



# Digital Divide: A Division between Information and Communication Technology and Digital Growth

Hridoy Das, Meenakshi Lamba

## Abstract

Digital India is a goal of every citizen so that life of people of India can be improved including last person of the queue of hope. In this regards the digital services have become integral for sustainable development. Due to the major involvement of information and communication technology, there are measurable challenges to set up an infrastructure for proper progress of digital service like security, progress ration of using digital services, maintenance of large number of user's and at the same time user's satisfaction. In this article, one of the challenges on the way of digital India is discussed in the form of aligning services and infrastructure. Aligning of these both terms may bring a measurable change among the digital users so that digital divide can be reduced which will directly leads more involvement of ICT with effective demand of services.

**Keywords:** Digital India, ICT, Infrastructure, Big Data, Security

## Introduction

### Digital India

A country can never imagine to become a symbol of shining star without involving technology to common people of society. Digital India concept was originated by Prime Minister of India in order to transform India to a digitally empowered, knowledge economy and involving common people. The Digital India programme was launched by Prime Minister Narendra Modi on July 1st 2015. Digital India basically involves Universal Access to Mobile phone, Public Internet Access Programme: Common Services Centres, e-Governance, e-Kranti, Electronic Delivery of Services, Information to all, Electronics, Manufacturing with a target Net Zero Imports, IT for all and many more [2,6].

**Data Analytics of Big Data:** Data analytics of big data leads user's satisfaction in the form of supplying solution and need of user's without interfering their daily life activities. All Universal data 10% is structured while other 90% is unstructured, which may be either machine generated or human generated. Unstructured data is the largest piece of the data equation, and the use cases for these kinds of data are continuously booming. [5]. Data can

be analyzed in three types of mode that is high volume, managing velocity of data and maintaining verity of data. Big data is responsible for managing structured, unstructured and semi- structured data but mainly for unstructured data which is 90% among all data. Big data has to be managed at administrator or service provide end and at end user level.

**Statement of Problem/Challenges:** There is the need to decrease digital ratio especially in rural place. As per the various studies it has been observed that there is 16% access of Internet in rural where as it is 44% in urban places according to the report a study by Internet and Mobile Association of India (IAMAI) and market research firm Kantar IMRB. There are other barriers in the way of digitizing the country which are given below:

- Technology makes life easier but at the same time mechanism to use technology should be easy to us.
- Poor network quality and affordability of Internet service in both rural and urban areas.
- Relevant information are more useful for users. In the ocean of Information, it is one of the complex task to get relevant information among number of irrelevant information
- Security is the prime concern of digital India. Security can be classified at three tier. One is confidentiality, second one is integrity and third one is availability of information.
- Language barriers is more of the crucial wall to reduce digital divide.
- Less digital divide may lead more secure information and e-transaction.

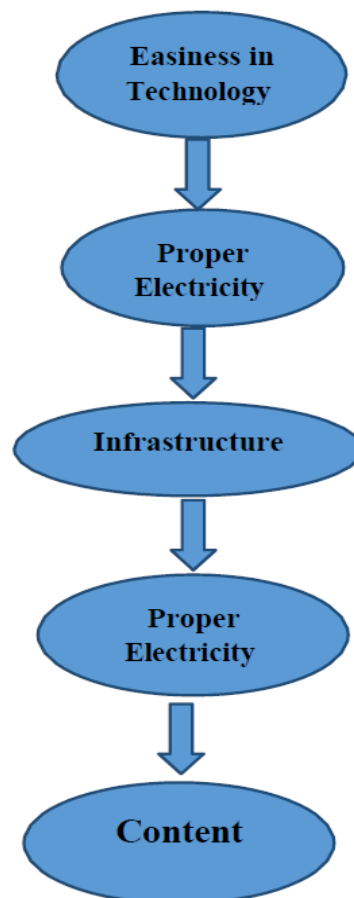


Figure 1: Barriers in Digitization

## Proposed Solution

**Aligning towards Valuable and Accessible Infrastructure:** Infrastructure involves network, Deices, Internet, Maintenance and updating suitable environment. There is need of providing a valuable and accessible infrastructure to achieve measurable growth of ICT and involvement of people of society. Valuable infrastructure will motivate people to be part of digital infrastructure and accessible infrastructure will reduce digital divide while involving people to use and response the e-services. People do not involve themselves due to unavailability of such desire infrastructure.

**Reducing Charges on E-services:** Most of the developed countries in world have applied zero or nominal charges to use e-services which results high reduction in digital divide. Such actions will act as catalyst for adopting and using upcoming technologies which will definitely meet towards goals of digital India. Generally, there are highly charges are applied for e-banking or onlinebanking which leads adopting another way oftransaction.

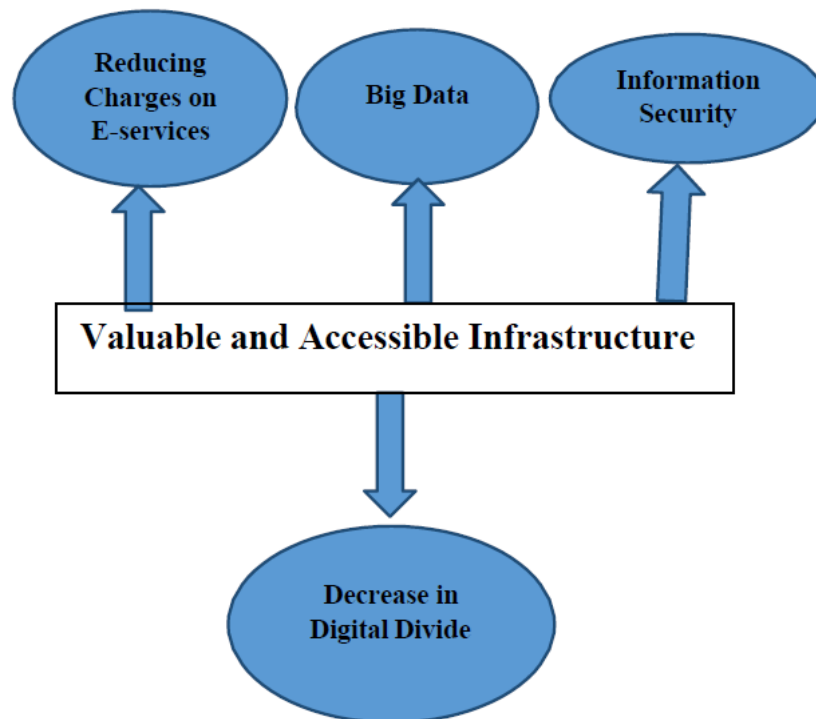
**Information Security:** Information security is the burning issue across the globe by which confidentiality policies are implemented incomputer systems, including concepts of access control, integrity and availability. Providing and accessing complete secure information has still not been achieved because of the modernization of malicious application and technologies. An easy and well proved environment can be created and provided to digital users so that they can availdigital services without fear.

## Digital Divide

Theory of the digital divide came into existence inthe 1990's for explaining equality and inequality in the area of accessing suitable network for people of society. Digital divide is the ratio between users who have access of information and communication technology and those that don't or have limited or restricted access. The more ratio of digital divide can exist in the rural areas as compare to those living in urban areas. Moreover, rural users are not continuously online in real time which leads ratio of digital divide. In the meantime there is notable growth in rural place in terms of ICT usage [6.7].

## Conclusion

Digital divide exists in each and every country of world and bringing it up zero does not seem feasible rather digital divide can be reduced whichdirectly influences functionality of digital India. There are more than hundred components which are responsible for achieving goals of digital India. In the meantime, digital divide may be considered a key to achieve desired goals of digital India. This paper explores key reasons to reduce the digital divide and these key reasons aredirectly associated with the people of society. Hence the proposed components are prime factorsto implement digital India on ground.



**Figure 2: Parameters to Reduce Digital Divide**

## Reference

1. Assunção, M.D., Calheiros, R.N., Bianchi, S., Netto, M.A.S., Buyya, R.: Big data computing and clouds: trends and future directions. *J. Parallel Distrib. Comput.* 79-80, 3-15 (2015).
2. Cramer, H.; Rost, M.; Holmquist, L.E. Performing a check-in: Emerging practices, norms and 'conflicts' in location-sharing using foursquare. In *Proceedings of the 13th International Conference on Human Computer Interaction with Mobile Devices and Services*, Stockholm, Sweden, 30 August-2 September 2011; pp. 57-66.
3. Han, J.; Susilo, W.; Mu, Y.; Zhou, J.; Au, M.H.A. Improving privacy and security in decentralized ciphertext-policy attribute-based encryption. *IEEE Trans. Inf. Forensics Secur.* 2015, 10, 665-678.
4. Hashem, I.A.T., Yaqoob, I., Anuar, N.B., Mokhtar, S., Gani, A., Khan, S.U.: The rise of "big data" on cloud computing: review and open research issues. *Inf. Syst.* 47, 98-115 (2015).
5. <https://www.financialexpress.com/opinion/digital-divide-in-india-20-per-cent-of-house-holds-access-net-banking-cashless-payments-have-a-long-way-to-go/704927/>. Accessed November 2018.
6. [https://www.livemint.com/Opinion/OvWHiB3A\\_ZmLx0k2ohkJACL/A-15-year-journey-to-bridge-the-digital-divide.html](https://www.livemint.com/Opinion/OvWHiB3A_ZmLx0k2ohkJACL/A-15-year-journey-to-bridge-the-digital-divide.html). Accessed November 2018.
7. <https://www.ndtv.com/india-news/cant-afford-to-have-digital-divide-in-india-prime-minister-narendra-modi-1759997>. Accessed November 2018.
8. IBM Corporation: IBM big data & analytics hub: the four V's of big data. <http://www.ibmbigdatahub.com/infographic/four-vs-big-data> (2014). Accessed Nov 2018.
9. IBM Corporation: IBM social media analytics software as a service. <http://www->

- 03.ibm.com/ software/products/en/social-media-analytics-saas (2015a). Accessed November 2018.
10. International Conference on Pervasive Computing and Applications (ICPCA), Port Elizabeth, pp. 363-366 (2011).
  11. Jekabsons, G., Zuravlyov, V.: Refining Wi-Fi based indoor positioning. In: Proceedings of 4<sup>th</sup> International Scientific Conference Applied Information and Communication Technologies (AICT), Jelgava, Latvia, pp. 87- 95 (2010).
  12. Kos, A.; Tomažič, S.; Umek, A. Evaluation of Smartphone Inertial Sensor Performance for Cross-Platform Mobile Applications. *Sensors* 2016, 16, 477.
  13. Kryftis, Y., Mastorakis, G., Mavromoustakis, C.X., Batalla, J.M., Rodrigues, J., Dobre, C.: Resource usage prediction models for optimal multimedia content provision. *IEEE Syst. J.* (2016).
  14. Pop, C., Ciobanu, R., Marin, R.C., Dobre, C., Mavromoustakis, C.X., Mastorakis, G., Rodrigues, J.J.P.C.: Data dissemination in vehicular networks using context spaces. In: *IEEE GLOBECOM 2015, Fourth International Workshop on Cloud Computing Systems, Networks, and Applications (CCSNA)*, 6-10 Dec (2015).
  15. Qin, B.; Deng, R.H.; Liu, S.; Ma, S. Attribute- Based Encryption with Efficient Verifiable Outsourced Decryption. *IEEE Trans. Inf. Forensics Secur.* 2015, 10, 1384-1393.
  16. Xu, J.; Wen, Q.; Li, W.; Jin, Z. Circuit Ciphertext- Policy Attribute-Based Hybrid Encryption with Verifiable Delegation in Cloud Computing. *IEEE Trans. Parallel Distrib. Syst.* 2016, 27, 119-129.
  17. <https://www.businessstandard.com/article>. Accessed November 2018.
  18. <https://www.statista.com/>, Accessed November 2018.