at critically examining problems of technological access and infrastructure in areas that have been historically underserved and ultimately provide useful deliverables on how the scope of access can be broadened. It seeks to be actionable in the field and add to the body of academic scholarship in the field of development and technology. Further, the research attempts to provide new insights into engendering rural access to ICTs within a policy agenda that takes a more inclusive view of rural citizenship. By connecting the larger question of expanding basic access within universal service, the research pursues questions of policy, access and the role of the state in the dissemination of technologies and how they impact macro level movements affecting the individual end-user.

Definition of Terms and Constructs Used in Study

The term *Information Society* is used here in various contexts. There is in fact no universally agreed upon definition of the information society and the contested nature of the concept is integral to the positioning of the research. However, for the purpose of clarity, the broad understanding of the information society referred to in the study has its roots in the Tunis Commitment (2005) of the World Summit on the Information Society (WSIS). Documents and actionable information (WSIS, 2003:2004; 2005;2007) that came out of these meetings went onto inform several national level policy initiatives including the Digital India and *BharatNet* projects that are the focus of this study. The Tunis Commitment notes three components as being the basis of the Information Society – 1. Information and knowledge, 2. Proliferation of information and communication technologies (ICT) and 3. Access to and use of ICTs. The

researcher also borrows from the work of Castells (2000; 2001) which discuss the idea of the network society and the central role of information in the new global economy

The term *policy document* here is used to refer to 1. any and all ideation and or principle and course of action, implementation and execution proposed by a state or state like institution or an agency, department or organization that functions under the purview of a state or state like institution which has been referenced, discussed or analyzed within the study, and 2. similar instruments articulated by relevant stakeholders (such as an industrial trade organizations, telecommunications company, business cartel or lobby) which can be considered to have soft power (Nye, 2010) to affect pressure of influence on the action/outcome of a policy related event if not legislative authority. These include;

1. Materials of a legally binding nature such as – laws, treaties, agreements, acts, amendments, articles, clauses and sub-clauses, rulings and precedents,
2. Materials with quasi-legal authority or mandate such as – agreements, declarations, charters,
3. Materials of advisory and or recommendatory nature such as – letters, communiques, review committee reports, consultation papers, white papers, minutes of meetings and parliamentary sessions, concept notes
4. Materials that are evaluative or assessment oriented such as – annual reports, review documents, statistical indicators and so on.

Within the scope of this project, the term *Information and Communication Technology* henceforth referred to as ICT is used here at two levels - first as a tool of information creation, manipulation and transformation and second in terms of these tools creating the foundation or pathways upon which other developments may be delivered. A report jointly authored by UNDP

and the Markel Foundation (2001) notes that ICT can be broadly characterized in one of two ways: ICT as a production sector (growth of computer hardware, software, telecommunications equipment and ICT-enabled services) and ICT as an enabler of socio-economic development (harnessing ICT to accelerate a wider development process).

Visions of an information society often represent a necessary nexus of these two components of ICTs where the accumulation and distribution of information is directly related to improved access to government services and the distribution of resources. Further understanding of ICTs are pieced together from the rhetoric of international and multilateral documents and deliberations including its potential to be “a tool for economic and social development” (Buenos Aires, 1994; Seoul Declaration, ADF 2002) and “an engine for growth” as referred to in the Maitland Commission Report (ITU, 1984).

The term *Gram Panchayat* is used here to refer to a local body of administration and governance at the village level under the Indian Government as defined by the Constitution of India. Historically, it referred to an assembly of five local revered, respected elders of the village who often weighed in on matters of village administration and local disputes. Post-independence this method of local governance was coopted into the Indian state system through Article 234B of the Indian constitution with some modifications. Provision for democratically elected *Gram Panchayats*, were made at the village level, *Panchayat Samitis* at the block/sub-divisional level, and *Zila Parishads* at the district level. In 1992-93, through the seventy-third amendment, this three tier system of rural governance was formalized and given constitutional status and the functions and powers of the structure were further clarified through the amendment. The *Gram Panchayat* now serves as a significant site of intervention for development policy building and execution. *Panchayat* is currently defined as “an institution (by whatever name called) of self-

government constituted under article 243B, for the rural areas;” according to Section IX of the Indian Constitution (added as part of the 73rd amendment and brought unto law in 1993).

The term *neoliberalism* is used here to discuss to a political-economic approach that proposes that “human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices” (Harvey, 2005). The pervasive success of neoliberalism has been in its ability to equate freedom of the markets with the freedom of the individual and position it as the true triumph of democracy. Whether one chooses to take a positive view of the neoliberal regime, or adopt a more critical stance on it, as this study does, acknowledging it is as socio-economic reality is key to building an institutional critique of development.

The term *development* here is a contested concept. Its traditional connotations as any and all efforts towards economic progress, improvement in hard socio-economic indicators such as per capita income and gross domestic product, improvement in significant sectors such as health, education, welfare, literacy etc. are acknowledged here as important and objectives worth pursuing. However, the researcher does not wish to take an unchallenged view of such development and emphasizes a more inclusive, critically reflexive understanding of development that is empowering to the communities it serves, sensitive to their subjectivities and includes them as empowered stakeholders rather than as targets of unilateral welfare measure. To use Sen’s (1999) argument for development as freedom, from poverty, poor economic opportunities, failing public resources and amenities and social and political oppressions, “if freedom is what development advances, then there is a major argument for concentrating on that overarching

objective, rather than on some particular means, or some specially chosen list of instruments.”(p.1)

The term *Universal Service* is used here to refer to last mile coverage and bottom line access. This understanding is based on the World Telecommunications Development Report (ITU,1998) definition of “the long term objective of making communication facilities available to every member of society on an individual or household basis, and it is used in particular in the regulatory-legislative framework to indicate the obligation of telecommunication operators to provide their services to the entire population.” Further, it states, “Universal access is now not so much an engineering or supply-side problem but rather a regulatory and policy challenge.” It includes the following under the scope of universal service: access to telephony, availability/affordability of communication services, connecting the last mile and most importantly, universal service as provision of information infrastructure.

Discourse, Frame and Narrative: Towards a Critical Framework of Policy Analysis

How might we understand policy? Dye (1984) uses a simple but effective definition – “whatever governments choose to do or not to do.” Lowi & Ginsburg (1996 as cited in Fischer, 2003) define public policy as “an officially expressed intention backed by a sanction, which can be a reward or a punishment.” These may take the form of law, statute, regulations, order (Fischer, 2003). A UNESCO report on global communication policy in (Dias, Nordenstreng & Wiio, 1979) proposed the following definition of communication policy -

Communication policies are sets of principles and norms established to guide the behaviour of communication systems. They are shaped over time in the context of society’s general approach to communication and to the media. Emanating from political ideologies, the social, economic, cultural and legal conditions of the country and the

values on which they are based, they strive to relate these to the real needs for, and the prospective opportunities of, communication. (p.7)

On a more conceptual note, one might understand policy as an instrument of power to yield change or status quo, and as a discursive space of social meaning. Depending on how one chooses to understand policy, there are several ways to approach an analysis of policy discourse. Dunn (1981) defines policy analysis as “an applied social science discipline which uses multiple methods of inquiry and arguments to produce and transform policy-relevant information that may be utilized in political settings to resolve policy problems.” (p.35)

Earlier technocratic positivistic models have taken a problem solution effort, cost-benefit analysis, risk assessment or an advisory/recommendatory exercise that seek to transplant managerial practices to aid democratic governance (Fischer, 2003). As discussed earlier in the section on international development, these methods of analysis tend to frame development and underdevelopment through an application of rational planning and governance to towards the objective of end oriented measures, indices such as GDP, per capita income etc. (Scott, 1998;Hawkesworth, 2009) and as citizens/end-recipients of such exercises as “targets” (Sen, 1992).

Critical and interpretive policy approaches focus more on understanding policy by getting at its discursive, deliberative and institutional dynamics. The use of “frames” in public policy analysis is common to understand how policy rests on “selective structures of beliefs, perception and, appreciation,” (Schoen & Rein, 1994 as cited in Fischer, 2003). Policy analysis may take the form of narrative inquiry (Fischer, 1989; 2003, Hajer; 1993, 2003; 2005), where a micro-narrative on a policy issue may be understood as discursive practices, and a set of stories or story that conveys a social or political experience. A narrative “is a mode of explanation designed to

tell us what happened and what it means,” (Fischer, 2003). The ordering process allows the researcher to connect the known events to the unknown (or unacknowledged) events and investigate the effect one event might have upon the other (Hajer, 1995). Thus it is a useful methodological tool to bring together a cluster of events, outcomes and reactions in a format that enjoys universal familiarity: that of storytelling.

But the task of critical policy analyst is to go beyond the story, to recognize the sources of conflict that might emerge, to access the institutional forces acting on the narrative, to get at the heart of the discourse. Hajer (1995) defines discourse as “a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced and transformed to give meaning to physical and social relations.” (p.44). Howarth (2002) refers to discourse as “historically specific systems of meaning which form the identities of subjects and objects.” For Schmidt (2009), discursive interactions in policy can be placed into two interconnected domains of the public sphere of communicative action (Habermas, 1989) which is a useful way of approaching this study.

1. The policy sphere, where “coordinated discourse” happens amongst those who create and deliberate upon policy. These actors usually include government, experts, technocrats, lobbyists and interest groups who create, form, shape and transform policies. These actors form what Hajer (1993) refers to as a “discourse coalition,” a discursive community that is attempting to create a set of social meanings around an issue, technology and access in the case of this study. Discourse coalitions may also be understood as a set of actors who may share ideas across a period of time (Lehmbruch, 2001), for example the discourse of neoliberalism shared by academics, governments and economist across time periods.

2. The political sphere where “communicative discourse” happens between policy actors and the public through presentation, deliberation, argumentation and the consequent contestation or legitimating of a policy idea by way of speeches, media events or artifacts, public discussion and so on.

One no longer finds policy deliberation happening in a vacuum of unchallenged state sovereignty (the researcher would like to argue that it ever was the case, is also a highly questionable premise) but rather in a multi-stakeholder process of negotiation and contestation with various voices including those of the market, civil society, social justice groups all vying with one another to make sure their needs and interests are being served. When we access the communicative and coordinated spheres of communicative action together and look for points of convergence and overlap, we arrive at a more complete picture of policy discourse.

Increasingly, as transparency and openness become buzz words in the public sphere and the presence of multiple stakeholders in the global political-economic process is acknowledged as a reality, “government” as a concept is undergoing a conscious transformation to the less state centric concept of “governance.” To govern, wield influence, affect change and create policy is no longer the exclusive domain of the state. The nature and needs of the global economy have made its role diminished or at the very least heavily reconfigured to accommodate the voices and influence of transnational organizations and agencies, media outlets, market interests, trade lobbies and consortiums, intergovernmental and regional bodies with state or state like powers such as WTO, UN, EU, ASEAN. To a far lesser extent but still noticeably so, this also includes a voice of the civic society contoured by the nature of millennial politics and activism.

Hajer (2003) notes the shift in the vocabulary of policy making over the decade and observes that “terms like “governance,” “institutional capacity,” “networks,” “complexity,”

“trust,” “deliberation” and “interdependence” dominate the debate, while terms like “the state,” “government,” “power” and “authority,” “loyalty,” “sovereignty,” “participation” and “interest groups” have lost their grip on the analytical imagination.”

A policy document/statement/deliberation does not exist in non-reactive isolation but elicits a wave of reaction and response and becomes part of the public debate through what Hajer (2003) refers to as dramaturgical processes and elements such as parliamentary sessions, round tables, media events, public response mechanisms, social media campaigns, media reportage and discussion, invitations for consultations and comments and the maintenance and updating of websites and portals. To sum up, there is a both a performative and a discursive aspect to the process of policy making that go beyond the closed doors drafting of legalese by state power brokers. Piecing together these various elements and voices (some of which might be contradictory to one another), this study attempts to build the narrative of policy building and execution around the governance of technology and unravel the dominant themes, points of friction and discursive elements of the technology discourse surrounding the NOFN project.

Method

To address the specified research questions, the study used a combination of qualitative content analysis methods to study a wide and diverse range of policy documents and artifacts, media reportage and information from web portals. Using a content analysis approach to text informed by narrative inquiry as applied to policy analysis (Hajer, 1995; Fischer, 2003) and thematic analysis, this study unpacks the policy discourse and deliberation by tracing the storyline of the NOFN project and its eventual metamorphosis into *BharatNet* and amalgamation into the Digital India initiative.

The study understands policy discourse as communicative practices that have discursive and social outcomes and examines the events, documents and artifacts that emerge around the project for dominant themes and categories, points of friction and sense-making elements. It situates the multiple stakeholders in the process and identifies their voice within the power structure and its ability in affecting event, action and or outcome. Going beyond a strictly interpretative, language and argumentation centric approach that is common to narrative inquiry, the study aims to also understand and critique how policy frameworks create discursive realities that connects language to action in a particular ideological context through an application of the earlier discussed theoretical frameworks of political economy, space /scale scholarship and the ICT for development concept.

Policy Analysis

The primary research method that is used here is the critical analysis of policy documents. Policy documents are an essential component of bureaucracy and are indispensable for any legitimate action that can be undertaken by the state. They can be understood as sites of “claims to power, legitimacy, and reality” and are useful for their informational richness (Lindlof & Taylor, 2011). The study of documents as symbolic texts of analysis (Altheide, 1996) allows us to understand the process of decision-making, the scope of state power and the context within which action can be taken. It also provides us with benchmarks for assessment of said action. Within the social sciences research tradition, there are various understandings on what constitutes a document (Scott, 1990; Altheide, 1996; Syvertsen, 2004). Policy documents act as means of politically legitimizing theoretical knowledge and ideology and provide “the intellectual machinery that serves to transform abstract ideas into the realm of political calculation and action,” (Karipinen & Moe, 2012, p. 192). While traditionally, policy

documents have been used in research as “source of fact,” this study approaches them as texts or social artefacts in themselves with consequences (Fischer, 2003). This approach acknowledges the themes and discourse that emerge when the state or state like institution frames a specific policy issue that have political implications beyond that of the surface institutional rhetoric they carry. Documents are understood as frameworks of meaning with real discursive power which when interacting with larger institutions and institutional actors such as governments, regulators and other agents influence social reality.

Hajer (2003) points to three dimensions of policy deliberation— an evaluation of pros and cons and an understanding of multiple viewpoints, a negotiation of the underlying implicit control structure and the cultural politics involved in the process. In his discussion of an “institutional void” in the process of policy deliberation, Hajer (2003) asserts that policy making and deliberation extends beyond the realm of the state and the mere mandate of rule creation to an action oriented process that is taken by a variety of stakeholders and is bolstered by “soft law” and multilateral regulatory frameworks. Through an examination of the instruments of policy and the deliberative and discursive events, actions and outcomes they yield, the study attempts to understand the state discourse on technology and the place of the rural citizen within it.

Thematic Media Content Analysis

The media acts as an important political sphere of communicative discourse in India (Habermas, 1984; Jeffrey, 2000; Ninan, 2007). The concept of the public sphere offers a way to create a normative category to establish political critique (Hohendahl, 1979) in which one can place the shifting nature of government, the changing equation between government and citizens and a place where the rituals of public debate and discourse play themselves out. The media is both an important institution and actor in the discourse of policy deliberation. It is the platform

where state and market based institutions make their voices heard. By reading the media as a space where the points of conflict and tensions about *BharatNet*, that may not necessarily reveal themselves in policy documents, get reflected through reportage and public debate, the study attempts to access a more comprehensive narrative of the NOFN/*BharatNet*. This study therefore includes a thematic analysis of media content sampled from major Indian newspapers available on the *BharatNet* in an attempt to access the voices of dissent and support on the project from state, industry and civil society that may not necessarily be clearly visible in the artifacts of policy deliberations themselves.

Data Collection and Sampling

A very wide range of documents, statements, artifacts and media reports, authored by various institutional actors and stakeholders were included in the study to piece together the analysis of the NOFN/*BharatNet* project. The specifics of the sampling procedure followed, data ranged and organizational principle followed is included here.

Establishing the Timeline

Policy processes cannot be observed in temporal isolation. They are built on precedent and derive their legitimacy from the presence of pre-existing legislative apparatus. To be able to make historically relevant connections, create sound context and establish a clear continuum of political, social and economic activity, the study draws its data from a timeline that goes back to the creation of the independent Indian state in 1947 and the establishment of the Constitution which is the seminal governing document of the Government of India, up until July 2015 which saw the celebration of the Digital India Week by the Indian government. The time-line to source data for this study was intentionally opened up to allow the study to access relevant and selected policy instruments in the form of laws, acts, documents, and resolutions that provide the

necessary context and background from previous decades, so as to ground the analysis of more current and directly relevant artifacts and documents that address the NOFN/*BharatNet* project.

Post-independence (1947) – 1990. Relevant sections of key policy instruments were identified to be part of the analysis of this study to create and establish political-historical background. These artifacts include - sections of the Indian Constitution that outline the Directive principles of State Policy (Part IV. Section), the 73rd amendment that outlines the creation and functions of the *Panchayat* system and the Industrial Policy Resolution of 1948 which was the foundational document of independent India's economic system.

1990-2010. The period after 1990s was a turning point in the socio-economic history of India and the telecommunications sector. Following a financial crisis and the IMF reforms which included large scale liberalization, privatization and opening up of markets, a series of policy measures were adopted in the country which reshaped the telecommunications market and industry and in effect created the policy environment that made the NOFN/*BharatNet* project possible. Therefore, relevant policy instruments and artifacts from this time period which include key pivotal legislations and framework documents on telecommunications and information and communication technologies have been included, along with relevant international policy documents from institutions such as the WSIS, UN, ITU and Broadband Commission. These documents were used for reference and for further analysis where deemed necessary.

2011-2015. This time range covers the events and deliberations that took place around the NOFN/ *BharatNet* project and was the range of data that was most closely analyzed, as these documents had the most bearing on the research questions raised in the study. They included consultation papers, communiqués, reports and laws and acts.

Sampling

The study broadly followed a purposive inductive method of sampling by 1. Canvassing relevant websites maintained by the Indian Government and its concerned agencies and departments, by relevant international agencies, and websites of major telcos and representative trade organizations for documents, statements and artifacts, 2. Using the LexisNexis academic database to compile news report and articles.

Websites and portals used as sites of gathering data for policy documents, statements and information include – www.deity.gov.in, www.dot.gov.in, www.trai.gov.in, www.usof.gov.in, www.narendramodi.in, www.digitalIndia.gov.in, www.bbnl.nic.in, www.arc.gov.in, www.India.gov.in, www.itu.int, <http://www.broadbandcommission.org/>, <http://www.un.org/>, <http://www.itu.int/net/wsis/>, www.airtel.in, www.coai.com, www.auspi.in, www.digitaleurope.org, www.tiaonline.org, <http://parliamentofindia.nic.in> .

The following criteria and parameters were applied to define the boundaries and limits of the texts chosen and the analysis to be done;

Policy Documents and Statements. An operationalization of the term *policy document* has been provided in an earlier section of this chapter. Relevant instruments of ideation, and or course of action proposed by the state, state like institution or relevant stakeholder (such as an industrial trade organization, telecommunications company) were considered as sources of text while setting the scope of data collection for this project. These included (as mentioned in the terms and constructs section) -

1. Materials of a legally binding nature such as – laws, treaties, agreements, acts, amendments, articles, clauses and sub-clauses, rulings and precedents,

2. Materials with quasi-legal authority or mandate such as – agreements, declarations, charters,
3. Materials of advisory and or recommendatory nature such as – letters, communiques, review committee reports, consultation papers, white papers, minutes of meetings and parliamentary sessions, concept note
4. Materials that are evaluative or assessment oriented such as – annual reports, review documents, statistical indicators and so on. The complete list of documents and policy instruments used in the study are listed in the appendix 1 along with specifics of their authorship, year of publication, type of document and source it was accessed from.

To further narrow down the sample and lend it focus, fulfillment of any one or more of the following criteria was established to include a document or instrument into the sample for analysis.

1. The document directly addressed some aspect of the NOFN/*BharatNet* or Digital India initiative by way of ideation, execution, review or assessment of the project that would be relevant to the scope of the study and the research questions posed. Documents that dealt with technical guidelines, boiler-plate information, procurement and tenders, were not included.
2. The document dealt with policy related to telecommunications, ICTs, Internet governance and regulation and was deemed relevant to establishing historical context and background to the case of NOFN/*BharatNet*.

3. The document addressed an important socio-economic issue (such as the Right to education, the Right to information, welfare related legislation) but had a bearing on the NOFN/ *BharatNet* case in ways that were relevant to the scope of the study.

In addition to the criteria set, it was also recognized that the documents in the data range were often likely to be broad-based and address many different issues, and contain duplicated boiler-plate information. This was true for even documents whose only focus was the NOFN/*BharatNet* case. For example, a consultation paper on broadband strategy by TRAI could also cover the rules and regulations for licensing or delve into issues of cable regulation. Therefore, in the stages of initial reading of the sample documents, only those portions of the documents that were directly relevant to the scope of the study were excerpted and chosen for further analysis in order to maintain the focus of the project and eliminate redundant data. A representative sample of documents used in the study are included in Appendix A.

The researcher recognizes that not all policy instruments are created equally or carry the same amount of institutional or legislative authority. However, there exists a common thread that binds them, in that they have a discursive ethos that are in conversation with one another and contribute to the overall narrative of the NOFN/*BharatNet* project. The study therefore followed a system of clustering documents around a specific action or event when analyzing them without necessarily applying a judgement about their source of origin or institutional backing. These considerations were brought in at later stages while organizing the inferences, where it was deemed, they were likely to have a bearing on further analysis.

Media Sample. In the conceptualization stages of this project, it was recognized that the voice of the state or multilateral agencies alone did not present the whole picture of policy deliberation. It was important to access the responses and reactions from various stakeholders

such as private players, trade associations and civic society and get at the points of conflict that might occur amongst the concerned actors. As the media often acts as the public sphere where a discourse around policy might not only play out but also be shaped, framed and propelled into public imagination in specific ways, print coverage on the NOFN/*BharatNet* project and the Digital India initiative was included as part of content analysis.

Using the LexisNexis academic database, a combined sample of news stories from the following daily English language newspaper outlets was created – The Hindu, Business Line, Economic Times, Hindustan Times, Times of India, Indian Express and the New Indian Express from January 1, 2011 to July 31, 2015 using the search terms “National Optical Fibre Network.” The newspapers selected were a mix of business papers and news dailies and are fairly representative of the various ideological positions of the mainstream Indian media. A total of 158 news stories which included interviews, news reports and a few editorials formed the sample. While a very vibrant vernacular press exists in India (Jeffrey, 2000), the choice of the English language press was made as these were dailies which have a national reach.

A secondary combined sample of news stories from three major news outlets was created using the Lexis Nexis academic database for the time span of January 1, 2014 to July 2015 using the search term “Digital India” which yielded 1113 news stories. This sample was not used for in depth content analysis and was only created for reference and background and cross referencing between the Digital India and NOFN projects. Following a round of screening, extraneous news reports that were not relevant to the topic and duplicated news items with high levels of similarity were eliminated from both samples.

Lastly, the archive of the Public Information Bureau (PIB) which is the press relations wing of the Government of India was searched for press notes, releases and statements

pertaining to Digital India and the NOFN/*BharatNet* project from January 2011 to July 31, 2015 for cross referencing and background with the media reports and for fact checking purposes.

Content Analysis

Document Analysis

Qualitative research software Dedoose and Nvivo were used to analyze the sample of documents collected. The following stages were followed as part of the content analysis.

1. Initial screening of documents was done to identify and excerpt the relevant portions of text that had a bearing on the case that was the focus of the study, using the criteria established earlier.
2. The excerpted texts were coded and tagged using the following guiding questions.
 - a. What is the central idea/talking point expressed in the text?
 - i. What narrative/ frame/ sense-making element does it employ?
 - ii. What stakeholder(s) does it refer to and how?
 - b. Which of the following function does the text serve in the document?
 - i. Definition of term or concept
 - ii. Articulation of objective(s)
 - iii. Statement of problem/issue
 - iv. Outlining of goals
 - v. Description
 - vi. Background/context
 - vii. Assessment
 - viii. Terms/guidelines

Following this process of coding and tagging, the coded excerpts were examined for similarity of ideas and function and accordingly collapsed into major categories for further analysis. A process of critical reading was then applied to the text to look for sense-making elements, metaphors, implicit themes and the ways in which they informed the research questions outlined in the study. Ideation and articulations around technology and ICTs and the ways in which they related to citizenship, state, and the urban- rural divide were examined. Finally, the points of conflict amongst stakeholders, issues, tensions and problems that manifested in the NOFN/*BharatNet* project were identified.

Thematic Media Analysis

The combined media sample drawn from the LexisNexis academic database was analyzed through qualitative research software. The following stages were followed in analyzing the content.

1. Initial screening of stories was done to establish relevance to the case and the project. Duplicated news items, items of low or negligible relevance to the topic were eliminated from the sample.
2. Stories were then tagged and identified as per the publication outlet, month and year of publication and level of relevance to the research study in order to observe any spikes in reportage around specific policy related junctures or events.
3. The central idea/talking point of each story was identified and coded and followed by identification of secondary, relevant themes and ideas.
4. Stories with special relevance i.e. an opinion piece by an important representative of the government or industry were marked.

Organizing Findings and Observations

Significant takeaways, findings and observations were organized in two ways to address the research questions outlined in the study- 1. creating a temporally organized narrative of the NOFN along the critical junctures of event, action, outcome and 2. outlining the dominant themes, categories, metaphors and ideas that emerged from the content analysis.

First, the major actors and stakeholders in the process and their voices in the policy process were identified and assessed. Following this, the findings and observations from the analysis of documents and media reportage was combined to establish a timeline of critical events, actions and outcomes through an identification of the origins, evolution, important points of friction and “turning points” in the policy deliberations surrounding the NOFN/*BharatNet* project. This timeline was then used to establish the temporal, discursive and dramaturgical elements and build the narrative of the NOFN/*BharatNet* project.

Challenges and Limitations

An obvious challenge this study presents is with the difficulty of assessing/ analyzing the rollout and implications of a project that is still under progress and has undergone changes, delays and modifications in objectives, benchmarks, goals and targets as it is being executed. The change in government in 2014 has also allowed for reformulating and repackaging the project. As a result, it is not within the scope of the study to provide an assessment of effectiveness or success/failure of *BharatNet* project in its present stage. The researcher acknowledges that such an analysis would be beneficial to offering a more comprehensive view of the study in the future. Within its present scope, the research hopes to capture the essence of the contested domain of policy making around technology and the many frictions and contradictions that present themselves in the process. It concerns itself with charting how a lofty

policy vision articulated through rhetorical policy instruments may find itself executed at the ground level and how it reacts and respond to critical responses from civic society, market and media and undergoes changes along the way.

A second major challenge the study poses, that feeds into the larger question of researcher reflexivity is that of attempting to access the contours of a debate where the end-user, the rural Indian citizen has little if any voice in the proceedings of a policy deliberation that impacts him or her, especially in the face of institutional powers that have much more powerful and vocal voices than the former. It is by no means the case, that conscientious civic society or activism is absent in the rural sector of India. Significant media and information based policy movements such as the community radio movement (Pavarala & Malik, 2007; Shukla, 2014) and the Right to Information act (RTI, 2005) touted as one of the most progressive information access laws in the world, are movements that came out of fiercely organic and rurally grounded activism (Thomas 2012;2014). However, in the telecommunication sector, such activism has been notably absent. A possible reason for this may have to do with the fact that participation in policy deliberations which are infrastructure intensive often require certain social capital, technical and legal knowledge which not all end-users in the rural sector may have. In order to overcome this, an effort was made to involve critical and counter civic society voices to the policy debate on NOFN by including the work of research based organizations and think tanks in India and South Asia that focus on Internet and telecom issues notable among which are LirneAsia and the Centre for Internet and Society. In addition, the possibility of feedback and reaction from end-users upon completion of the project remains a promising future direction for the research.

CHAPTER IV. RESULTS

This chapter discusses the major findings of the study. The first section provides an overview of the various stakeholders and actors that were identified in the process of analyzing the text and places their voice in the discourse. In the second section, the chapter pieces together the narrative of the NOFN henceforth *BharatNet* project that emerges from the examination of various national, international and market led policy instruments, events, reactions and outcomes. It traces the beginnings of a clear telecommunications policy framework in India post the IMF led liberalization reforms of 1991, the embedding of ICTs into the agenda concurrent to WSIS proceedings, and touches upon key infrastructure and e-governance initiatives which came before the NOFN. The section then goes in-depth into the deliberations and discourse of the project in an effort to address the research questions of the study-

RQ1: What are the dominant narratives and storylines emerging from the policy discourses and debates surrounding *BharatNet*?

RQ2: How do the narratives contained within the *BharatNet* project and position rural citizenship in India and construct notions of access and inclusion?

RQ3: How do the narratives contained within *BharatNet* contribute to the Indian state's larger articulation and posturing of itself as an information/ knowledge economic power with strategic significance in the international economy?

RQ4: What are the dominant schisms and political-economic points of conflict and struggle surrounding the *BharatNet* project narratives emerging from civil society, market and other stakeholders?

RQ5: How does *BharatNet* as a project bear on the ideological production and perpetuation of international development discourses in terms of its adherence to the modernization paradigm and neoliberal interests?

The chapter traces the important policy junctures and milestones in the NOFN project starting from its conception, implementation, roll out and eventual rebranding into the *BharatNet* under the Digital India initiative (RQ: 1). Treating the Digital India initiative as a bookend to the scope of the study, its significance in reifying the grand narrative of communication technology in rural development is discussed (RQ.2/RQ.3). The major points of friction and conflict amongst stakeholders and the way they play out throughout the timeline of the project are discussed within the analysis. (RQ.4/RQ.5).

Setting the Scene: Identifying the Actors and Placing their Voice in the Discourse

An analysis of policy documents and media content on the case of the NOFN/*BharatNet* revealed a number of important stakeholders in the policy discourse of rural connectivity emerging from several quarters of the state and the market. They are listed here in an effort to provide an understanding of the significant institutional actors, the power they hold and the relevance of their voice in the policy deliberations around NOFN/*BharatNet*.

The Discourse Coalition

Hajer (1995) refers to the discourse coalition as those policy actors who play a role in the formation, creation and shaping of policies. These include government agencies, technocrats and experts, lobbyists and regulators. They engage in “coordinated discourse” (Schmidt, 2009) amongst and within themselves to deliberate policy. In the case of *BharatNet*, the following policy actors can be understood as forming the discourse coalition.

Government of India. The state or in this case the representation of the state through the institution of the central government of India and its concerned agencies emerge as the most significant actor in the NOFN/ *BharatNet* project as evidenced through its key role in funding and overseeing the project. Media representation clearly associated the project with the institution of the state, even when being critical of the initiative, as do the several policy documents examined in the sample. During the timeline of the project from 2011 to present (2015), there were two administrations at the helm of affairs – the United Progressive Alliance (UPA) Government led by the Indian National Congress under Prime Minister Manmohan Singh and the National Democratic Alliance (NDA) government led by the Bharatiya Janata Party (BJP) under Prime Minister Narendra Modi who took charge in May 2014 after the general elections.

State Governments. The state governments emerged as key policy actors in one of the most important issues concerning the project, the right of way problem in laying optical fiber infrastructure. Initially their role was to assist the central government in clearing up on site hurdles and administrative problems. Following a revamping of the NOFN project in 2015 and the advocating of a state-led model as an alternative to the existing mode of operation, state governments went on to assume a more important role in the broadband project.

Gram Panchayats. The *Gram Panchayats* are the crucial point of contact that bring together the government and the citizen. They are the geographical representations of the last mile and are an important scale within the policy and governance framework and serve a crucial political and rhetorical function to the state's narrative of rural progress and development, welfare and technology.

DeiTy and DoT. India has a federal system of government in place, with the equilibrium of power tilting in the favor of the center. The Constitution of India classifies the division of powers and areas of control between the two levels of the government through the system of the Union, State and Concurrent lists and assigns any residual areas of control with the center. Accordingly, item 31 of the Union list (Schedule VII, List I) covers, “posts and telegraphs, telephones, wireless, broadcasting and other like forms of communication,” thus firmly placing the telecom sector within the purview of the central government.

The Ministry of Communication and Information Technology is the executive branch of the government that oversees the telecommunication sector through the Department of Telecommunications (DoT) and the Department of Electronics and Information Technology (DeitY). DoT and DeitY are the major government bodies that are responsible for policy making, administration and implementation of telecommunications and IT related matters.

Telecom Commission. The Telecom Commission was set up in 1989 to deal with the telecommunications sector in India. Vested with financial and administrative powers, the Telecom Commission is an inter-ministerial body that work in consultation with the DoT and is responsible for policy formulation, licensing, management of the wireless spectrum, monitoring the public sector undertakings etc.

Regulator. The Telecom Regulatory Authority of India (TRAI) is the independent regulating body like the Federal Communication Commission (US) and Ofcom (UK) that oversees telecommunications and broadcasting in India. It was established through an act of parliament in 1997 (TRAI Act, 1997) to create a regulatory and policy environment to facilitate the entry of private players in a field that was hitherto the exclusive domain of the government. The analysis of the documents reveals a complicated picture of TRAI as an actor in the

NOFN/*BharatNet* policy discourse. As an independent regulator, it has taken at several instances, a critical view of the project and its efficacy as is discussed later in the chapter and has publicly advocated a more involved role for the private sector. And yet, TRAI does toe the line in conforming to the government's vision of rural connectivity and does not deviate drastically from it.

Bharat Broadband Network Limited (BBNL). BBNL was the Special Purpose Vehicle (SPV) set up by the Government of India to create and roll out the NOFN/*BharatNet* project. It is the on point agency that is directly involved with the execution of the project and oversees procurement, contracting and operations.

Universal Service Obligation Fund (USOF). The USOF is the universal access fund of the government of India and the agency that funds the NOFN/ *BharatNet* project. The USOF derives its resources through a Universal Access Levy (UAL) at a prescribed per cent of the annual revenues that telcos make. It is the agency that designs and implements subsidy programs and mechanisms for servicing underserved areas through rural telephony and ICT projects.

Expert Committee. In January 2015, an expert committee was set up by the prime minister to review and reassess the *BharatNet* project. The committee which conducted a three-month review on the project, submitted an extensive list of recommendations that were key to reshaping the rural broadband project.

Trade Lobbies. The Cellular Operators Association of India (COAI) was established in 1995. It is a registered body whose members include cellular service providers and telecom infrastructure and equipment manufactures. It also draws membership from companies such as Facebook, Cisco, Intel and IBM. COAI is recognized as the official voice of the industry on matters of telecom and communication and has dealings with policy makers, regulators,

government bodies and other high level stakeholders. COAI has an important voice in telecom policy deliberation process as is exemplified in the later sections of this chapter. Another major body that represents the telecom industry's interests is the Association of Unified Telecom Service Providers in India (AUSPI) which has a smaller but fairly influential membership. In addition to these, international telecom bodies and trade associations such as the Information Technology Industry Council (ITI), Telecommunications Industry Association (TIA), U.S-India Business Council (USIBC) and DigitalEurope were also notable actors. Domestic and multinational telcos individually lobbied and sought remedies at various levels.

Multilateral Agencies. The role of multilateral agencies is also relevant in the case of *BharatNet*. International organizations with quasi-legal, advisory mandate play a very important role in directing the course of international development as has been discussed in Chapter II. In the context of this study, agencies such as the UN, ITU, WSIS and the Broadband Commission emerge as important policy actors as their deliberations on the "Information Society" and the objectives of the UN millennium development goals are a significant policy agenda that can be said to act as a blueprint for India's rural connectivity initiatives.

Private Sector. Private sector voices found ample representation in the policy deliberations around the NOFN and more importantly in the larger Digital India initiative. The industry was often consulted and represented in several high level discussions around the project and their voices sought by the media for opinion and comment. At the same time, the industry for a large part maintained a vocal critical stance on the viability and feasibility of the rural connectivity project in the face of the delays and problems faced by the NOFN project. Following a move to include more private players into the project in 2014, major tech giants including Facebook, Intel, Cisco, Microsoft and Google find a notable voice in the rural

connectivity discourse along with telcos such as Airtel, Vodafone etc. as is discussed in later sections of this chapter.

Together these policy actors weighed in with differing levels of influence on policy around rural connectivity in India and exercised an impact on the conceptualization, implementation, execution and metamorphosis of the NOFN scheme into the *BharatNet*. In conjunction to the realm of the discourse coalition (Hajer, 1993) is the political sphere of communicative discourse where the legitimation and contestation of policy ideas occur (Schmidt, 2009) which can be found in the space of the media and in the efforts of the government to communicate its ideas and information on project of NOFN through – websites, press events and information, audio-visual material, speeches etc. Through a joint reading of these spaces, this study provides a narrative of the policy on *BharatNet*.

Telecommunications Sector in India: Background

Kapur (2005) writing for the Harvard Magazine notes, “It has long been claimed that everything one can say about India is true and so is the opposite,” (p.36) Perhaps an oversimplification on the problem of plenty and scarcity, the statement in its own way reflects a common symptom of neoliberal success stories. The transformation of the telecommunications sector in the country is an undeniable fact. There is also an undeniable fact that there are villages in India where basic electricity remains a luxury even in 2015. To arrive at the narrative that sets off India’s “telecommunication revolution,” a term of discourse that this study borrows from its constant circulation in the media, popular press and academia (Singhal & Rogers, 2001; Kumar & Thomas, 2006; Vardharajan, 2012; Mint, 2013), there is a need to discuss the “before.”

Major Policy Actors in *BharatNet*

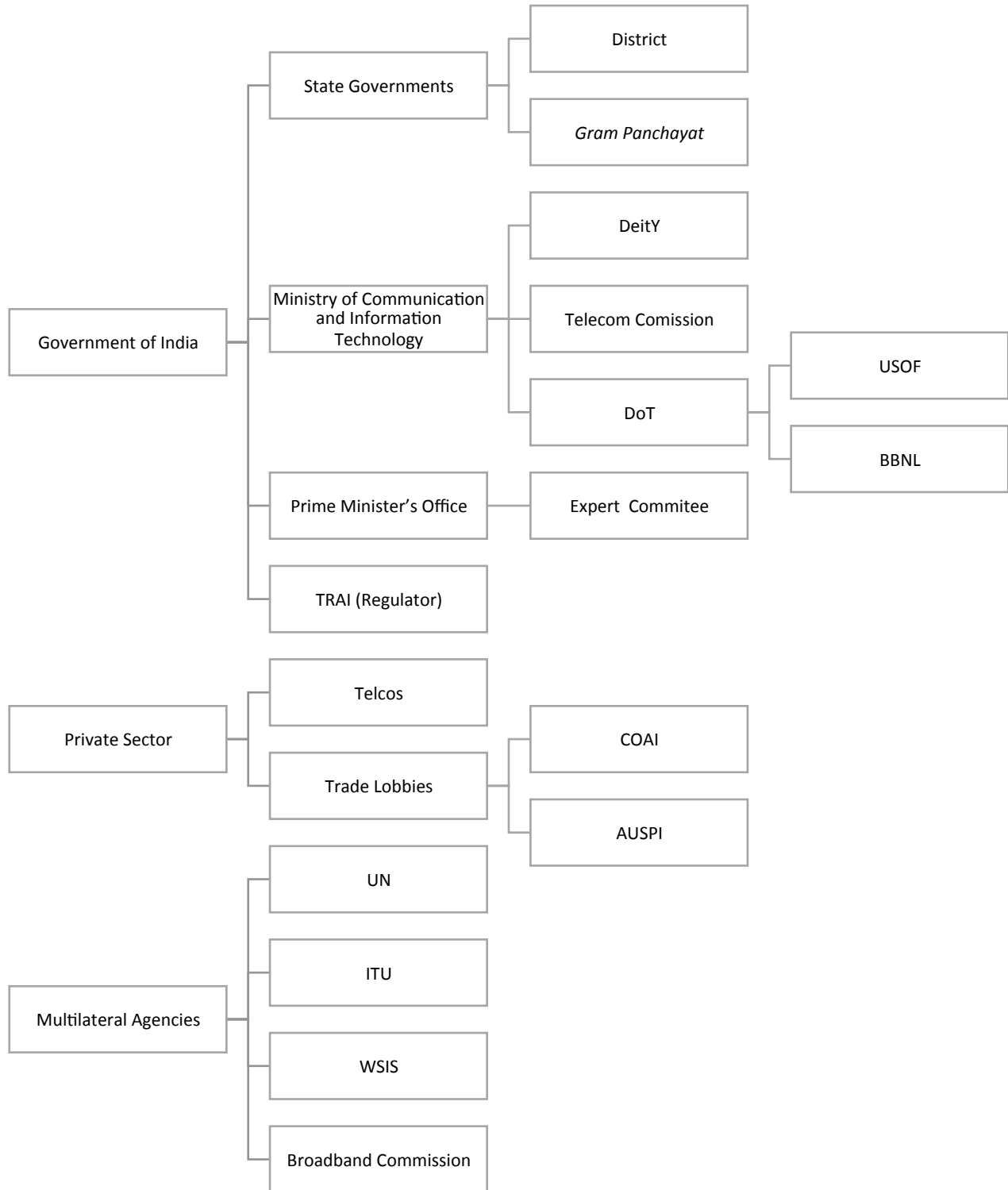


Figure 1: An Illustration of the Discourse Coalition on *BharatNet*

Chapter II touched upon the historical policy approaches that the Indian state followed with regard to the control and use of broadcasting and telecommunications (Gupta, 1995; Mehta, 2008). It also discussed the larger developments in the international telecommunication sector where market forces and transnational regulatory regimes such as the GATT and later the WTO were transforming telecommunications from a public utility into a highly lucrative industry in the 1980s and 1990s (Hamelink, 1994; Thussu, 2006; Melody, 2011).

The British colonial administration laid the first telegraph line in India in 1851 (Sinha, 2012) and later, passed the Indian Telegraph Act (1885) which became and continues to be the enabling legislation of communication infrastructure in the country. Section 4 of the act, provided the government with the exclusive right and privilege to establish and maintain telegraph systems. The Indian Telegraph Act firmly placed the communication infrastructure of the country under the purview of the state for the next century or so. Telephony was introduced in British India in 1881 following pressure by the Bengal Chamber of Chamber of Commerce. In 1883, the government established state monopoly over the telephone system through a resolution. (Administrative Report of the Indian Telegraph Department, 1883). Telephony on a commercial basis was provided through the Central Exchange in Calcutta (Kolkata) under the British administration and later through the telephone exchanges which were established in other major cities and towns. These exchanges were under the purview of the Indian Post and Telecommunication Department.

As discussed in chapter II, an attempt to reform the telecom sector and improve tele density was made under the Rajiv Gandhi administration in (1985-1991) under the leadership of Sam Pitroda through the establishment of National Technology Missions (NTMs). During this time, the Centre for Development of Telematics (C-DOT), to manufacture electronic telephone

exchanges, was created and the Department of Telecommunications (DoT) was separated from the Indian Post & Telecommunication Department. This was followed by the setting up of the *Mahanagar Telephone Nigam Limited* (MTNL) in Mumbai and New Delhi to service the two main metropolises of the nation, and the *Videsh Sanchar Nigam Limited* (VSNL) in the rest of the country under the DoT to provide domestic and international telephony services.

A major turning point in the state of things was the domestic economic crisis in India in 1991. Emergency aid was sought from the International Monetary Fund (IMF) which in turn came with conditions of economic restructuring and opening up the Indian market to liberalization policies. The New Industrial Policy resolution (1991) which became the foundational policy platform to implement these reforms had a profound impact on the economy of the nation, notably in the telecommunication sector where there had already been a growing demand from consumers for more telephone connections. In the 1990s, the Indian government opened up the cellular telecom sector to private players in the Value Added Services sector (VAS).

The National Telecommunications Policy (NTP) of 1994 was the key policy instrument that created the necessary policy and regulatory changes in the telecom industry under the objective of “telecommunication for all” to bring in private ownership and operations, foreign direct investment up to 49 per cent and partnerships between state telecom companies and international companies. In 2000, the VSNL operations under the DoT was restructured and separated from state administration and turned into a corporate entity which came to be the *Bharat Sanchar Nigam Limited* (BSNL), the public sector undertaking that today has a majority of the market share in the broadband market (TRAI, 2015).

The decade of 2000s witnessed the entry of several private players into the telecom sector (Vardharajan, 2012). This was largely due to the fact that licensing rules for telecom were relaxed and foreign direct investment was increased up to 74 per cent. It is allowed up to 100 per cent as of 2015. As a result of this, the cost of cell phone plans which had hitherto been prohibitively high for most Indian consumers dropped dramatically, and the market witnessed a sharp growth in the subscriber base. The number of cell- phone users went up from 37 million in 2001 to 846 million subscribers by 2011 (Telecom India, 2011). Rural tele-density went up by 1.86 per cent in 2006 to 42.73 per cent by 2015. Today, India has one of the largest cell-phone and Internet user bases in the world (TRAI, 2015). The total number of Internet subscribers recorded at the end of March 15 was 302.35 million, out of which wired Internet subscribers were 19.07 million and Wireless Internet subscribers were 283.29 million (TRAI, 2015).

Table 1

Tele Density Statistics in India -2015

Total subscribers (wireline +Wireless)	996.49 (million)
Urban subscribers	577.18
Rural Subscribers	419.31
Market share of Private operators	89.89 %
Market share of Public Sector operators	10.11%
Tele density (urban)	79.38 %
Tele density (rural)	48.37%

Source: Based on information from TRAI Performance Indicators Report (2015)

Industry Ownership

Following the trend of consolidated media ownership patterns worldwide, telecom in India is a fairly concentrated sector and is controlled by a small number of companies, most of

which are tied to large business interests that are at the core of India's entrepreneurial elite and represent old business houses. The major companies that offer telecommunication services in India such as fixed telephony, broadband, wireless Internet, voice and data, cable and DTH include Airtel, Tata DOCOMO, Vodafone, Idea Cellular, Reliance, Aircel, Uninor, BSNL and MTNL, the last two of which are public sector undertakings.

Internet service providers are much more scattered with TRAI (2015) reporting the presence of over 100 Internet service providers in the country. However, only a few major Internet providers have trans-regional reach. Once again it is the PSUs and the companies mentioned earlier that take up an overwhelming majority of the market share, while others are local, independent service providers with very limited reach. The quarterly telecom performance indicators brought out by TRAI (2015) indicate that a large portion of subscriber market is distributed amongst the major telcos including Bharti Airtel, Vodafone, Idea cellular, Reliance, Tata, Aircel and BSNL.

Table 2*Internet Subscriber Base and Market Share of top 10 Service Providers - March 2015*

ISP	Market Share (%)
Bharti Airtel	25.2
Vodafone	21.09
Reliance Communication Group	11.20
Idea	11.06
BSNL	10.59
Tata Group	6.78
Aircel	6.43
Telewings	4.26
Videocon	0.78
MTNL	0.65

Source: Telecom Regulatory Authority of India (2015)

From NOFN to *BharatNet* for a Digital India: Building the Policy Narrative of India's Rural Broadband Project

A policy instrument does not simply exist in nonreactive isolation but becomes part of the discursive space through public debate, reaction, contestation and legitimation. It is a site of political negotiation and can often be reflective of the institutional forces that are acting upon it. The following section details the course of policy related events and deliberations around the conception, planning and execution of the NOFN project, its rollout and implementation, review

and retrospective analysis and its migration and rebranding to the larger project of *BharatNet* under the Digital India initiative.

Through an examination of relevant policy documents, information and statements from the government, multilateral agencies, market and civil society and media reportage drawn from the sample of the study, an attempt is made to piece together the policy narrative of technology access that emerged around *BharatNet* from the years 2011 to 2015. To do this the study plots the timeline of the project against major policy breakthroughs and milestones by way of documentation (consultations/reports/statements), policy related activity (meetings and reviews, media events), related political-economic events (such as the change in government) and media reportage.

While attempting to lay out the narrative and storylines, the study takes into account both the text of the policy materials themselves as well as the discourse and debates that flowed from them. It identifies the stakeholders and their voices, the nature of interests being represented and the dominant talking points that emerge through the interactions as played out in the policy and the media sphere.

WSIS Summits and the Tunis Declaration: Towards an Information Society

The Information Society as a policy construct achieved firm legitimation through the platform of the World Summit on the Information Society (WSIS) which began in 2002. The relevance of the WSIS summits in setting forth the policy agenda of creating broadband infrastructure and creating ICTs towards the goal of development have been discussed in previous sections of this study. Following on the heels of the NWICO movement and the Maitland Commission Report, WSIS represented an important policy milestone in the articulation of right to information and communication technologies.

As an international and intergovernmental level forum under the aegis of the International Telecommunication Union (ITU), which is the international regulatory body that oversees telecommunications, the WSIS has served as a critical policy platform since 2003 when the Tunis Agenda (WSIS, 2003; 2005) was brought out. The WSIS declaration of principles under section C, listed a set of action lines for member states to use as a framework while developing ICT and telecommunication infrastructure in their respective nations. These action lines were developed towards the achievement of “internationally-agreed development goals,” as articulated in international policy documents such as the United Nations Millennium Declaration (2000), the Monterrey Consensus (2002) and the Johannesburg Declaration and Plan of Implementation (2002). These action lines (as articulated by the WSIS declaration) were –

1. The role of governments and all stakeholders in the promotion of ICTs for development.
2. Information and communication infrastructure as an essential foundation for the Information Society.
3. Access to information and knowledge
4. Capacity building
5. Building confidence and security in the use of ICTs
6. Enabling environment
7. ICT applications: benefits in all aspects of life
8. Cultural diversity and identity, linguistic diversity and local content
9. Media
10. Ethical dimensions of the Information Society
11. International and regional cooperation (p.C1-11)

The WSIS forum and the agendas it came out with, is a critical policy juncture in the global ICT for development discourse for several reasons. One, it established a discursive continuity with the previous NWICO movement and the MacBride Commission (1980) by being the second time a transnational effort was made to address the gaps in access to communication worldwide. (Pickard, 2007). Second, it was emblematic of a new paradigm of understanding governance and communication technology policy as a multi-stakeholder process, one which recognized the force of non-government actors and organized civil society as an important voice in the debate, and invited them into the policy discourse around communication technology (Calabrese, 2004; Padovani & Tuzzi, 2004; Raboy, 2004). Thirdly and most importantly, the WSIS outcomes and discourses crystalized the rhetoric of ICT and the Information Society to a rather uncritical, technocratic view of development and framed it within larger neoliberal frameworks of governance (Pickard, 2006) that privileged top-down action and relied heavily on market intervention even when it factored in debates and discourses happening in civil society groups and was seemingly, genuinely driven by goals of inclusion. Moll & Shade (2004) in their analysis of the WSIS plan of action noted that the WSIS was extending on the older discourses of the modernization paradigm, where in technology becomes equated with development stating-

As in previous debates on strengthening communication systems for developing countries, current discussions are concerned with the how and the when to connect “communities” in the South instead of with the why, who, under what conditions, and with what implications.” The WSIS agenda has since its inception, acted as a blueprint for several UN member states in articulating and formulating their respective ICT policy frameworks.

The impact of the WSIS agenda and the blueprint for ICT policy that it set can be seen carried over in the policy architecture in Digital India, which expresses compliance with all eleven action lines of the Tunis declaration.

Early Efforts

In the case of India, a first attempt to put ICTs on the policy agenda was made by the Government of India under its tenth five-year plan (2002-2007). The National Democratic Alliance (NDA) Government which was in power at the time, introduced an “IT for Masses” scheme which articulated three areas of focus, “1. infrastructure and Service, 2. Electronics Governance, 3. Education and 4. Mass Campaign for IT Awareness.” It was aimed at facilitating “a digital unite in the country rather than widen the digital divide in IT applications,” (PIB, 2000). These objectives were carried forward in the eleventh five-year plan (2007-2012) and were expanded to include empowerment of women and the Scheduled castes and tribes of India which have faced historic and systemic social and economic discrimination. The goals of these initiatives were ambitious, however lack of funds did not allow much headway to be made under the IT for masses scheme.

By 2004, a Broadband Policy (dot.gov.in, 2004) had been outlined by the DoT to provide an administrative and implementation framework for creating Internet infrastructure in the country. Citing the role of the Internet in driving growth in the GDP and its applications in the areas of education, health, employment and e-governance and the need for “always on” connectivity, the policy detailed technology choices that could be adopted, rules of licensing, and guidelines for service providers, the roles of concerned agencies and the benchmarks for achievement of broadband penetration targets in the country.

In 2005, the Government of India launched the State Wide Area Network scheme (SWAN) using funds from the DeitY to connect state and union territory headquarters up to the block level via the district/ sub divisional headquarters “in a vertical hierarchical structure with a minimum bandwidth capacity of 2 Mbps per link and be able to carry voice, data and video traffic,” (DeitY, 2015). Using a combination of fixed, spectrum based and wireless technologies with subsidized assistance from the public sector telco BSNL, SWANs were intended to feed into the central government’s Internet infrastructure of NICNET to enable secure and reliable intra governmental connectivity amongst the various levels of the government.

The next major ICT initiative launched by the Indian state, was the National e-Governance Plan (NeGP). Rolled out by the United Progressive Alliance (UPA government in 2006, the stated objective of the National e-governance plan (DeitY, 2006) was to “make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency & reliability of such services at affordable costs to realize the basic needs of the common man.”

What the NeGP attempted to do was bridge together several piecemeal IT and ICT initiatives in the country across various sectors under a single umbrella scheme of e-governance. The plan addressed a very wide range of objectives through 27 “mission mode projects.” Relevant among the many aspects of the NeGP (to the scope of this study) were its aim of developing “Common Support Infrastructure.” This included creating support structures for State Data Centres (SDCs) which would consolidate services and applications and infrastructure, creating Common Services Centres (CSCs) and establishing “Electronic Service Delivery Gateways” through expansion and strengthening of the SWANs in various states.

The Common Services Centres (CSCs) under the NeGP were described as “ICT enabled front end service delivery points” (csc.gov.in, 2015) at the village levels. These CSCs would facilitate interactions that are common to e-governance frameworks 1. Government to Government interaction (G2G), 2. Government to Citizen interaction (C2G) and 3. Business to Citizen interactions (B2C). Since the rollout of this project, over 80,000 CSCs are currently operational in India (csc.gov.in, 2015). CSCs are equipped to process documentation applications for personal id, facilitate payment of utilities and bills, apply for financial services such as banking, insurance, access weather and soil information, literacy and education services and so on.

The CSC scheme which was among the early efforts at e-governance was also significant for its efforts to be a public private partnership model through the involvement of industry and NGOs. Within this framework there was a three tier system with each CSC being headed by a CSC operator, what the plan termed a Village Level Entrepreneur (VLE) which translated into a modified form of franchising. Individuals would receive training and skill development to run these centers, which would in turn be managed by a Service Centre Agency (SCA). At the top of the management structure for the CSCs was a State Designated Agency (SDA) identified by respective state governments to oversee implementation of the project. Apart from the CSC, also relevant was the NeGP’s E-*Panchayat* Mission Mode project which was aimed at creating digital infrastructure and apparatus for administrative functions of the *Panchayats*.

The NeGP by the government’s own evaluation mechanisms was fraught with implementation delays and institutional hurdles. The 22nd, 29th, 37th and 58th reports (as cited in ARC, 2008) of the Standing Committee on Information Technology (which reports to the

lower house of the Indian Parliament) expressed several concerns over the delays faced in the rollout of the infrastructure projects under NeGP. The 11th report of the Administrative Reforms Commission (ARC) of India (2008) which focused entirely on e-governance assessed the NeGP project and found it lacking on several accounts. The report (2008) advocated a more involved role for local government bodies in the implementation of NeGP initiatives, and for more coordination amongst the SWAN, SDA and CSC project.

Broadband to *Panchayats*. In 2010, UN Secretary General Ban Ki Moon called for increased efforts on part of UN agencies to meet the Millennium Development Goals. As a response to this, the ITU and UNESCO set up the Broadband Commission for Digital Development. The commission which comprises CEOs and industry representatives, members of academia, government representatives, policy advocates and international agencies professes “to boost the importance of broadband on the international policy agenda,” (broadbandcommission.org, 2015) by providing multi-stakeholder perspectives on broadband proliferation through business models and private sector partnerships. The Broadband Commission is an important illustration of the neoliberal framework of development that increasingly functions under ubiquitous euphemisms such as “public private partnerships” and “multi-stakeholder process.”

The commission on its website asserts, “Expanding broadband access in every country is key to accelerating progress towards these goals [referring to the UN millennium development goals] by the target date of 2015” (Broadband Commission, 2015). The commission is geared towards four major targets that are in alignment with Millennium Development Goal No.8 (UN, 2000) – “access to new technologies.” The commission sought commitment from UN member states towards the achievement of the following targets

1. Making broadband policy universal and ensuring that all nations have a national broadband plan or strategy or a mechanism to include broadband in their universal service obligations by 2015.

2. Making broadband affordable through regulation and competitive market pricing in developing countries so that entry level broadband services cost no more than 5 per cent of average monthly income.

3. Connecting more homes to broadband and ensuring that at least 40 per cent of households in developing nations have access to broadband by 2015.

4. Increasing Internet user penetration by 60 per cent worldwide, 50 per cent in developing countries and 15 per cent in Less Developed Countries (LDCs).

As a response to the mandate set by the Broadband Commission, under Sam Pitroda, the Office of the Advisor to the Prime Minister of India on Public Information Infrastructure & Innovations released a short white paper on the importance of connecting the *Gram Panchayats* through broadband (2010). In order to develop media rich, text-alternative applications in health and education, geospatial planning, agriculture for the semi-literate rural populations India, facilitate better delivery of welfare services, and digitize food security and financial inclusion programs, the paper advocated a robust information and communication infrastructure at the *Panchayat* level. To this end there was need for high capacity broadband which could be enabled through the creation of an optic fiber technology network, the report asserted.

Following this, the telecom regulator TRAI in (2010), in response to a DoT letter seeking clarification on the definition of broadband, released a consultation document titled *National Broadband Plan* which offered regulatory guidelines and sought public comment and response on ways to achieve speedy broadband growth, It provided guidelines on addressing regulatory and

licensing issues, pricing and quality concerns, infrastructure problems, resolving funding mechanisms, and identified the need for a “National Optical Fibre Network.”

The consultation document brought out by TRAI noted that there was a lack of market competition in the broadband sector. Out of the 104 Internet service providers in India, the top ten controlled over 95 per cent of the subscriber base with the two PSUs BSNL and MTNL accounting for around 70 per cent of those figures (in 2010). Offering an overview of national broadband plans in various nations and an assessment of best practices, TRAI stressed on the need to improve broadband penetration in the country, especially in the rural sector. The report stated.

The Indian demographic pattern indicates that almost 70% of its population lives in rural areas. The rural areas have poor infrastructure availability for electricity, road connectivity, educational support, medical facilities, employment opportunity etc. Lack of opportunity in villages is one of the main causes of migration of villagers to urban areas. The need of the hour is to provide all urban facilities/ opportunities to villagers without actually urbanizing them. Broadband can significantly contribute to this endeavor by providing access to enormous information, employment generation, better medical facilities and business opportunities to the rural population. (p.4)

The consultation document echoed a running sentiment that can be observed in the earlier IT for Masses scheme and the NeGP, the idea of ICT as a tool towards self-improvement by stressing on utilitarian, welfare oriented sectors such as education, employment, health etc. It also hits upon an important and perplexing objective of rural development policies in India – that to provide urban amenities while preserving the rural ethos, to forward the benefits of

urbanization to the rural without urbanizing it and in the end to abate the flow of rural to urban migration.

In addition, the consultation document noting the discrepancies between Internet penetration between rural and urban sectors in India, and the fact that private telcos would find venturing into rural sectors financially unviable, advocated public sector efforts to bridge the access gap through public sector intervention financed through the USOF. It also advocated tapping into other welfare schemes such as the National Rural Employment Guarantee Act, which assures 100-day employment guarantee to rural citizens during lean agricultural periods, to source labor, and the possibility of public-private partnerships.

The TRAI consultation (2010) was followed by a series of high level advisory meetings between Pitroda and industry members (Economic Times, 2011) and negotiations between DoT and TRAI over the consultation. These efforts led to a cabinet note on the National Optical Fibre Network (NOFN) being submitted to the Telecom Commission, an inter-ministerial panel that oversees telecom policy making and is composed of representatives from the Finance Ministry, the Planning Commission, the Department of Industrial Policy and Promotion and the Department of Telecom. By October 2011, the proposal for creating and implementing an optical fiber based broadband infrastructure in rural areas was approved by the Government of India.

Concurrent to this development, in 2012, the Telecom Policy of 1999, was updated to address among other goals, 1. broadband on demand, 2. increasing telecom spectrum to support more data traffic, 3. attracting investment and boosting the manufacturing sector in telecommunications in India. The preamble of the policy (NTP, 2012) stated its vision “to transform the country into an empowered and inclusive knowledge-based society, using telecommunications as a platform, (p.1).” It emphasized the important role telecommunications

had played in driving socio-economic development “in an increasingly knowledge intensive global scenario, in which India needs to play a leadership role.” Further, it stated,

Thrust of this policy is to underscore the imperative that sustained adoption of technology would offer viable options in overcoming developmental challenges in education, health, employment generation, financial inclusion and much else.... By formulating a clear policy regime, NTP-2012 endeavors to create an investor friendly environment for attracting additional investments in the sector apart from generating manifold employment opportunities in various segments of the sector. (p.1)

The policy was clear in underlining the importance of the telecommunications and IT sector to the Indian economy and outlined several strategies and goals for boosting the telecom sector through an emphasis on manufacturing, research and development and a liberalization of wireless spectrum, which has been an enormous source of revenue for the state. It addressed the issue of the digital divide and took a view of access to Internet as necessity on par with amenities such as health and education. The stated goals of NTP 2012 in this regard was to increase state efforts to make available telecommunication services in rural and remote areas. As part of this the NTP outlined a target of achieving 175 million broadband connections by 2017 and 600 million by 2020 and included in its objectives assuring high quality broadband access to *Panchayats* through the National Optical Fibre Network thus laying policy framework for the project.

The Telecom Commission in its review of the NOFN plan advocated a three phase implementation of the project including a two stage pilot study. Subsequently, in 2012, a Special Purpose Vehicle (SPV) called the Bharat Broadband Network Limited (BBNL) was created to oversee the implementation and execution of the project. A pilot test program was conceived and

put into place in 2014 to assess the viability of the project, in three districts in different regions of the country. These were 1. Parvada in Andhra Pradesh, 2. Arain in Rajasthan and 3. Panisagar in Tripura.

Tripartite MoUs were signed by state governments, BBNL and the government of India to establish Right of Way (RoW) rules and conditions for the laying of the cable. Under these MoUs, state governments would allow right of way for laying of cable without any charge to BBNL as the benefits of broadband to the rural areas were seen as offsetting the costs that would be accrued by the state governments in facilitating Right of Way access. National highways, railways, forest departments and oil and gas operations were also covered under these agreements. The pilot for NOFN covered 59 *Gram Panchayats*.

State governments participating in the pilot projects were charged with identifying a portfolio of services that could be provided on the NOFN platform. These included financial services, e-governance and documentation services under the Business to Citizen (B2C) interactions- phone bills payments and dish television services. DeitY partnered with the Ministry of Rural Development, Ministry of Health & Family Welfare, Ministry of Human Resource Development and the Ministry of *Panchayati* Raj Institutions to develop and provide gap infrastructure for the project. 195 institutions such as police stations, banks, schools, Common Service Centres were identified to be connected through the NOFN. In each pilot block, one primary health center and its affiliated referral hospitals were chosen to provide telemedicine facilities and equipped accordingly with software, digital literacy and vocational course. Other e-learning services were provided through 21 digital centers in partnership with private companies such as Intel and Wipro.

Plotting the Points of Friction

Lessons From the Pilot: Questioning Technology Choices, Feasibility and Profitability

A report by the Digital Empowerment Foundation (2015) found that there was a large gap between the claims made of the project and the ground realities. NOFN was distributed unevenly among the *Gram Panchayats*, and only 67 per cent of the *Panchayats* had a hard line connection to the network. Only 45.5 per cent of the *Gram Panchayats* surveyed by the foundation had actual access to the services provided by NOFN.

Concerns about the feasibility of the NOFN/*BharatNet* project were raised several times by the industry on several aspects, as the analysis of the media sample revealed. First, there was criticism over the choice of a public sector undertaking to oversee the implementation of the project. Industry analysts asserted that private sector should have been involved in the implementation and rollout of optical fiber on a turnkey basis as PSUs were notoriously inefficient, slow, and bogged by bureaucratic hurdles as evidenced by the constant delays, failure to meet targets or follow timelines.

The choice of Wi-Fi was also called into question and labelled as obsolete in the face of technologies such as 3G, 4G and LTE technologies that were easier to establish and could piggy back on the extensive 2G network that was in place in the country if spectrum was freed up and telcos had more access to it. The NOFN project was termed as “a waste of money” by chairman of Association of Unified Telecom Service Providers of India (AUSPI) C.S Rao (Business Line; Economic Times; Telecom Lead, 2013). This discontent was largely based on the fact that the NOFN project was being funded by the USOF whose revenues come from a 5 per cent levy charged on service providers on their annual earnings

In addition, telcos expressed their concerns about being able to provide continuous data services to populations connected through NOFN on account of the fact that spectrum allocation was too fragmented and that there needed to be more comprehensive licensing for telcos to be able to provide services for the broadband infrastructure that was being rolled out. In response to this, government officials made the case that the project was in place because private operators had not extended services to unviable areas and were unwilling to do so unless there was a sound business case (Business Line, 2013).

This thread of argument gained further momentum following the pilot testing phase of the NOFN which revealed that utilization of bandwidth had virtually been non-existent on the part of telcos, cable and Internet service providers. The BBNL's report on the pilot project revealed that response from telecom and Internet service providers (2014) had been "lukewarm." Major telecom service providers such as BSNL, AIRTEL, IDEA, Reliance Communications and Reliance Jio had been approached to utilize the bandwidth of the NOFN for free for a limited time. The Internet Service Providers Association of India had also been approached and app vendors were invited to showcase their products and services. But there was virtually no response from any of the quarters. As a result, all service provision in the pilot phase had to be sustained entirely by the government, a concept that was uneconomic when scaled up across the nation.

Reasons cited by the private sector for its non-participation in the pilot project as reported in a review committee document on the NOFN (2014) included "poor returns on investment for rural service provision, lack of market volumes and lack of assured service levels." Interactions between the state agencies and the private sector representatives, reported in the media sample

analyzed and also noted in the same report pointed to the lack of a business case in the rural sector.

As a response to these developments, the Government User Network (GUN) was conceived by the Government of India as an extension of the NOFN project which would ensure utilization of the fiber infrastructure and in due course attract business ventures and services. Proposed by the BBNL in a strategy paper titled *National Optical Fibre Network (NOFN) Beyond the Fibre Draft Recommendations* (2013), GUN was outlined as an IT overlay that would facilitate a closed user group network for public institutional users. GUN would enable broadband connectivity from the district to *Gram Panchayat* through community Wi-Fi services and link public institutions such as schools, post offices and health centers. A detailed report on GUN was put forward to the Telecom Commission. While it had yet to receive complete approval at the time this dissertation was being completed, it has been included under the Digital India initiative.

The reluctance of the telcos to enter into the rural market on grounds of poor return is indicative of a larger trend in the international telecom scene, the compulsion of which began the practice of putting place universal service policies by telecom regulators in the first place. Countries all over the world including the US are struggling to bridge this disparity in service. That the market alone cannot be trusted to service the rural sector is neither a new nor novel insight. The experience of the NOFN pilot program sheds light on a different aspect of this problem. It demonstrates, how even in the presence of infrastructure (in this case the OFC network which can in theory be leased to any service provider wishing to provide Internet service) cannot in reality bridge the last mile unless there be a lucrative business case for service providers to venture into these sectors. True connectivity then remains simply a pipeline dream

if competitive, affordable services are not offered to the end user. In such a case, by stepping into fill the gap between access and connectivity, the state mediates user experience and must do so within parameters that justify the use of funds by the exchequer and thus perform be motivated by concerns of welfare, education, health. The sole purpose of rural broadband to enable government to citizen interaction which while undeniably important, place restrictions on the way the rural user may engage with information and communication technology. The future of a project like the NOFN then becomes merely that of being yet another e-governance initiative. It does not signify the full scope of access.

National Security, Protectionism and the Free Market

Another major policy juncture which impacted the NOFN project and the telecommunication sector as a whole was a Preferential Market Access (PMA) policy that was issued by DoT in 2012. The PMA which was announced, in compliance with Notification 8(78)/2010-IPHW of the Department of Information Technology mandated that preference to domestically manufactured electronic products (which covered several aspects of the telecom sector) be made part of the procurement process for government projects and services when such projects should have “national security” implications. This meant in effect that the billion dollar NOFN project would see no foreign involvement.

Concerns about security of data and the possible threat of foreign surveillance had previously been echoed in reports of the Standing Committee on Information Technology (ARC, 2008). A (2008) US Congressional report on Chinese vendors Huawei and ZTE had also had important fallouts on international regulatory frameworks, with several nations in the EU, US and India attempting to bar said companies from participating in data sensitive projects, and

formulating policies to address the issues of information security. The PMA policy in India was thus justified on the basis of information security.

The policy stated that between 30 to 100 per cent (depending on the equipment in question) of all procurement towards government telecom projects were to be sourced domestically. These included an exhaustive list of materials such as encryption and UTM platforms, routers, managed leased line network equipment, ethernet switches, media gateways, modems, LTE and Wi-Fi based broadband wireless access systems, copper access systems, network management systems and optical fiber cable, which was to be used in the NOFN layout.

If there were any doubts about what scope a state has in pursuing a telecom policy that runs contrary to international neoliberal interests, the fallout of the PMA policy announcement cleared them up. Opposition to this policy was swift, vocal and came from multiple sectors of the industry even before the notification was published in the Official Gazette in October, 2012. Dean Garfield, ITI President and CEO, stated,

There is no debating the importance of the Indian market, but India's indigenous innovation policies are off course and cannot be accepted. Left unchecked, these policies carry with them the very real potential for a contagion effect, encouraging the Indian government to issue similar policies affecting other sectors and providing rationale for other countries to mirror this unfortunate behavior. (Reuters, 2012)

A joint letter to the Prime Minister of India from the Information Technology Industry Council (ITI), Telecommunications Industry Association (TIA), US-India Business Council (USIBC) which together represented the interests of over thousand technology companies and regional and national trade bodies from Australia, Japan, Canada, US, Europe and Korea was issued in April 2012. The letter was vehemently critical of the PMA policy and cited it as a

violation of India's commitment to WTO's free trade agreements and principles. Calling for a complete rescinding of the PMA policy, the letter raised the following concerns –

1. That the PMA not only promoted preferential government procurement practices but was worded in ways that could potentially apply to the private sector because it covered “government licensees” and “managed service providers,” and thus be antithetical to competitive market interactions. It would “represent an unprecedented interference in the procurements of commercial entities and would be inconsistent with India's WTO obligations.”

2. India's move towards domestic protectionism would not only make the IT and telecommunications sector non- competitive, but was likely to create retaliatory policy action on part of other nations and thus have a domino effect upon the telecom industry worldwide that would hurt global market health.

DigitalEurope, which is a transnational European trade body that represents telecom brands such as Ericsson, Siemens, Nokia, Alcatel-Lucent, Philips and also national trade associations in Europe, also sent out a communique addressed to then Indian telecom secretary R. Chandrasekhar in which it stated that using security concerns to justify favoring local manufacturing “was a coercive approach that will distort India's investment environment.” (Economic Times, 2012). In its position statement on the PMA, DigitalEurope (2012) claimed that the new regulations constituted “a disproportionate and obstructive intervention into the competitive market environment in India, and would restrict market participation opportunities.”

Opposition from the domestic sector was also raised on the possible implications that the wording of the policy had for dictating procurement practices of the private sector. The industry association Cellular Operators Association of India (COAI) in a series of letters between March and July (2015) addressed to the Secretary of the Department of Technology and Chairman of

the Telecom Commission, stressed on the need for a realistic development of the telecom sector, urged for keeping channels of foreign investment open and for compliance of the PMA rules with WTO guidelines. COAI based several of its recommendations on a report that the organization had commissioned titled *Telecom Manufacturing Policy – Developing an Actionable Roadmap* (Booz & Company, 2012) which advocated fiscal incentives, creation of telecom clusters and creation of Special Economic Zones (SEZs) to develop the domestic telecommunication sector. Das (2014) in an analysis for the Centre for Internet and Society of the PMA opposition from the industry, outlined three major talking points that the private players were making on the issue which were

1. The problematic method of calculating the high value addition requirement,
2. The absence of a clear link between manufacturing and security concerns, and
3. Most importantly, the PMA's potential applicability to the private sector.

As a response to these criticisms, in 2013, the Prime Minister's office announced through a press release (PIB, 2013) that the PMA policy would be withdrawn for further review. The release noted that the revised PMA proposal would refrain from applying any domestic manufacturing requirements on the private sector. At the time this dissertation was being completed, there was yet to be a final decision made on the PMA policy. But the debate and intense market intervention over the PMA policy in India is an illustration of the high stakes value of the telecommunication sector both at national and international levels. It elucidates the powerful voice market interests exercise in the policy process in the preservation of the "free market" as defined by the framework of the WTO and transnational corporations and the push for fiscal incentives, tax breaks, foreign investments etc. The debate also throws light on the

diminished power the state is able to wield in such a scenario and its subservience to the larger regimes of neoliberalism.

Delays and Implementation Hurdles: Clashes Over State and Government and Combatting Right of Way

The NOFN project was plagued with delays right from the get go and bore the look of a project that was “doomed to fail.” Consider the facts - By 2014, the NOFN was three years behind schedule. The pilot projects had been disappointing to say the least and had yielded a rather pessimistic outlook of the project’s viability. There was an increasing perception echoed by the industry and from the regulator TRAI that the project was too ambitious and had set unrealistic deadlines for completion. Media reportage and assessment mechanisms of the government both pointed to the constant delays, failure to meet targets or follow timelines.

To begin with, Right of Way issues were multifold and difficult to get around. Right of Way refers to the clearance required to build or lay construction/ infrastructure or utility project on land that may be owned by someone else. This is a broader issue that has posed a major administrative hurdle to the telecom industry as a whole, as the costs accrued in getting Right of Way clearances from municipal authorities (who own the land) to lay fiber and infrastructure, or erect cell phone towers are prohibitively high, sometimes more than the actual cost of the fiber or tower itself. This is especially the case in major cities where property rates are at a premium.

In the case of NOFN, to smoothen the project’s execution, a series of tripartite MoUs were signed by BBNL, the Government of India and concerned state agencies to ensure free Right of Way for the project. This was embedded into the policy documents to avoid administrative hurdles. However as with the pilot, this proved to be a difficult task at the ground level. There were tussles between central and state governments over RoW and the matter of

compensation as states were expected to waive the charges applicable to provide the necessary clearances. In addition, officials on the ground reportedly (Indian Express, 2015) faced problems with obtaining access to the land by residents and owners in some cases. In its reportage of RoW problems in the NOFN/*BharatNet* project, the media sample analyzed in this study did not address possible displacement or loss of livelihood for the populations residing in the areas, some of which is farm land, where the fiber was being/ was to be laid. Several media reports from the sample analyzed however pointed to RoW tussles being one of the primary causes for the delay in the project. The issue was framed in terms of government incompetence and inefficiency, lack of cooperation and synergy among different levels of the state and as a general indicator of the project's unviable nature.

Change of Power at the Center: The 2014 General Election and the NaMo Effect

An important development on the political landscape of India was the general elections of May 2014 which ousted the United Progressive Alliance (UPA) government led by the Indian National Congress party and brought into power the National Democratic Alliance (NDA) government led by the Bharatiya Janata Party (BJP) under Prime Minister Narendra Modi.

The former UPA government was voted out of power under a shadow of massive allegations of corruption and abuse of authority. It may be pertinent to observe here, that one of the biggest corruption scandals took place in the telecom sector in 2007 over the matter of ministers drastically undervaluing 2G spectrum in issuing frequency allocation licenses to telcos in return for kickbacks from corporate players. The estimated loss to the state exchequer on account of these dealings was pegged at \$4.6 billion (The Hindu, 2013). Given the shadow of these events, expectations were rather high of the new central government, primarily because it was led by Narendra Modi.

Modi is touted as a leader who is strong on economic policies and has been credited with advancing economic development in the state of Gujarat, where he served as the Chief Minister prior to his campaign for PM of India. Narendra Modi as a political personality evokes mixed reactions amongst the Indian populace. On one hand, his right wing roots, support for Hindutva, the political ideology that centers Hindu culture, and the shadow of the 2002 Gujarat communal riots that happened while his administration was in power at the state level remained a concern within the secular, liberal elite and the religious minorities in the country during his campaign. On the other hand, his track record with economic progress, entrepreneur friendly policies, efficient administration and tech savvy image make him a very widely liked and trusted leader and was the main reason why he was voted into power in 2014 and has triggered what has popularly been termed as the “NaMo” effect.

The Pew research center in its Spring 2015 global attitudes survey found that two-thirds of Indians held a highly favorable view of Narendra Modi at 68 per cent and that the PM enjoyed a general favorable approval rating of 87 per cent higher than any other Indian leader. This high level of approval for the new regime transcended partisan politics, rural-urban demographics, placed a high amount of confidence in the PM, cited a positive influence on the central government and indicated a high level of optimism for the economic outlook of the nation (Pew, 2015).

Modi has a reputation as being pro-capital, entrepreneur friendly and has been a vocal advocate of small government, all things that strike a positive note with the citizens of India. For the BJP led coalition, it can be read as a matter of political survival that the administration's focus has been on overarching feel good and relatively ideology free projects such as *Swach Bharath* (clean India), Make in India and Digital India. This is a government and a leader whose

politics must align with the hopes of the citizenship that has brought it into power, to distance itself from its history of right wing Hindu fundamentalism in order to achieve and maintain pan Indian appeal. Digital India has offered a way to do this and in the process has had a transformative impact on the struggling NOFN, taking it from much maligned, criticized example of policy inefficacy and turning it into the backbone of the Modi administration's defining governance initiative.

Digital India

I dream of a Digital India where High-speed Digital Highways unite the Nation. I dream of a Digital India where 1.2 billion Connected Indians drive Innovation. I dream of a Digital India where Knowledge is strength and empowers the People. I dream of a Digital India where Access to Information knows no barriers. I dream of a Digital India where Government is Open and Governance Transparent. I dream of a Digital India where Technology ensures the Citizen-Government Interface is Incorruptible. I dream of a Digital India where Government Services are easily and efficiently available to citizens on Mobile devices. I dream of a Digital India where Government proactively engages with the people through Social Media. I dream of a Digital India where Quality Education reaches the most inaccessible corners driven by Digital Learning. I dream of a Digital India where Quality Healthcare percolates right up to the remotest regions powered by e-Healthcare. I dream of a Digital India where Farmers are empowered with Real-time Information to be connected with Global Markets. I dream of a Digital India where Mobile enabled Emergency Services ensure Personal Security dream of a Digital India where Cyber Security becomes an integral part of our National Security. I dream of a Digital India where Mobile and e-Banking ensures Financial Inclusion. I dream of a

Digital India where e-Commerce drives Entrepreneurship. I dream of a Digital India where the World looks to India for the next Big Idea. I dream of a Digital India where the Netizen is an Empowered Citizen.

(Narendra Modi, 2015)

The above excerpt is from a speech delivered by Modi to the Digital India Summit. It is featured on the website of Narendra Modi with a full video and transcript. Visitors to the PM's website also have an option of using pre-made block quotes from the video and text of this speech to share on social media platforms such as Twitter. It is one of the many ways in which Modi is capitalizing on his tech savvy image.

The speech on the Digital India initiative, parts of which are reproduced here for reference, is grand, ambitious, high on rhetoric and ultimately unoriginal. It espouses several of the values, ideologies and notions around information and communication technologies that have been discussed previously in several sections of this study. The idea of technology as a transformative force in society, its ability to connect citizens to governments in more transparent and accountable ways, the ability of ICTs to usher in opportunities in education and employment, to spur entrepreneurship and grow the economy – none of these ideas are in any way new or particularly ground breaking, or represent a deviation from the dominant view of the Indian state on technology's role on development. And yet, the Digital India initiative has seen a largely positive response from the media and the industry which has historically reflected a large indifference towards state dictated development as seen in the case of NOFN.

Let us consider two sets of policy events, statements and articulations that emerged around the Digital India Week that took place between the 1st and the 7th of July, 2015. The first included a series of events that were aimed at showcasing ICT enabled rural outreach efforts –

opening of bank accounts, tele-medicine consultations, digital literacy sessions at Common Service Centers, film screenings, video conferences between NOFN enabled villages and the prime minister – a number of which ironically could not take place on account of technical difficulties (Economic Times, 2015). These events, admirable for intent if nothing else, represented nothing more than a highly successful media friendly spin on a very old approach to technology in development as has been discussed in previous sections in the study.

The second major outcome of the Digital India Week was a media event where the initiative was formally launched in the presence of several high power Indian industrialists who are counted among the nation's richest and most influential business families. These included, Cyrus Mistry, chairman of the Tata group, Mukesh Ambani and Anil Ambani of Reliance Industries and Reliance Group, Kumar Mangalam Birla of the Aditya Birla Group and Sunil Bharti Mittal of Airtel, Azim Premji, chairman of Wipro and many more. Satya Nadella, CEO of Microsoft addressed the event through a YouTube video.

At this event, where there was much praise for the initiative, several high-amount pledges of monetary capital were made by the corporate sector towards the Digital India initiative, running into a total of INR 4.5 lakh crore or \$ 67.97 billion. Other manner of assistance by way of human resource capital, research and development were also offered with companies articulating business plans and models that would work in tandem with the state on Digital India. Modi's visit to Silicon Valley in September 2015, and meetings with several tech leaders and giants including Microsoft, Cisco, Facebook and Google resulted in such similar overtures for support and public private partnership models specifically in areas such as rural connectivity.

Digital India, vague and broad-based as it might reveal itself on close scrutiny, as a policy initiative generates this kind of corporate support on account of the ways in which it is

publicly ideated- as a framework that is wholly in line with the larger neoliberal framework. It stresses on public-private partnership, focusses on job creation, talks about strengthening the telecommunication and IT sector through its make in India concept ,all the while carrying continuities with the traditional approaches to ICT for development. The rhetoric of Prime Minister Modi's speech manages to touch upon India's deeply entrenched political culture of rural welfare, promises social justice goals of empowerment, knowledge, access, transparency while at the same time focusing on job creation, growing industry, attracting capital and so on. In this manner, Digital India is presented as a vibrant, socially conscious and yet promisingly lucrative public policy initiative that the corporate sector can get behind, something that was visibly lacking in the earlier ICT efforts rolled out by the state.

Changing the Storyline: From NOFN to *BharatNet*

To connect this back to the NOFN project, the Digital India initiative in many ways became a transformative event for the rural broadband project which was struggling with delays, incompetence, institutional hurdles and was suffering from a negative public perception of floundering and being in a "limbo." However, the Digital India initiative took this much maligned, questioned public sector initiative and foregrounded it as the backbone for a grander, more ambitious pan-India scheme that enjoyed popular approval with the public and very quickly came to dominate the rhetoric of governance in India, and a shorthand for Modi's regime.

A push on the IT and information based sectors of the economy had already been part of Modi's campaign agenda, having coined the popular twitter ready phrase IT+IT=IT i.e. Indian talent + Information technology is equal to India tomorrow. Addressing the audience of a NASSCOM (a business association of the software sector) convention in February 2014 in

Mumbai, the then prime ministerial candidate stated, “I see the role of IT as a change agent – it empowers, it connects, it can bind isolated parts of our country, it can bring harmony in society, it can join people with governments, it can encourage programmes, and reduce the gap between demand and supply” (DNA, 2014).

Soon after coming into power in May 2014, the Modi administration began to work on its IT focused agenda. By August 2014, cabinet approval had been sought for the Digital India project. In a government press note published by the Press Information Bureau, the vision of Digital India was summed up as aiming to “transform the country into a digitally empowered society and knowledge economy.” The umbrella e-governance and e-governance project encompassed three broad goals. These included;

1. High speed Internet infrastructure to all *Gram Panchayats* and measures to broaden financial inclusion through banking services,
2. E-governance and transaction services,
3. “Digital empowerment” through making digital sources more accessible and taking steps towards universal digital literacy.

In order to achieve these goals, the Digital India program announced nine areas of focus:

1. Strengthening the domestic electronic sector by aiming for zero imports of electronics,
2. Broadening the public access to Internet by connecting *Gram Panchayats* and post offices,
3. Reaffirming commitment to continuing, accelerating progress on the National Optical Fibre Network and creating a mandate for communication infrastructure in new urban developments and buildings,
4. Ensuring mobile connectivity in all villages and increasing network penetration,
5. Improving e-governance using existing technology platforms such as the UIDAI, payment gateways and EDI.,
6. Training students from smaller towns and villages for the IT

sector and setting up BPO operations in the North East, 7. Electronic services addressing health, education, agriculture, financial inclusion etc. through *e-Kranti*, 8. Optimal utilization of social media and cloud platforms for facilitating citizen-government interaction and 9. Early harvest programs that would cover small-scale, quick implementation schemes (DeitY, 2015).

From being an over-budgeted, unrealistic example of government initiative gone wrong as had become the perception of the NOFN project in the telecom policy sphere, the idea of rural Internet connectivity underwent a reinvention under the Digital India project. The NOFN project was positioned as the “backbone” of the Digital India initiative in several statements issued by government platforms. Commitments towards the venture were reaffirmed at several junctures. An observable shift in the momentum of the project took place which resulted in increased media coverage and focus. The following timeline based on the analysis of the aggregate media sample and policy statements describes the sequence of policy related actions and events that unfolded following the announcement of the Digital India initiative.

August 2014. The new government assumed positive rhetoric on the NOFN in media and press, claiming it would usher in an e-commerce revolution and accorded it a central place in the agenda of the NDA administration. Telecom minister Ravi Shankar Prasad stated that the NOFN was a top priority for the minister and the project that had been in a “limbo” had been reinvigorated under the new government, thus attempting to delink the NOFN project from the shadow of the previous administration and reinvent it a new light.

At several points, there was criticism raised by members of the previous administration of the UPA government. Important players in the opposition including Congress scion Rahul Gandhi and the former telecom minister Kapil Sibal who claimed that the Digital India initiative of the Modi administration had coopted the NOFN project and the National e-governance Plan

and was in a sense disrupting the legacy of the project by rebranding it as its own. TRAI chairman Rahul Khullar was also vocally critical of the Digital India initiative claiming it “lacked in specifics.”

September 2014. The Government of India held a press conference on *100 Days Performance of IT & Telecom* which announced the Digital India initiative, reaffirmed commitment to the NOFN program and announced its completion within three years (PIB, 2014). Media reports during the same time period focused on project delays and institutional issues such as Right of Way issues and lack of inter-agency cooperation on the broadband project.

The lack of private sector involvement was brought up at several instances by business dailies Economic Times and the Financial Express, a critique echoed by regulator TRAI. In a consultation paper titled *Delivering Broadband Quickly: What do we Need to do?* TRAI issued this document in response to a DoT reassessment of the 2004 Broadband Policy (discussed earlier in the chapter) which was to reposition the Internet as a fundamental right not unlike education. In the document, the regulator assumed a critical stance of the government’s decision to involve only public sector undertakings in the implementation and execution of the NOFN by posing the rather candid question, “Are PSUs ideal choices for implementing the NOFN project, and is it not possible to piggyback on existing private sector access networks to minimise costs in reaching remote rural locations?”

TRAI invited industry feedback on auctioning spectrum in the 700 MHz band which could help rollout 4G services in rural areas efficiently as a way of bolstering NOFN and provided guidelines on outsourcing engineering, procurement and construction contracts to private telecom players through a process of International Competitive Bidding (ICB). TRAI

identified high right of way charges (for wire lined access), unavailability of continuous spectrum (for wireless access) and insufficient bandwidth as issues that were hampering efforts to deliver broadband.

In addition, the document cited the complicated and highly diffused administrative setup of the implementation agency BBNL which it claimed had left it “dysfunctional,” unable to make “independent and quick decisions,” and disconnected with private sector stakeholders. Calling the NOFN out on its red-tape, TRAI sought comments and responses from stakeholders on a broad range of broadband related issues including a public-private partnership model for NOFN, and opening up access to dark fiber, which refers to optical fiber that is already in place but may not be being used.

The consultation drew a range of responses from the private sector, think tanks and advocacy organizations including Vodafone, Internet Service Providers Association of India (ISPAI), COAI, LirneAsia, and Broadband India Forum among others. A reading of available public responses to the consultation indicated support for more private involvement in the NOFN project. COAI argued that NOFN was not holistic, and concentrated on supply without accounting for demand. It further observed that without a strong business case for establishing end to end infrastructure and services to rural citizens, and resolving issues of competitive tariffs and data hosting, there would be no use of laying the fiber. The association urged the government to approach the potential customers, who were telcos and ISP providers and align the project requirements with their businesses to optimize usage (COAI, 2014).

Amidst this debate surrounding the future of NOFN and the direction India could take in establishing rural connectivity, came the announcement from the Prime Minister’s office that the targets for NOFN had been advanced to December 2016.

November 2014. The TRAI consultation process and the announcement of the acceleration of the NOFN project combined with the renewed interest shown by the NDA government had two important outcomes. First, the DoT proposed a bundling of the optical fiber layout project with the proposed Government User Network (GUN). Second, the government announced its intentions of roping in more private players to aid in the NOFN project. Media reports (Times of India; Economic Times; 2014) indicated that technology giants such as Google, Facebook and Microsoft were keen to work with the Modi administration on rural connectivity using alternative technologies which have been large scale research initiatives at all three companies.

Since 2008, Microsoft has been working on KNOWS (Networking Over White Spaces) in pilot projects in Africa to create wireless networks by bridging unused broadcasting spectrum or TV whitespace (Microsoft Research, 2015). In August 2015, the company partnered with the Andhra Pradesh state government in India to pilot a project in the Srikakulam district. The Facebook Connectivity Lab meanwhile rolled out the Internet.Org initiative in 2015 to provide free mobile Internet access through zero-rating of data and has been working on a project involving aircraft drones to provide wireless connectivity. Google's Project Loon (Google, 2015) which has been piloted in test sites in New Zealand involves using a network of balloons in the stratosphere to provide Internet access. All three of these initiatives are geared at connecting remote and rural areas, and in 2015, the companies were in interactions of various levels with the Modi administration to launch their services in the country.

January 2015. In January 2015, following more target delays for the NOFN and a meeting of the Telecom Commission, a high level committee review of the NOFN project was commissioned by the Government to revamp and rehaul the project and ensure its rollout and

execution was back on track so that the Digital India project could see timely completion of its goals. As part of its Terms of Reference (ToR), the committee was directed to come up with an implementation strategy that would accelerate the progress on the NOFN and ensure connectivity to all *Gram Panchayats* by 2016.

The eight-member committee comprised members from government, academia and industry and consulted with state governments and the private sector to review technology options, implementation models and overhauling the design and architecture of the NOFN project. Following a two month process of consultations and review, the committee submitted its report to the government in March 2015 titled *Report of the Committee on NOFN (2015)*. The report provided in its summary of recommendations an 80-point agenda for the rebranding and revamping of the NOFN project, and in an eight-chapter analysis outlined an architectural, methodological and governance rehaul of the NOFN project. The emphasis of the report was clear – a more involved role for the private sector at various stages of the project’s implementation, rollout and administration and a business oriented approach to the project as a whole. Significant takeaways from the document that have a bearing on this study from the report included;

1. Rebranding the project as *BharatNet* so as to reflect a “national aspiration.”

BharatNet would a project of national importance which would by 2017 have achieved scalable network infrastructure that would be non-discriminatory and affordable and have the ability to connect all households and institutions in India and ensure its migration into the new methodology and architecture recommended by the committee.

2. More freedom to the states who choose to adopt a state led implementation model in setting the minimum bandwidth level and have the option to cover urban and business users through the project.

3. Use of alternative spectrum and satellite based technologies to optical fiber in areas where the latter may be unsuitable for establishing connectivity.

4. Factoring in connectivity from District Head Quarters (DHQs) to Block Head Quarters (BHQs) into the project architecture through the creation of ring architecture to create a sustainable broadband eco-system in the rural areas that was not restricted to government services alone.

5. Provision of Wi-Fi infrastructure through public investment to establish data centers in the *Gram Panchayats* which could then be used by licensed service providers to provide at-least one hour of free Wi-Fi usage per day for each resident of the GP. The service provider would be allowed to create a business model around advertising revenues but would be required to maintain a base level of public Internet access to all the residents of the *Gram Panchayat* (regardless of their economic status). To avoid conflict of interest, BBNL would not take on the role of service provider.

6. A multiple model approach for project execution that would distribute and reduce risk, and capitalize on all available capacities. This included – a State Government-led model where the state governments would take up responsibility for their leg of the NOFN project and have freedom to induct private players through equity participation, the CPSU-led model undertaken by BBNL and a Private sector-led model. Funding of all three models would be done by the central government.

7. A reworking of business support systems to support broadband utilization models which could cover management and auctioning of dark fiber. Pricing and demand of bandwidth would be left to market forces while maintaining a ceiling on retail tariff.
8. A mixed business model to make dark fiber and bandwidth available by setting at least 50 per cent of dark fiber to telcos, cable operators, ISP providers through auctioning while retaining the other half for government use.
9. Service provisioning for public health, school education and other publicly funded institutions be provided free of cost in public interest.
10. A reworking of the proposal for the National Information Infrastructure to subsume State Wide Area Network (SWAN), the National Knowledge Network (NKN) and the restructured *BharatNet*.
11. A drastic restructuring of the BBNL administrative set-up by turning it into a board-led company with at least 50 per cent membership drawn from outside the government. In addition, it was recommended that a managing director and CEO with a track record of project management in telecom was to be appointed through a search committee to oversee *BharatNet* and his or her remuneration would be subject to incentives and disincentives based on meeting negotiated quarterly project milestones. The “professionalization” of BBNL was emphasized by the committee as the most important step to getting the rural connectivity project back on track.
12. The USOF to be permitted to borrow from the financial market to cope with short-term capital crunches which had been an issue in the past.

Where we Leave the Story

Among the plethora of changes suggested by the committee on NOFN, the key recommendations of the migration of the project to the broader architecture of *BharatNet* with a bigger budget was accepted by the Government of India along with the proposed diversification of implementation models by states, center and public-private initiatives. In May 2015, a meeting of IT ministers and secretaries at the state level was called by the Ministry of Communication and Information Technology to discuss the project and seek their involvement in the restructuring process. Seven state governments offered to come up with state or SPV (special purpose vehicle) and there have been efforts on part of the government to broaden the scope of *BharatNet* into urban sectors as well. At the time this dissertation was under completion, the *BharatNet* program in its restructured format had been put forth to the Government of India for cabinet approval.

Whether the NOFN succeeds any better in its altered state remains to be seen. Whether Digital India itself, a scheme noticeably vague on specifics if high on enthusiasm, will outlive the positive expectations made by the Indian people of the new government also is a question that only time can answer.

Table 3*Timeline of Telecom Policy Events in India*

Year	Event
1885	Indian Telegraph Act <ul style="list-style-type: none"> • First telegraph cables laid in India • Establishment of state monopoly over communication infrastructure
1956	Industrial Policy Resolution <ul style="list-style-type: none"> • Telephony is brought under government control
1985	National Technology Mission (NTM) on Telecom <ul style="list-style-type: none"> • Creation of C-DOT • Creation of Department of Telecommunications
1991	New Industrial Policy Resolution <ul style="list-style-type: none"> • Liberalization reforms
1994	National Telecommunication Policy <ul style="list-style-type: none"> • Further liberalization • Telecom opened up to FDI and private sector
1999	New Telecommunication Policy <ul style="list-style-type: none"> • FDI per cent increased to 74 per cent
2000	Creation of BSNL
2002	IT for Masses
2004	Broadband Policy

Table 3 Continued

Year	Event
	National e-Governance Plan
2006	<ul style="list-style-type: none"> • SWANs • CSCs • <i>e-Panchayats</i>
2010	Broadband to <i>Panchayats</i>
2011	NOFN rollout
2012	<ul style="list-style-type: none"> • Cabinet approval • Creation of BBNL • Pilot project approved National Telecom Policy
	<ul style="list-style-type: none"> • Broadband as fundamental right
2014	Digital India
	<ul style="list-style-type: none"> • NOFN brought under Digital India
2015	<i>BharatNet</i>
	<ul style="list-style-type: none"> • Review of NOFN by expert committee • Creation of PPP model • Rebranding NOFN as <i>BharatNet</i>

Note. The table depicts the timeline of significant policy based events that took place from the first telecommunications based legislation to the most recent developments surrounding the *BharatNet* project.

Summary: Revisiting Research Questions

The earlier sections of this chapter attempted to sum up the findings of the critical analysis of policy documents and media reportage to piece together the narrative discourse and deliberations around the *BharatNet*. In the process, the discussion spoke to the research questions that formed the basis of inquiry of this study. This section summarizes the analysis by revisiting the research questions and reiterates the relevant points to make the connections clearer.

RQ1: What are the Dominant Narratives and Storylines Emerging From the Policy Discourses and Debates Surrounding *BharatNet*?

The earlier section provided a detailed breakdown of the critical policy junctures and turning points in the *BharatNet* policy discourse that answered this question in part. The dominant narratives and implicit themes as drawn from a reading of the texts and counter texts of the policy instruments is provided here -

1. Broadband as an enabler of economic progress - The role of broadband penetration in being a boost to the national economy and affect socio-economic growth emerged as a major theme in the policy statements and documents studied. A World Bank report (Quing *et al*, 2009) which observed that a 10 per cent increase in broadband penetration yielded a 1.38 per cent jump in GDP in low and middle income countries was widely used in several documents, consultations and reports and even media reports analyzed in the sample, when stressing on the importance of strengthening broadband proliferation in the country, which illustrates the role that statistics can play as important policy metaphors. This dovetailed with a significant objective of the larger telecommunication policies articulated in policy documents, which was to grow and develop

India as an IT and telecommunication hub and leverage its potential human resources strength in this sector.

2. Technology as a transformative force - The rhetoric of technology being a transformative agent in the lives of rural Indian citizens also emerged as an important theme in the ideation of policy documents on *BharatNet*, representing a continuity with the older approaches to technology policy. The impact of information and communication technologies in being able to deliver to rural citizens, services such as education, literacy, e-governance and finance related services and being able to. While there were few instances where the use of ICTs for non-functional purposes were discussed such as entertainment which was articulated among the objectives of the NOFN, these were extremely rare.

3. The digital divide and rural urban access -Not surprisingly, the digital divide emerged as a commonly used metaphor in discussing the disparities in tele density and broadband penetration between the rural and the urban areas in India. Policy discussion revolved around the need to “bridge” the access and resources gaps between the haves and the have nots and asserted that closing the digital divide would facilitate socio-economic development.

4. India as a global telecommunications hub - The NOFN project in conjunction to broader telecom policies addressed a larger goal of the Indian state to harness and grow the nation’s IT and telecom sectors. These included attracting foreign investment, making regulatory frameworks conducive to the proliferation of the telecom business, tackling legacy issues, bolstering the manufacturing sector, and also being able to harness the large human resource capital of the country in the IT sector.

RQ2: How do the Narratives Contained Within The *BharatNet* Project and Position Rural Citizenship in India and Construct Notions of Access and Inclusion?

Imagine, for example, a young student in a remote village being able to hear, see and interact with the best teacher; the learning enhanced by animation, slow-motion or real-life video footage. Think of super-specialists studying, online, a villager's health parameters and providing advice to the patient located in a remote corner of the country. Or a farmer getting up-to-date information on crop prices and weather, and agricultural advice in real time. Visualise skills training being provided in-situ to youth anywhere in the country, or of rural craftspeople being able to sell their creations to customers anywhere in the globe through their website and e-commerce platforms. Imagine reaching institutions and individuals in every *Gram Panchayat* in the country (and, by extension, every village and villager) with high-speed connectivity.

(Report of the committee on NOFN, 2015)

Consider the above excerpt from the forward on the Report of the committee on NOFN which was submitted in March 2015 to the Indian Government. It hinges on the themes of connectivity, aspiration and transformation with regard to the rural sector in India, all of which are professed goals of *BharatNet* and the Digital India initiative. And yet, the reality of the policy discourses as observed in the earlier discussions represent a very different picture.

There are several contradictions which can be observed in the way the Indian polity negotiates the rural. Chapter II had touched upon the idealization of rural India as a legacy of the nationalist movement and the Gandhian perspective. There has been a historical, constitutionally underwritten commitment to the objective of rural welfare. The directive principles of state policy focus on this aspect also. Rural India is an extremely vital political category in the nation. As a demographic which still constitutes the majority population in the country at 68 per cent

(World Bank, 2014) and outvotes the urban faction by a significant margin of 11 per cent according to figures from the Election Commission of India, it is by no means a minority.

And yet, one third of India's rural population is illiterate (NSSO, 2015) and around 300 million people lack basic access to amenities such as electricity (CEEW, 2015). While cell phone usage has grown in leaps and bounds from a tele-density rate of below one per cent in 2000 to 43.90 per cent in 2014, broadband penetration figures remain low at close to 20 per cent in the entire nation. Rural to urban migration especially among younger populations, in search of employment has remained a continuous pattern since the 1960s with rural population declining from 82.1 per cent in 1960 to 69.9 per cent in 2010. Efforts to stim the flow of unskilled labor into the cities has been a political agenda for a long time now. The advent of large number of unskilled and floating labor populations from the villages into the cities has been one of the main reasons for illegal developments and water and electricity operations. Rural development policies in India have therefore been structured in ways that try to solve the problem of rural-urban migration. Examples of these include the Providing Urban Amenities to Rural Areas (PURA) scheme and the Modi administration's "Rurban" project and Smart Cities initiative. These are all attempts at bringing the benefits of urbanization to the rural areas with an aim to tackle the rates of migration from rural areas to urban areas. The *BharatNet* project represents a continuity of such efforts, to bring the urban to the rural without urbanizing it and to stop the rural from flowing into the urban.

On the principle of it, there is nothing wrong with bringing urban amenities to rural areas and making sure that citizens are not forced by poor economic opportunities to move to cities to seek a better quality of life and be dislocated from their communities. This is in fact what an extension of the Right to the City would argue for, that urbanization be accessible to all beyond

the physical contours of the urban space. And yet, what is problematic about these policy initiatives is that they are driven by an objective to preserve the city from the negative fallouts of migration rather than address the systemic inequalities in distribution of resources that causes migration in the first place.

In the technological imaginary, the rural represents the other side of the digital divide and highlights the service and access gap in the narrative of the telecom boom. As such addressing it is important to the political agenda of the government, as a way of preserving the narrative fidelity of the telecom and IT success story which has become the identifying marker of the Indian economy in the international stage.

The new language of policy deliberation as a multi-stakeholder process recognizes a role for actors other than the state in affecting policy outcomes. Yet the discourse around *BharatNet* shows us that to truly be a stakeholder in the process of policy negotiation, the voice of the actor must carry significant institutional, social or economic power. The rural citizen who is the end-user in the proposed broadband infrastructure project found no voice at all in the policy discourse surrounding it. The discourse was entirely a process of negotiation amongst state and market interests in which the rural sector and the objective of rural connectivity become an important bargaining chip.

As a space of economic activity and transaction in the context of telecommunications, the rural demographic is deemed unviable and lacking a business case, therefore making it unprofitable for telcos to invest in without due incentives being provided by the state. As discussed earlier in the case of the net neutrality debate, the rural poor's function in the policy discourse becomes to represent a symbolic site of action without really having an active voice in

the process. They ultimately become statistics and metaphors in the allusion to a digital divide, captured in the words, vision and stories of other stakeholders.

RQ3: How do the Narratives Contained Within *BharatNet* Contribute to the Indian State's Larger Articulation and Posturing of Itself as an Information/ Knowledge Economic Power With Strategic Significance in the International Economy?

Since my government came to office last year, we have attacked poverty by using the power of networks and mobile phones to launch a new era of empowerment and inclusion: 180 million new bank accounts in a few months; direct transfer of benefits to the poor; funds for the unbanked; insurance within the reach of the poorest; and, pension for the sunset years for all. By using Space technology and Internet, we have been able to identify in the last few months 170 applications that will make governance better and development faster. When you think of the exponential speed and scale of expansion of social media or a service, you have to believe that it is equally possible to rapidly transform the lives of those who have long stood on the margins of hope. So, friends out of this conviction was born the vision of Digital India. It is an enterprise for India's transformation on a scale that is, perhaps, unmatched in human history. Not just to touch the lives of the weakest, farthest and the poorest citizen of India, but change the way our nation will live and work. For nothing else will do in a country with 800 million youth under the age of 35 years, impatient for change and eager to achieve it.

(narendramodi.in, 2015)

As has been discussed in previous section in the study, a state's vision of itself and the citizenship it governs finds articulations in many different ways, the space of policy deliberation being one of them. India's rise as an IT and knowledge economy hub, constantly alluded to in

the major telecom policy architecture such as the New Telecom Policy (2012) has become its signifying marker in international economic and political platforms. The interest of major technology giants such as Microsoft, Google and Facebook in India are illustrations of the same. A glaring aberration in this otherwise grandiose perception of the state arises when we think of the digital divide and those who fall on the other side of it. These themes were clearly visible in the ideations and articulations of the policy documents.

While a major continuity was observed in the policy approach of the Indian state with regards to communication technologies and development, the case of *BharatNet* also highlighted the cracks and fissures in this approach. If NOFN, as a project represented an older centralized view of technology as mediated by the state, *BharatNet*, represents perhaps a repentant reworking of this mode of operation, an understanding that the state can no longer be the sole actor in policy decision about technology and must work with the powerful interests and concerns of the market to realize its vision. It is significantly if not wholly subservient to the larger pressures of neoliberal regimes such as WTO and the principle of free trade as we observed in the PMA policy episode. Also, it should be noted that the Indian state in itself is a neoliberal actor that has benefitted enormously through monetizing resources of the telecommunication industry such as spectrum bands, which account for a majority of the costs in running telecom operations for private sector players. The issue of spectrum and its high costs while not in the scope of this study has indirectly impacted the way in which the private sector negotiates with the state over servicing rural areas.

RQ4: What are the Dominant Schisms and Political-Economic Points of Conflict and Struggle Surrounding the *BharatNet* Project Narratives Emerging From Civil Society, Market and Other Stakeholders?

The earlier section of this chapter, *Plotting the Frictions* was a detailed response to this research question. As discussed earlier, the NOFN was a project that saw vocal criticism from the private sector at several junctures. Some key issues surrounding the project included, disagreement over the execution of the project by a public sector undertaking and questioning the scope, ambition and efficiency in view of the constant delays and restructuring of deadlines. Other issues included the problem of the Right of Way, and the demonstrated limited success of the pilot projects. The major argument of the industry remained that there was no business case for them to participate in the project and that they lacked spectrum resources to be able to provide services.

RQ5: How Does *BharatNet* as a Project Bear on the Ideological Production and Perpetuation of International Development Discourses in Terms of its Adherence to the Modernization Paradigm and Neoliberal Interests?

Connections and arguments that address this research question have been made at several points throughout this chapter and through the study in general. We have observed how there are continuities in the Indian state's policy approach to technology and development that strongly resonate and bear similarities to the ideas of the modernization paradigm which privilege one-way technology transfer through centralized schemas of action. The ways in which India's ICT policy on telecommunications, e-governance and infrastructure are often responses to policy developments at the international level and are in compliance with transnational development objectives as articulated by agencies such as WSIS, ITU, UN have also been demonstrated in earlier analysis.

BharatNet as a project in its proposed move towards public private partnership demonstrates how a state has to reconfigure its role in a post-liberalized economy to

accommodating multi-stake holder views from private sector and mutli-lateral agencies. NOFN as a project originates from an older statist welfare oriented mode of policy while speaking the language of international neoliberal development thus resulting in a fundamental incompatibility that was destined for failure. In its proposed revamping as *BharatNet* (irrespective of whether it should pan out ultimately), it embraces the latter fully, thus representing an ultimate triumph of the neoliberal agenda of development discourse.

Table 4

Cost summary of BharatNet: Expert Committee Estimate

Connectivity layer	Cable length	Cost (crore)	% of costs
OFC rings	234000	9945	13.66
Block to GP optical fiber	908000	36320	49.90
Block to GP OFC rings	228000	9080	12.47
Block to GP radio		3000	4.12
Block to GP satellite		162	0.22
Horizontal Connectivity	0	0	
District	33750	675	0.92
Block	58250	1165	1.60
GP	250000	1250	1.71
Total cable length	1711000	61597	84.63
Electronics and other costs		11181	15.36
Total cost		72778	US \$ 11182.85 million

Source: Based on information in the Report on the Committee to Review NOFN (2015)

How *BharatNet* will work

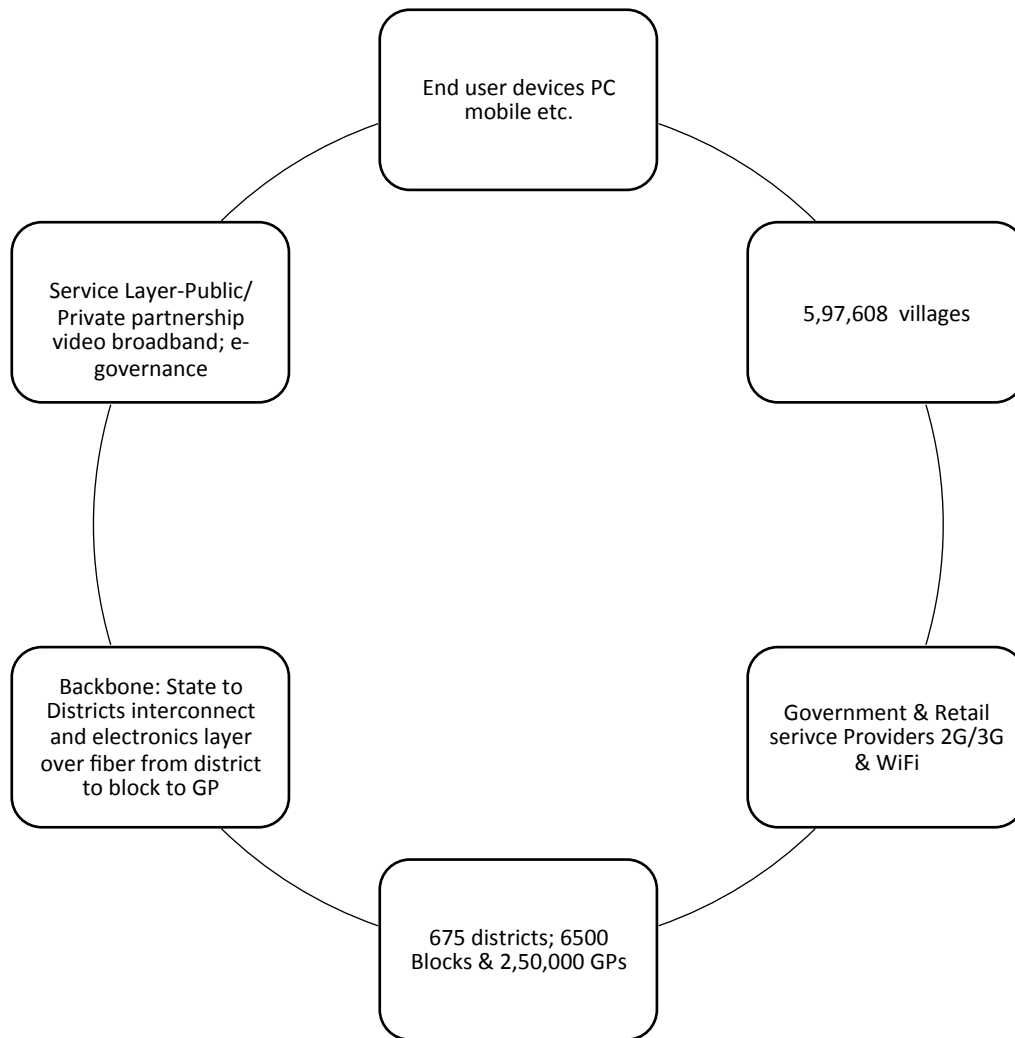


Figure 2: *BharatNet*: Flow of Scale of Operations Involved

CHAPTER V.CASE STUDY

In 2015, at the same time the NOFN was being restructured under the Digital India initiative, a different policy debate was playing out in the international and national sphere around the issue of net neutrality. The net neutrality debate is useful in understanding some of the sources of friction amongst market, state and civil society with regard to the issues of governing the telecom sector and Internet and effectively monetizing the services that fall within this ambit. It has broader relevance and implications for the future of the *BharatNet* project and the larger Digital India initiative.

A case study of the net neutrality debate in India in 2015 is included as part of this study to highlight a different aspect of the policy processes around technology, one that saw a bigger role for civil society and citizens and was articulated largely from an urban perspective by those who already have access to the Internet and were invested in safeguarding their freedom of access in ways that are familiar to them. The issue notably saw a different level and quality of citizen engagement, the nature of which was more challenging and media savvy which in the case of the *BharatNet* was notably, almost completely absent. A comparison of the policy discourses that surrounded the net neutrality controversies and *BharatNet* projects highlights the disparity in the voices of opposition and critique in both cases. Additionally the net neutrality, debate also highlights how rural connectivity and universal access becomes a defense for telcos to talk about monetizing Over the Top (OTT) and Voice over Internet Protocol (VoIP) services to be able to offset the expensive charges of data.

Access versus Access: Airtel Zero, Interent.org and Net Neutrality

The concept of net neutrality has been held as one of the sacred tenets of the Internet, the principle that allows billion dollar corporations and startups operating out of a garage to have in

theory, the same reach to the end-user. Net neutrality is the idea that “all the Internet traffic has to be treated equally without any discrimination,” (CIS, 2015). As part of this policy, Internet service providers are required to provide equal access at the same speed to all websites and services on the World Wide Web to their customers and may not engage in creating preferential or discriminatory terms of access to specific websites based on deals or agreements with content providers. With the proliferation of mobile Internet and 4G services, and the increasing popularity of streaming and cloud services, network providers and content providers have been lobbying regulators to change this long held sacred principle.

TRAI Consultation on OTT services. Currently, India has no laws that specify a clear position on net neutrality either for or against the issue. In 2014, Indian telcos publicly began to express their concerns over the matter of Over- the Top (OTT) services which allowed for free messaging and voice calling. These included apps and services such as Skype, Whatsapp, Facebook Messenger etc. Telecom companies claimed that these services which were popular with mobile users because they are free to use and do not cost anything other than data accrued on usage, were eating into the telcos’ main source of revenues from voice calling and texting services. Using the forums of Association of Unified Telecom Service Providers of India (AUSPI) and the Cellular Operators Association of India (COAI), telcos sought recommendatory action from the regulator TRAI on the matter on the regulation of OTT services and for TRAI to allow network providers to monetize/ gain revenue from VoiP (Voice over Internet Protocol) services.

On March 27, (2015) TRAI, in response to the industry’s concerns published a contentious 117-page document titled *Consultation Paper on Regulatory Framework for Over-the-top (OTT) Services* which discussed the issue of net neutrality in India and its implications

for the future of data monetization on telecom services. The document posed twenty questions for public comment and response by the deadline of April 24, 2015.

A public consultation as demonstrated in earlier discussions, is a common policy device that regulators and agencies of industries and utilities use as a way of seeking civic engagement on an important issue. Consultation papers traditionally provide an outline of the issue, provide requisite details and background on the subject and offer questions around the pros and cons of the issue for seeking public response and comment to move forward on creating or implementing policy. Commonwealth nations particularly have a long tradition of issuing consultations. In the case of this particular consultation document as media reports and analysis indicated, TRAI was accused of obfuscating the language, making it hard for people to follow, offering self-contradictory analysis and being biased towards the interests of the service operators by taking a one-sided view of OTT services that favored the position of the telcos, instead of providing the public with a uniform breakdown of the pros and cons and allowing them to offer their responses.

By conflating the issue of comprehensive regulation for OTT services (which currently do not exist and should be a policy agenda) with the issue of net neutrality, TRAI's consultation paper was making the claim that strict adherence to net neutrality was detrimental to Internet growth and access as adoption of net neutrality forced telcos and service providers to treat each data packet the same, which would according to TRAI, make it impossible to offer quality service to customers.

TRAI claimed that, "the two extremes- strict Net Neutrality and no regulation - are inherently flawed. Banning all discrimination is over-inclusive and restricts the evolution of the network. Allowing all discrimination can lead to exclusion and, effectively, make the rule against

blocking meaningless. Hence, a few standards or principles such as “No Blocking” and fixed QoS standards ought to be specified to respond to concerns,” (TRAI, 2015).

The following talking points made by the document in particular received a lot of media and civil society attention-

1. That telcos received no significant revenues either from carriage or bandwidth from OTTs save the cost of data accrued on usage while OTTs not only disproportionately benefitted from the infrastructure provided by telcos but also competed against the latter’s voice and text services.

2. That OTT services were at an unfair advantage because they could offer traditional telephony and PSTN/ Internet voice calling services at no to very low costs to users by circumventing Indian telecom licensing and regulations, paying no dues to the government while telcos had to abide by to offer voice and text services and were still facing stiff competition from OTT services. TRAI made this argument based on a claim made by the COAI. In addition, TRAI asserted that revenue per minute earned by telcos on VoIP services such as Skype were far less than revenue per minute earned on voice and text services offered by telcos themselves. In essence, Internet services were offering users telecom services without any regulatory restrictions that telcos themselves had to abide by such licensing.

3. That OTT/Video services i.e. apps and websites such as YouTube and their ability to offer video content free of charge has led to “disintermediation” i.e. content providers no longer needed to negotiate with telcos to reach consumers as in the case of television, cable or IPTV (Internet Protocol Television).

These arguments were seen as taking a distinct pro-service provider stance. Further, while the consultation paper was criticized for its content, the fairly short window for public

response on a rather important issue was seen as a move by TRAI to silently push through the agenda of telcos. The consultation document and its contents soon attracted mainstream media interest primarily to address the concerns about what moving forward on the matter of net neutrality would mean for the future of accessing the Internet in India.

The fallout generated heated debate about the issue of net neutrality with several think tanks, social advocacy groups and activists taking up the cause and turning it into a social media movement termed #savetheinternet. Several small and independent media artists in India who relied on smartphone use and channels such as YouTube to distribute their content lent their support for the cause through videos and social media mechanisms, and urged their large fan followers to submit public comments in support of net neutrality. Notable among these efforts was a video made by Indian comedy standup group AIB, Save the Internet which registered over three million views.

There were two major strands of argument that gained currency with Indian Internet users. The first being the prospect of having to pay overhead charges on popular OTT and VoIP services such as Whatsapp, Skype, Messenger and so on. The second being the idea that preferential deals between service providers and established social media and streaming apps and other online retailers/ content providers would make it difficult for smaller, newer and independent ventures and startups to distribute their content/service/product over the web. For example, if Spotify, a major audio streaming app were to enter into an agreement with a network operator whereby which any data used by a consumer to stream its service were to become free, it would adversely impact the traffic that other audio applications and services received from users on that particular service.

Users were urged to make their voice felt and submit their responses in favor of net neutrality and were even provided with template responses that they could cut and paste in their emails to TRAI by the Save the Internet campaign. As of August 2015, the TRAI consultation document on OTT services had the highest recorded rate of response in the history of the regulator, with over one million emails being logged.

COAI (2015) also responded to the consultation by offering the argument that making the Internet affordable to more sections of the nation required freedom on the part of telcos to be able to negotiate business deals and agreements with online services and apps as a way of subsidizing customers on their data use, which they were currently unable to do so because of net neutrality stipulations. COAI, in this case made a utilitarian argument about the need for connecting villages under the Digital India initiative and achieving net equality -

India is a market where the complete country still does not have the benefit of mobile or broadband coverage. The immediate priority in India, where 80% of the population has no data connectivity, is for rolling out broadband networks, rather than continue to debate on the concepts and issues of Net Neutrality which are only beginning to be defined globally. It is high time we prioritize the connectivity for all the villages of India as envisaged in the Digital India programme... Thus, we are of the view that our objective today is to connect a billion Indians who are not connected today. In order to achieve this, the Internet must be made affordable. So, if the industry innovates to make the Internet affordable for the millions of customers by getting businesses to pay for it – what better way to bridge the digital divide through business arrangements that subsidize end usage... The debate should therefore shift from net neutrality to – net equality and Internet for all... COAI therefore advocates connecting the 1 Billion Unconnected

Citizens of India, under the “*Sabka Internet, Sabka Vikas*” initiative... Further, in order to achieve Regulatory Neutrality, COAI advocates the principle of, “Same services, Same rules.” Only under such an environment, the TSPs will get a fair chance to compete with OTTs on similar pricing and terms. (COAI, 2015)

That, to broaden the scope of access to those who couldn't afford the cost of smart phone or data plans, it was necessary to compromise on net neutrality so that the externalities of data usage could be turned into a for profit business model was the argument of the telcos here. The same claim was echoed in two other instances. Concurrent to the TRAI consultation and the debate it generated, these two important developments added to the net neutrality debate in India.

Airtel Zero

In February 2015, Airtel, which is one of the largest service providers in the country came up with a new data plan for its customers called Airtel Zero which announced a no fee policy on accessing data for certain partnered services and major Indian online retailers such as Flipkart. Shortly after its rollout, the venture faced backlash from several quarters as it was viewed as a violation of the principle of net neutrality prompting Flipkart to eventually pull out of the partnership. The chairman of Bharati Airtel subsequently came out with a statement on the company's website to respond to the criticism reaffirming Airtel's commitment to net neutrality “to ensure the goals of the Prime Minister's vision of digital India are met.”

The statement insisted that Airtel Zero connected application providers to their customers for free and that the technology was available to any service or website which wished to pay for it at the same rate. Airtel claimed that its platform was being deliberately misrepresented by opponents and that the service provider would not put in place differential speeds or differential access for different sites. By making the argument that the cost of the free data was on the

applications and retailers that chose to join the service and not the customer, Airtel made a comparison between its platform and the toll-free number system, stating, “We are simply taking the same concept of toll-free voice to the world of data.”

Further the company also claimed that it was helping the cause of smaller companies who could cut costs on web marketing and promotion by simply paying less to have their application/service be on the toll-free data platform.

Our vision is to have every Indian on the Internet. There are millions of Indians who think that the Internet is expensive and don't know what it can do for them. We believe that every Indian has the right to be on the Internet. We know that if we allow them to experience the joys of the Internet, they will join the digital revolution...In sum our platform is a technology platform and is open to all the application developers and their customers. Our platform only provides a choice of how the data that is consumed is paid for by any of the two - the application providers or their customers. Whether any application provider enrolls on the platform or not is entirely his choice. All we have is a technology. We don't have a product or a tariff plan that we have launched.

(Gopal Vittal, Chairman of Bharti Airtel, 2015)

Media reports from major news outlets (Times of India; Economic Times, 2015) indicated that the Airtel CEO had personally reached out to a number of online startups and tech companies to reiterate the same talking points as can be found in the statement on Airtel's website. In its counter argument about the plausible violation of net neutrality, Airtel focused on three major aspects;

1. The fact that data charges on mobile phones were prohibitively expensive at the moment and that free data was an incentive for those with lesser means to access the web (the same argument made by COAI in its push for net equality);
2. That the cost of subsidizing the toll free platform for apps and services would be borne by the partners themselves and not customers;
3. That the data plan was a mechanism not unlike a toll free number system. Here Airtel was making a “regulatory parity” argument or what COAI referred to as regulatory neutrality argument, i.e. that all industries which provided a communication service (irrespective of what the nature of that communication was) ought to be treated similarly. That in effect the telephone was an instrument no different from the Internet and the latter could therefore be governed as such.

Internet.org

Another event which intensified the net neutrality talks in India and the rest of the world was Facebook’s initiative, Internet.org, a project which the social media company had started in partnership with brands such as Samsung, Ericsson and Nokia. Internet.Org was aimed at opening up access to the Internet for those who can’t afford it by allowing users to access certain websites for free. To do this Facebook uses a zero rating platform where users are not charged by their service providers for data accrued on browsing websites through Internet.org.

In April 2015, Facebook’s project, which became operational in India (in partnership with Reliance telecom) among other nations in Africa, Latin America and Asia soon came under backlash for violating principles of net neutrality because it limited the sites that could be accessed through Facebook’s free Internet portal. Public criticism prompted companies that were in negotiations with Facebook to be featured on Internet.org, which included travel portal

Cleartrip and major Indian media outlets such as NDTV and the Times Group, to pull out of talks (Times did retain its free service to its newspaper on the platform citing competition from BBC and India Today who also joined the platform).

Coming out in defense of Internet.org following the wave of criticism, Mark Zuckerberg, CEO of Facebook denied that the project went against net neutrality principles in a Facebook post stating, “if someone can’t afford to pay for connectivity, it is always better to have some access than none at all” and that “net neutrality is not in conflict with working to get more people connected. These two principles — universal connectivity and net neutrality — can and must coexist.”

Zuckerberg in his response post, echoed the same utilitarian argument that COAI and Airtel offered in their arguments, taking it a step further, to argue that broadening access to the Internet was far too important a priority to be bogged down by net neutrality and that the poor were better off even being able to access a few basic websites than be cut off from the Internet completely. The following excerpts from Zuckerberg’s post highlight the same rhetoric of welfare and socio economic progress enabled through the empowering medium of the Internet.

The Internet is one of the most powerful tools for economic and social progress. It gives people access to jobs, knowledge and opportunities. It gives voice to the voiceless in our society, and it connects people with vital resources for health and education. I believe everyone in the world deserves access to these opportunities. In many countries, however, there are big social and economic obstacles to connectivity. The Internet isn’t affordable to everyone, and in many places awareness of its value remains low. Women and the poor are most likely to be excluded and further disempowered by lack of connectivity. This is why we created Internet.org, our effort to connect the whole world.

By partnering with mobile operators and governments in different countries, Internet.org offers free access in local languages to basic Internet services in areas like jobs, health, education and messaging. Internet.org lowers the cost of accessing the Internet and raises the awareness of the Internet's value. It helps include everyone in the world's opportunities... Arguments about net neutrality shouldn't be used to prevent the most disadvantaged people in society from gaining access or to deprive people of opportunity. Eliminating programs that bring more people online won't increase social inclusion or close the digital divide. It will only deprive all of us of the ideas and contributions of the two thirds of the world who are not connected.

Analysis

The net neutrality policy discourse in India as it panned out while seemingly unconnected from the case of *BharatNet* nonetheless offers this study with some takeaways that allow us to better comprehend the questions posed at the beginning of this study- how should we understand access. In all three cases discussed above – the TRAI consultation paper, Airtel Zero and Internet.org, the cause of universal connectivity and access for disadvantaged sections was used as a way of justifying the need for moving away from strict net neutrality, to a regulatory framework that allowed for more tie-up based revenue models between content providers and carriers. The spirit of access was consistently pitted against the scope of access and became tied into the rhetoric of public good and welfare by those who speak for industry and state. This becomes relevant as one considers the move towards public-private partnership that is increasingly being practiced in technology sectors and the implications this may have for eventual business models likely to develop out of these collaborations and the ways in which they might bear upon access.

A second major takeaway from the net neutrality debate is the marked nature of social involvement and public debate that took place around the issue. Simply put, net neutrality is a high stakes issue for all stakeholders considered, specifically those who already have access to the Internet and rely on it for various functional and leisure oriented services. Users were wary of having their browsing habits dictated by preferential speeds or terms of access by telcos. Content and OTT service providers were wary of having their traffic affected by the ability of service providers to enter into deals or tie-ups to off-set data charges. Service providers would like to generate more revenue from data. Internationally, net neutrality is a bigger, more activism oriented movement because of various civic advocacy groups working on the issue. Civic engagement on the matter was therefore very high and media savvy. The issue gained a whole lot of mainstream and social media attention and was able to generate a national level policy debate in a very short window of time. While the outcome of this deliberation was yet to be decided when this dissertation was underway, the movement was able to force certain actions and outcomes and demand accountability from the industry, the government and the regulator. In September 2015, TRAI was in the process of formulating the response to the comments on the consultation and make clear the Government of India's position on net neutrality.

The policy discourse around net neutrality throws up evidence of another disconcerting trend – the manner in which narratives of access often talk about the rural but rarely include its voice. The rural become woven organically into the digital divide metaphor as an object of policy action and a convenient statistic to refer to when talking about broadband penetration or tele- density figures. In this way, rural citizens become reduced to statistical indicators, the notion of a demographic rather than the demographic itself, and more often than not, a method of inducing pathos into the meta-narrative of development. Often times they become the anecdotes

of someone else's experience as in the case of Mark Zuckerberg's post on visiting Chandauli in Northern India and witnessing school children learning to use the Internet, or more disturbingly as a bargaining chip in state market interactions. What is clear is that the rural poor are ultimately only targets of development, not true stakeholders.

CHAPTER VI. CONCLUSIONS

I like recounting my meeting with a group of unlettered tribal women in a remote part of Gujarat. They were present at a local milk chilling plant I was inaugurating. They were using cell phones to take photographs of the event. I asked them what they would do with the images. The answer was a surprise for me. They said, they would go back, have the images downloaded on to a computer and take printouts. Yes, they were familiar with the language of our digital world.

(narendramodi.in, 2015)

Let us go back for a moment to where this dissertation began its initial interrogation into technology- to the Mojave Phone Booth that stood once at the crossroads of a desert ringing and ringing and ringing, a technology seemingly out of place and time that acquired a newfound cultural significance because it represented an oddity, forced to confirm to its obsolescence by a bunch of Internet enthusiasts and zine writers, even though by all accounts it was perfectly adequate for the community it served, becoming disruptive to the point where it had to be taken out of service and rendered defunct, not because it had fallen out of use, but because it had become “too used,” because it had been appropriated out of the context of its simplistic utility and turned into something more, a transformative platform that could connect you to the world. All you had to was dial in...

Consider now, the above excerpt from a speech delivered by Indian Prime Minister Narendra Modi in Silicon Valley to a group of technology entrepreneurs, where he was pushing the Digital India initiative. In telling what might be considered a charming story, Modi expresses perhaps an echo of the same sentiment that made the Mojave Phone Booth such a cult phenomenon, a gleeful bewilderment that illiterate tribal women should not only engage in the

culture of taking cellphone pictures but were also savvy enough to know how it could be reproduced.

The “loneliest phone booth in the world” and the “unlettered tribal women” with their cell phone represent the transformation of telecommunications from an apparatus of utility to its present connotations as a gateway to connectivity. They represent a cultural bafflement with a space being out of sync with the rest of a technology rich world and a people one wouldn’t expect to be so in sync with the same. If rural India strikes an oddity when compared with the IT centric hubs of urban India, its people, going by the underlying narrative of Modi’s speech strike an even bigger oddity by engaging with these technologies despite their location and the subjectivities that are foisted upon them by modernity.

Both of these cases represents a question that is at the heart of this study- how should we understand access? Is it a phone booth in the middle of a desert that links a remote mining community to the outside world? Is it rural women who engage in mundane tasks such as taking selfies on their cellphones? Is it a broadband connection to a *Gram Panchayat* and the consequent ability to obtain identification and learn digital literacy? Is it the need to own the latest iPhone that has people queuing up overnight in front of an Apple store? Is it protecting the democratic ideal of the Internet by fighting for net neutrality? Is it putting the needs of the many above the needs of the few by going against net neutrality as Facebook claims to do with Internet.Org? All of these questions articulate a different facet to the debate on access to communication technologies. They bring up different and yet equally important questions on utility versus leisure, needs versus luxuries and the ideal versus reality.

Summary

The telephone booth story in Mojave through which this study began an exploration of its research agenda pointed to the fetishization of an obsolete facility. By way of contradiction to this, a major push by India, regarded as one of the fastest growing economies, to address the last mile broadband access to thousands of villages through *BharatNet* formed the analytical crux of this study. The objective was to investigate through the case of *BharatNet*, the construction of access and empowerment within state discourses on technology, to demonstrate how subjectivities of space and scale factor into the way access to resources are articulated by state and market powers, and to examine the influences and impact of neoliberal interests and agendas in shaping these discourses towards the grand overarching aim of development.

To do this, the study engaged with the policy processes and responses of multiple stake holders in the deliberations around *BharatNet* using a critical approach grounded in interdisciplinary bodies of scholarship. The political economy perspective allowed for an examination of factors embedded in state and market institutions and created a theoretical entry point to analyze the liberalization reforms that recreated the telecommunication space in India. The second strand of theoretical influence of critical geography helped place the ideological production of space and scale within a capitalistic neoliberal framework, specifically as it applied to the reification of the rural and urban divide in India and the implications this had for distribution and access of resources such as communication technologies. Using a narrative approach to policy analysis, the study was able to get at the discursive elements that come together to create a policy discourse.

The analysis of the *BharatNet* case and the larger Digital India initiative that has coopted it brings to light several issues. It highlights the stark discrepancies between the vision of an

instrument of policy and its translation into reality. It illustrates the flaws of a centralized, unidirectional approach to development especially with regard to communication and technology. It offers a view into the realm of policy discourse and shows us just how unreachable even the discursive spaces of democracy, polity and deliberation can be to the citizens who may lack the social capital to engage with it and how these policy spaces are controlled by the interests and concerns of institutional stakeholders.

The analysis indicated a large scale continuity in the policy approach of the Indian state to technology and the role it ought to play in development. The emphasis on linear modes of technology, top-down execution models and the understanding of technology as a tool for welfare and better governance was a perspective that has enjoyed popularity in pre liberalization development policies going back to the era of Nehru. However, what has changed and what perhaps makes the crucial difference is the larger political economic frameworks have shifted to accommodate a more neoliberal approach to development and economic growth. While India does retain a mixed model economy model to this day, the desire of the Indian state to posture and position its IT and telecommunications sector in world fora and capitalize its recent successes in said field have led to an increased focus on technology based policies.

The efforts of *BharatNet* and Digital India on a broader note are symbolic of this desire, for a state to become identified through its technological apparatus. Situated in a continuum of telecom reforms, *BharatNet* represents the will if not the ability of the state to address the policy lacunae that for a variety of reasons has ignored the rural areas. The case of *BharatNet* also offers an insight into how spaces and scales of political and economic action are valued on the basis of their ability to contribute viably to the neoliberal economy and be profitable. In the light of these observations, the study opens up the following larger questions

The Inevitability of the Public-Private Partnership Model?

The analysis of the *BharatNet* project from its inception to its eventual migration into the *BharatNet* under the Digital India reflects a story of an over budgeted, ambitious and flawed plan that was doomed to fail. Besieged with delays and administrative hurdles, the project of rural connectivity never did take off the way it had been ideated. Even when the infrastructure was established to some modicum of success as was the case in the pilot tests, it received a lukewarm response from the telcos and service providers who were to form the customer base for the optical fiber. This was because a business case for using the fiber did not present itself and because the private sector felt that the venture being in the public sector offered them little or no share of the pie.

The new lease of life that NOFN received under the Digital India initiative, and the restructuring that it underwent following its cooption may likely change the outlook for the broadband project which at present remains rather pessimistic. But the policy discourse around *BharatNet*, in the context of the larger international neoliberal economic framework, seems to lead towards an important trend in the future of technology and telecommunications policy - the inevitability of the public private partnership model. Having created a regulatory regime that privileges and centers the needs of the free market above all else, the international telecommunications sphere finds itself struggling to accommodate the tenets of universal access and bridging the digital divide. While these objectives are part of the policy architecture through the efforts of the WSIS, they are in fact fundamentally antithetical to the competitive market based approaches of the industry thus constituting a paradox. Given these incompatibilities between the aims of a state to bridge an access gaps and the reluctance of the market to service

such a gap unless there be a financial stake in it for it to do so, it would seem that the public private partnership model based on incentivizing development is a disturbing inevitability.

The Space of the Rural

Understanding the social, political and economic dimensions of the rural as a space in the discourse surrounding technology was one of the objectives of this study. Politically as has been discussed in earlier chapters, the rural sector in India constitutes an important demographic containing vital vote banks that political parties have vested interests in maintaining. This connects to a long legacy of welfare politics that have essentialized the rural as a site of targeted top-down development policies by the state and also made it the focus of development policies that are aimed at mitigating the problem of rural-urban migration. As a level of governance in the body of the *Gram Panchayat*, it represents a possible site of autonomy, resistance and grass-roots civic engagement, though the center heavy development discourse don't particularly accommodate its voice.

Within the technological imaginary of India and its international posturing as an important IT hub in the global economy, the rural space represents a crucial gap of access and service, the proverbial last mile, one that must be bridged not only to reaffirm the Indian state's commitment to its rural millions, as Nehru once stated, but also to maintain the narrative fidelity of the Indian technoscape as one of abundance, opportunity and access.

As an economic space, the rural in the policy discourse around communication technology is notably constructed as a failed market and calls into question the popular policy discourse of the "poor-as-consumer model," an idea that has gained much traction since 2005 with the growing popularity of seeking public-private partnerships to undertake poverty alleviation. This particular concept aims at integrating the Bottom of the Pyramid (BoP),

classified as the world's poorest into consumers by developing, designing and marketing specific products aimed at them, particularly ICTs. This market strategy is based on an assumption that low-income groups are highly price sensitive, possess little or no literacy skills, and are on the lookout for products and services that are easy to use (Prahalad, 2004).

But in the case of *BharatNet*, private sector stakeholders in artificially delinking the space of the rural from the capitalist processes of urbanization, present and position it as an unviable business case, one that they cannot service without the state incentivizing the proposition through tax breaks, special economic zones, relaxing net neutrality rules, bringing down costs of spectrum and right of way charges and scrapping USO levies. There is a disturbing understanding that emerges out of the negotiations between the state and the market over the bridging the last mile. For the state, the last mile represents an incorporation of the rural into the larger national framework and for the private sector it is a slow process of gaining access to a potential market. Access to communication resources then becomes determined not on the basis of the rural poor being citizens or rightful stakeholders in the nation's economic and political resources, but rather on the basis of their ability to be good consumers.

Government to Governance

The analysis of the *BharatNet* project brings to light some complexities of the role of a state in mediating and facilitating access to information and communication technologies. While all the analysis of policy approaches taken by the Indian state historically, point to the contrary being true, the Modi government publicly advocates "minimum government and maximum governance" as the push for the Digital India and the rural broadband project and the increased focus on public private partnerships.

Several articulations of globalization have in vain tried to wish away the state and yet it continues to play an important role in the global political economy. As an institution, the state has had to reconfigure its place in the larger neoliberal regimes and work in tandem with its economic and political interests. As was highlighted in the discussion on the preferential market access policy debate in telecom, states no longer can exercise full control over economic policies and must comply with the larger regulatory frameworks that they are committed to. Governance is thus no longer restricted to the government.

The move for transparency and accountability as driven by organized civil society have at least in part forced the state to respond and adopt the language of convergence, multi-stakeholder ship and governance, and yet we have seen how these euphemisms can become convenient placeholders for policy approaches that advocate a larger incentivized role for the private sector. In addition, they point to a larger danger of states using the ploy of small governments to withdraw from their duties in facilitating access altogether, deepening service gaps which as historical precedent and the erosion of social sector priorities in education and health through corporatization have proven, the market cannot really be trusted to bridge.

What of Access?

Telecommunications in India has achieved significant levels of growth and development with substantial improvements in both urban and rural tele density as has been discussed in previous sections of this study. However, the sequence of concerns and policy articulations that led up to the conceptualization of NOFN and its metamorphosis into *BharatNet* indicate that not only are there major gaps of access, but that all the incentives and regulatory support provided to the telecommunication sectors since the early 2000 have not been sufficient in being able to

bridge the digital divide. Public sector efforts bogged down by the incompetence and institutional hurdles have proved no better at fulfilling this objective

While being skeptical of the motivation that drive public-private partnership models in telecommunication policy, this study comes to a conclusion that such approaches might in effect be the only way forward in a paradoxical international scenario that approaches communication access as a resource to be monetized while at the same time stressing on the need for it to be a fundamental amenity. The undeniable reality of telecommunications as an extremely capital intensive sector that requires significant infrastructure and investment from all quarters are recognizable difficulties in articulating a universal right to the Internet, and yet that should not be grounds against aiming towards such a goal for all stakeholders – state, market and civil society forces.

Building on this, the ethic of public private partnership represents a positive aspiration. The problem lies in the way these models of governance and policy approach development projects as intrinsically tied to fiscal returns. They need to move beyond faulty and flawed perceptions of the rural poor and similarly disadvantaged groups across the globe as an unviable consumer base, and construct the terms of their access to communication and information technology resources in more holistic ways that are inclusive of their needs and expectations. The inclusion of truly participatory approaches to development that stem from culturally grounded frameworks rather than the interests of transnational capital and take into account end-user perspectives might be one way forward.

To be clear, a cellphone or a laptop does not automatically solve systemic problems like starvation, malnutrition or infant mortality, it cannot protect from disease, or ensure access to clean drinking water, it cannot extricate someone from cyclical poverty or rescue farmers from

overwhelming debt. It does not in itself launch revolutions or overthrow systems as some naïve public understandings of social movements would have us believe. It can be a crucial enabling tool in these goals, but it cannot be a panacea and should not be positioned as an instant tool of empowerment or socio economic betterment. That is not the point this study would like to endorse. However, if we are to understand the socio-economic realities of our time and recognize the key role that information and communication technologies play in the global economy, then it follows that access to information and communication technologies is a human right and cannot be conditional to what capitalism deems as the contributing value of a people or a scale.

Future Directions for Research

As mentioned in earlier sections it is not within the present scope of this study to make an assessment of the *BharatNet's* success or failure and its migration into the Digital India initiative. It is a process study that peels the policy to understand the pulls and pressures and the fallout that may be in conflict with the stated goal. Investigating the rollout of the *BharatNet* under the Digital India initiative and being able to assess its efficacy in bridging the last mile are possible next steps for this research. The macro nature of the analysis has allowed for preliminary understanding of the diverse set of problems and issues. Ethnographic analysis of the rollout would be a good next step. The scale and intensity of *BharatNet* for which the Union cabinet approval is being processed is likely to throw up new questions on the issue. The mobilization of resources, choice of technology, partners for infrastructure and partners for services are areas where the pulls and pressures are likely to play out.

The Digital India initiative ideated and presented as the ultimate confluence of state and industry represents a rich research opportunity to investigate the issues explored in this study on a larger, national scale. In the future, the study would also like to access and be more

representative of the experiences and voices of the people who are at the core of such policy initiatives.

A long term objective of this study would include revisiting the site of *BharatNet* and being able to build connections between the policy discourse discussed in this study and the lived experiences of those who are affected by these policy outcomes. It is the hope of this researcher, that such investigations should lead to articulations of access that are based on more participatory models of civic engagement and representative of the voices of rural citizens in the discursive spaces of policy. The euphoric sense that accompany such projects along with the well-publicized invitations to the corporate sector for partnerships is waning with a host of other issues occupying the governance system. Education and health, the two key sectors in which the state traditionally had a major role are on the path of privatization. Information and service highways facilitated through *BharatNet* open up avenues of critically examining access to health care and education. The rural sites in which the intended broadband penetration is likely to take place will offer substantial scope for research.

REFERENCES

- Administrative Reforms Commission. (2008). *Promoting e-Governance: The SMART way forward*. New Delhi.
- Altheide, D. L. (1996). *Qualitative media analysis*. London: Sage
- Ambedkar, B. (1946). Speech at debate of Constituent Assembly of India. Retrieved September 21, 2015 from parliament.nic.in: <http://parliamentofindia.nic.in/ls/debates/debates.htm>
- Anderson, B. (1990). *Imagined communities: Reflections on the origin and spread of nationalism*. New York; London: Verso.
- Appadurai, A. (1990). Disjuncture and difference in the global cultural economy. *Theory, Culture & Society*, 7(2), 295-310
- Arora, P. (2010). Hope-in-the-wall? A digital promise for free learning. *British Journal of Educational Technology*, 41, 5, 689-702.
- Arora, P., & Rangaswamy, N. (2013). Digital leisure for development: Reframing new media practice in the global south. *Media, Culture & Society*, 35(7), 898-905.
- Arora, P. (2014). *Leisure geographies of Web 2.0: A historical and comparative analysis*.
- Attoh, K. A. (2011). What kind of right is the right to the city? *Progress in Human Geography*, 35(5), 669-685.
- Awasthy, G. (1965). *Broadcasting in india*. India: Allied Publishers
- Basu, A., & Dutta, M. (2008). Participatory change in a campaign led by sex workers: Connecting resistance to action-oriented agency. *Qualitative Health Research*, 18(1), 106-119.
- BBC. (2006). The Mojave phone booth. Retrieved from http://h2g2.com/edited_entry/A13200201

- Bell, D. (1967). Notes on the post-industrial society (II). *The Public Interest*, (7), 102.
- Beteille, A. (1980). The Indian village: past and present. In E. J. Hobsbawm *etal* (eds). *Peasants in history: essays in honour of Daniel Thorner*, Calcutta: Oxford University Press
- Boyd-Barrett, O. (1977). Media imperialism: towards an international framework for the analysis of media systems. In J. Curran & M. Gurevitch (Eds.), *Mass Communication and Society*, pp. 116–35. London: Edward Arnold
- Boyd-Barrett, O. (1980). *The international news agencies*. London: Constable.
- Boyd-Barrett, O. (1982). Cultural Dependency and the Mass Media, in M. Gurevitch, T. Bennett, J. Curran and J. Woollacott (Eds.), *Culture, Society and the Media*, pp 96-174. London: Methuen.
- Boyd-Barrett, O. (2001) World information orders. In W. Gudykunst and B. Mody (Eds.) *Handbook of international and intercultural communication*. Thousand Oaks, CA: Sage.
- Boyd-Barrett, O. (2006). *Communications media, globalization and empire*. Eastleigh, UK: J. Libbey
- Brenner, N. (1999). Beyond state-centrism? space, territoriality, and geographical scale in globalization studies. *Theory and Society*, 28(1), 39-78.
- Brenner, N. (2000). The urban question: reflections on Henri Lefebvre, urban theory and the politics of scale. *International Journal of Urban and Regional Research*, 24, 1, 361-378
- Braman, S. (2003). *Communication researchers and policy -making* (Ed.). Cambridge: MIT Press. (1- 33)
- Burawoy, M. (1998). The extended case method. *Sociological Theory*, 16(1), 4-33.
- Calabrese, A. (2004). The promise of civil society: A global movement for communication rights. *Continuum: Journal of Media & Cultural Studies*, 18(3), 317-329.

- Castells, M. (1996). *The information age: The rise of the network society manuel castells: Economy, society and culture*. Malden, Mass: Blackwell.
- Castells, M. (2000). The contours of the network society. *Foresight*, 2(2), 151-157.
- Castells, M. (2002). Local and global: Cities in the network society. *Tijdschrift Voor Economische En Sociale Geografie*, 93(5), 548-558.
- Castells, M. (2005). Global governance and global politics. *PS: Political Science and Politics*, 38(1), 9-16.
- Castells, M. (2008). The new public sphere: Global civil society, communication networks, and global governance. *Annals of the American Academy of Political and Social Science*, 616(1), 78-93.
- Chaterjee, P. (1997). Beyond the nation? Or within? *Economic & Political Weekly*, 32:1/2, pp. 30-34
- CII. (2015). Digital revolution: Forward path for Telecom. CII& Deloitte. CII, New Delhi
- Coleman, N. (2013). Utopian prospect of Henri Lefebvre. *Space and Culture*, 16(3), 349-363.
- Committee to review the National Optical Fibre Network (NOFN). (2015). *Report of the Committee on National Optical Fibre Network (NOFN)*. New Delhi
- Christophers, B. (2009). *Envisioning media power, on capital and geographies of television*. Plymouth: Lexington
- Collinge, C. (2006). Flat Ontology and the deconstruction of Scale: a response to Marston, Jones and Woodward. *Transactions of the Institute of British Geographers*, 31, 2, 244-251.
- Cohn, T. (2012). *Global political economy*. Boston: Pearson Longman.
- Das, D. (2014). PMA Policy and COAI recommendations. Centre for Internet and Society: <http://cis-india.org/internet-governance/blog/pma-policy-and-coai-recommendations>

- Daniels, G. (2014). Mojave phone booth site. Retrieved from <http://www.deuceofclubs.com/moj/mojave.htm>
- Davies, L., & Mitchell, G. (1994). The dual nature of the impact of IT on organizational transformations. In R. Baskerville, S. Smithson, O. Ngwenyama, & J. DeGross (Eds.), *Transforming organizations with information technology* (pp. 108-122).
- De Landa, M. (1991). *War in the age of intelligent machines*. New York: Zone Books.
- Deleuze, G. (1995). *Negotiations, 1972-1990*. New York: Columbia University Press.
- Dias, M., Nordenstreng, J. & Wiio, O. (1979). National communication policy councils: principles and experiences. *UNESCO*.
- Dreyfus, H., & Rabinow, P. (1983). *Michel Foucault: Beyond structuralism and hermeneutics*. Chicago: University of Chicago Press.
- Dye, T. R. (1984). *Understanding public policy* (5th ed.). Englewood Cliffs, N.J: Prentice-Hall.
- Dyer-Witheford, N. (1999). *Cyber-Marx: Cycles and circuits of struggle in high technology capitalism*. Chicago: University of Illinois Press
- Duff, A. S. (1998). Daniel Bell's theory of the information society. *Journal of Information Science*, 24(6), 373-393.
- Dunn, W. N. (1986). *Policy analysis: Perspectives, concepts, and methods*. Greenwich, Conn JAI Press.
- Dutta, M. (2011). *Communicating social change: Structure, culture, agency*. New York, NY: Routledge.
- Dutta, M. (2015). Decolonizing communication for social change: A Culture-Centered approach. *Communication Theory*, 25(2), 123-143.

- Emmerij, L. (2010). *The basic needs development strategy*. (Background paper, World Economic and Social Survey 2010). UN
- Wilkins, K. & Enghel, F. (2013). The privatization of development through global communication industries: Living proof? *Media, Culture & Society*, 35(2), 165-181
- Fals-Borda, O. (2001). Participatory action research in social theory: Origins and challenges. In P. Reason & H. Bradbury (Eds). *Handbook of action research: Participatory inquiry and practice* (pp.27-37) Thousand Oaks, CA: Sage.
- FICCI & KPMG. (2015) Indian media and entertainment industry report 2015.FICCI, New Delhi
- Fink, C. & Kenny, C. (2003). W(h)ither the digital divide?. *Info*, 5, 6, 15-24.
- Fischer, F. (2003). *Reframing policy analysis. Discursive politics and deliberative practices*. Oxford: Oxford University Press
- Fischer, F. & Hajer, M. (1999). *Living with nature: Environmental politics as cultural discourse*. Oxford: Oxford University Press.
- Fischer, F & Gottweis, H. (2012). *The argumentative turn revisited: Public policy as communicative practice*. Ed. Durham: Duke University Press.
- Flor, A. G. (2008). *Developing societies in the information age: A critical perspective*. Los Banos: UP Open University.
- Flichy, P. (2007). *The Internet imaginaire* (Trans. by L. Carey-Libbrecht). Cambridge, MA: MIT Press.
- Foucault, M. (1970). *The order of things: An archaeology of the human sciences*. London: Tavistock. (Original work published 1966)
- Foucault, M. (1978) . *The History of Sexuality Volume 1: An Introduction*. New York: Pantheon.
- Foucault, M. (1984). In P. Rabinow (Eds.), *The Foucault reader* (pp. 32-50). London: Penguin

- Freire, P (1970). *Pedagogy of the oppressed*. New York: Continuum.
- Gajjala, R & Gajjala, V. (2008). *South Asian technospaces*. New York: Peter Lang.
- Ganley, G. D. (1996). *Unglued empire: The Soviet experience with communications technologies*. Norwood, N.J: Ablex Pub. Corp.
- Garg, A. (2015). Funding of National Optic Fibre Network (NOFN) - Who's accountable? Centre for Internet and Society: <http://cis-india.org/telecom/blog/funding-of-national-optic-fibre-network-who-is-accountable>
- Garnham N. (2000) *Emancipation, the media, and modernity: Arguments about the media and social theory*. Oxford: Oxford University Press.
- Golding, P., & Murdock, G. (2000). Culture, communications and political economy in J. Curran & M. Gurevitch (Eds.) *Mass Media and Society*. London: Edward Arnold/New York: Oxford University Press. pp. 70–92.
- Gore, C. (2000). The rise and fall of the washington consensus as a paradigm for developing countries. *World Development*,28(5), 789-804.
- George, S. (Eds.), (2003). *Measuring the digital divide and beyond*. Montreal: Orbicom.
- Gumcio-Dagron, A., & Tufte, T. (2006). *Vol 1: Communication for social change consortium*. (P.475- 481)
- Gilbert, C. L., Vines, D., Centre for Economic Policy Research (Great Britain), & Oxford Policy Institute. (2000). *World bank: Structure and policies*. Cambridge: Cambridge University Press.
- Glionna, J. M. (1999,). Reaching way out. *Los Angeles Times*
- Guha,R. (2005) Prime ministers and big dams. *Hindu*

- Gupta, V. S. (1995). *Third revolution in Indian perspective: Contemporary issues and themes in communication*. India: Concept Publishing Company
- Habermas, J. (1984). *The theory of communicative action*. Boston: Beacon Press.
- Habermas, J. (1989). *The structural transformation of the public sphere: An inquiry into a category of bourgeois society*. Cambridge, Mass: MIT Press.
- Hardt, M., & Negri, A. (2000). *Empire*. Cambridge, Mass: Harvard University Press.
- Hajer, M. (1993). Discourse coalitions and the institutionalization of practice: the case of acid rain in Great Britain. F. Fischer, & J. Forester (Eds.), *The Argumentative turn in policy analysis and planning*. Durham, N.C: Duke University Press
- Hajer, M. (1995). *The politics of environmental discourse: Ecological modernization and the policy process*. Oxford: Oxford University Press.
- Hajer, M. (1999). The generic city. *Theory, Culture & Society*, 16(4), 137-144.
- Hajer, M. (2003). Policy without polity? Policy analysis and the institutional void. *Policy Sciences*, 36(2), 175-195.
- Hajer, M. (2010). *Authoritative governance: Policy-making in the age of mediatization*. Oxford: Oxford University Press Oxford.
- Hajer, M. & Wagenaar, H. (2003). *Deliberative policy analysis: Understanding governance in the network society*. Cambridge, UK; New York, USA: Cambridge University Press.
- Hallin, D. C., & Mancini, P. (2012). *Comparing media systems beyond the western world*. Cambridge; New York: Cambridge University Press.
- Hamelink, C. J. (1994). *The politics of world communication: A human rights perspective*. Sage Publications.

- Hamelink, C. J. (2002). Moral challenges in the information society. *Media Development*, 49(4), 40-43.
- Hamelink, C. J. (2004). Towards a human right to communicate. *Canadian Journal of Communication*, 26(8), 205-212.
- Hamelink, C. J. (2006). Rethinking ICTs on a human scale. *European Journal of Communication*, 21(3), 389-396.
- Harijan. (1934). Speech at Gandhi Seva Sangh. Retrieved August 17, 2015 from mkgandhi.org: <http://www.mkgandhi.org/gandhionvillages/economyofvillages.htm>
- Harvey, D. (1973). *Social justice and the city*. Baltimore: Johns Hopkins University Press.
- Harvey, D., 1935. (2001). *Spaces of capital: Towards a critical geography*. New York: Routledge
- Harvey, D. (2003). The right to the city. *International Journal of Urban and Regional Research*, 27(4), 939-941.
- Harvey, D. (2005). *A brief history of neoliberalism*. Oxford: Oxford University Press
- Harvey, D. (2008). The right to the city. *New Left Review*, (53), 23.
- Harvey, D. (2012). *Rebel cities: From the right to the city to the urban revolution*. New York: Verso.
- Heidegger, M., (1962). *Being and time*. New York: Harper
- Heidegger, M. (1977). *The question concerning technology and other essays*. New York: Harper Row.
- Hemer, O., & Tufte, T. (2005). *Media & glocal change: Rethinking communication for development*. Göteborg: Nordicom.

- Howarth, D. (2002). An archaeology of political discourse? Evaluating Michel Foucault's explanation and critique of ideology. *Political Studies*, 50 (1), 117-135.
- Howitt, R. (1998): Scale as relation: musical metaphors of geographical scale. *Area*, 30, 49–58.
- IIT-B. (2005). Information and communications technologies for development: A comparative analysis of impacts and costs from India. IIT-B, Bangalore
- Illavarasan, P.V & Srinivasan, N. (2014). National Optic Fibre Network of India: A position paper. *LirneAsia*
- ILO. (1976). *Employment, growth and basic needs: a one world problem*. Geneva: ILO
- Innis, H. (2007). *Empire and communications*. Lanham, MD: Rowman & Littlefield.
- ITU. (1984). *The Missing Link: Report of The Independent Commission For World-Wide Telecommunications Development*. Geneva: International Telecommunication Union.
- ITU. (1993). *The Changing Role of Government in An Era Of Telecom Deregulation: Report Of The Second Regulatory Colloquium*. Geneva: ITU
- ITU. (1995). *Final acts of the Plenipotentiary Conference of the International Telecommunication Union: Instrument amending the Constitution of the International Telecommunication Union (Geneva, 1992) ; instrument amending the Convention of the International Telecommunication Union (Geneva, 1992) ; declarations and reservations, decisions, resolutions, recommendations*. Geneva: ITU.
- ITU. (1998). *World telecommunications development report*. Geneva: ITU
- ITU. (2013). *Why broadband plans matter?* ITU.
- ITU. (2015). *World ICT indicators*. Geneva, Switzerland: International Telecommunication Union.

- Jodhka, S. (2002). Nation and village: Images of rural India in Gandhi, Nehru and Ambedkar. *Economic and Political Weekly*, 37(32), 3343-3353.
- Johnston, R., Gregory, D., & Smith, D. 1994: *The dictionary of human geography* (3rd ed). Oxford: Blackwell.
- Karvalics, L. Z. (2007). *Information society – what is it exactly? (the meaning, history and conceptual framework of an expression)*
- Karppinen, K., Moe, H. (2012). What we talk about when we talk about document analysis. In N. Just & M. Puppis (Eds.) , *Trends in communication policy research: New theories, methods and subjects* (179- 193). Chicago: University of Chicago Press
- Keniston, K., & Kumar, D. (2004). *IT experience in India: Bridging the digital divide*. New Delhi: Sage Publications.
- Kipfer, S. (2009). Why the urban question still matters: reflections on rescaling and the promise of the urban. In *Towards a political economy of scale*. (Eds.) R. Keil, & R.Mahon (Vancouver: UBC Press) 67-83.
- Kumar, K. J., & Thomas, A. O. (2006). Telecommunications and development: The cellular mobile “revolution” in India and China. *Journal of Creative Communications*, 1(3), 297-309.
- Lash, S. (2002). *Critique of information*. Thousand Oaks, Calif; London: SAGE.
- Lefebvre, H. (2003). *The urban revolution*. Minneapolis: University of Minnesota Press
- Leitner, H & Miller, B. (2006). Scale and the limitations of ontological debate: a commentary on Marston, Jones and Woodward. *Transactions of the Institute of British Geographers*, 32: 116–125

- Lerner, D. (1964). *The passing of traditional society: Modernizing the Middle East* (1st Free Press paperback Ed.). New York: Free Press of Glencoe.
- Lievrouw L. (2002). New media design and development: diffusion of innovations in social shaping of technology. In: Lievrouw LA and Livingstone S (eds), *The handbook of new media*. London: Sage.
- Lindlof, T. R., & Taylor, B. C. (2011). *Qualitative communication research methods* (3rd ed.). Thousand Oaks, Calif: SAGE.
- Lister, M. (2005). *New Media: A Critical Introduction*. (p.9-96). London: Routledge.
- Lyon, D. (1988). *The information society: issues and illusions*. Cambridge, UK: Polity.
- Lyon, D. (1993). An electronic panopticon? A sociological critique of surveillance society. *The Sociological Review*, 41, 653-678.
- Lyon, D. (1994). *The rise of surveillance society*. Cambridge, UK: Polity.
- Lyon, D. (2003). *Surveillance as social sorting: Privacy, risk, and digital discrimination*. London: Routledge.
- Lyon, D., & Zureik, E. (Eds.). (1996). *Computers, surveillance and privacy*. Minneapolis: University of Minnesota Press
- MacMillan, T. H. (2008). Theorizing surveillance: The panopticon and beyond (ed.). *Canadian Review of Sociology*, 45(1), 120-122.
- Mahan, A. K., & Melody, W. H. (2009). Network development: Wireless applications for the next billion new users. *Info*, 11(2)
- Mahon, R., & Keil, R. (2009). *Leviathan undone? Towards a political economy of scale*. Vancouver: UBC Press.
- Mansell, R. (1999). New media competition and access: The scarcity–abundance

- dialectic, *New Media & Society* 1(2): 155–82.
- Mansell, R. (2003). The nature of the information society: an industrialized country perspective, paper presented at the “Visions of the Information Society” ITU Conference, 18–25 February, Geneva.
- Mansell R. (2004). Political economy, power, and new media. *New Media and Society*, 6(1), 96-105.
- Mantri, R. & Gupta, H. The story of India’s telecom revolution. (2013,). *Mint*
- Marcuse, P. (2014). Reading the right to the city. *City*, 18(1), 4-9.
- Marcus, G. (1998). *Ethnography through thick and thin*. Princeton: Princeton University Press. (6-16)
- Marston, S., Jones, J. P., & Woodward, K. (2005). Human Geography without Scale. *Transactions of the Institute of British Geographers*, 30, 4, 416-432.
- Marston, S. (2000). The social construction of scale. *Progress in Human Geography*, 24, 2, 219-242.
- Massey, D. (1994). A global sense of place. In *Space, place and gender*. Minneapolis: University of Minnesota Press
- Mattelart, A. (2002). An archaeology of the global era: constructing a belief. *Media, Culture & Society*, 24, 5, 591-612.
- McChesney, R. (1999). *Rich media, poor democracy: Communication politics in dubious times*. Urbana: University of Illinois Press.
- McChesney, R. (2003). The problem of journalism: a political economic contribution to an explanation of the crisis in contemporary US journalism. *Journalism Studies*, 4, 3, 299-329.

McChesney, R. (2007). *Communication revolution: Critical junctures and the future of media*.

New York: New Press.

Mehta, N. (2008). *Television in India: Satellites, politics, and cultural change* (1st ed.). GB:

Routledge Ltd.

Memorandum of Understanding between the Government of India and the Government of the

United States of America regarding India- USA. SITE satellite experiment project, MoU

U.S.C. (1969).

Mefalopulos, P. (2008). *Development communication sourcebook: Broadening the boundaries of*

communication. Washington, DC: World Bank Publications.

Melkote, S. & Steeves. H. (2001). *Communication for development in the third world*. London:

Sage

Melkote, S. (2012). *Development communication in directed social change: A reappraisal of*

theory and practice. Singapore: Asian Media Information and Communication Centre

(AMIC).

Melody, W. 2011). Whose Global Village? In R.Mansell, R. & M.Raboy (eds). *The handbook of*

global media and communication policy (1-4051-9871-0, 978-1-4051-9871-4), (p.

58).Oxford, UK: Wiley-Blackwell.

Miller, B. (2009). Is scale a chaotic concept? : Notes on processes of scale production. In

Towards a political economy of scale. (Eds.) R. Keil & R.Mahon (Vancouver: UBC

Press) 51-66

Mitchell, D. (1997). The annihilation of space by law: the roots and implications of anti-

homeless laws in the United States. *Antipode*, 29, 3, 303.

- Mitchell, D. (2003). *The right to the city: Social justice and the fight for public space*. New York: Guilford Press.
- Mosco V. (2009). *The Political Economy of Communication*. London: Sage.
- Moll, M. & Shade, L. R. (2004). "Vision impossible? The World Summit on the Information Society," in Seeking Convergence in Policy and Practice. *Canadian Centre for Policy Alternatives*, Ottawa
- Murphy, L. (2013). *The legendary Mojave phone booth is back*. Retrieved from <http://www.dailydot.com/technology/mojave-phone-booth-back-number/>
- Nandakumar, I., & Srikant. J. (2013). Cyber-spying fallout: Govt may restrict usage of Google's Gmail for employees, *Economic Times*
- National Telecom Policy*, (1994). Government of India: <http://dot.gov.in/telecom-polices/national-telecom-policy-1994>
- New Telecom Policy* (1999). Government of India: <http://dot.gov.in/telecom-polices/new-telecom-policy-1999>
- National Telecom Policy* (2012). Government of India: <http://dot.gov.in/telecom-polices/national-telecom-policy-2012>
- Noam, E. (1993). Reconnecting communications studies with communication policy. *Journal of Communication*, 43(3), 199-206
- Noam, E. (2010). Overcoming the three digital divides in D.Thussu (Ed.) *International communication : a reader*. London ; New York : Routledge
- No Author. (2015). Dynamic spectrum and TV white spaces. Retrieved October 10, 2015 from Microsoft Research: <http://research.microsoft.com/en-us/projects/spectrum/>

- No Author. (2015). Balloon-powered Internet for everyone. Retrieved October 12, 2015 from Google: <https://www.google.com/loon/>
- Ninan, S. (2007). *Headlines from the heartland: Reinventing the Hindi public sphere*. Los Angeles: SAGE Publications.
- Nye, J. (2010). Diplomacy and soft power in D.Thussu (Ed.) *International communication: reader*. London ; New York : Routledge
- OECD (2015). *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris.
- Padovani, C., & Tuzzi, A. (2004). The WSIS as a world of words: Building a common vision of the information society? *Continuum: Journal of Media and Cultural Studies*, 18(3), 360-379.
- Padovani, C., & Nordenstreng, K. (2005). From NWICO to WSIS: Another world information and communication order? *Global Media and Communication*, 1(3), 264-272.
- Pavarala, V., & Malik, K. (2007). *Other voices: The struggle for community radio in India*. Thousand Oaks, Calif: Sage Publications.
- Pendakur, M. (2013). Twisting and turning: India's telecommunications and media industries under the neoliberal regime. *International Journal of Media and Cultural Politics*, 9(2), 107.
- Pew Research Center. (2015). *The Modi Bounce*. Retrieved October 10, 2015 from <http://www.pewglobal.org/files/2015/09/Pew-Research-Center-India-Report-FINAL-September-17-20151.pdf>
- Pickard, V. (2007). Neoliberal visions and revisions in global communications policy from NWICO to WSIS. *Journal of Communication Inquiry*, 31(2), 118-139.
- Pitroda, S. (1988). Making technology work. *India International Centre Quarterly*, 15(1), 11-21.

- Pitroda, S. (1993). *Development, democracy, and the village telephone*. Boston: Harvard Business School Press.
- Poster, M. (1984). *Foucault, Marxism and history: Mode of production versus mode of information*. Cambridge, UK: Polity.
- Poster, M. (1990). *The Mode of information: Poststructuralism and social context*. Cambridge, UK: Polity.
- Poster, M. (1995). *The second media age*. Cambridge, UK: Polity.
- Prahalad, C. K. (2005). *The fortune at the bottom of the pyramid*. Upper Saddle River, NJ: Wharton School Publishing.
- Raboy, M. (2004). The WSIS as a political space in global media governance. *Continuum: Journal of Media and Cultural Studies*, 18(3), 345-359.
- Raboy, M., & Mansell, R. (2014). *The handbook of global media and communication policy* (1st ed.) Wiley-Blackwell.
- Radjou, N., Prabhu, J. C., & Ahuja, S. (2012). *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*. San Francisco, CA: Jossey-Bass, A Wiley Imprint.
- Rangaswamy, N. (2008). Telecenters and internet cafés: The case of ICTs in small businesses. *Asian Journal of Communication*, 18(4), 365-378.
- Rangaswamy, N., & Sambasivan, N. (2011). Cutting chai, jugaad, and here pheri: Towards UbiComp for a global community. *Personal and Ubiquitous Computing*, 15(6), 553-564
- Rangaswamy, N., & Cutrell, E. (2013). Anthropology, development, and ICTs: Slums, youth, and the mobile Internet in urban India. *Information Technologies & International Development*, 9(2), 51.

- Richards, C. (2004). Information technology and rural development. *Progress in Development Studies*, 4(3), 230-244.
- Rosati, C. (2007). MTV: 360 of the industrial production of culture. *Transactions of the Institute of British Geographers*, 32(4), 556-575.
- Rogers, E. M. (1962). *Diffusion of innovations*. New York, NY: Free Press.
- Schiller, D. (1980). Facts of which moment? *Symbolic Interaction*, 3(2), 21-22.
- Schiller, D. (1998). Social movement in telecommunications. *Telecommunications Policy*, 22(4), 397-408.
- Schiller, D. (2007). Making public-service telecommunications: Past and present challenges for networked information infrastructures. *Info*, 9(2/3), 3-5.
- Schiller, D. (2008). The militarization of U.S. communications. *Communication, Culture & Critique*, 1(1), 126-138.
- Schmidt, V. A. (2008). Discursive institutionalism: The explanatory power of ideas and discourse. *Annual Review of Political Science*, 11(1), 303-326.
- Schramm, W. (1964). *Mass media and national development*. Stanford, CA: Stanford University Press.
- Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven: Yale University Press.
- Sen, A., & World Bank Conference on Public Expenditures and the Poor. (1992). *The political economy of targeting*. Washington, DC: World Bank.
- Sen, A. (1999). *Development as freedom* (1st. ed.). New York: Knopf.
- Searle, J. R. (1995). *The construction of social reality*. New York: Free Press.
- Servaes, J. (1999). *Communication for development: One world, multiple cultures*. Cresskill, NJ:

Hampton Press.

Shah, M. (2007). E-governance in India: Dream or reality? *International Journal of Education and Development using Information and Communication Technology*, 3(2), 98.

Shah, H. (2011). *The production of modernization: Daniel Lerner, mass media and the passing of traditional society*. Philadelphia, PA: Temple University Press.

Sharma, S. (2011). The biopolitical economy of time. *Journal of Communication Inquiry*, 35(4), 439-444.

Shultz, P. (2001). Dealing for universal service dollars: Competition in the rural world. *Rural Telecommunications*, 20(2), 10.

Shukla, M. (2014). Democratizing information in India: Role of community radios as a developmental intervention. *Vision: The Journal of Business Perspective*, 18(4), 349-352.

Singhal, A. & Rogers, E. (1999). *Entertainment-education: A communication strategy for social change*. Mahwah, N.J: L. Erlbaum Associates.

Singhal, A. & Rogers, E. (2001). *India's communication revolution: From bullock carts to cyber marts*. Thousand Oaks, Calif; New Dehli: Sage.

Sinha, N. (2012). *Communication and colonialism in Eastern India: Bihar, 1760s-1880s* (1st ed.). New York; London: Anthem Press.

Siochrú, S. Ó. (2004). Will the real WSIS please stand up?The historic encounter of the “information society” and the “communication society.” *Gazette*, 66(3-4), 203-224.

Sparks, C. (2007). *Globalization, development and the mass media*. Los Angeles: SAGE

Srinivas, M. (1955). Village studies and their significance. in D N Majumdar (ed), *Village profiles , ethnographic and folk culture society*. Lucknow

Straubhaar, J. (2007). *World television: From global to local*. Los Angeles: Sage.

- Thomas, P. (2006). The communication rights in the information society campaign: Applying social movement theories to an analysis of global media reform. *The International Communication Gazette*, 68(4), 292.
- Thomas, P. (2011). *Negotiating communication rights: Case studies from India*. Thousand Oaks, Calif; New Delhi;: Sage Publications.
- Thomas, P. (2012). Public sector software, participatory communications and social change. *NORDICOM Review: Nordic Research on Media and Communication*, 77.
- Thomas, P. (2014). Development communication and social change in historical context. In R. Obregon, T. Tufte, & K. G. Wilkins. (2014). *The handbook of development communication and social change* (1st ed.). Chichester, England: Wiley-Blackwell.
- Thussu, D. (2006). *International communication: Continuity and change* (2nd ed.). London: Hodder Education.
- Thussu, D. (2010). *International communication: A reader*. London: Routledge
- TRAI. (2010). *National broadband plan*. New Delhi
- TRAI. (2014). *Recommendations on delivering broadband quickly: What do we need to do?* New Delhi
- TRAI. (2015). *Consultation paper on regulatory framework for over-the-top (ott) services*. New Delhi
- Tsing, A. L. (2005). *Friction: An ethnography of global connection*. Princeton, N.J: Princeton University Press.
- Tunstall, J. (1977). *The media are American*. New York: Columbia University Press.
- Tunstall, J. (2008). *The media were American: U.S. mass media in decline*. New York: Oxford University Press.

- UN. (2003). *The Final Text of Agreements and Commitments Adopted at the International Conference on Financing For Development Monterrey, Mexico, 18-22 March 2002*. (Monterrey, Mexico.)
- UNDP. (1994). *Main Principles and Guidelines for the Sixth Programming Cycle of the United Nations Development Programme declaration adopted in Buenos Aires on 12 April 1994 by Argentina, Brazil, Chile, Paraguay and Uruguay: Note*. New York: UN.
- UNESCO. Broadband Commission. & International Telecommunication Union. (2013). *Doubling digital opportunities: Enhancing the inclusion of women & girls in the information society*. Geneva: ITU.
- UNESCO. (1980), *Communication and society today and tomorrow, many voices one world, the McBride report*: KoganPage, London/Uniput, New York/UNESCO, Paris.
- UNESCO. (2005). *Towards knowledge societies*. UNESCO, Paris.
- Van Couvering, E. (2003). Media Power on the Internet: Towards a theoretical framework, paper presented at the Research Seminar for Media Communication and Culture, London School of Economics, London.
- Virilio, P. (2002). *Ground Zero*. London: Verso
- Vittal, G. (2015) Our pledge to our customers. Retrieved September 23, 2015 from airtel.in: <http://www.airtel.in/airtelpledge/>
- WEF. (2011). *Global information technology report (WEF 2010-11)*. WEF.
- Webster, F. (2002). *Theories of the information society* (2nd ed.). New York; London: Routledge.
- Willcocks, P. (2006). Michel Foucault in the social study of ICTs: Critique and reappraisal. *Social Science Computer Review*, 24(3), 274-295.

WSIS. (2003) Declaration of Principles. Building the Information Society: a global challenge in the new Millennium. Geneva, ITU

WSIS (2005). Tunis agenda for the information society. Tunis, ITU

WSIS (2005). Tunis commitment. Tunis, ITU

Zuboff, S. (1988). *In the age of the smart machine: The future of work and power*. New York: Basic Books.

APPENDIX A. LIST OF POLICY DOCUMENTS USED

Document	Type Of Document	Author/Institution	Year	Source/Accessed From
Industrial Policy Resolution	Policy Document	Government Of India	1956	Office of The Economic Advisor
The Constitution (Seventy-Third Amendment) Act, 1992	Constitutional Amendment	Government Of India	1992	Government Of India (1947)
Statement On Industrial Policy	Policy Document	Government Of India	1991	Government Of India (1947)
National Telecom Policy	Policy Document	Department Of Telecommunications	1994	Department of Telecommunications www.dot.gov.in
New Telecom Policy	Policy Document	Department Of Telecommunications	1999	Department of Telecommunication S www.dot.gov.in
WSIS Declaration Of Principles And Plan Of Action	Policy Document	World Summit On Information Society	2003	World Summit On Information Society http://www.itu.int/net/wsis/gene

va/

IT For Masses	Site Literature	10 th Five Year Plan	2002 - 2004	Department of Telecommunications www.dot.gov.in
Broadband Policy	Policy Document	Department Of Telecommunicatio n S	2004	Department of Telecommunications www.dot.gov.in
Promoting E-Governance: The Smart Way Forward (Eleventh Report)	Report	Administrative Reforms Commission	2008	Administrative Reforms Commission www.arc.gov.in/
National e-Strategies for Development Global Status and Perspectives 2010	Report	International Telecommunicatio ns Union	2010	International Telecommunications Union www.itu.int
Broadband to Panchayats	White Paper	Office of the Advisor to the Prime Minister of India on Public Information Infrastructure & Innovations	2010	Office of the Advisor to the Prime Minister of India on Public Information Infrastructure & Innovations (website defunct)
Consultation Paper On National	Consultation Paper	Telecommunicatio ns Regulatory Authority of India	2010	Telecommunications Regulatory Authority of India

Broadband Plan				www.trai.gov.in
National Telecom Policy	Policy Document	Department of Telecommunications	2012	Department of Telecommunications www.dot.gov.in
Annual Report 2012-2013	Annual Report	Department of Telecommunications	2012-13	Department of Telecommunications www.dot.gov.in
Annual Report 2012-2013	Annual Report	Bharat Broadband Network Limited	2012-2013	Bharat Broadband Network Limited www.bbnl.nic.in
Annual Report 2013-2014	Annual Report	Bharat Broadband Network Limited	2013-2014	Bharat Broadband Network Limited www.bbnl.nic.in
Policy for Preference to domestically manufactured telecom products in procurement due to security considerations and in Government procurement	Notification	Department of Telecommunications	201	Department of Telecommunication S www.dot.gov.in
International Multi	Response	Telecommunications Industry	2012	Telecommunications Industry

Association Letter to PM Of India 2014		Association (on behalf of other orgs)		Association www.tiaonline.org/
DigitalEurope Position On Preferential Market Access For Locally Manufactured Telecom Products	Communi- que	DigitalEurope	2012	DigitalEurope http://www.digitaleurope.org/
National Optical Fibre Network (NOFN) Beyond The Fibre Draft Recommendatio ns (2013)	Report	Bharat Broadband Network Limited	2013	Bharat Broadband Network Limited www.bbnl.nic.in
Delivering Broadband Quickly What Do We Need Do?	Consultation Paper	Telecommunicatio ns Regulatory Authority of India	2014	Telecommunications Regulatory Authority of India www.trai.gov.in
Response to Delivering Broadband Quickly What Do We Need Do?	Response	Cellular Operators Association of India	2014	Cellular Operators Association of India www.coai.com
Vodafone's Counter- Response To	Response	Vodafone	2014	Vodafone www.vodafone.in

<p>TRAI's Consultation Paper On "Delivering Broadband Quickly" :</p>				
<p>Comments By LirneAsia On The Consultation Paper On Delivering Broadband Quickly: What Has To Be Done?</p>	Response	LirneAsia	2014	<p>LirneAsia www.lirneasia.net</p>
<p>ISPAI Response to TRAI Consultation Paper On Delivering Broadband Quickly: What Do We Need To Do?</p>	Response	ISPAI	2014	<p>Internet Service Providers Association of India www.ispai.in/</p>
<p>Report on Pilot Project National Optical Fiber Network (NOFN)</p>	Report	Bharat Broadband Network Limited	2014	<p>Bharat Broadband Network Limited www.bbnl.nic.in</p>

Detailed Project Report “Government User Network” For Service Delivery at Village Level	Report	Bharat Broadband Network Limited	2014	Bharat Broadband Network Limited www.bbnl.nic.in
FDI POLICY IN TELECOM SECTOR	Policy Document	Department of Telecommunications	2014	Department of Telecommunications www.dot.gov.in
Digital India	Presentation	Department of Electronics and Information Technology	2014	Department of Electronics and Information Technology www.deity.gov.in
Digital India	Speech	Prime Minister Narendra Modi	2014	http://www.narendramodi.in/
Report of the Committee on NOFN	Report	Department of Telecommunications	2015	Department of Telecommunications www.dot.gov.in

APPENDIX B. GLOSSARY OF TERMS AND ABBREVIATIONS**Abbreviations**

ARC	Administrative Reforms Commission
BBNL	Bharat Broadband Network Limited
BHQ	Block Headquarters
C-DoT	Centre for Development of Telematics
CSC	Common Service Scheme
DeiTY	Department of Electronics and IT
DoT	Department of Telecom
IMF	International Monetary Fund
NOFN	National Optical Fibre Network
PMA	Preferential Market Access
PMO	Prime Minister's Office
UN	United Nations
USOF	Universal Service Obligation Fund
SITE	Satellite Instructional Television Experiment
SWAN	State Area Wide Network
TRAI	Telecom Regulatory of India
WSIS	World Summit on the Information Society
WTO	World Trade Organization

Terms

Digital India: an initiative of the Government of India to integrate the government departments and the people of India to ensure effective governance. It also aims at ensuring that the government services are made available to citizens electronically by reducing paperwork. The initiative also includes a plan to connect rural areas under high-speed Internet networks

Global North & Global South: A term used to signify the difference between the rich and poor countries of the world. The “North” is used to mean the richer countries which are mainly in Europe, North America, and parts of East Asia, and the “South” is used to mean the nations of Africa, Asia, and Central and South America.

Gram Panchayat (GP): is a local self-governing body at the village level. It forms the most basic building block of India’s democratic government. The *Panchayat* was a political system of local governance prevalent in the Indian sub-continent. Historically, it referred to an assembly of five (*panch*) local revered, respected elders of the village who often weighed in on matters of village administration and local disputes. Post-independence this method of local governance was co-opted into the Indian state system through Article 234B of the Indian Constitution with some modifications

ICT4D: Information and Communication Technologies for Development refers to the use of information and communication technologies (ICTs) in the fields of socioeconomic development, international development, and human rights.

ICTs: Information and Communication Technologies is the summative description to a host of technologies that facilitate connectivity and are premised on convergence that includes media, voice and data and communication.

Informatization: is generally referred to the process primarily by which information technologies, such as the world-wide web and other communication technologies, have transformed economic and social relations to such an extent that cultural and economic barriers are minimized.

Last Mile: is a widely accepted phrase used in the telecommunications, cable television and Internet industries to refer to the final leg of the telecommunications networks delivery components and mechanisms to retail end-users / customers. In developing countries, including India, it refers to extension of services to the rural areas/villages.