

Digitization in INDIA: Challenges and Opportunities

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ABSTRACT

"Digital India" is an initiative of the Central Government of India "designed to transform India into a global digitized hub" by reviving a rundown digital sector of India with the help of improving digital connectivity and skill enhancement and various other incentives to make the country digitally empowered in the field of technology. This paper helps understand the global as well as domestic challenges that might hinder the successful implementation of the program and suggest some feasible remedies to deal with the same. Further the paper also highlights the opportunities that would pave the way for achieving the program's aim of making India the preferred choice for digital activities by both global and domestic investors and also how far the "Digital India" model can prove to be an attraction for the investors to invest in the sectors which are yet to achieve their full potential in India.

KEYWORDS: Digital India, Digital Empowerment, Job Creation, Skill Enhancement

INTRODUCTION :

Digital India Program is a national campaign to transform India into a globally connected hub. It includes various proposals and incentives given to companies, basically the manufacturing companies both domestic and foreign to invest in India and make the country a digital destination. The emphasis of Digital India campaign is on creating jobs and skill enhancement in the Broadband Highways, e-Governance, and Electronic delivery of services, Universal access to Mobile Connectivity, Electronics Manufacturing, and Information for All etc. The campaign's aim is to resolve the problems of connectivity and therefore help us to connect with each other and also to share information on issues and concerns faced by us. In some cases they also enable resolution of those issues in near real time. This initiative is focussed to help India gain a better rural connectivity with a stable governmental policies in the background coupled with benefits and incentives via the campaign. Simultaneously the initiative is designed to create jobs and enhance skill development which will ultimately lead to increase in GDP and revenues from tax.

LITERATURE REVIEW

"Digital India" initiative has been an intriguing subject matter of numerous researches from various disciplines because of its great significance and influence on the economy as a whole and particularly the technological sector. Being a recent move, there have been various researches on different aspects of the initiative ranging from the economical to social and ethical dimensions. Some of these researches retrieved through internet searches have been reviewed here. **Prof. Singh began** with the basic overview of what Digital India entails and led a discussion of conceptual structure of the program and examined the impact of "Digital India" initiative on the technological sector of India. He concluded that this initiative has to be supplemented with amendments in labor laws of India to make it a successful campaign.

(2) **Sundar Pichai, Satya Nadella, Elon Musk** researched about Digital India and its preparedness to create jobs opportunities in the information sector.

(3) He concluded that creating new jobs should be continued with shifting more workers into high productivity jobs in order to provide long term push to the technological sector in India. **Microsoft CEO, Satya Nadella** intends to become India's partner in Digital India program. He said that his company will set up low cost broadband technology services to 5lakhs villages across the country.

Arvind Gupta intends to say that Digital India movement will play an important role in effective delivery of services, monitoring performance managing projects, and improving governance. An Integrated Office of Innovation & Technology to achieve the same, and for problem solving, sharing applications and knowledge management will be the key to rapid results, given that most departments work on their own silos. Tracking and managing the projects assume significance because India has been busy spending money in buying technology that we have not used effectively or in some cases not even reached its implementation stage. Sharing, learning's need to be best practices across departments Tracking and managing the projects assumes significance because India has been busy spending money in buying technology that we have not used effectively or in some cases not even reached implementation stage. Sharing learning's and best practices across departments needs to be driven by this Office of Technology.

CHALLENGES, RECOMMENDATIONS & SUGGESTIONS

The Digital India campaign can't be a successful campaign merely by implementation or by incentivizing industry. For a hugely rewarding success, the campaign should move forward taking along other policies, amending redundant laws, focusing on necessary infrastructure building etc. One such hindrance in the way of Digital India is the first is the digital infrastructure, which requires to be put in place. For this the telecom infrastructure will form the base. On top of this layer we need the IT infrastructure in the form of apps, software etc. The second set is content that needs to be relevant to the citizens and address their real-time requirements. The third layer is capacity. Unless we have the all these three sets (i.e. telecom infrastructure, content, capacity) we won't be able to meet the supply commence rate of the demand. If this point is not taken proper care of then there would be clashes between the people in the rural areas and the government which will result in delay in commencing the project which will ultimately defeat the Digital India campaign's spirit of quick and hassle free ease of doing business. If this government takes the agenda forward and does not leave any of the constituent parts gasping for funds, the opportunities are huge for the country in general and for willing participants in the IT sector as well! There is much to be done, from the creation of smart cities to the comprehensive availability of broadband, from connectivity in education, healthcare, agriculture, and manufacturing to a National Digital Literacy Mission (NDLM) that Nasscom Foundation has already taken up with the Department of Electronics & IT (DeitY). What is important to understand is that like any elephant, Digital India has many parts and each has to be addressed to make the big vision a reality. Another recommendation as to digital connectivity is to reduce the judicial clearances and stability in ruling which can act as a major impetus to the technological sector as it will attract high investor confidence with the judicial rulings being fair and pro-business. Going by the present practices, the imposition of certain amendments with retrospective effect has garnered much noise in the past and should immediately be taken notice of. The more stable, quick and fair the judgment in basically cases relating to the business and taxation sectors, the better the chances of attracting more business leaders to invest more. The Judicial clearances and stability in ruling can act as a

major impetus to the technological sector as it will attract high investor confidence with the judicial rulings being fair and pro-business. Going by the present practices the imposition of certain amendments with retrospective effect has garnered much noise in the past and should immediately be taken notice of. The more stable, quick and fair judgments in these cases relating to the business and taxation sectors, the better the chances of attracting more business leaders to invest more. As another recommendation, Prime Minister Sh. Narendra Modi in his inimitable style touched all the right chords in his speech, which included in its ambit the opportunities for access to better healthcare, education, and information for better livelihood that is at the core of the digital opportunity. A lot will be expected from the national broadband mission to lay the digital infrastructure on which many of these national applications can be mounted. In the last couple of years, Nasscom Foundation with its 'Follow the Fiber' approach and the active partnership of technology majors Intel, Google, and Microsoft has shown that village wide digital literacy is possible with successful outcomes in three villages in different parts of the country and more on the way. Hence, But providing a better transparent legislation with not only comprehensive availability of broadband, from connectivity in education, healthcare, agriculture, and manufacturing but also ensuring the implementation of the same would be a step forward in making India a preferred destination with regard to connectivity. Lastly improving the relations between the government and the corporate with regard to favourable taxation policies, quicker clearances of projects, minimal interference and removal of inaccessibility problems is the need of the hour for Digital India to bear fruits.

Challenges in digitizing india

- 1.High level of digital illiteracy:** Digital illiteracy is prevalent in most of the towns and villages in India. Cities have adopted digitalization but limited to certain extent. Full fledged digitalization is cashless transaction on daily basis, use of internet services to get government certificates. This requires administration changes, Taxation changes and change in public mentality. So its a team work which includes citizen's responsibility and support to the new system
- 2.Connectivity to remote areas:** It is a mammoth task to have connectivity with each and every village, town and city. The problem of connectivity is a complex issue because every state has different laws pertaining to its execution. Also it is challenging for the central authorities to make a database where such a huge information can be stored.
- 3.Compatibility with center state databases:** Every state has different internet protocols because every state is diversified. Diversified not only in the sense of religion but also in language. Hence software compatibility with the center is a crucial issue. Information shall be saved carefully.
- 4.Cyber Crime:** There is cyber threat all over the globe and digital India will not be any exception. Hence we need a strong anti cyber crime team which maintains the database and protects it round the clock
- 5.Inter Departmental Co ordination:** Within the government there are various departments which should be integrated. Integration has technical as well as corporate issue. Corporate in the sense self ego of the officers and staff of our government services are hurdle in the change. Also the middle man policy will be eliminated completely because of digital India, hence there will be imminent resistance from the working staff.
- 6.Finance:** Though there are resources with India but there is a huge capital cost which is to be invested and the fruits of the investment will be received after few years.

7.Net neutrality : The issue is still on the table and we are blindly following the digital India. Net neutrality is must and we should make sure that digital India without net neutrality would be a great blow to entrepreneurs and citizens of India.

8.Changing the mindset : This point will come into picture when you have allocated the required resources and material but when it comes to implementing them, most of them will be hesitant to change. People are accustomed with years of same of practice that they are not ready to change.

9.Exchange of information : The information stored should also be used by other government offices. For example police, surveillance and other security issues can be easily resolved with digital India but its co ordination is a mammoth task. It is not only a technological question but also deals with the question of privacy and security.

Impacting citizens

The Digital India project has the potential to impact the lives of citizens by creating employment opportunities, enhancing the quality and speed of service delivery, providing access to healthcare and education and improving social and financial inclusion.

1. Employment

- Job creation: With an estimated overall cost of INR 1,000 billion in ongoing schemes and INR 130 billion for proposed and new schemes, Digital India aims to create 17 million direct and 85 million indirect jobs by 2019.
- Digital Training Programmes: The initiatives towards training and digital literacy by the government and private sector players such as NDLM, Digital Literacy Mission etc. have been successful in reaching out to millions of people. This has resulted in an increase in employability of the trained personnel, higher adoption of digital technologies and empowerment of a large section of society.

2. Speed and Quality of Service delivery

- Public service delivery: Digital India has enhanced the digitization of public services by increasing the reach and efficiency of service delivery. The number of e-governance transactions has doubled from 3.5 billion in 2014 to almost 7 billion in 2015, indicating that e-services are gaining momentum and reaching the bottom of the pyramid.⁴⁷
- Connectivity: The government is focussed on increasing last mile connectivity by providing an affordable broadband network to rural households and institutions. This network will be leveraged to roll out and increase adoption of digital services.
- Universal Accessibility: The Digi Locker service has provided universal accessibility to citizens, by allowing them to access and share documents. Currently, there are approximately 4 million registered users with 5.0 million documents uploaded on the digital locker facility.

3. Social inclusion

- Education: Digital India has the potential to overcome challenges in the education sector like inadequate infrastructure, high drop-out rate (40% in elementary education), low pupil teacher ratio (28:1) and poor gross enrolment ratio (21% in higher education)⁴⁹. The government has allocated INR 1 billion⁵⁰ to build virtual classrooms and provide online courses to address the teacher shortage and teacher quality problem. Under Digital India, the use of Smart Class solutions has put many private schools in India ahead of the technology adoption curve than many other schools in the US, Singapore and Japan⁵¹. Online education platforms like massive open online courses (MOOCs) will provide easy accessibility from

anywhere. The adoption of MOOCs, currently 8.8%⁵² has been slowly increasing while OLabs (Online Labs) is expected to improve student performance by providing teaching aids and already has 90,000⁵³ registered users.

- **Healthcare:** Digital India has the potential to provide solutions to problems such as poor doctor patient ratio (1:1674)⁵⁴, fewer quality physicians, insufficient healthcare infrastructure, lack of equal access to healthcare facilities and advice (24% in rural areas)⁵⁵, and high healthcare costs. The e-hospital program is increasing delivery speed of healthcare services by allowing patients to book appointments online. Social Endeavour for Health and Telemedicine (Sehat) will increase coverage by providing healthcare access to citizens irrespective of their geographical location with close to 60,000 CSCs delivering tele-consultation services as part of Sehat.⁵⁶

4. Financial Inclusion

- **Reach of Digital Banking:** India Post Payment Banks (IPPB) is expected to benefit 40%⁵⁷ of the population which is currently outside the formal banking system by providing digital and online banking services through post office. The mobile and internet banking will increase the coverage and volume of financial transactions which will be key in the light of the recent demonetization and move towards cashless economy.

Impacting businesses Digital India is likely to have a significant impact on the profitability and operations of business. Through adoption of digital technologies, companies can consolidate documentation, automate processes and have access to efficient and cheaper ICT capabilities. While the benefits will be realised in years to come, some of the key areas of impact are likely to be:

- **Increasing profitability:** In India, adoption of advanced business digital technologies can lead to increase in revenues by up to 27%, increase in employment by up to 84% and enhanced access to international markets by up to 65% for small and medium business (SMBs)⁵⁸. Digital infrastructure can also help leveraging technologies like telepresence that can reduce the need for business travel and result in cost savings
- **Higher productivity:** Increased levels of digital technology-use under can improve employee satisfaction and collaboration, leading to a more productive workforce. In India, it is estimated that employees in SMBs with advanced digital engagement are 8.7 times⁵⁹ more likely to collaborate than offline businesses.
- **Ease of doing business:** The government has taken several measures to improve ease of doing business in India. Consequently, India has seen an improvement in the global ranking for ease of doing business⁶⁰. Services such as eBiz portal, KYC and other e-governance initiatives have started to contribute to the improvement in ease of doing business and this is expected to further improve.
- **Faster time to market:** Availability of digital infrastructure will help companies drive significant efficiencies, reduce time to market (new products, new markets) by digitizing their core operations and supply chains.
- **Investment:** The vision and initiatives towards Digital India is expected to boost investment in the digital space in the short-term and lead to rise in digital innovation, efficiency and productivity in the long-term. Currently, a number of domestic and global companies have announced investments in the digital space in India.

Impacting the environment

The Digital India project through the use of next generation technologies will help in reducing carbon footprint and provide several

environmental benefits. Some of the key areas of impact are likely to be:

1. **Reducing carbon footprint:** India has pledged to decrease its carbon emissions by 33% to 35% relative to its GDP from 2005 levels by 2030⁶¹. The Digital India program is likely to have a positive contribution towards achieving these goals. Wide spread implementation of telepresence and cloud computing technology under Digital India will lead to reduction in carbon emissions. For example, telepresence can eliminate 20% of the business travel, leading to reduction in carbon emissions by 1.08 million tonnes⁶² globally. Use of cloud storage for documents will significantly reduce the consumption of natural resources like paper.
2. **Energy efficiencies and waste management:** India is the fifth-largest producer of e-waste, discarding approximately 1.8 million tonnes⁶³ of e-waste each year. Under Digital India adoption of ICT solutions such as waste collection automation and waste management information and prognostics are expected to considerably reduce e-waste. Using Digital infrastructure that is developed under the digital India program, city municipalities will be able to better manage the collection and disposal of solid waste and sewage. Several cities have started the deployment of pilot solutions for waste management in cities.
3. **Forestry and Agriculture:** Digital India can prevent deforestation by increasing the use of digital solutions in the coming few years. For example, Google in collaboration with University of Maryland and the UN Environment has developed Global Forest Watch 2.0 to prevent deforestation.⁶⁴ This tool uses satellite technology, data sharing and human networks to better manage forests.
4. **Environment Monitoring:** Availability of digital infrastructure across various locations along with sensors and customized applications will help provide better information related to environmental challenges like pollution, climate change, weather monitoring etc. This can help local governments react to local issues (like traffic congestions, high levels of pollution etc.) in real time.

Key takeaways

Though the benefits of Digital India will be realised over the next few years, the program will have a significant impact on the lives of citizens, business and the environment. The following measures will help in realizing the maximum potential under the Digital India program:

1. **Increasing the effectiveness and reach of existing digital services**
 - **Education** – Development of content that is innovative, interactive, engaging and takes into consideration the varied needs of learners. The curriculum should be updated regularly based on consultations with the industry.
 - **Healthcare (eHospital)** – Increase coverage from existing 56 hospitals. Additional services like remote healthcare and telemedicine could be added to provide coverage to rural segments.
 - **Banking – Digital trainings** for existing bank employees as well as in the new banks (e.g., Indian Postal Payment Bank) to cater to the digital needs of the citizens.
2. **Increasing ease of doing business:**

Ease of doing business can be improved significantly by reducing time for licenses / approval / sanctions, simplification and digitization of tax processes and availability of ICT infrastructure.

In addition, the government needs to reduce the number of days needed to start a business by digitising key processes and providing a

single window clearance for all approvals required. In India, it takes 29 days to start a business which is much higher than the global average of 20 days.

3. Building a distributed, digital talent pool: In order to encourage global companies in the digital sector to establish offices in India, there should be a considerable thrust on forming a highly skilled talent pool. Local capabilities along with lower labour costs would encourage companies to enter India driving innovation, infrastructure and services. Digital infrastructure should be used to proliferate talent to locations other than the existing big clusters - Bangalore, Pune, Mumbai and Delhi-NCR.
4. Using digital infrastructure to create a positive impact on the environment: Digital infrastructure can be leveraged to deploy IOT solutions that will help with issues such as pollution monitoring and management, waste management, water management, improving efficiency of energy grids, etc. This will have a positive impact on the environment. The government needs to develop a framework for use of digital infrastructure and participation of the private sector in the development and deployment of such solutions.

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