

India's Digital Reforms and Inclusive Growth: Prospects with Retrospect

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ARTICLE DETAILS

Article History

Published Online: 15 May 2019

Keywords

Digital India, ICTs, tele-density, financial inclusion, social integration, e-reforms, e-governance, sustainable development.

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ABSTRACT

Technology has made its presence felt in almost every sector that motivated India to shift to the paradigm of Digital India. July 1, 2015 marked the beginning of era of digitalization in India with the aim of providing government services to the citizens electronically. The initiative also includes plans to bridge the gap between the urban haves and rural have nots. Implementation and success of Digital India depends on three core components- the creation of digital infrastructure, delivering services digitally and most importantly digital literacy. In the new millennium, digital is no longer just about computers and the Internet but also about mobile phones, social networking, augmented virtual reality, artificial intelligence (AI), mobile apps and much more. It has revolutionized the socioeconomic and geopolitical sphere from entertainment to commerce, education to health and transport to leisure. It is positively assumed that paperless technology will lead to sustainable development. It is also expected that with the ongoing digital drive the number of users opting for online banking will reach 150 million by 2020. Now the question arises, in a country which is linguistically and ethnically diversified, literacy rate is in the battle field, gender discrimination still prevails, laws and rules are bypassed, cyber security is a recent concept, rural-urban gap is huge, economic disparity is high; is digitalization a distant dream? The paper seeks to analyze the problems and prospects of Digital India. It also interprets how overcoming bottlenecks like electricity, telephone (mobile or equivalent gadgets), network connectivity, management of e-waste and the hurdles of developing agrarian economy will help to foster the benefits to every corner in the country and endorse inclusive growth.

1. Introduction

The journey to cover the distance between the tags of "developing" and "developed" embarks on a larger political as well as social undertaking to transform the regional geopolitical balance for India in years to come. Arguably, India's administrative leadership finds it difficult to accept that no matter what efforts it tries to put by institutionalizing the social or economic reforms, the expected impact would be significantly lower due to lack of adhesive between the spillover population and long missing social and economic discipline. The problem of larger democracy is that when reforms are implemented, the perceived best social intentions are bound to transform into controversy with regard to the actualization of the varieties of liberalism. The notion of liberalism has been imploring itself on the context of realization of interests at every stage of a democratic system and conforms to a pseudo-liberal mechanism to redefine neo-capitalism. Thus, the important question is that whether such reforms are substantial for the maintenance of a genuine democracy, or are mere rituals to fulfill the unilateral agendas of the political parties? Whether such reforms are capable of addressing the widening difference between rich and poor, privileged and under-privileged or autocracy and solidarity? The answer would probably be a yes.

The reforms are the only mirror that shows the efforts of the government viz. political parties at least in a theoretical sense. These are the momenta that emerge as a consequence of a social phenomenon and directed towards itself as a remedy or counteraction. No reform is comprehensive to encompass the dynamics of society at large and thus are

subject to revisions and modifications. One of the major reforms in context to India's inclusive growth agenda is the "Digital India" initiative that aimed at a larger and comprehensive economic union through digital communication means. The objective of the government to have a comprehensive control on the state affairs, both domestically and cross-border, has seen a renewed essence through this reform. Over a decade old financial inclusion agenda coupled with the growing industry of terrorism (viz. terror funding) may be considered as the propellers behind such electronically glorified regime. However, it may also be argued conversely that both the said components have been used as the complementary opportunities to validate government claims favoring alleged national security threats. In turn, the authorities get to enforce the reform by denying the democratic will of the people to install an enhanced state control on almost everything with substantial reduction of privacy and expression rights. Ironically, the massive digitally learned Indian society falls prey of its digital addiction too deep to rescue its consciousness of freedom before the state dominance.

However, on the positive side, the reform is meant to produce value of the essential public services on digital platforms for reaching out the target population deprived of social benefits. For such purpose, it claimed the requirement of forming a unique identification (i.e. AADHAAR) of the beneficiaries to eliminate misappropriation (viz. double or multiple credit to single individual) and misuse of public services which is partially true. Moreover, the best part of this identification is that it is developed on biometrics which arguably ensures no duplication is possible. The database is

stored in multiple locations across the country claiming that the possibility of breaching information integrity is nullified through location diversification. Even if such claims are considered on a hypothetical basis, the government fails to provide a proper explication on the security measures to protect the sensitive information beneath the wider projection of the social benefits, economic transformation and national security. More fundamentally, it remains silent on the part of the democratic right which is crushed brutally by not granting the authority of its usage by will to the public. It somehow partially resembles the present political turmoil between the European Union and United Kingdom, widely known as Brexit. There, a large section of international community is busy highlighting the economic consequences of UK leaving EU. Criticisms are seldom found that pointed out to the failures of EU as a supranational mechanism. Eurozone proves to be a significant example where it apparently exhibited the saturation of the union that started with an economic alliance and reached at the same point after decades of political evolution. The question before the Indian administration remains on the competence/credibility of the system more, rather than producing abundance of digital public services. These services are the fundamental rights which are required to be provided digitally even without such dubious system. The aesthetics of inclusive growth has finely covered the foundation of the gigantic digital drive so as to boost the state's autocracy over the theoretically republic regime.

Thus, the optimism for the system does not completely die since it still has the genuine prospect of transforming the Indian society and economy at a much higher pace provided the fundamental rights are preserved. Fact is, the information with regard to identifications are ultimately recorded in some databases (like the passport no., pan, voter's id), but that is on willful basis and according to the requirements of the services. Instead of making a system a compulsion, the reform needs to develop resilience specially when such system is unable to guarantee the information security from internal as well as external threats with proven track records. Hence, this article concentrates widely on the effectiveness of the recent reforms by the Indian government on digitalization of public services (viz-a-viz financial inclusion), its prospects and pitfalls. The analysis follows in four steps – *firstly*, the fundamentals of Digital India initiative; *secondly*, the issues related to the reform; *thirdly*, the prospects and *fourthly*, the international implication. A sequential mixed methodology has been employed for this analysis. The article is devoted to create a rational sense around the development of reforms based on automation, connectivity and public utilities through electronic assistance.

2. The Fundamentals of Digital India Initiative

The initiative is a huge undertaking for a country like India where majority of the population are deprived of the basic access to internet connectivity, though telecom connectivity by state-sponsored and private service providers have covered almost entire geographical boundary. Needless to say, that India has turned into one of the largest markets in the world for catering telecom services across the nation due to revolutionary mobile network connectivity by the competitive domestic private service providers (such as Reliance telecom,

Bharti Airtel, Aditya Birla Idea). Consequently, citizens have witnessed a price war over a decade among the telecom service providers that ultimately placed them in a win-win situation. On the contrary, many foreign operators (such as Vodafone) found the battle extremely difficult to survive.ⁱ Precisely, this phenomenon of fierce competition has accelerated the rate of accession to telecom services over the period gradually by the public at large, making it a necessity of daily life. Such perception was completely absent 20-25 years back with the then recently liberalized Indian economy after only a few years of Cold War end and the Soviet demise. The most astonishing out of everything is that the telecom products (including services) in India are used at an equivalent rate with any FMCGⁱⁱ product, whereas many parts of it are still deprived of the basic amenities, rights and infrastructure.

Conversely, the agenda of financial inclusion had been suffering from disability during the two consecutive UPAⁱⁱⁱ led administration since 2004 to 2014 despite the best efforts theoretically. As far as the debate goes on implementation of the financial inclusion reform, no part of the national administration or the general public had appeared with a clear idea or concern either with regard to its importance besides the shallow motivations over financial literacy, awareness of public utilities, ease of payment systems and educational benefits etc. Probably, the government was preoccupied with the 2G spectrum case^{iv} during 2009 and overlooked the prospects of the fast-evolving telecom sector. By 2011, smartphones with android technology and 3G mobile technology had already hit the Indian markets that received gigantic response and had provided additional boost on the demands for mobile data connectivity along with the devices. In turn, this phenomenon created a new dimension for the foreign investors to pour in resources and funds in this segment. The successive NDA^v government since 2014 eventually realized the fact that such a vast coverage of data communication coupled with the current mobile platforms can not only be used for financial inclusion, but for strategic alignment of government agendas in domestic as well as foreign policy matters. This way, the government would be able to enhance its control over the largest democracy in the world better compared to any of its predecessors.

There are three major components that work as the rationales for greater development and supervision of the digitalization process in the state. *Firstly*, development of a secure and stable digital infrastructure which would include internet connectivity for all the village administrations (called Gram Panchayat in local language) and building distinctively secure and sound cyber space inside the territory. Technically it sought to bring the distant and remote locations of the state under the circumference of the internet connectivity to avail public utilities directly. *Secondly*, delivering government services digitally via mobile devices and platforms and making the financial transactions electronic and cashless. The objective of transparency and economic transaction inland and across border could be met and complement the surveillance systems to ensure prevention of illegitimate financing such as terror financing. *Thirdly*, development of a universal digital literacy mechanism devoted to making digital resources accessible to population in native Indian languages. In this

respect, Article 343 of the Constitution of India^{vi} specifies that the conception national language is not sufficient to supersede the linguistic diversity of the nation. Thus, Hindi shall be recognized as the official language of India other than English. However, Article 348 of the Indian Constitution^{vii} keeps English as the official language of the judiciary system and Parliament, subject to president's authority. The nation has 22 languages that are recognized as the official languages of different states within the nation conforming to Article 345 of the Indian Constitution.^{viii} The languages are – Bengali, Hindi, Sanskrit, Tamil, Telegu, Nepali, Oriya, Maithili, Urdu, Assamese, Marathi, Gujarati, Bodo, Punjabi, Manipuri, Malayalam, Sindhi, Konkani, Dogri, Kannada, Santali and Kashmiri. Out of all the languages, Hindi has been given the recognition to be a language of national importance equivalent to English, but not the place a singular national language status. Thus, the challenge from the linguistic diversity is the biggest one to make the idea of holistic digitalization a reality.

It remains a harsh reality for one of the fastest growing economies in the world that despite being the language of imperial importance, English still lies beyond the reach of almost 80% of the population. The proper communicative understanding of the language is contained within the handful of economically and socially advanced circumference of the nation. Conversely, Hindi rose as the dominating language (and sometimes the only language) to make a preferable and successful communication mean for the people struggling to bear with English and other state languages. Therefore, the electronic platforms developed fully in English is certain to pose threats of low user frequency than expected compared to advanced societies. Fortunately, with the popularity of various social media platforms, the struggling part of the population have managed to be compatible enough with English at a compulsion basis. However, the compatibility is deceptive in the sense that it does not entail the adequate understanding of the language to turn into an ideal language of general communication. Basically, the construction represents the usage of English alphabets to communicate in vernaculars. Thus, development of same platforms in multiple linguistic versions and their operationalization is an immensely complicated and intertwining task with respect to Digital India initiative compared to its political rhetoric.

The three potential components have been engraved on the digital reforms by rolling out various projects under each category. Under the first category which deals with digital infrastructure, some mentionable projects are –

a) Single Window Interface for Trade (SWIFT) – Aimed at bridging the gap between traders and government in terms of eliminating multiple visits by the former to different departments for documents clearances with regard to imports/exports. The initiative taken by the Central Board of Excise & Customs, Gol, claims to facilitate the operation to obtain necessary permission unilaterally under the name “*India Customs Single Window*” at single point.

b) Rapid Assessment System (RAS) – It has been developed under the National e-Governance division of

the Ministry of Electronics and Information Technology in order to received constant feedback with respect to e-services provided by both state and central governments with proper analysis.

c) Open Government Data (OGD) – This project is in the form of a portal intended for the storage and publication of information related to various documents, tools, services and application collected by the central government's ministries and departments for public usage. It is aimed to grow systemic transparency and innovative developmental application.

d) Mobile Seva App Store (m-Appstore) – An integrated comprehensive mobile platform in association with the MSDG^{ix} developed solely for the purpose of introduction and development of mobile applications for public services delivery on mobile devices.

e) MeghRaj– An indigenously developed cloud computing system to minimize the ICT infrastructural costs for better provisions of e-services delivery with optimum utility of applications.

f) Jeevan Pramaan – A project exclusively built on biometric identification system for the pension earning population from the central/state governments or any government entity of the country. It is meant to provide services for issuing life certificates to the pensioners without their physical presence before the respective government offices/departments.

g) Integrated Health Information Platform (IHIP) – This digital platform is currently under the developmental phase. This service deals with creating a unique database to contain Electronic Health Records (EHRs) of the citizens complied with set standards and develop an integrated database on pan-India basis. Once activated, the records of each citizen could be accessed from any part of the country.

h) Government e-Marketplace (GeM) – The service is applied to procure general goods and services required by the departments/organizations of the governments and Public-Sector Units. It extends the facilities of direct purchase, reverse e-auction and e-bidding to fetch the most cost-effective deals for the governments.

i) Electronic Development Fund (EDF) – This is an exclusive project proposing to develop the Electronics System Design and Manufacturing (ESDM) sector to serve the overwhelming need for electronic devices domestically and become a major exporter of electronic goods by 2020. The areas of focus are electronics, Information Technology and nano-electronics.

j) eBASTA– It is devoted to create an integrated structure consisting various publishers and schools to offer the school books and other educational publications online for study purposes. The portal facilitates convenient

management, organization and navigation of the digital study resources.

k) Direct Benefit Transfer (DBT) – This system targets the beneficiaries of various welfare scheme for transfer of funds and information directly removing the possibilities of duplication and frauds. This ambitious project aims to boost confidence of the government for its transparency, reliability and effectiveness on a large scale.

l) Digital Saksharta Abhiyaan (DISHA)– This project has been developed to cater the IT literacy to the worker under Anganwadi project, ASHA project and authorized ration dealers of the country. The purpose is to enable them to operate in a digitally oriented environment and promoting their participation in developmental initiatives.

m) DigiLocker– It is a unique initiative in the sense that it is equivalent to the personal cloud storage (like dropbox, onedrive) that is provided by the government on the public cloud system to the citizens for storing the valuable documents online. Alternatively, it can be used by the government for issuance of certificates and document verification.

n) Cyber Swachhta Kendra – The entity has been formed under the auspices of “National Cyber Security Policy” to create a secure cyberspace in the country by preventing botnet and other infections. It works collaboratively with Internet Service Providers and IT production companies.

o) Bharat Broadband Network (BBNL) – It is created under the Companies Act of Government of India to perform as a special purpose vehicle for the construction of National Optical Fiber Network (NOFN) to cover approximately 250,000 village administrations.

p) AADHAAR – This is a biometric enable largest identification system in the world conceived to form a strategically crucial measure for public services delivery reform, financial inclusion, fiscal policy and other governance matters. It is claimed to serve as the primary identity of every citizen by eliminating the probabilities of duplicity or counterfeiting. However, the project surrounds huge controversy as regards to the security, privacy and independence of usage.

Under the second category that concerns with the delivery of the government services on digital mode and making financial transactions viz. payments’ system cashless, the following projects are conceived as the core –

a) Unified Mobile Application for New-Age Governance (UMANG)– This is a common platform to offer government services as one-stop solution removing the hassle with multiple application separately. It will offer approximate 1200 types of services from government departments of centre, state and local bodies coupled with many private sector utility services in over 200 applications at one place.

b) UDAAN – It is a reciprocal programme to encourage both corporates and the youth of Jammu & Kashmir for the upliftment of the latter. The corporates are encouraged to visit J&K and mobilize potential youth willing to explore the world of business. Conversely, it facilitates the youth of J&K for travel, training and transits to work.

c) SWAYAM – It is a unique service that aims to facilitate online course modules starting from 9th standard to post graduation for the underprivileged students who are deprived of digital facilities and willing to participate in the mainstream economic and social development.

d) Startup India Portal and Mobile App – A flagship programme designed to promote innovations and startups in India. It intends to mobilize resources for sustainable development along with scope for job creation.

e) Pusa Krishi – A digital initiative devoted to improvement of agricultural activities by availing substantial solutions addressing farming related issues and weather information. Farmers can also avail information of new types of crops under the auspices of Indian Council of Agricultural Research (ICAR) through this platform.

f) Nirbhaya App – It is an android based application to counter the emergency situations by way of delivering a message or call to a concerned person or a group by a vulnerable person.

g) National Scholarship Portal (NSP) – Developed as an all-inclusive solution package containing all types of scholarship processing by the government and crediting the funds directly to the beneficiaries’ accounts.

h) mRAKTKOSH – An integrated web-based platform that links every blood bank of the nation to create an exclusive grid containing information on blood donation and transfusion services. The data collected through the network can be contemplated to locate potential donor.

i) Mother and Child Tracking System (MCTS) – It is intended to extend a full range of healthcare and vaccination facilities to pregnant women and children up to 5 years of age. Additionally, it monitors the progress of the service delivery and ensures reach to actual beneficiaries through a feedback mechanism.

j) mKavach – It is an end-to-end security solution for mobile devices with an inbuilt design that consists secure storage, anti-theft, application manager, call/text filter, access authorization to Wifi, Bluetooth, Camera etc. The service is exclusive focused on the security of importance resources in mobile devices.

Under the third category, the reform concentrates on the digital literacy part for developing digital resources in native Indian languages. The aim therefore is to make the resources

accessible and usable by the population in vernaculars. Following are the projects under this category –

a) Visvesvaraya PhD Scheme for Electronics and IT –

This scheme is specially designed to attract engaged professionals and non-Ph.D. faculty members for pursuing Ph.D. in the field of IT and technology sector. With such involvement, the government intends to intensify the research and development in line with the economic and social development objectives.

b) Targeted Public Distribution System (TPDS) –

It focuses on the critical identification arrangement for locating distressed and underprivileged such as below poverty line population to deliver food grains through authorized distribution channels. Approximately 6 crore under-privileged families are expected to get benefitted under this system.

c) Pradhan Mantri Kaushal Vikas Yojana (PMKVY) –

This is a semi-entrepreneurial scheme where the participants undergo training to acquire industry related skills to fetch better employment prospect or develop self-employment. This programme has an accredited evaluation and certification system.

d) Pradhan Mantri Jan-Dhan Yojana –

It was a larger breakthrough policy initiative by Government of India supporting the financial inclusion agenda. It encompassed the maximum possible arena of public domain across urban and rural population to make a successful bid for accession to banking facilities by each household. It extends a partial support to DBT (Direct Benefits Transfer) scheme of the central government.

e) Pradhan Mantri Gramin Digital Saksharta Abhiyaan–

The scheme is designed to target digital divide with a special emphasis on the socially backward classes such as Scheduled Castes/Tribes, Minorities, Below Poverty Line (BPL), women and physically challenged. It aims to bring digital literacy among six crore individuals by March 2019, comprising almost 40% of rural households.

g) Nation Mission on Education using ICT^x–

Powered by the National Mission on Education through Information and Communication Technology (NMEICT) under the auspices of Ministry of Human Resources, GoI, to impart the legacy of learning and teaching by nurturing the potential of ICTs in higher education systems on real time basis.

i) Aadhaar Enabled Payment System –

It is a model of a payment mechanism based on banking correspondent who can manage and conduct business and other financial transactions at point of sale (PoS) on account of Aadhaar authentication by any bank account holder, provided the bank account is Aadhaar enabled.

The projects under the three crucial components are devised to trigger not only the rural population, but the urban and semi-urban populations as well. It must be reiterated that

the magnetism of social media platforms has compelled the people to reach out to digital devices irrespective of social class, cultural differences and economic abilities. Consequently, the phenomena uncovered the possibility of developing various applications identical to the social media applications that turned out to appeal economic and other social activities for their viability. The attraction to the mobile devices specially drove the momentum towards the feasibility of crucial public services and other utilities on real time basis. The Indian administration in this regard has set nine pivotal objectives to fulfill in year to come for the betterment of the digital infrastructure. These are called the nine pillars of the Digital India initiative. They are –

1. Broadband Highways
2. Universal Access to Mobile Connectivity
3. Public Internet Access
4. eGovernance
5. eKranti (electronic delivery of government services)
6. Universal Information
7. Electronics Manufacturing
8. IT for Jobs
9. Early Harvest Programmes

3. The Issues Related to the Reforms

The pursuit of digital modernization is not free from flaws as it brings out issues that widens the gap between objectives and outcomes. Digital India initiative also suffers from this hazard. The project, as it speaks, at a large extent aims to encompass the abandoned rural areas of the country under the accession of digital services platform through unhindered internet and telecom connectivity. Needless to mention that urban India contributes to such progress at the maximum extent. However, the lack of availability of uninterrupted power supply coupled with telecom connectivity has been able to terminate the progress at different stages. It is argued that the so-called “neo-feudal” politico-economic cartels, hierarchical ideologies of casteism, religious difference and gender discrimination for the derogatory situation of digital pursuit of rural India.^{xi} It is also considered in this regard that Digitalization is a form of elitist infrastructure and is secondary to the basic infrastructure requirements such as schools, healthcare centers, roads, dispensaries, water and sanitation, balanced nutrition, gender equity, jobs and transportation. Thus, it poses less importance to the people when the primary needs are neglected. In addition, it is argued that the communication devices such as personal computers or cellphones are majorly English language driven and thus retreat from the objective due to curtailment in scope and operation by the ground zero population.

Another major issue that has surfaced in recent years after the revolution of mobile communications in India is the growing threats from the ever-increasing piling up of e-waste. The problem of growing e-waste is described as a critical phenomenon with respect to health and environmental risks.^{xii} India turned out to be the highest contributor in generating e-waste as it ranks second in the world (after US) with just 33% of population using mobile devices. It is claimed that close to 80% of the e-waste workers, who come from low-income marginalized communities that includes mainly children and women, suffers massively from serious respiratory issues.

Ironically, much of the progress of digital India project is supported by these marginalized beings who has no share in the digital world besides the leftovers. Thus, the casualties in this regard tend to climb up that may be beyond the reach of even basic health utilities extended by the government. Conversely, there are no safeguards for these groups against the critical illness in the books of policymakers.

On the issues of e-governance, which is an esteemed ambition of the Indian administrative leaderships, the challenges are derived in three pivotal measures – firstly, the quantum and scope of investments in ICTs, secondly, the capacity building to utilize e-governance facilities and thirdly, the promotion of mass participation in the e-democracy.^{xiii} Taking all the three challenges combined, the objective should be to develop appropriate framework for the public capacity building to encompass the local as well as remote citizens. Despite the recorded efforts, the administrative IT project remain urban in nature due to either the lack of accessibility by the rural citizens or adequate awareness. Thus, reaching every Indian citizen irrespective of their knowledge and awareness of digital facilities is the paramount issue that is visible since independence and subsequent republic declaration. Ironically, the best proven sustainable development models in terms of telecom or other sectors failed to transform the picture of disparity, which is proudly celebrated as diversity. With such measures, the government strives to develop transparency of the system and construction of efficient governance mechanism to sustain cost-effective public services, management and control.

4. The Prospects

Despite having grave challenges before the Digital India initiative, it can be seen that since 2015, India has seen an unmatched revolution in communication technologies. Irrespective of cultural and infrastructural constraints, people from different genre have embraced technology like never before. The digital innovations have at least introduced the common platform that has ultimately eliminated the long hailed traditional orthodoxy viz. cultural, religious or economic, virtually to get the diversified communities ever-closer.

Digital India project possess the quality and power to transform the landmark of cultural and religious diversity into a common celebration. It extends the optimism to inculcate newer solutions so as to make the current structure perform optimally. The people's participation in this regard can be increased by way of deploying man-mediated computer kiosks where rural communities can avail interactive services. It will then encompass the whole of the rural population and address the larger objective.

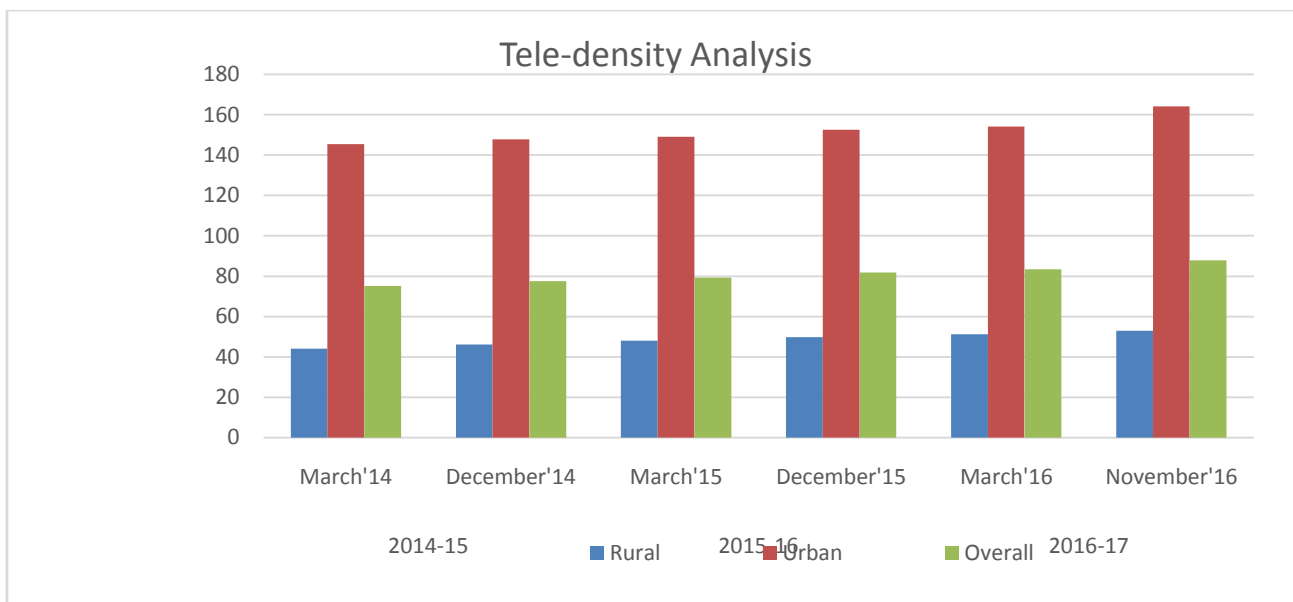
Another prospective development has been identified in terms of conservation of cultural heritages. Historical

documents, manuscripts and other ruins needs to be conserved to preserve the cultural substances and pass on the legacies to future generations. Digitalization provides the sole solution to this concern. UNESCO^{xiv} has adopted the Convention for the Safeguarding of the Intangible Cultural Heritage^{xv} in 2003 at the UNESCO General Assembly. Digital India initiative provides a huge prospect for the achievement of such goal. On the front of e-governance, it can be said that it is too early to comment critically on that as we are yet to discover the full potential of the system.

The prospect can be seen more prominent in terms of e-Governance that the reform focuses on. It sought to transform the nation into a digitally emancipated and learned society. The National e-Governance Plan (NeGP) is a great undertaking by the Government of India which claims to incorporate the array of physically available public services in a digitally configured collective form. The vision statement envisages the public services could be availed by every citizen on their fingertips anytime anywhere. The ever-increasing rate of internet data consumption has been further stimulated by the speedy adaptation of smartphones, behavioral sensitivities of the users and outrageous price war among the teleservice providers. In these circumstances, the expected growth rate is forecasted to be at 40% on a compounded annual growth rate (CAGR) basis from 2016 to 2022. It means that it may reach almost 8 exabytes (EB) of data traffic per month in comparison to around 1 exabyte of data by the end of 2016. Consumption of multimedia and video resources, mobile banking facilities and digital payment systems at an increasing rate are contributing largely in the spread of the boundaries of networking coverage. The most astounding fact in this row is the lion share of the data traffic i.e. around 94% in 2016 was reserved by smartphones; the same is expected to reach at approximately 97% by 2022.^{xvi} The growth estimation can be earmarked by an empirical analysis of tele-density based on the records published in the annual reports of the Department of Telecommunications, Ministry of Communications, Government of India starting from 2014-15 to 2016-17.

The Tele-density analysis

The tele-density analysis covers the differential attributes of the urban and rural societies of the country in terms of the exposure to telecom facilities as a part of Digital India initiative. The graphical presentation above contains the telecom subscribers' data over the period of three year starting from 2014-15 to 2016-17 on half-yearly basis. The data have been retrieved from the annual reports of the Department of Telecommunications, Ministry of Communications, Government of India, New Delhi. The selection of the time period draws its rationality from the fact that the Digital India project was launched in 2015, providing a fair opportunity for a pre and post launch scenario evaluation.



Tele-density refers to the extent of penetration of telecom services by means of calculating the number of telephone users per 100 population in a particular area or region. Apparently, it may be found that over the said time period the accession of the telecom services has seen an increment by rural as well as urban areas at an average rate of 1.79% and 3.73% respectively on half-yearly basis. The overall increment in this respect was recorded to be 2.52% on an average. Considering the same on yearly basis, it records a growth at the average rate of 3.62% and 4.36% for rural and urban areas

respectively with an overall average increment at 4.08% on March-to-March base. On December-to-December base, it registered 3.41% and 8.19% of average rate of increment for rural and urban areas respectively and an overall rate of 5.13% on average. However, the gap between the rural and urban subscription widened marginally at an average rate of 1.94% on half-yearly basis. On yearly basis, it registered 0.73% on March-to-March base, whereas, the same appears as 4.77% on December-to-December base. The data retrieved and calculated are as follows –

Tele-density Data						
	2014-15		2015-16		2016-17	
	March'14	December'14	March'15	December'15	March'16	November'16
Rural	44.01	46.14	48.04	49.82	51.26	52.97
Urban	145.46	147.75	149.04	152.57	154.18	164.13
Overall	75.23	77.59	79.36	81.85	83.4	87.85

Calculation of Average rate of increment of Tele-density (Half-yearly basis)								
	Rural	Increment	Urban	Increment	Overall	Increment	Gap (Urban – Rural)	Increment
	44.01		145.46		75.23		101.45	
	46.14	2.13	147.75	2.29	77.59	2.36	101.61	0.16
	48.04	1.9	149.04	1.29	79.36	1.77	101	-0.61
	49.82	1.78	152.57	3.53	81.85	2.49	102.75	1.75
	51.26	1.44	154.18	1.61	83.4	1.55	102.92	0.17
	52.97	1.71	164.13	9.95	87.85	4.45	111.16	8.24
Mean		1.792		3.734		2.524		1.942

Calculation of Average rate of increment of Tele-density (Yearly; march-to-march)								
	Rural	Increment	Urban	Increment	Overall	Increment	Gap (Urban – Rural)	Increment
	44.01	-	145.46	-	75.23	-	101.45	-
	48.04	4.03	149.04	3.58	79.36	4.13	101	-0.45
	51.26	3.22	154.18	5.14	83.4	4.04	102.92	1.92

Mean		3.625		4.36		4.085		0.735

Calculation of Average rate of increment of Tele-density (yearly; December-to-December)								
	Rural	Increment	Urban	Increment	Overall	Increment	Gap (Urban – Rural)	Increment
	46.14	-	147.75	-	77.59	-	101.61	-
	49.82	3.68	152.57	4.82	81.85	4.26	102.75	1.14
	52.97	3.15	164.13	11.56	87.85	6	111.16	8.41
Mean		3.415		8.19		5.13		4.775

(Source: Annual Reports 2014-15, 2015-16 and 2016-17, Department of Telecommunications, Ministry of Communications, Government of India)

The analysis above may be regarded as a substantiation favoring the merits of the Digital India initiative keeping with the pace of rapid extension of coverage. Conversely, the biggest challenge for this pursuit would be to eliminate the actual as well as marginal gap between the urban and rural telecom subscription so that the wide range of digital platforms developed by the government can be accessed and benefitted by the population at large irrespective of geographical and cultural diversity. The optimism thus prevails in the long run

5. The International and Political Implications

In the era of overarching structures and interpretations of globalization, it is hard to find a reform without having a global reflection and an objective attached to drawing world attention. India, being considered one of the fastest growing economies in the world, carries higher probability of extreme vulnerabilities for the foreign investors, especially when it comes to telecom business. The notion of liberal market economy in the wake of the 21st century neo-liberal ideology appears as the upgraded version of Marxian capitalism that spares no space for unilateral influence of political or economic elitism above market momentum. The constitution of the idea of market in the conventional sense has been evolved as the collective majority of common interests capable of turning the direction of the state and its societies at large. In that respect, the Digital India initiative is basically the fruit of the momentum and adaptability developed by the highly evolving Indian societies in using digital means. These societies have, as discussed earlier, different cultures, religions, languages, preferences that conceive readymade markets in terms of products, services, capital and employments etc. The development of the digitally advanced infrastructures and the investments in them circumvent those inbuilt markets following or creating opportunities. However, in this process, what is not guaranteed is the survival and sustainability unless the players are capable enough to cope with the dynamics. The values of the largest democracy and the secularism (theoretically) are encashed in creating wide range of markets compared to any part of the world.

The road to Digital India started way back in 1995 by India becoming a signatory of the General Agreement on Trade and Services (GATS),^{xvii} originally constituted in the year 1994 with the creation of World Trade Organization at end of Uruguay Round. The objective behind being a part of such a multilateral

agreement was to negotiate the settlement rates exchanging traffic of the international telecommunications among the nations. The question of settlement rates was of paramount importance due to lack of provisions and scope of maintaining telecom facilities in foreign territories so as to minimize the traffic tariffs. An international framework was developed by International Telecommunications Union (ITU), founded in 1865 (with the name International Telegraph Union), in order to facilitate bilateral or multilateral agreements among the nations including their regulation.^{xviii} After the Soviet demise, India was in the pursuit of liberalizing its domestic markets under the auspices of the renowned “*Liberalization, Globalization & Privatization (LPG)*” agenda which fueled the active participation in the GATS, after years of conforming ITU norms. Quite evident that the concept of market liberalization was considered naïve and impermissible during the dominant realist era suffering from cold war and even the preceding colonial reign.

The rationale behind liberalizing the telecommunication market was to promote the tradability of services in the fields of communication, distribution (wholesale/retail trade/franchising), education, finance (banking/insurance), travel & tourism, health, transportation etc. so as to earn recognition as a major services economy. A struggling political regime under the Congress Party was finding it extremely difficult to cope with the emergence of the new world order and the resultant economic threats such as negative balance of payments growth and foreign exchange rate deterioration. Thus, promotion of major manufacturing industries in the country would be a mammoth undertaking requiring enormous and uninterrupted investments which for the government was unfeasible on the brink of high international financial indebtedness. The only way to attract foreign investments was to open the gates for the domestic markets which was done sector wise gradually over succeeding two decades. Investments in the allied services sectors had become priorities for generating revenues for the state and complement the promotion of highly expected manufacturing sectors. Such investments are currently facilitated under the Foreign Direct Investments (FDI) regulations notwithstanding investments in services sectors. Additionally, the efforts generated significant amounts of employment opportunities.

The crux of a shining services economy is the manpower it employs. However, what is common in any development process is that it has a saturation point that signals the requirement of revision. The major problem with the sustainable development is that it always forms a set of new issues behind the solution provided. The concept of Digital Labor has surfaced in the last decade with the convergence of two major policy concerns by the state administration. The first concern relates to plaguing unemployment and under-employment issues compared to the ever-growing population, specially in emerging economies like India. The second is growing user-friendliness and adaptability of the changing connectivity scenarios by the overwhelming population.^{xix} The points of departure in this regard are the new job creation, skills and capability development, elimination of intermediation, economic exclusion (i.e. discriminatory employment strategy based on race, religion etc.), equality and equity. However, the identifiable signal for saturation discovers itself on the escalated convergence of employment security and evolving technological innovations, notwithstanding the communication technologies. Mere employment creation alone may not justify the penetration of the new communication technologies to be economically valuable besides the basic social needs to connect. The preservation of the jobs is equally important. Arguably, innovations in communication technologies (now attached to information technology) are upgraded or reconstructed in every five years intervals ensuring creation of new types of opportunities and dumping the existing ones. The phenomena are further supplemented by the creation of Artificial Intelligence (AI), which is already operational in many aspects of human lives starting from smartphones, ATM machines, transportation systems to higher level security systems in both public, private and government sectors. Hence, the elimination of manpower that began from removal of intermediation may lead to retirement or abandoning of a huge pool of manpower under the auspices of AI. It consists a large part of automation process which is desired by almost every industrialist, entrepreneur and businessmen as a tool to apply the optimum cost-benefit strategy. Thus, creation of new jobs is surpassed by the addition of the expired talent pool with the fresh unemployed produced by the society at any given point.

Another aspect with the market liberalization in the Indian telecom sector is the cut-throat competition which sometimes prove catastrophic. The catastrophe is intense in terms of its effect of labor market. The introduction of Reliance JioInfocomm Ltd. with state-of-the-art 4G network connectivity in 2016 by Reliance Communications Ltd. had intensified the competition-turned-war by tumbling many foreign and domestic investors out of their occupied market share. Foreign operators Vodafone (Britain) and Aircel (Malaysia) were compelled to retreat from the battlefield. While the former chose to merge with another big domestic operator Idea Cellular Ltd. by the Aditya Birla Group to form the second largest telecom company in the world, the latter was dragged to file bankruptcy in 2018.^{xx} The jobs created over two decades by Vodafone Group (taken over from Hutchison Essar) in India are somehow saved by the merger but might call for labour restructuring in coming years. Whereas, the jobs under Aircel since 1999 would be extinct probably after the official close

down. Thus, at any given point, the arguments behind highest labour turnovers in the country, beyond the sectorization, can be attributed to the dynamics of competitions, innovations and their evolving convergences. Such convergences are seldom supportive of employment preservation in the long run and are premonitions of economic slowdown.

The economic rationalism and the political landscape reciprocally insulate the spirit of transformational reforms such as Digital India. The digital reforms in 2015 do not certainly come as a surprise or a unique gesture by the newly established government. BJP applied the unexploited potential of the social media platforms to outweigh its opponents and traditional media critics during 2014 elections.^{xxi} The overwhelming appeal to public through social media, especially twitter, supported Modi to bypass the criticism of traditional media and reach directly to the targeted potential voters. Conversely, Modi's approach through social media was a preconceived tactic to project his impression as a technologically learned and conversant leader capable of revolutionizing the state with information technology to become a world leader. The traditional media was compelled to follow his every move centering his popularity on social media. Eventually, the need for social media coverage, which had left no space at public arena, ended with him elected as the Prime Minister of India. Now, the question still remains whether such image projection to the world has brought any prospect in terms of employment generation.

It certainly cannot be negated that it did not bring investments at all. However, Modi's election sermonized the rise of populism,^{xxii} which was subsequently reflected in the election of Trump administration in United States in 2016. The issue with the populist motion is the inexorable demands, based on which the leadership is elected. In case of India, the demands revolve around the radical nationalism (so-called Hindutva) in one hand and economic development on the other. In this regard, India and United States have a very crucial relationship in terms of information technology development and resources creation. A major part of the IT services and personnel outsourcing is carried out from India for US IT firms onshore as well as offshore. With the intense rise of populism, the scope seems to deteriorate in the years to come probably due to President Trump's "America First" agenda. The stringent H1-B visa regulation since 2017 has marked the momentum of populist arena that has already articulated in the form of huge slashing of number of job outsourced to India. The scenario added further pressure on the unemployment situation in India and will continue to be so since the US administration pressurizes on local recruitments. Major Indian IT firms such as Tata Consultancy Services and Infosys are compelled to recruit human resources locally for their offshore units in US. Moreover, the erstwhile significant revenue generation from outsourcing has faced substantial crunch leading to deterioration of the future prospects of this sector. Amidst such a sensitive scenario, one may barely find a meaningful connection between the growth of services sector and development of political landscape based on digitalization in the Indian context. Digital India, as it is presented, may be considered as an extremely potential measure which has a very long way to go to develop substantial contribution in the

growth of India as a major services economy. With regard to the public utility services, it has been able to mobilize a tremendous public response and is expected to grow in future.

6. Conclusion

Despite having grave challenges before the Digital India initiative, since 2015, India has seen an unmatched revolution in communication technologies. Irrespective of cultural and infrastructural constraints, people from different genre have

embraced technology like never before. The digital innovations have at least introduced the common platform that has ultimately eliminated the long hailed traditional orthodoxy viz. cultural, religious or economic, virtually to get the diversified communities ever-closer. Digital India project possess the quality and power to transform the cultural and religious diversity into a common celebration.

Notes

- ⁱ ET Bureau, "Idea merges with Vodafone to create India's largest, world's 2nd largest telecom company", Economic Times (Mar 21, 2017); Available at: <https://economictimes.indiatimes.com/news/company/corporate-trends/idea-merges-with-vodafone-to-create-indias-largest-worlds-2nd-largest-telecom-company/articleshow/57741270.cms>, (accessed Feb 28, 2018)
- ⁱⁱ Fast Moving Consumer Goods, such as toilet soap, hair oil, edible oil, food items, dairy products etc.
- ⁱⁱⁱ Union Progressive Alliance, the government led by former Prime Minister Dr. Manmohan Singh under the auspices of Indian National Congress Party. It reigned in two phases – UPA – I (2004-2009) and UPA – II (2009-2014).
- ^{iv} Vaidyanathan A, Deepshikha Ghosh, "Former Telecom Minister A Raja, Kanimozhi, 15 Others Acquitted in 2G Spectrum Case: 10 points", NDTV (Dec 21, 2017); Available at: <https://www.ndtv.com/india-news/2g-scam-case-verdict-former-telecom-minister-a-raja-and-dmk-leader-kanimozhi-acquitted-in-2g-case-1790406>, (accessed Feb 28, 2018)
- ^v National Democratic Alliance, the government currently led by Prime Minister Narendra Modi under the auspices of Bhartiya Janata Party.
- ^{vi} Union of India, "343. Official language of the Union.", PART XVII OFFICIAL LANGUAGE: CHAPTER I. – LANGUAGE OF THE UNION, Constitution of India, p.174; Available at: [http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss\(23\).pdf](http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss(23).pdf) (accessed Mar 1, 2018)
- ^{vii} Union of India, "348. Language to be used in the Supreme Court and in the High Courts and for Acts, Bills, etc..", PART XVII OFFICIAL LANGUAGE: CHAPTER III. – LANGUAGES OF THE SUPREME COURT, HIGH COURTS, ETC., Constitution of India, p.176; Available at: [http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss\(23\).pdf](http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss(23).pdf) (accessed Mar 1, 2018)
- ^{viii} Union of India, "345. Official language or languages of a State.", PART XVII OFFICIAL LANGUAGE: CHAPTER II. – REGIONAL LANGUAGES, Constitution of India, p.175; Available at: [http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss\(23\).pdf](http://lawmin.nic.in/olwing/coi/coi-english/Const.Pock%20Pg.Rom8Fsss(23).pdf) (accessed Mar 1, 2018)
- ^{ix} Mobile e-governance Service Delivery Gateway. <http://meity.gov.in/content/msdg> (accessed March 4, 2018)
- ^x Information and Communication Technology – refers to the technological development with combined efforts of information technology and telecommunication systems so as to form an advanced integration communicative mechanism.
- ^{xi} Sood Aditya Dev, "How to Wire Rural India: Problems and Possibilities of Digital Development", Economic and Political Weekly, Vol. 36, No. 43 (Oct 27 – Nov 2, 2001), 4135; Available at: <http://www.jstor.org/stable/4411303> (accessed Feb 9, 2018)
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- ^{xiv} United Nations Educational, Scientific and Cultural Organization. <https://en.unesco.org/> (accessed March 4, 2018)
- ^{xv} "Convention for Safeguarding of the Intangible Cultural Heritage 2003", UNESCO (Oct 17, 2003); Available at: http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html (accessed March 4, 2018)
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- ^{xx} Chew Elffie, George Smith Alexander, "Tycoon's \$7 Billion Wipeout Turns His India Dream Into Nightmare", Bloomberg (March 1, 2018); Available at: <https://www.bloomberquint.com/business/2018/03/01/tycoon-s-dream-of-india-riches-turns-into-a-7-billion-nightmare> (accessed March 3, 2018)
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- ^{xxii} *ibid.* 60-63

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