Spring 11-12-2019

Marching towards Digital India: An Overview on the E-governance Initiatives taken by the Central Government of India to Minimize the Digital Divide During the Period 1998-2018

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ABSTRACT

E-government refers to the delivery of national or local government information and services via the Internet or other digital means to citizens or businesses or other governmental agencies. E-government is a one-stop Internet gateway to major government services. E-government facilitates the provision of relevant government information in the electronic form to the citizens in a timely manner; better service delivery to citizens; empowerment of the people through access to information without the bureaucracy and participation in public policy decision-making. Proper implementation of e-governance can alleviate the gap between digital have and digital have not. Through this paper, an effort has been made to showcase the role of e-governance in bridging the digital divide in India. An account of the initiative taken by Central of India since the first NDA government came to the power, have been outlined.

Keywords: Digital Divide, E-governance, UPA, NDA, Digital India, NeGP, Digital competency

1. Introduction

The rapid strides being made in the domain of Information Communication Technology (ICT) are always worries the Indian Government as it widens the gap between privileged urban population and under privileged rural population. Dutta and De (2014) stated that although it is apparent that the rise of the ICT industry has provided unique opportunities and challenges to the Indian socio-economic fabric, it has also resulted in large disparities in incomes and living standards. On the one hand, the augment of ICT firms and related high-technology services has resulted in tremendous opportunities for employment, economic growth and human capital development. On the other hand, certain regions and sections of society have been unable to obtain the economic as well as social benefits of the ICT sector boom. This disparity or gap is terrifying the economic infrastructure of India and commonly it is known as the Digital Divide. According to Mutula (2005) in this challenging situation proper implementation of e-governance can be act as the panacea to bridge the digital divide. Basically e-governance transforms government activities in two ways: by improving service delivery, including costs; and, by improving communication between

citizens and government (McNeal et al, 2003). Being the second most populated country, India is striving hard to curb the poverty, political instability, illiteracy, unemployment and establishing strong infrastructure to bridge the digital divide. But the Government of India in national level has taken some key e-governance initiatives since 1987 to handle the challenging situation.

2. What is Digital Divide?

In 1970, Phillip J. Tichenor, George A. Donohue and Clarice N. Olien proposed the "knowledge gap hypothesis" (Tichenor, Donohue, & Olien, 1970) which suggests that each new medium of information increases the gap between the informed class and the uninformed class in the society. There are certain close similarities between the digital divide and previous conceptualizations of the knowledge gap hypothesis. Apart from that researchers also tried to define digital divide from different perspectives. Among them some of the definitions are as follows:

- The Organization for Economic Co-operation and Development (OECD) defines the digital divide as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access ICT and to their use of the Internet for a wide variety of activities" (OECD 2001).
- Economic and social differentiation between communities or nations, which are outside or back of the information age, and those, which benefit from informatics revolution completely and started information economy (Şişman, 2012).
- Inequality in terms of access and usage of digital technologies. This includes imbalance in physical access to communication networks, computer hard- and software as well as imbalance in terms of motivation, skills and usage (Müller, Sancho & Hernández, 2009)
- The gap in computer and Internet usage between richer and poorer households, majority and minority groups, and households in urban and rural areas (Hu & Prieger, 2008)
- Inequality of access to technologies between different segments of the society, based on gender, age, location, etc (Yildiz, 2009)
- A term that refers to the gap existing in the opportunities to access advanced information and communication technologies between geographic areas or by individuals at different socio-economic levels (Garofalakis & Koskeris, 2009)

From the above definitions, world can be divided into two sets of people who have and who do not have access to ICT or ability to use technologies, Internet, and other modern artefacts, such as telephone, television. Such differences are more prominent among rural and urban population, poor and rich people, and among developing and developed countries across the globe. Besides, digital divide exists based on race, gender, geography, economic status and physical ability; in skills, knowledge and ability to use information and other

technologies. In broader sense, the digital divide exists in global, regional, national, and state level.

3. Digital Divide in India

In any developing country such as India, the development of the society has been restrained due to plenty of issues. The Government of India have been trying hard to provide fundamental needs such as food, shelter, clothing, education which are top priority issues of the destitute society. The other social problems like unemployment, population explosion, poor communication, and natural calamities have worsened the situation. Before the initiation of National e-Governance Plan (NeGP) in 2006, Digital divide has really never got a top priority in any government agenda. In general, it is noticed that where people have not been able to get computer literacy, internet access and higher education is leading to the disparity in information access. Report of Telecom Regulatory Authority of India (TRAI) (2017) & Internet World Stats (2017) clearly indicates following are the major reasons for digital divide in India:

- Rural-urban digital connectivity disparity
- Low literacy rate
- Computer literacy is extremely low
- Lack of IT infrastructure in remote locations
- Low Internet penetration
- Access to digital information access
- Education disparity
- Income disparity between rich and poor
- Low purchasing power
- Less regional contents for Indian people to understand

According a study by British risk analysis firm Verisk Maplecroft (2014), among the BRICs nations, India is the only country to be marked as ‘extreme risk’, meaning that the country’s population suffers from a severe lack of digital inclusion. This indicates that in India digital divide is at a higher level. The distribution of ICT use in these nations and other developing countries is cause for concern. For example, the wealthier, more affluent segment of the population, primarily based in urban areas, has embraced the use of modern web and communications technology. The growth of the middle classes in the country, which now sits at around 30% of the population, has driven demand for consumer goods, including ICTs. The vast majority of the population has, however, been excluded from this process. Most cannot afford ICTs (only 3% of households own PCs), lack the education required to use it effectively (India has secondary school enrolment rates of 55% and adult literacy rates of just under 63%) and are located in geographical areas that have little or no connectivity to ICT services.

4. What is E-governance?

In the early 1990s, two changes swept across the world – the focus on good governance with increasing non government participation in delivery of public services and Information Communication Technologies (ICTs) and internet – technologies that potentially could connect any and everyone in real time. The concept of e-Government or e-Governance was born through the amalgamation of these two. E-Governance marked a paradigm shift in the philosophy of governance – citizen centricity instead of process centricity and large scale public participation through ICTs enablement (Palvia & Sharma, 2007). Dasgupta (2013) defined it as "Electronic Governance is the application of Information and Communication Technologies (ICTs) for delivering government services through integration of various stand-alone systems between Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G) services. It is often linked with back office processes and interactions within the entire government framework. Through e-Governance, the government services are made available to the citizens in a convenient, efficient, and transparent manner". Through proper implementation of e-governance a variety of service can be provided such as improved delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information etc. The resulting benefits can be minimized corruption, increased transparency, greater convenience, revenue growth and cost reductions.

In India, now-a-days e-governance has been emerged as the burning topic. Central government and most of the state governments have already taken or are taking initiatives offering government services online. However, for the true potential of e-government to be realized, government needs to restructure and transform its long entrenched business processes. According to Dwidedi & Bharti (2010), e-government involves the use of ICTs to support government operations and provide government services. However, e-government goes even further and aims to fundamentally transform the production processes in which public services are generated and delivered, thereby transforming the entire range of relationships of public bodies with citizens, businesses and other governments (Haque, 2002).

5. Bridging the Digital Divide through e-governance:

Most of the discussions from the Tunis Summit of World Summit on the Information Society (WSIS) in 2005 showcased that the Internet is rapidly transforming our society. ICT, the computer, and the associated networks play an increasingly important role in the process of learning and in people's careers. Accordingly, the existing digital divide has a negative impact on people living in less developed regions, as well as those in the lower socio-economic strata. The only stakeholders who can provide equal opportunities are the Governments, so they should assume a leading role in e-governance as a key instrument in closing the divide. The application of e-governance helps to reduce costs, inefficiency, inconvenience and ineffectiveness in service delivery. Though e-governance is gaining importance to a great extent in the recent years, due to many reasons like delays and changes in functionaries, shortages in money, lack of motivation, lack of coordination between departments of government, projects tying to election cycles and so on, many of the Indian

government projects are not being successful to the expected level. In India, involvement and integration of people in crucial decision making for the enhancement of socioeconomic development has been easier than ever with the help of e-governance.

6. Initiatives to alleviate digital divide in India

Since the last couple of decades, there have been several initiatives taken by government as well as private bodies to bridge digital divide in India. However, in view of huge digital divide thoroughly penetrated in Indian societies, the volume of such initiatives may not have brought the desired results till date; bur process has definitely been started in India. To boost up these activities, some policies have been changed as well. In recent years, Indian government have taken active steps and modified policies such as open data initiatives, digital library developments, digitization of old government records. Further to this, many of the government processes, transactions have gone online. Moreover, e-commerce have been regularized and cyber act has been passed which helps both government and private bodies to put lots of Indian contents and processes online which is a positive step towards bridging digital divide. Here we have discussed the journey of India's e-governance strategies taken by Central Government to bridge the digital divide.

6.1 Beginning of the Journey (1998-2004)

In a true sense, the journey of e-governance in India started after the National Democratic Alliance (NDA) government came to power at the Centre in 1998. Several positive measures were taken by the Central Government to make ICT as a driving force and to transform India into a Knowledge Society. One of these initiatives was the formation of a National Task Force on Information Technology and Software Development in May 1998. The Task Force had a directive to formulate the draft of a long-term National IT Policy. In October 1999, the Government set up the new Ministry of Information Technology (MIT), as the nodal agency for facilitating all initiatives in the Central Government, the State Governments, academia, the private sector and among successful Indian IT professionals abroad. The NDA Government approved setting up of an IT venture capital fund of Rs. 100 crores for software companies and then took a series of measures to develop a road map for India in e-commerce. Afterwards, the Government also enacted the Information Technology (IT) Act, 2000, not only to provide a legal framework for e-commerce and prevention of computer crimes, but also to accelerate induction of IT in critical sectors of the Indian economy.

6.2 Initiatives under the UPA-I Governments (2004–2009)

After the United Progressive Alliance (UPA-I) government came to power at the Centre with Dr. Manmohan Singh as its Prime Minister in May 2004, apart from continuing support for the IT industry, it also started using IT as a tool for raising the living standards of the masses, which became the vision of the government's IT policy. Towards this end, the Department of Information Technology (DIT) took up an ambitious programme of personal computer (PC) Internet penetration to the rural and undeserved urban areas. The Department also announced a programme to establish State Wide Area Network (SWAN) up to the block

level to provide connectivity for e-Governance. DIT also set up Community Information Centres (CICs) in hilly, far-flung areas of the North-East and Jammu and Kashmir to facilitate the spread of benefit of information and communication technology. It was also proposed to set up CICs in other hilly, far-flung areas of the country like Uttaranchal, Andaman and Nicobar & Lakshadweep.

6.2.1 National e-Governance Plan (NeGP)

In order to ensure that the benefits of Information Technology reach the common people, the Government initiated a move to make available tools and fonts in various Indian languages freely to the general public during 2006–2007. The National e-Governance Plan (NeGP) was approved by the Government of India on 18 May 2006 with the following vision: "Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man" (Chauhan, 2009). The NeGP comprises of Mission Mode Projects (MMPs) and core e-infrastructure. The NeGP identifies 27 Mission Mode Projects (MMPs) and eight components of its e-infrastructure. The eight components of the Plan are broadly divided into two categories: three core infrastructural components, and five others. The first category covers mainly core infrastructural components: State Wide Area Network (SWAN), State Data Center (SDC) and Common Service Centres (CSCs), while the other category covers five broad areas like standards, capacity building, awareness and communications, assessment, and research and development, which go a long way to ensure successful implementation, institutionalisation and sustainability of NeGP. The 27 MMPs include eight integrated projects; eight central projects and 11 state projects.

6.2.1.1 The core eight integrated projects

1. e-BIZ—seeks to address several issues related to approvals and permissions for businesses, reducing the points of contact between the business entities and the Government agencies, standardising required information, establishing a single-window services, and reducing the burden of compliance.
2. National Service Delivery Gateway—acts a messaging middleware providing intelligent routing services from a Service Seeker to a Service Provider.
3. Common Service Centres—propose to set up to 87,419 centres for providing common services in 17 States.
4. e-Procurement—establishes a one stop-shop providing all services related to government procurement.
5. e-Office—provides a middleware for streamlining, aligning, optimising and automating all internal processes across government boundaries.
6. e-Courts—offer online availability of judgments and cause list, e-filing of cases and notifications through e-mails.
7. India Portal—provides one-stop access to government services.

8. Electronic Data Interchange (EDI) for Trade—introduces electronic filing and clearance of import and export documents, e-payment of duties or charges by Ports, Airports, Customs, etc., and electronic exchange of documents between community partners and Customs, Ports and other government agencies.

6.2.1.2 The eight Central projects:

1. Income Tax—includes 19 defined services to be provided online like e-filing of tax returns through intermediaries, online submission of forms, online payment of taxes through selected banks, issue of refunds through Electronic Clearance System.
2. MCA21—offers availability of all Ministry of Company Affairs (MCA) services including filing of documents, registration of companies and public access to corporate information through a secure portal.
3. Insurance—provides insurance-related services through the four public sector general insurance companies.
4. Central Excise—enables filing of service tax and Excise Returns, e-Payments of custom duties, automated clearance of courier consignments, etc.
5. National ID/UID—creates a central database and generates unique identifiers for residents across the country primarily for effective reach of social sector benefits.
6. Pensions—track and handles pension settlements.
7. Banking—integrates core banking solutions of various banks.
8. Passport, Visas and Immigration—enables applications for new passports, renew old passports, track application status and handle immigration formalities for all international incoming flights.

6.2.1.3 The eleven State projects:

1. Agriculture—provides services like market prices, soil information, crop diseases and management, good practices for horticulture, sericulture.
2. Employment Exchange—enables to match the requirements of employers and potential employees, provides guidance to the unemployed and facilitates online registration of vacancies by employers.
3. Commercial Taxes—improve efficiency of VAT administration by enabling electronic filing of returns and clearance of refunds, online payment of taxes, etc.
4. Land Records—identify and automates 14 services like integration of textual and spatial land records data, integration of registration and mutation processes, automatic updating of land records providing conclusive title to land owners.
5. Road Transport—includes services like vehicle registration and driving licenses.

6. Gram Panchayat—issues trade licenses, certificates, house related services, receipt of fund progress reports, individual beneficiaries of various schemes, etc.
7. Municipalities—provide G2C services like issuing birth and death certificates, payment of utility bills, issuing licenses.
8. Police—implements Common Integrated Police Application (CIPA) and hardware in Police Stations.
9. Property Registration—replaces manual systems of verification and scrutiny of documents, capturing and preserving copies of documents, and conducting searches and of maintaining back office records.
10. Treasuries—involve payment of salaries to government employees, payment of expenses, etc.
11. e-District—automates backend processes to enable the delivery of G2C services through Common Services Centers.

Apart from these three main core components were also identified by the NeGP. Those components are as follows:

6.2.1.4 State Wide Area Network (SWAN)

The Government approved the SWAN Scheme for establishing State Wide Area Networks (SWANs) across the country in 35 States and Union Territories, at a total outlay of Rs. 3,334 Crore over a period of 5 years. The objective of SWAN Scheme was to establish converged network consisting of data, voice and video circuits with minimum 2 Mbps capacity, linking the State with the Union Territories Headquarters, right up to the Block and Tehsil headquarters, through the district and the Sub-division headquarters. The aim was to create a secure government closed user group (CUG) network, for the purpose of delivering Government-to-Citizen (G2C) and Government-to-Government (G2G) services.

6.2.1.5 State Data Centre (SDC)

State Data Centre (SDC) had been identified as one of the important element of the Core infrastructure components for supporting NeGP. SDC provides key functionalities such as central repository of the state, secure data storage, online delivery of services, Citizen Information/Services portal, State Intranet portal, disaster recovery, remote management and service integration, among others. The entire scheme involved an outlay of Rs. 17,000 million.

6.2.1.6 Common Service Centres (CSCs)

CSC involved a scheme for providing support for establishing 100,000 broadband Internet-enabled Common Service Centers (CSCs) in rural areas of the country. The Scheme had been approved at a total cost of Rs. 5742 Crores over 4 years, of which the Government of India is estimated to contribute with Rs. 856 Crore and the State Governments with Rs. 793 Crores. Other resources would be mobilised from the private sector.

6.2.2 Other initiatives:

The Universal Service Obligation Fund (USOF) was established with the fundamental objective of providing people in rural and remote areas access to 'basic' telephony services at affordable prices. Subsequently, its scope was widened to provide subsidy support for enabling access to all types of telephony services including mobile services and broadband connectivity and for creation of infrastructure like optical fibre cables (OFC) in rural and remote areas.

Recognising the vital role that information communication technology (ICT) can play in the empowerment of rural women, a scheme called Sanchar Shakti had been launched in March 2011 for pilot projects aimed at facilitating access of self-help groups (SHGs) to ICT-enabled services.

6.3 Initiatives under the UPA-II Governments (2009–2014)

6.3.1 National Optical Fibre Network

Government had approved a project of National Optical Fibre Network (NOFN) in October 2011 for providing broadband connectivity to approximately 2.5 lakh gram panchayats at a cost of Rs. 20,000 crores. The network provided connectivity to various public institutions like gram panchayats, primary health centres (PHCs) and schools in rural areas. It also resulted in investment from the private sector both for providing different services and for manufacturing of broadband-related telecom equipment. The project was funded by the USOF.

6.3.2 National Knowledge Network

The Central Government of India approved another project named National Knowledge Network (NKN) in March 2010 with an outlay of Rs. 5990 crores over a period of 10 years, and with National Informatics Centre being its implementing agency. The objective of the NKN project with its multi-gigabit capability was to facilitate an ultra-high speed backbone for e-Governance and also to establish a strong and robust Indian network all universities, research institutions, libraries, laboratories, health care and agricultural institutions across the country and the globe. The Ministry of Communications & Information Technology records

NKN's following achievements by 31st December 2017:

- 1648 links to Institutions have been commissioned and made operational. This includes 394 links to institutions under NMEICT, which have been migrated to NKN
- 76 Virtual Classrooms have been set up.
- NKN connectivity has also been extended to 469 NIC district centers.
- NKN has established its International PoP at the NetherLight switch at Amsterdam with a 10G link.

- NKN enables collaboration among researchers from international educational networks like TEIN4 and organizations such as CERN.
- NKN and Internet2 of USA have signed a Memorandum of Understanding to create a robust collaboration program between the two national research and education (R&E) networks.
- NKN connectivity has been extended to State Wide Area Network (SWAN) in 34 States/Union Territories and State Data Centre (SDC) in 31 States/UTs.

6.3.3 Other Initiatives:

As noted in Economic Survey 2011–2012, significant progress had been made in lying down core e-infrastructure and in most of the Mission Mode Projects (MMPs). More than 97,000 common service centres (CSCs) had been established across the country as Web-enabled service access points for making public services available to citizens on an anytime, anywhere basis.

Initiatives under the NeGP also included online services related to income tax, Ministry of Corporate Affairs (MCA) 21, passports and central excise. The government also initiated new e-Governance projects for education, health, public distribution system and postal services. The number of public services available to citizens in electronic mode would be expanded through the Electronic Delivery of Services (EDS) Bill, approved by the union cabinet on 20 December 2011.

Ministry of Human Resource Development officially launched the Aakash tablet in New Delhi on 5 October 2011 to ensure accessibility to all services to the common people, public services under all e-Governance projects. Aakash is an Android-based tablet computer promoted by the Indian Ministry of Human Resource Development as part of an initiative to link 25,000 colleges and 400 universities in an e-learning program. It was produced by the British-Canadian company Data Wind.

In October 2012, the UPA-II Government constituted a high-power National Committee on Direct Cash Transfers in a bid to reduce corruption at the cutting edge. The purpose of Direct Benefits Transfer (DBT) was to ensure that ‘benefits go to individuals’ bank accounts electronically, minimising tiers involved in fund flow thereby reducing delay in payment and ensuring accurate targeting of the beneficiary.

6.4 Initiatives under the NDA Government (2014–2018)

After the Bharatiya Janata Party (BJP) led National Democratic Alliance’s (NDA) Central government came to power on 26 May 2014, the mid-year union budget 2014–2015 was its first policy document. The government rose to power on the promise of good governance and development for all—particularly by uplifting rural India through the provision of urban amenities and technology upgrades.

Acknowledging that previous e-Governance initiatives undertaken by various State Governments and Central Ministries have played a significant role in shaping the progressive e-Governance strategy, the NDA Government wanted to speed up e-Governance implementation across the various arms of Government at National, State and Local levels.

6.4.1 Launching of Digital India Campaign

To transform the Indian information society to the Knowledge based society and to uplift the penetration level of IT services domestically, 'Digital India' strategy has been envisioned as an ambitious umbrella programme. It was launched on 01 July 2015 by Prime Minister Narendra Modi. This would ensure broadband connectivity at village level, improved access to services through IT-enabled platforms, greater transparency in government processes and increased indigenous production of IT hardware and software.

The Finance Minister Arun Jaitley announced in the budget a countrywide programme with a new direction called 'Digital India' in order to bridge the digital divide between digital 'haves' and 'have-nots'. He proposed a National Rural Internet and Technology Mission (NRITM) for services in villages in order to bridge the rural-urban divide. Jaitley also proposed 'e-Kranti' for governance and services delivery at different levels of government. The 'Digital India' programme with nine pillars is basically a good governance programme for transparency and better service delivery of various government schemes through the use of information and communication technology (ICT). The 'Pillars of the Digital India' that the Government of India identify as being:

- Broadband Highway
- Universal Access to Mobile connectivity
- Public Internet Access Programme
- E-Governance – Reforming Government through Technology
- E-Kranti - Electronic delivery of services
- Information for All
- Electronics Manufacturing
- IT for Jobs
- Early Harvest Programme

The e-governance initiatives which are already launched under this campaign can be categorised in three broad categories, namely: Infrastructure, Services and Empowerment. As of 31 December, 2017, the statistics of launched programs are as follows:

- Infrastructure Initiatives (30 ongoing projects),
- Services Initiatives (69 ongoing projects) and
- Empowerment Initiatives (16 ongoing projects).

6.4.2 BharatNet/National Optical Fibre Network (NOFN)

The earlier UPA government's National Optical Fibre Network (NOFN) project has been renamed by the NDA government as BharatNet, touted as the 'backbone for Digital

India'. The project is aimed at providing 100 Mbps broadband connectivity to approximately 2.5 lacs gram panchayats across India.

6.4.3 Expansion of Direct Benefits Transfer (DBT)

Following the previous government's support for the Aadhaar program, the current government has introduced a potential large-scale, technology-enabled, real-time Direct Benefit Transfer (DBT) system, namely the JAM (Jan Dhan-Aadhaar-Mobile) number Trinity solution. The JAM Trinity refers to the consolidation of three spokes in the wheel of economic policies meant to drive the financial inclusion measures as well as make various payments secured.

7. Conclusion:

Through all the above discussion it is evident that the UPA-I & II Governments had taken various initiatives to promote the growth of the IT industry in India and had been a key catalyst for increased IT adoption—through sectors reforms that encourage IT acceptance. During the UPA-II Government, the Draft National Policy on Information Technology 2011 emphasised adoption of technology enabled approaches to overcome developmental challenges in education, health, skill development, financial inclusion, employment generation and governance. On the other hand, the new government in India under the leadership of Prime Minister Narendra Modi has sought to pursue e-Governance as a part of its bigger strategy to improve governance and reduce corruption in the country. There is empirical evidence supporting the efficacy of e-Governance as a tool to reduce corruption.

In order to gain a sustainable society, Governments and other concerned stakeholders should concentrate on ensuring equal opportunities for the young and future generations. E-governance is a vital component of that future, and bridging the digital divide should become a world priority. E-Governance not only provides information about various activities of a Government but also involves citizens to participate in Government's decision making process.

All that is required is strong determination among people, good policy–makers and political support to bridge the digital divide. Libraries and information centres have a special role in providing information to all in order to reduce the gap between those who have the facilities to access digital information and those who do not. The country needs to improve the infrastructure of public libraries and link them with community information centres.

Reference

Asia Internet Stats by Country and 2017 Population Statistics. (2017). Retrieved on November 24, 2017, from http://www.internetworldstats.com/asia.htm#in

Chauhan, R. (2009). National e-governance Plan in India. *United Nations University–International Institute for Software Technology*. Retrieved on November 27, 2017 from http://i.unu.edu/media/unu.edu/publication/1377/report414.pdf

Dasgupta, S. S. (2013). Cyber capability framework: A tool to evaluate ICT for development projects. In *Handbook of Research on ICTs for Human-Centered Healthcare and Social Care Services* (pp. 399-406). IGI Global.

Dutta, D., & De, S. (2014). Socio-Economic Dynamics of the ICT Industry's Regional Growth in India. In D. Dutta (Ed.), *Inclusive Growth and Development in the 21st Century: A Structural and Institutional Analysis of China and India* (pp. 191-217).

Dutta, D. (2017). *Development under dualism and digital divide in twenty-first century India*. Singapore: Springer. doi: https://doi.org/10.1007/978-981-10-6344-2

Dwivedi, S. K., & Bharti, A. K. (2010). E-GOVERNANCE IN INDIA-PROBLEMS AND ACCEPTABILITY. *Journal of Theoretical & Applied Information Technology*, *17*.

Garofalakis, J., & Koskeris, A. (2009). Digital divide and rural communities: Practical solutions and policies. In E. Ferro et al (ed.) *Handbook of Research on Overcoming Digital Divides: Constructing an Equitable and Competitive Information Society: Constructing an Equitable and Competitive Information Society*, 386.

Haque, M. S. (2002). E-Governance in India: Its Impacts on Relations Amongcitizens, Politicians and Public Servants. *International Review of Administrative Sciences*, *68*(2), 231-250.

Hu, W. M., & Prieger, J. (2008). Competition in broadband provision and the digital divide. In Yogesh K. Dwivedi, Anastasia Papazafeiropoulou and Jyoti Choudrie (ed.) *Handbook of research on global diffusion of broadband data transmission*, *1*, 241-259.

Müller, J., Sancho, J. M., & Hernández, F. (2009). New media literacy and the digital divide. In *Handbook of research on new media literacy at the K-12 level: Issues and challenges* (pp. 72-88). IGI Global.

Mutula, S. M. (2005). Bridging the digital divide through e-governance: A proposal for Africa's libraries and information centres. *The Electronic Library*, *23*(5), 591-602.

McNeal, R. S., Tolbert, C. J., Mossberger, K., & Dotterweich, L. J. (2003). Innovating in digital government in the American states. *Social Science Quarterly*, *84*(1), 52-70.

Palvia, S. C. J., & Sharma, S. S. (2007). E-government and e-governance: definitions/domain framework and status around the world. In *International Conference on E-governance* (pp. 1-12).

Şişman, A. (2012). The e-Government Concept and e-Government Applications. In K.J. Bwalya and S.F.C. Zulu (ed.) *Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks: Adoption, E-Participation, and Legal Frameworks*, (pp. 411-422)

Tichenor, P. A., Donohue, G. A., & Olien, C. N. (1970). Mass media flow and differential growth in knowledge. *Public Opinion Quarterly*, *34*(2), 159-170.

Telecom Regulatory Authority of India (TRAI). (2017). *Annual Report, 2015-16.* Retrieved on November 23, 2017 from http://www.trai.gov.in/sites/default/files/TRAI_Report2015-16%20ENG24_4_2017.pdf

Verisk Maplecroft. (2014). Retrieved November 24, 2017, from https://maplecroft.com/about/news/country-risk-reports-february25.html

Yildiz, M. (2009). An overview of local E-government adoption and implementation in Turkey. In C.G. Reddick (ed.) *Handbook of Research on Strategies for Local E-Government Adoption and Implementation: Comparative Studies* (pp. 419-436). IGI Global.