

# Role of Information and Communication Technology towards the Evolution of Digital India

## Abstract

*In this digital era, Information and Communication Technology (ICT) plays a vital role in our day to day life. It refers to that form of technology, which are used to communicate, store, generate, share, exchange valuable knowledge and skills around computing and communications devices. It helps peoples to access service/information regardless of geographical distance through Internet. It also acts a driver of economic development and social progress. ICT revolution globally is measured as with the help of Networked Readiness Index (NRI), which reflect the growing importance of technology and innovation across the world. As per the World Economic Forum, out of 139 economies where NRI was measured, Singapore ranks first and India holds 91st rank. According to World Economic forum "Political and regulatory environment, Business and innovation environment, Infrastructure, Affordability, Skills, Individual usage, Business usage, Government usage, Economic impacts, Social impacts" are the sub-index of ICT. If these sub-indexes are strong, ICT become very effective which in turn will be reflected in the economy. Majority of Indian people relay on government welfare payments such as the National Rural Employment Guarantee Act, widow pensions, old age pensions, scholarships, discounted LPG cooking gas, and other subsidies. Digital payment is being encouraged as part of digitization initiatives of the Government. Electronic Payment Framework was laid down and is followed by all Ministries/ Departments and their attached Institutions/PSUs and is applicable on all Central Sector (CS)/ Centrally Sponsored Schemes (CSS) and for all schemes where components of cash is transferred to individual beneficiaries. Hence, the current paper focuses on the Role of ICTs in socioeconomic development for which secondary data and reports are used from World Economic Forum, Measuring the Information Society Report 2017 - Volume 2, MSME report, ICT indicators database etc., with simple charts and tables the role of ICT in the development process of the economy is discussed and based on the result, policy suggestions are provided.*

**Keywords:** Growth, Information and Communication Technology, Indian Economy, Internet, Networked Readiness Index.

## Introduction

In this digital era, it is difficult to think of any event in our daily life without Information and Communication Technology (ICT). UNESCO has defined ICT as "forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. It includes not only traditional technologies like radio

and television, but also modern ones like cellular phones, computer and network, hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing". ICT is a new weapon of Teaching-Learning. A Corporate Information System (CIS) is a fully integrated, company-wide system solution that aims to meet the organizational ICT requirements at all levels.

It also acts a driver of economic development and social progress. ICT revolution globally is measured as Networked Readiness Index (NRI), which reflects the growing importance of technology and innovation across the world. As per the World Economic Forum out of 139 economies where NRI was measured, Singapore ranks first and India holds 91<sup>st</sup> rank. According to World

Economic forum “Political and regulatory environment, Business and innovation environment, Infrastructure, Affordability, Skills, Individual usage, Business usage, Government usage, Economic impacts, Social impacts” are the sub-index of ICT(World Economic Forum,2016). If these sub-index are strong ICT become very effective which in turn will be reflected in the economy.

	Rank (out of 139)	Value (1-7)
<b>Networked Readiness Index.....</b>	<b>91</b>	<b>3.8</b>
Networked Readiness Index 2015 (out of 143).....	89	3.7
Networked Readiness Index 2014 (out of 148).....	83	3.8
Networked Readiness Index 2013 (out of 144).....	68	3.9
<b>A. Environment subindex.....</b>	<b>99</b>	<b>3.7</b>
1st pillar: Political and regulatory environment.....	78	3.7
2nd pillar: Business and innovation environment.....	110	3.7
<b>B. Readiness subindex.....</b>	<b>88</b>	<b>4.4</b>
3rd pillar: Infrastructure.....	114	2.6
4th pillar: Affordability.....	8	6.6
5th pillar: Skills.....	101	4.1
<b>C. Usage subindex.....</b>	<b>103</b>	<b>3.3</b>
6th pillar: Individual usage.....	120	2.1
7th pillar: Business usage.....	75	3.6
8th pillar: Government usage.....	59	4.1
<b>D. Impact subindex.....</b>	<b>73</b>	<b>3.6</b>
9th pillar: Economic impacts.....	80	3.1
10th pillar: Social impacts.....	69	4.1

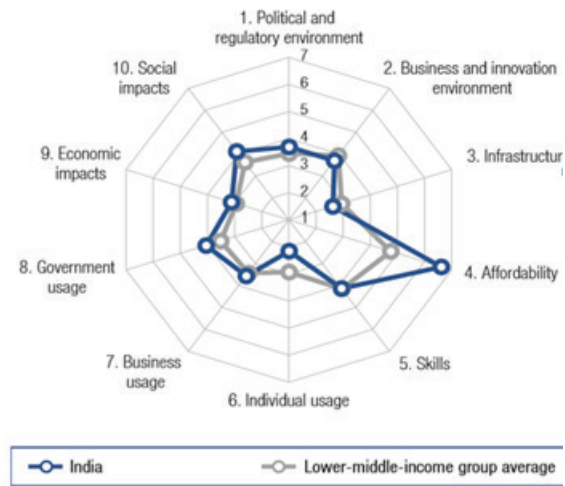


Figure 1: Network Readiness Index-India

Source: Global Information Technology Report 2016

### Uses of ICT's are Many

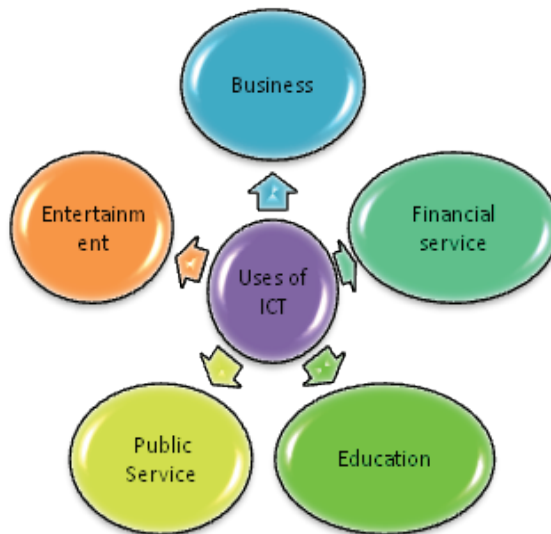
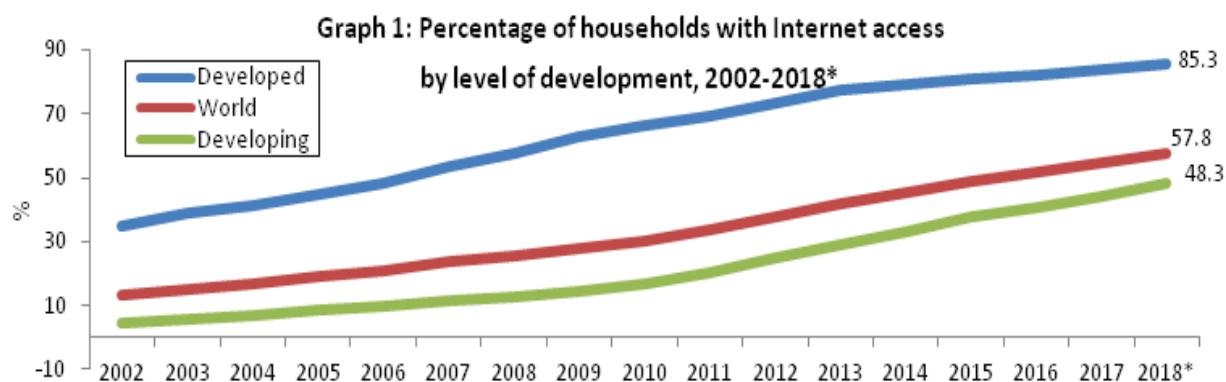


Figure 2: Uses of ICT

- (i) In business (all business activity can be done from one place): It accelerates advertising, customer visit, product browsing, shopping, tax, receipt and process order, e-commerce
- (ii) In Financial Services: Online services like transferring money, Capital market transactions, financial analysis etc
- (iii) Entertainment: Movies, games, books, and social networking
- (iv) In public service: Government services are available online, e-governance, widow pensions, old age pensions, scholarships, discounted LPG cooking gas, and other subsidies.
- (v) In Education: Educational classes regardless of geographical distance through Internet, NPTEL, CEC, SWAYAM, UGC\_MOOC's, UGC-INFLIBNET, Amrita e-learning etc



Source: ITU World Telecommunication /ICT Indicators database

Percentage of households with Internet access by level of development, 2002-2018 for the world, Developed Economy and Developing Economy is presented in graph 1, which clearly reveals that the percentage usage of internet is high in Developed economy when compared to Developing Economy since 2001.

Majority of Indians rely on government welfare payments such as the National Rural Employment Guarantee Act, widow pensions, old age pensions, scholarships, discounted LPG cooking gas, and other subsidies. The Government of India makes these payments, with the estimated value being a huge \$60 billion per year, through Direct Benefit Transfer (DBT).<sup>1</sup> Electronic payments bring substantial benefits. This

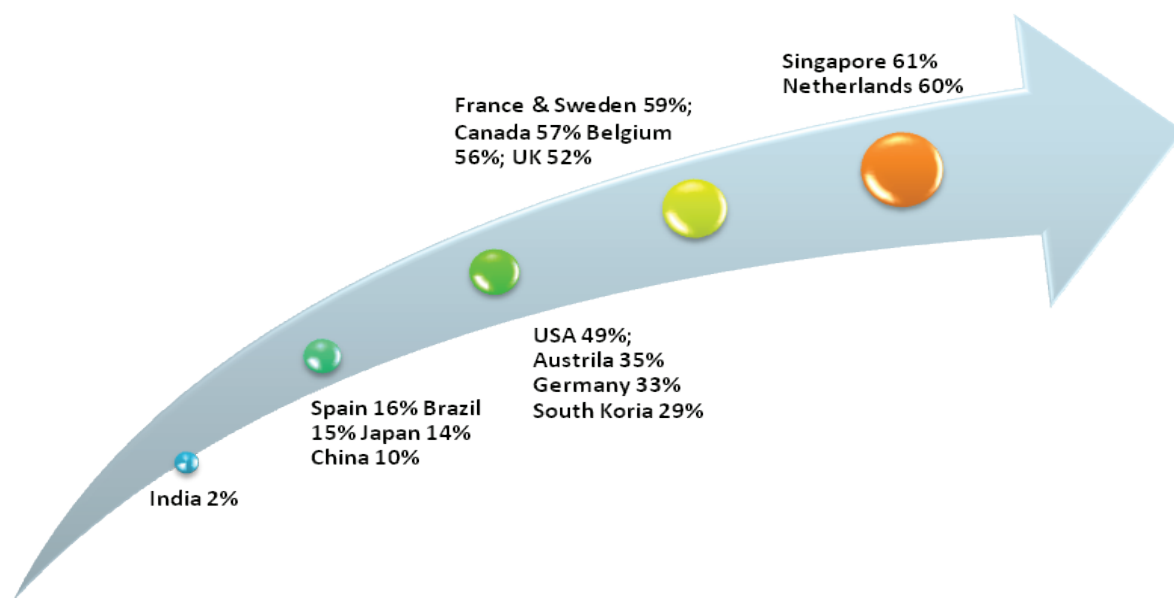
<sup>1</sup> Direct Benefit Transfer is a major reform initiative launched by Government of India on 1st January, 2013 to re-engineer the existing cumbersome delivery processes using modern Information and Communication Technology (ICT). <http://cabsec.nic.in/dbt/origin.html>

Digital evaluation yields several implications for both public and private sector as they explore ways to develop the state of the cashless economy. Digital payment is being encouraged as part of digitization initiatives of the Government. India's digital payment systems began around 2010. India still ranks low (just 2 percent) among other countries (graph 2) in terms of percentage of cashless transactions, India is a country where 98 per cent of the total economic transactions by volume are carried out by cash, and for countries like Singapore and Netherlands about 61 percent of the transactions takes place through E-payment. Electronic Payment Framework was laid down and is followed by all Ministries/ Departments and their attached Institutions/PSUs and is applicable on all Central Sector (CS)/ Centrally Sponsored Schemes (CSS) and for all schemes where components of cash is transferred to individual beneficiaries. On the other hand the safety and security of

the cashless transactions must be ensured, Training program must be given to people (urban and rural) regarding the, fraud activities, security measures, redressal

programs and grievance mechanism. Social media can play a vital role to start with this type of awareness program.

Graph 2: Cashless nations and their corresponding percentage of cashless transactions



**Source:** Master Card Advisor's Measuring progress toward a cashless transaction

Hence, the current paper explores the Role of ICTs in socioeconomic development for which secondary data and reports are used from World Economic Forum, Measuring the Information Society Report 2017 - Volume 2, MSME report, ICT indicators database etc., Simple charts and tables are used to discuss the role of ICT in the development process of the economy

Table 1: Key indicators of ICT (2016)

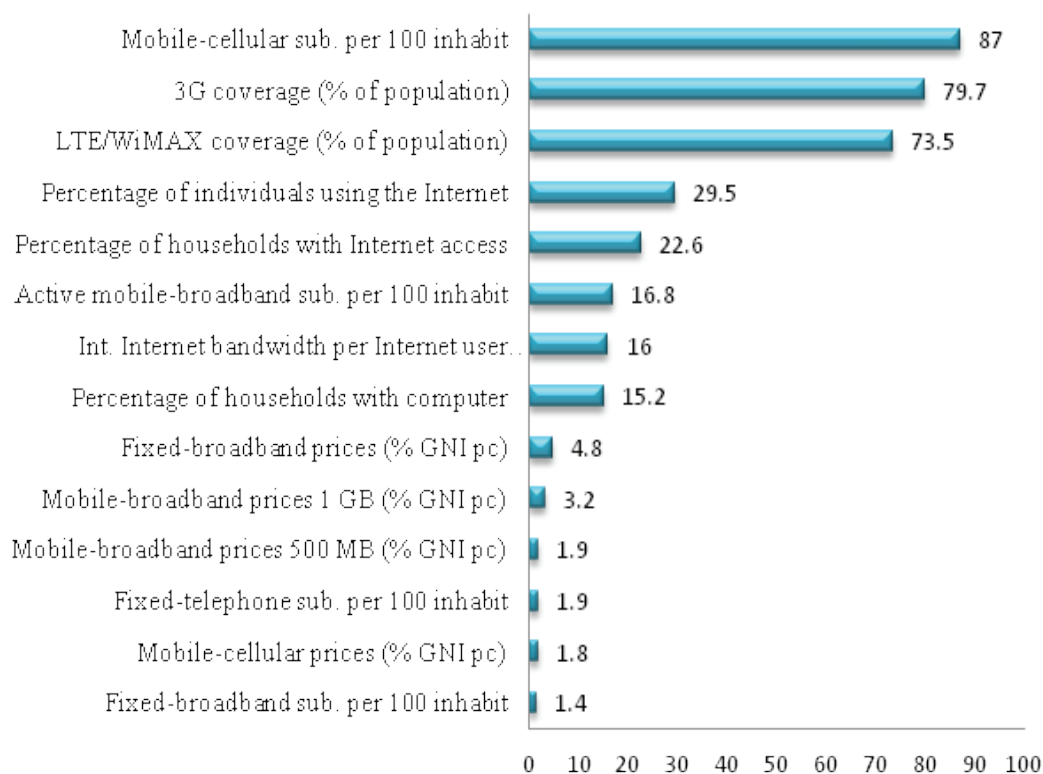
Key ICT indicators	World	India
Fixed-telephone sub. per 100 inhabit	13.6	1.9
Mobile-cellular sub. per 100 inhabit	101.5	87
Fixed-broadband sub. per 100 inhabit	12.4	1.4
Active mobile-broadband sub. per 100 inhabit	522	16.8
3G coverage (% of population)	85.0	79.7
LTE/WiMAX coverage (% of population)	66.5	73.5
Mobile-cellular prices (% GNI pc)	5.2	1.8
Fixed-broadband prices (% GNI pc)	13.9	4.8

Key ICT indicators	World	India
Mobile-broadband prices 500 MB (% GNI pc)	3.7	1.9
Mobile-broadband prices 1 GB (% GNI pc)	6.8	3.2
Percentage of households with computer	46.6	15.2
Percentage of households with Internet access	51.5	22.6
Percentage of individuals using the Internet	45.9	29.5
Int. Internet bandwidth per Internet user (kbit/s)	74	16

**Source:** Measuring the Information Society Report 2017 - Volume 2

The Key indicators of ICT from Table 1 clearly compares the ICT indicator with world, this reveals that in spite of India being the second largest populated country the technological development has yet not reach all parts of India (graph 3). So the need of technological development can be perceived through this table.

Graph 3: ICT indicator of India



**Source:** Computed from Information Society Report 2017

In spite of ICT being an independent learning platform for students, interesting classroom activities, enhance the quality and efficiency of education (images and videos), improve the digital culture in schools, colleges, and universities. There can be disadvantages like misguiding information, risk of cyber attacks and hacks, managing online courses can become problematic at times, it can be impossible to access everywhere, misuse of technology and most importantly teachers require experience to handle ICT.

## Conclusion

Digital technologies can change innovation in a qualitative way. Internet continues to serve as a driver of innovation, economic growth, and social development. The quality of government and its online service is measured by ICT. "Clear identification of educational aims and principles are the

basis for ICT program design, is essential for meaningful integration,(Gurumurthy, 2018)".The direct way in which digital technology affects innovation is an existing tools, products, processes, and business models by embedding new technologies. Despite of improvements in India's political, regulatory environment and in its business and innovation environment, India is in the overall rank of 91, the drop can be due to lack of infrastructure and low levels of skills to ICT adoption. A portion of Indian population is still illiterate and a similar share of youth is not enrolled in secondary education. Only 15 out of 100 households have access to the Internet and mobile broadband remains a privilege of the few, with only 5.5 subscriptions for every 100 people (table 1). Micro<sup>2</sup> enterprises constitute an important pillar of Indian economy as they account for more than 90% of total number of enterprises,

<sup>2</sup> Manufacture enterprises, Service enterprises

Its performance in terms of providing online services and allowing e-participation is very low, to support entrepreneurship and innovation. The reason can be that cost of ICT tools can be expensive and lack of stable electricity, internet or low bandwidth. In 2015 the government launched the Digital India program, which aims to close this gap by raising investment in digital infrastructure, improving digital literacy, and increasingly

providing online services to citizens. In spite of India being the second largest populated country the technological developments has yet not reached all parts of the country. When compared to other countries which are moving ahead at higher speeds, India has to reformat its structure and also take care of the security (Cyber Crime) due to the growth of Internet (ICT).

### References

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### Web Resources

5. Web source <http://digitalindia.org/>
6. Web source <http://mhrd.ac.in>
7. Web source <https://www.niti.gov.in/>
8. Web source <https://home.kpmg.com/ae/en/home/media/press-releases/2017/07/change-readiness.html>