

VISION OF DIGITAL INDIA: Challenges Ahead for Political Establishments

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[Abstract: There is evidence to suggest that societies and individuals who acquire skills in digital technologies and are enabled to analyse the data generated in digital environment get into higher and higher economic echelons. On the other side, those who remain digitally illiterate are being pushed down the ladder. To walk hand-in-hand with a vibrant and aspirational society, the political system has to adjust itself and proceed in tandem with the dynamic mode. Succeeding governments in India have encouraged technological advancements and its adaptation including in the field of computer systems and related technologies—even through an era of very tight technology denials by the developed countries. With the liberalisation of economy since 1991, the public sector and the private sector together have placed India in an enviable position of extracting useful products of value with the application of computers. Resultantly, this has provided employment to 2.5 million and fetched export earnings to the tune of US\$87 billion. Riding on this firm base, the UPA-led government foresaw e-governance and a digitally connected India. Furthering this vision, the Modi government has widened the scope and launched the Digital India Programme in 2014, which is scheduled to be completed by 2019. The Project will be monitored by the Prime Minister. The vision and scope of this programme is all-inclusive and moves away from the silo-approach of e-governance towards a synchronised approach—that all government services be delivered to the citizens through a “one stop shop”. In its scope and vision it seeks to take the country from the present state of digitally constrained economy to that of an advanced digital economy. This would result in quantum leap in GDP, thereby expanding employment opportunities. The resultant “digital India” would throw up many challenges for the political establishments as they will have to engage themselves with renewed vigour and innovation with a well-informed citizenry and businesses that would adjudge their performance in comparison with other similarly placed nations. Even during the process of implementation there would be hiccups not related to technology and its application, but for completely different factors such as cultural and societal, sharpened by the swing back action of those who see their role and influence diminishing as the process of digitisation gets underway.]

The discussion note titled “Information Explosion, Challenges and Opportunities”¹ highlighted that digital revolution has been sweeping the world and there is already explosion of information at an unprecedented scale, so much so that storage and retrieval of the available data is assuming challenging proportions. Further, what is more challenging is the analysis and processing of data for possible economic and social gains. There is empirical evidence to substantiate that those societies and individuals who can operate computer-based tools and related software are able to develop software(s) that can adapt to the emerging challenges and develop skills to analyse the avalanche of data, thus entering the higher pay brackets. On the other

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¹ Sardana, M.M.K. (2012), ‘Information Explosion, Challenges and Opportunities,’ DN2012/09, ISID.

side, those who are not able to cope with the digital tools and remain digitally illiterate are being pushed down the ladder in the job market. To bridge the digital divide between the societies and individuals, governments should encourage education planners to reorient the functioning of the schools and institutions of higher learning in favour of a technology-friendly environment. This will not only enable students to become digitally literate and essentially inquisitive, but also help dig gold nuggets out of the data mines to facilitate economic and social benefits. Further, this move will also help address existing negativities of the growing digitisation which impinge on the privacy of individual firms and the government and also on easy availability of tools for mischief mongers who spread misinformation.

Political system in India has been sensitive to the felt need of the Indian society in keeping date with the emerging technologies, including IT-related technologies, at least since 1955 when the Indian Statistical Institute (ISI) acquired the UK-made digital computer HEC-2M—a machine with a memory of 1024 (24 bit words) without any operating manual. The faculty at ISI developed its own manual to work on the machine, which was used by a dozen researchers. In an era of technology denial regime cemented in the climate of cold war, Prof. R. Narasimhan at the Tata Institute of Fundamental Research (TIFR), Bombay, creditably put together a pilot computer to design logic circuits in 1956. The pilot computer subsequently expanded to produce TIFRAC (Tata Institute of Fundamental Research Automatic Calculator or TIFR automatic calculator), which was inaugurated by Jawaharlal Nehru, the first Prime Minister. Soon after, the ISI in collaboration with Jadavpur University built another homemade, second generation transistor-based computer named ISIJU (Indian Statistical Institute Jadavpur University). Concurrently, then newly opened IIT Kanpur procured through its American partners a state-of-the-art computer of its times, IBM 1620 along with a Fortran II compiler—a computer compatible language which was easier to learn. The researchers could freely access the machine on a 24x7 basis, which proved beneficial for hundreds of scholars. During the 1970s, the Electronics Corporation of India Ltd. (ECIL) designed the Trombay Digital Computer-12 (TDC-12) and marketed it in various versions. Newly set up Tata Consultancy Limited (TCS), under Dr F.C. Kohli, installed Burrough Machines and began to export

software. During this decade, National Informatics Centre (NIC) came into being under Dr Seshagiri and it developed NICNET network and Very Small Aperture Terminal (VSAT), providing opportunities for data sharing, monitoring and emails. By the 1980s, software programmes were being developed by various private companies and its export in 1985 stood at US\$30 million. During the same decade, the National Supercomputer Centre was also set up at IISC (Indian Institute of Science), Bangalore, and intercity connectivity was provided via ERNET². This much national infrastructure was enough for designing a parallel processing machine within the country as a response to the denial by US administration of export of fast processing computers to India. The Rajiv Gandhi government liberalised computer import to promote computer literacy amongst Indians who otherwise remained confined to laboratory settings and related vocations. With the liberalisation of economy in 1991, private players such as Infosys, Wipro, Satyam and others became global players and by 2010, the 2.5 million employed in IT industry brought in US\$50 billion, which was expected to touch US\$87 billion in 2014.³

The grit and determination demonstrated by scientists, and the public in general, including their hands-on experience with computers, has made visible positive impact on employment generation. Also, succeeding governments in India have been throwing their political weight behind the use of ICT (Information and Communication Technology) applications and its alignment with the institutions. The Congress-led UPA government initiated the National e-governance Programme that sought to digitally connect India. Further building on this, the Modi-led government initiated the five-year (2014–19) Digital India Project with a commitment to transform India into a “connected” economy. That is, the project aims to connect the 2.5 lakh villages across India through broadband highways, public internet access, universal access to mobile connectivity, e-governance,⁴ *e-kranti*,⁵ information for all, a robust electronic manufacturing regime, early harvest programmes, and IT for

² ERNET: Education and Research Network, an autonomous scientific society of Ministry of Communications and Information Technology (Govt. of India).

³ Balasubramanian, D. (2013), ‘Sixty years of IT in India,’ *The Hindu*, February 20.

⁴ e-governance: Reforming government through technology.

⁵ *e-kranti*: Electronic delivery of services.

jobs—known as the nine pillars of Digital India. The cost of this project is estimated at Rs 1,13,000 crore. The Digital India Advisory Group will be chaired by the Cabinet Secretary and monitored by the Prime Minister and his office. For the Digital India initiative, the original design and programme content of the e-governance project have been distinctly improved upon⁶.

The programme aims at improving delivery of services to citizens, businesses and government employees; blending ICT with administrative reforms to make the government more efficient; bring down costs and increase transparency in the working of government departments; and further, it seeks to include within its ambit unserved and underserved areas in India. Digital India Programme moves away from the silo-approach to e-governance towards a synchronised approach so that citizens have a “one stop-shop” that will provide end-to-end services. Viewed from this angle, the Digital India programme seeks to be transformative in totality.

The Digital India vision is centered on the following three key areas:

- Digital infrastructure as a utility which seeks to provide every citizen with high speed internet facility, a cradle to grave internet identity, mobile phone and bank account, access to common service centre, sharable private space on a public cloud and safe and secure cyberspace.
- Governance and services on demand which will be available in real time for online and mobile platforms, seamlessly integrated across departments and jurisdictions. All citizen documents to be made available on the cloud platform; as a result, citizens will not be asked to produce such documents for availing services. In addition, the provision of cashless electronic transactions will help generate business. Geographical Information Systems (GIS) will be integrated with the development schemes.
- Empower citizens, especially rural citizens, by making them digitally literate. This will be done through collaborative digital platforms and by making available the digital resources in their native language with a view to making

⁶ Digital India, a programme to transform India into digital empowered society and knowledge economy, Department of Telecom and Information Technology, Government of India. Available at: <http://www.slideshare.net/natrajv/09-deitydigitalindiapresentation20140820>

their participation a reality. It will help tap into the data that will be freely available on the cloud computing platform—independent of an intervention.

While embarking upon such an ambitious nationwide and all-pervading programme, it is instructive to review the level at which the country stands at present in terms of its efforts towards digitisation. The programme will help delineate sectors which need special attention in order to speed up the process of digitisation on the one hand, and study its efficacy in reaching the intended targets and objectives of transformation of the techno-economic environment and socio-institutional operations on the other hand. While investing in activities leading to greater digitisation, it needs to be emphasised that returns to computerization are dependent upon—apart from capital investment—organisational capital, encompassing managerial culture, availability of critical skills and societal and regulatory environment. There have been attempts to develop a measure of cross-country progress along the digitisation development path, simultaneously identifying measurable tangible elements and indicators of perceived digitisation metrics⁷.

Identified elements include:

1. *Ubiquity*: It refers to the adoption of mobile and fixed broadband networks accounting for broadband accessibility and ownership of data devices such as PCs.
2. *Affordability*: The existence of affordable network links, which are critical to launching new applications and services.
3. *Reliability*: Faultless service would bind participants to the process of digitisation.
4. *Speed*: Signifies the status of country level international links and the capacity of the system to serve down the line.
5. *Usage*: It is the measure of use of digitisation infrastructure across economic, social and governmental environments.

⁷ Katz, R.L. and P. Koutroumpis (2013), 'Measuring Digitization: A Growth and Welfare Multiplier,' *Technovation: The Journal of Technological Innovation, Entrepreneurship and Technology Management*, Vol. 33, No. 10/11, Pp. 314–319.

6. *Skills*: Richness of skills will quicken the establishment and stabilisation of all other elements, including building up of capacities to take optimal advantage of the digital infrastructure.

Measuring the above-mentioned elements and relevant 23 indicators, 150 countries were classified into three categories:

- a) Constrained digital economies: Evidencing challenges in widespread access and affordability.
- b) Emerging digital economies: Affordability and availability challenges have been addressed and yet reliability and other elements are lacking.
- c) Transitional digital economies: Affordability, availability and reliability challenges stand addressed and challenges regarding speed, usage and skills are being addressed.
- d) Advanced digital economies: Such countries have significantly made strides in creating all the six elements.

On the basis of the above-mentioned classifications and digitisation index, India has been included in the group of constrained digital economies signifying that India at this stage (2012–2013) is wanting in all the six elements included in the exercise of indexation of digitisation. To catch up with the other economies, India will have to make quantum jumps as the pace of digitisation and movement between stages has been rapidly accelerating the world over. Such anticipation is based on the fact that the aspiring countries will now tread along the path chosen by the developed countries and take advantage of the latest technologies at reduced prices, making the process affordable. India's decision to go for intensive digitisation is supported by the fact established by the study being quoted that an increase in digitisation of 10% points triggers 0.50% to 0.62% gain in the per capita GDP, which is significantly higher than the impact created by broadband penetration. Besides, digitisation has a

significant impact on the creation of jobs as well as on improving the innovation index of a country⁸.

The study cautions that the social impact of digitisation is contingent upon a number of caveats. At lower levels of development, the contribution of digitisation to the well-being of the population will be attenuated in so far that primary needs are not addressed. Once these are met, achieving high level digitisation will contribute to social equality, human development, and access to basic services. As such, these goals will not be met unless digitisation promotion is complemented with traditional economic and social development policies. Digitisation is found to be critical but in no way a panacea for wider socioeconomic development.⁹

On all economic development counts and for generally inclusive growth of the constituent groups above minimum threshold of economic attainments currently, intensification of digitisation in the country as conceptualised by the government would stand justified. In a complex and diversified society like India where presently a large segment of people are below the economic threshold, it is necessary to accelerate the programmes for their upliftment with urgency so that such sections also get to avail of the benefits of digitisation programme so as to make the digitisation-based growth truly inclusive. Social sector programmes would gain in quality and impact with the spillover advantages of digital-based processes that will become integral to the delivery chain in the social sector.

The vision of Digital India encompasses that by the end of 2018, India would emerge as an Advanced Digital Economy from the present stage of a Constrained Digital Economy. Accordingly, its programme content ensures: high speed internet as a core facility for the citizens who will have a “cradle to grave digital identity” with a capacity to participate in digital and financial space, access to common service centre with assurance of private space on a public cloud, and a safe and secure cyberspace. Government will ensure the availability of its online services in real time,

⁸ Friedrich, Roman, Bahjat El-Darwiche, Milind Singh and Alex Koster (2013), [Digitization for Economic Growth and Job Creation: Regional and Industry Perspectives](http://www.strategyand.pwc.com/global/home/what-we-think/reports-white-papers/article-display/digitization-economic-growth-job-creation), Strategy&, Formerly Booz & Company. Available at: <http://www.strategyand.pwc.com/global/home/what-we-think/reports-white-papers/article-display/digitization-economic-growth-job-creation>

⁹ Katz and Koutroumpis (2013), *op.cit.*, 7.

seamlessly integrating across departments and jurisdictions. Also, business and the financial transactions would be made cashless. Target beneficiaries of governments programme will have built in Geographical Information System support to ensure that intended beneficiaries get included adequately. For giving effect to this part of the vision, it is necessary to have Universal Digital Literacy with universal access to digital resources in their own language in order to encourage and empower citizens to participate in governance on collaborative digital platforms and extract their entitlements through cloud computing.

It is proposed that by 2016, 250,000 Gram Panchayats will have broadband facility; i.e. covering the entire rural India. Broad coverage in urban areas would be intensified by mandating communication infrastructure in new urban development and buildings by bringing about changes in rules. Nationwide coverage will be accomplished by 2017. Universal access to mobile connectivity will come about by 2018. On the strength of such an infrastructure being established, it is expected that by 2017, government programmes will reach 2,50,000 Gram Panchayats (GP) and Post Offices (PO) across the country. GPs and POs will serve as Multi-service Centres. Besides, the government will reform its governance with a view to improve transactions, ensuring simpler and lesser number of forms, and introduction of tracking facilities with interface between departments. Online repositories will be available for school certificates, voter ID cards, driving licenses, etc. All government databases will be electronic, including the workflow which will also be automated. Public grievances would be dealt with and monitored with an eye on persistent and recurring problems with a view to reforming the system as necessary.

For according practicality to the above objective, it would be necessary to bring about *e-Kranti* across different segments of society and also among all state organs, including judiciary and policy. Towards this end it is proposed that all schools be connected using broadband with free wi-fi facility, and digital literacy programmes be included in the curricula. Besides, there will be Massive Online Open Courses (MOOCs). Similarly, use of internet in healthcare is also envisaged: online medical consultation, online maintenance of medical records, and online sale of prescribed medicines. Besides, there would be pan-India exchange for patient information. GIS

(Geographic Information System) in planning and decision-making will get integrated.

Through the use of extensive infrastructure as above, farmers will be able to order inputs online and ascertain real time prices of commodities and also cash transactions on different counts, which include receiving entitlements from government.

With the availability of pan-India network, emergency services will become mobile. It will also usher in financial inclusion through mobile banking. Even the traditional police stations will be converted into e-powered police stations, which will bring about more transparency between police and citizens. With the pan-India network becoming operational, it will be possible to centrally monitor cyber security centres.

Prime Minister would chair the monitoring committee on Digital India to oversee the progress of the programmes designed to meet the objectives contained in the vision. Overall cost of Digital India programme has been placed at Rs 1,13,000 crore, which includes the 1,00,000 crore cost of ongoing schemes in different ministries and departments of the government. Thus, cost of 13,000 crore is towards fulfilling the gaps and enabling skill development, developing standards to ensure interoperability and acquiring common application software. By end of 2019, 2.5 lac villages will have broadband access along with universal phone connectivity; 4,00,000 public internet access points, wi-fi hotspot for schools, colleges and citizenry; and, 1.7 crore will be directly employed in IT sector and at least 8.5 lakh will be employed indirectly. Besides, it is expected that the net imports of the sector will be brought down to zero by 2020¹⁰. Government is certain that there will be no financial constraints for implementing the programmes because the outgoing programmes—for which investment is already committed—would be restructured towards realization of the objectives of Digital India.

The government has acknowledged that it will face unprecedented implementation challenges and that, too, of gigantic magnitude. A high degree of coordination effort

¹⁰ *Op. cit.*, 6.

between departments and a still higher degree of commitment is expected to come forth.¹¹

As mentioned above, the government strategy and work plan is designed such that it will meet the stated target of net zero imports in electronics manufacturing and the needs of the IT sector in terms of employment generation by the year 2020. The strategies include establishment of an open-ended electronics development corpus fund which will invest in electronics and IT entrepreneurial ventures and also address the issue of unavailability of adequate risk capital through venture funds for Research and Development (R&D), innovation and intellectual property creation.

Further, the strategy also focuses on acquiring foreign companies with a view to shifting manufacturing of products—currently imported in large volumes—into the country. It is expected that by the year 2020, the demand of electronic goods worth \$120 billion would be met indigenously¹².

The Indian society has been marching towards a digital way of life and at this stage it is broadly divided into three groups depending upon the digital skills of the individuals—digital illiterates, digital immigrants and digital natives. Nevertheless, none of these groups have remained unaffected by the digital transformation taking place which would lead to quantum jumps as the Digital India programme gets underway. The divide among the three identified groups will need to be bridged at a faster rate than the rate of quantum leaps in the race towards becoming a Digital Nation, failing which inequalities among those groups may reach unexpected proportions. Widening inequalities would challenge the ability of the government to address these in an internet enabled society, particularly by the community leaders.

Government will be expected to perform immaculately while delivering services to its citizens on the one hand, and be subject to a close scrutiny by the citizens as well as informed stakeholders comprising conflicting interest groups on the other hand. As citizens, and particularly their leaders, get informationally empowered, they

¹¹ *Ibid.*

¹² 'Government Okays Electronic Development Fund,' *Hindustan Times*, New Delhi, December 12, 2014.

become more and more demanding customers of government's services, ensuring they have a say in the affairs of the government. This will allow the citizens to compare their own government with those across the globe—virtually on any score. Government's traditional monopolies will stand challenged by a shift in both the physical and the virtual words. The power of taxation, the policy process, access to communication tools, and the control of information—areas wherein the government once exerted virtually unchallenged authority—would be whittled away by an internet worked world.¹³

With the digitisation process underway, the boundaries that mark the government, marketplace and civil society are getting blurred. All these changes that record both the existing and established behavioural patterns call for innovation from politicians to workout devices that will engage a well-informed citizenry. In a digital nation, no less than a radical rethinking of the nature and functioning of government and its institutions will be required to address the dramatic transformation.

All-pervasive internet riding on an active networked society creates an opening for new forms of interaction with the citizens that allows real-time participation in the governmental and democratic processes. Government will risk becoming irrelevant in the eyes of its customers (citizens) if their expectations are not addressed in real time. In Digital India, as it becomes a reality, a participatory model of government must offer more to its citizens than a mere customary periodic trip to the polling booth. Citizens will expect empowerment in order to become more active partners in the governance process.

The face of politics will be turned; it will be a one-to-one relationship between citizens and politicians—revitalizing local communities in an era of globalisation. Digital India government will have to find new ways of working, new ways of interacting with the public, new ways of sharing responsibilities, and new values that will emerge within the transformed society.

¹³ Tapscott, Don and David Agnew (1999), 'Governance in the Digital Economy: The Importance of Human Development,' *Finance & Development*, Vol. 36, No. 4, December.

Genuinely sharing power, decision-making and responsibility are much scarier propositions because they are so innately counter cultural to government organisations.¹⁴

As the process of digitisation in India gets going, integrating the use of digital tools into public sector modernisation efforts would be huge. Public sector capacities, workflows, business processes, operations, methodologies and frameworks need to be adapted to the rapidly evolving dynamics and relations between the stakeholders that are already empowered by the digital environment. Resulting open approach to policy making and public service delivery will require that the government reorganises itself around user expectations rather than its own internal logic and needs. Towards this end, government strategy for digital India needs to become firmly embedded in mainstream modernisation policies and service design so that relevant stakeholders outside the government are included and feel ownership for the final outcomes of policy reform. Such a shift in the objective of digital technologies in shaping public governance outcomes will require use of such technologies in all areas and levels of the administration as have been envisaged in the implementation programme of the Digital India project. However, government remains organised around its units, each with clear responsibilities and processes, as well as problems to integrate their ways of working. This presents a challenge to creating broad political commitment for integration of digital government into overall public sector reform strategies. Government will have to ensure that its own capacity, norms, structures and risk management models are aligned with its strategic digital vision, and vice-versa. At the same time, the government will have to contend with the organisational maturity of its public sector institutions in relation to project management methods and approaches to optimise the impact and results of its investments towards Digital India. It would be extremely imperative to establish more effective coordination mechanism, stronger capacities and framework conditions to improve digital technologies' effectiveness for delivering public value and strengthening citizen trust.¹⁵

¹⁴ *Ibid.*

¹⁵ Recommendation of the Council on Digital Government Strategies, adopted by the OECD Council

In India, earlier the government would put up the existing processes and products online, but in the reformed Digital India, it will have to redesign the already established technological systems in response to its vision of a common platform.

Government will do well to take into account the recommendations of the Council on Digital Government Strategies as enunciated in the OECD 2013 Ministerial Council Meeting while considering the agenda on “Trust in Government: Evidence, Policies and Decision-making”¹⁶ at this stage of the implementation of the Digital India Programme. The programme, which has been conceived at the behest of the highest level in political hierarchy, foresees inter-ministerial cooperation and collaboration towards the outlined priorities with the expectation that relevant agencies across levels of government would engage themselves in pursuing the Digital India agenda. The elements of the Digital India programme accommodate all of the recommendations of the OECD referred to above. So in theoretical framework, the Digital India programme will be a state-of-the-art network. How far the strategy would yield results in meeting the desired objectives would largely depend on factors which are outside the realm of technologies and tools for digitisation. Those are rooted in the organisational maturity and commitment of the systems within the government and also dependent on public support, overcoming the shackles of historical and cultural traits and the installed wisdom which feels threatened with the transformations that will sweep them off their feet. Sustained political support, as demonstrated at the time of announcement of the programme, is the need of the hour since (i) many citizens may not be comfortable with the rapid pace of empowerment, and (ii) political parties could throw up complications to retard the process in order to maintain supremacy for as long as possible.. In fact, the political allies in the ruling echelon may in the name of security concerns focus on the “dark” side of digital society, masking the reality that even the security threats would be responded to in an effective way only by a well-versed digital India with a strong command over digital tools. It will be able to exact international protocols in collaboration with many other similarly placed countries concerned with the digital

on 15 July 2014. OECD.

¹⁶ *Ibid.*

security in the economic and strategic matters. This will help protect national interests of the participating countries—which have been left out from the fruits of development so far—and be given their rightful place in an internet enabled environment.