DIGITAL INDIA: A WAY TO SUCCESS

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Abstract: A good governing body requires a good communication platform to communicate with the stakeholders efficiently. Communicating with the citizens has been a big challenge for the government of India with widespread geography, massive population and enormous linguistic & cultural diversity. The way of communication has changed a lot from postal and telegraph era to print and broadcasting media to the era of digital communication. The efficient way to communicate with the citizens of the world's largest democracy with a population of 1.2 billion is only possible by connecting with everyone on a digital platform. Though India is considered as the IT powerhouse of the world, there is a huge digital divide. The paper is a secondary based study. In the current paper discussion of vision, impact, challenges and global initiatives of digital India has been discussed.

Keywords: Information Technology, Digital Communication, Digital India, Stakeholders and Global Initiatives.

1.0 Overview of Digital India

The Digital India initiative is a dream project of the Government to transform India into a digitally empowered society and knowledge economy. It is centred on three vision areas:

1.1 Digital Infrastructure as a Utility to Every Citizen: The government is planning to provide high-speed internet connectivity to 250,000 Gram Panchayats, which will be a core utility for digital inclusion. The citizens will be provided with a digital identity which will be unique, lifelong, online and valid. There will be easy access to common service centres and shareable private space for every citizen on a public cloud.

1.2 Governance and Services on Demand: Under this vision, all the government departments will be seamlessly integrated with high-speed optical fibre, which will improve inter operability of these organizations and will result in real-time service delivery from online or mobile platform. Apart from this, the government is planning to make all citizen entitlements portable through cloud for easy and country-wide access and to digitally transform the services for improving ease of doing business in India. The government also plans to use the power of Geographic Information Systems (GIS) for decision support systems & development.

1.3 Digital Empowerment of Citizens: This vision is to empower citizens through digital literacy and universal access to digital resources. e.g. all documents or certificates to be available on cloud and in Indian languages. Government also wants to provide collaborative digital platforms for participatory governance. e.g. MyGov website for crowd sourcing ideas.

These three vision areas further encompass nine themes or 'pillars' of Digital India. Some of these are discussed below:

e-Kranti

The e-Kranti project provides electronic delivery of services to the citizens. The government has allocated `5 billion for the e-Kranti project which includes many sub-level projects discussed below:

Table 1: e-Kranti Sub-level Projects

Sub-projects	Initiatives	Organizations
e-Health	➢ Online medical consultation and medicine supply ➢ Online availability of medical records and patient information on a pan-India basis	➢ OncoNET, Kerala and Tamil Nadu ➢ Medical Literature Analysis and ➢ Retrieval System (MEDLARS)
e-Education	➢ Broadband Connected Schools ➢ Free Wi-Fi in all schools ➢ Digital Literacy program ➢ Massive Online Open Courses	➢ Sakshat Portal (Ministry of HRD and IGNOU) ➢ Aakash Tablet ➢ National Repository of Open Education Resources (NROER) ➢ National Electronic Library (NEL)
Technology for Farmers	➢ Real time price information ➢ Online ordering of inputs ➢ Online cash, loan, relief payment with mobile banking	➢ Farmer's Portal ➢ mKissan Portal ➢ Kisaan call center
Technology for Planning	➢ GIS based decision making ➢ National GIS Mission Mode Project	➢ Planning Atlas of states
Technology for Security	➢ Mobile Emergency Services ➢ National Cyber Security Co-ordination Center	➢ Mobile App 'Himmat' and 'Abhayam' for women safety ➢ iClik (Instant Complaint login Internet Kiosk) centers
Technology for Financial Inclusion	➢ Mobile Banking ➢ Micro-ATM program ➢ CSCs/ Post Offices	➢ Kiosk Banking – Public /Private banks ➢ Mobile Banking – Telcos ➢ Payment banks ➢ Aadhar based Micro-ATM payments
Technology for Justice	➢ e-Courts, e-Police, e-Jails, e-Prosecution	➢ e-Court mission mode projects at state and central level ➢ e-Cabinet, Andhra Pradesh ➢ e-FIR system, Odisha ➢ PRISMS, Maharashtra

2.0 Impacts Of Digital India

The digital India project provides a huge opportunity to use the latest technology to redefine the paradigms of service delivery. A digitally connected India can help in improving social and economic condition of people living in rural areas through development of non-agricultural economic activities apart from providing access to education, health and financial services. However, it is important to note that ICT alone cannot directly lead to overall development of the nation. The overall growth and development can be realized through supporting and enhancing elements such as literacy, basic infrastructure, overall business environment, regulatory environment, etc.

2.1 Economic Impact:

According to analysts, the digital India plan could boost GDP up to $1 trillion by 2025. It can play a key role in macro-economic factors such as GDP growth, employment generation, labour productivity, growth in number of businesses and revenue leakages for the Government. As per the World Bank report, a 10% increase in mobile and broadband

penetration increases the per capita GDP by 0.81% and 1.38% respectively in the developing countries. India is the 2nd largest telecom market in the world with 915 million wireless subscribers and world's 3rd largest Internet market8 with almost 259 million broadband users. There is still a huge economic opportunity in India as the tele-density in rural India is only 4510 where more than 65% of the population lives. Future growth of telecommunication industry in terms of number of subscribers is expected to come from rural areas as urban areas are saturated with a tele-density of more than 160%. The digital platform can enable more creative and service-oriented business models that create employment opportunities. The digital India project itself will create employment opportunities for 17 million11 people directly or indirectly which will help in fighting against unemployment problems in India. Government has planned to give IT training to 100 million students in smaller towns and villages as employment opportunity in IT sector is very high in India.

2.2 Social Impact:

Social sectors such as education, healthcare, and banking are unable to reach out to the citizens due to obstructions and limitations such as middleman, illiteracy, ignorance, poverty, lack of funds, information and investments. These challenges have led to an imbalanced growth in the rural and urban areas with marked differences in the economic and social status of the people in these areas. Modern ICT makes it easier for people to obtain access to services and resources. The penetration of mobile devices may be highly useful as a complementary channel to public service delivery apart from creation of entirely new services which may have an enormous impact on the quality of life of the users and lead to social modernization. The poor literacy rate in India is due to unavailability of physical infrastructure in rural and remote areas. This is where m-Education services can play an important role by reaching remote masses. According to estimates, the digital literacy in India is just 6.5% and the internet penetration is 20.83 out of 100 populations. The digital India project will be helpful in providing real-time education and partly address the challenge of lack of teachers in education system through smart and virtual classrooms. Education to farmers, fisher men can be provided through mobile devices. The high speed network can provide the adequate infrastructure for online education platforms like massive open online courses (MOOCs). Mobile and internet banking can improve the financial inclusion in the country and can create win-win situation for all parties in the value-chain by creating an interoperable ecosystem and revenue sharing business models. Telecom operators get additional revenue streams while the banks can reach new customer groups incurring lowest possible costs. Factors such as a burgeoning population, poor doctor patient ratio (1:870), high infant mortality rate, increasing life expectancy, fewer quality physicians and a majority of the population living in remote villages, support and justify the need for tele medicine in the country. M-health can promote innovation and enhance the reach of healthcare services. Digital platforms can help farmers in know-how (crop choice, seed variety), context (weather, plant protection, cultivation best practices) and market information (market prices, market demand, logistics).

2.3 Environmental Impact:

The major changes in the technology space have not only brought changes to the economic system but are also contributing to the environmental changes. The next generation technologies are helping in lowering the carbon footprint by reducing fuel consumption, waste management, greener workplaces and thus leading to a greener ecosystem. The ICT sector helps in efficient management and usage of scarce and non-renewable resources. Tele presence in work environment as well as home helps in creating a virtual environment for face to face conversations and minimizes the need for travel. Similarly, the flexible work environment where work from home and bring-your-own-device (BYOD) are permitted, can significantly reduce their carbon footprint and operational costs by not only reducing the electronic waste in the form of laptops, desktops, etc. but also by reducing the need of large fixed office space for businesses. A program in the UK found that an employee can save 1,175 driving miles each year, amounting to a 364.5kg reduction in carbon emissions when he works from home 1.5 days per week. M2M enabled devices and technologies like smart meter, smart grid, smart logistics and smart building help in many different ways by efficient energy management. Cloud computing technology minimizes carbon emissions by improving mobility and flexibility. The energy consumption can be decreased from 201.8 terawatt hour (TWh) in 2010 to 139.8 TWh in 2020 by higher adoption of cloud data centers causing a 28% reduction in carbon footprint from 2010 levels. Digital media for paper intensive services such as governance, ticketing, newspaper, etc. could not only result in efficient delivery of services but at the same time would lower the use of paper, thus preventing deforestation.

3.0 Impending Challenges

The Digital India initiative is an ambitious project of the Government and is, by far, the biggest ever conceived. There are many challenges discussed below that could come in the way of successful completion of the project.

- **High Cost of Implementation:** Approximate cost of implementing this mammoth project is `1.13 trillion (including ongoing and new schemes).
- **Time Overrun:** The NOFN project which is the back bone of the Digital India project has been delayed several times and is suffering two years' time overrun. The delayed project may lead to delay in other dependent projects and meeting the budget limit will be difficult.
- **Lack of Coordination among Departments:** It is an umbrella project involving participation of several departments and demanding commitment & effort. Hence, strong leadership and timely support of all the involved entities will play a critical role.
- **Poor Private Participation:** To achieve timely completion of the projects extensive private participation is necessary. The private participation in the government projects in India is poor because of long and complex regulatory processes.
- **Uniform and fast adoption of Internet:** About 4 billion people in the world do not have Internet connection and India comprises of 25% of them. India is the 4th largest smartphone market with almost 111 million smart phone users. Average monthly cost of 500MB mobile data plan on prepaid is $3.4 in India against $35.8 in Brazil, $15.5 in China and $17 in Russia. Despite lowest data tariffs in the world, adoption of internet in India is not encouraging. Faster adoption of Internet will be difficult due to illiteracy, affordability and availability of mobile devices and data tariffs, lack of local language content, lack of regionally relevant Apps. Still the use of Internet is low because of high data tariffs.
- **Infrastructure:** Though the National Optic Fibre Network (NOFN) project is aiming to build a nationwide high speed broadband by the end of the year 2016, there are other supporting infrastructure deficits, such as lack of robust and large data centres to hold the data of entire country. In addition, the last mile connectivity and the physical infrastructure at customer premises are unaffordable by most of the rural Indians. Infrastructure fulfilment is necessary with the NOFN project.
- **Cyber Security:** Nation Crime Records Bureau (NCRB) report shows the rapid increase in cybercrime in India by 50% from 2012 to 2013. There have been several incidences of cybercrime on corporate and individual level in the past few years. Putting the data of 1.2 billion people on the cloud could be risky and could threaten the security of individuals and the nation. Hence, the Digital India project demands very strong network security at all levels of operation.

4.0 Global Initiatives

4.1 High Speed Optic Fibre Rollout

Japan, South Korea and the US have led the world in terms of Fibre-to-the-Home (FTTH) penetration. Comcast is the major player in the US providing high speed internet to almost 39 states with more than 145,000 miles and 125,000 optical nodes. AT&T and Verizon are leading in FTTH access networks. NTT in Japan holds most of the optical fibre networks providing Fibre-to-the-Cabinet (FTTC) and FTTH services. The National Broadband Network of Australia is using Public Private Partnership to provide 1Gbps connection to 93% of Australians. New Zealand Government is spending NZ$1.35 billion on public-private partnerships with Chorus to rollout FTTH connections of at least 100 Mbps to all towns and cities and has awarded $300 million contract to Vodafone and Chorus to bring broadband of at least 5Mbps to 86% of rural customers by 2016.

4.2 E-Governance

Though the e-Governance project in India was initiated back in 2006 the success rate is not much impressive in comparison to other developed and developing countries. With proper strategy, timeline, digital infrastructure and private participation, Korea, Australia and Singapore top UN E-Governance ranking of 2014. The Korean e-Governance initiative started way back in 1993 to implement 11 major e-government initiatives. The Western

Australia State Government launched its e-Government Strategy in 2004 with the vision of 'a more efficient public sector that delivers integrated services and improved opportunities for community participation.' In 2006, the Australia Federal Government initiated a new e-government strategy "Responsive government – a new service agenda," with a vision for 2010. Similarly, the Singapore government is successful in implementing e-governance which was initiated back in 1981 under the Civil Service Computerization Programme (CSCP) with an aim to save manpower, operational efficiency improvement, better information support for decision making and certain pioneer services for the public. The Singapore e-Government Strategic Framework was centred on three critical relationships – Government to Citizens (G2C), Government to Businesses (G2B) and Government to Employees (G2E). The Japan Government developed its e-Japan Strategy in 2001 to provide a basic IT law on the Formation of an Advanced Information and Telecommunications Network Society. In 2002-03, e-Japan Strategy II was put in place emphasizing IT usage and applications development. Likewise, Canada is rated highest in the provision of e-Government services.

5.0 High-Level Architecture Principles For Digital India

1. **Highly Secured:** well coordinated to ensure privacy and confidentiality of data
2. **Well-Structured:** data and functions to develop 'System of Engagement' from 'System of Records' need to be categorized for access depending upon the sensitivity of data and information. Data resides within the operation architecture and the patterns that will provide access to be part of the design
3. Interoperability of systems
4. Common standards to collaborate
5. **Device-Agnostic Services:** for multi-channel enablement for single user-experience
6. Simple and ease of operations
7. **Agile and Flexible Technology:** enabling scaling up and scaling down, adopt new technology with minimal disruption and cost
8. **Home-Grown Technology Using Internal Expertise:** this is to be self-reliant and secure.
9. **Optimized Process Automation:** to remove redundancy and computation over-kill "Build once and use many times" resources, assets should be re-usable, existing assets will be reused with relevant wrapper/adapters to enable new services

6.0 Digital Strategy And Objective For Future India

1. Government to enable devices, systems, applications, infrastructure and data that is smart (effective and optimal), secure and cost-sensitive (flexible to change for any new technology migration).
2. Empower citizens of India with data and information that is available with government across all departments. Information to be digitized with government services that are accessible online anytime, anywhere on any device.
3. Enable availability of government data and service and hence facilitate innovation to bring several opportunities to general public e.g. farming, education, health-care.

7.0 Driving Innovation And Disrupting The Traditional Models

The year 2014 saw a major transition in the industry across all major sectors in the digitalization of business operations. Case studies and points-of-view saw deployment of these innovative platforms reaching the end user. The change was fast and results welcoming for the business stakeholder. At the same time early adopters are threatening the survival of other players. A few industry examples are discussed below:

7.1 Retail:

In retail, mobile and online sales exploded in the year 2014. The traditional business model of physical point of sales and franchise changed at a fast pace to digital stores making their merchandise available using mobile and online-web-based sales channel. This saw some of the high profile CEO exits like American Apparel's DovCharney and Target's Gregg Steinhafel. This trend of retail business saw rise of new breed of companies like Alibaba's initial public offerings (IPO) in New York Stock Exchange (NYSE) and FlipKart's valuation. It heralded beginning of an end to traditional businesses around the world. The world is now connected and businesses are done across the world with no boundaries, thus opening up new competitors known and unknown. The entry of many online retailers in the

market has taken the competition to a different level. The trend is moving from brand stores and retail chains to online stores and retail aggregators. Traditional business model therefore require revisiting their strategy.

7.2 Insurance:

With traditional risk to catastrophic losses from natural disasters and bad claims, insurance sector is facing one of the toughest challenges of all time - adoption of digital technology. The consumer behaviour is changing thereby forcing Chief Executives to reassess their traditional business models. Digital world and connectivity is transforming customer behaviour and the insurance companies are struggling to get in pace with the expectations like 71% of the consumers used some form of research using digital media like social media and price comparison, 67% were willing to have sensor attached to their cars or home if it resulted in premium reduction, 50% consumers are prepared to provide their personal and lifestyle information to enable seeking best deals for relevant services on their behalf. Insurance companies have now started to adapt into digital world by using in-vehicle telemetric that will price driver risk better, brand building using social media, build mobile applications that will help agents connect with existing and prospective customers.

7.3 Banking:

Digitization of banking system brings in huge value for the consumers providing real time banking access anytime, anywhere on any device – one view of balance, statements, and transaction status and details. It provides real time monitoring of payments and payment details as well as controls on transaction for cheques, cards and bulk transaction. Electronic invoicing opens up new channel to secure and real-time invoicing. Connecting to international trade service providers has become easier than never before. The digital trend is forcing banks to focus on online-electronic as core channel rather than the branches. Banks are shutting down branches - Europe closed around 20,000 in last 4 years and the US in thousands. Transforming transactions performed by banks core branch to digital media will be more beneficial as the trend is from 1 branch per 20,000 to 1 branch per 250,000 customers.51 Bank will require features that are important to build their digital image, Ease-of-use (less clutter, complexity, highly responsive) interface with rich content visualization. Advances in mobile technology and network to provide higher security, ability to connect from anywhere, competitive rating for international roaming for its customers to access from anywhere in the world. Real-time analytics of customers using structured and unstructured data and from social media collaboration to provide personalized services and alerts. This will also help in building brand value. Multi-channel single experience to customer to provide seamless service anytime on any device or medium.

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