FACING DIGITAL DISRUPTION: A STUDY OF INDIA'S DIGITAL PREPAREDNESS

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ABSTRACT

Moving ahead from the 1960's revolution of Computerization, we are now witnessing the emergence of digital systems, networked communications, machine learning and large scale Data analysis, leading to an increasing integration of these technologies into Business and Production processes, making them self-sustaining and more efficient. Known as the Fourth Industrial Revolution, it goes beyond simple device connectivity towards being an Internet of Everything. This revolution is resulting in disrupting every industry, reshaping how we work, relate, communicate and learn, reinventing every sphere of business, from media and entertainment, healthcare, education, retailing to transport. This transformation in the Business models, industry value chain and patterns of demand known as Digital Disruption is a challenge which depending on the way it is tackled, can become an opportunity or a threat for the businesses and the nation. This paper tries to examine the ability of India to reap the benefits of this transition on the basis of various parameters of its Networked Readiness Index published by World Economic Forum. The paper also tried to assess the efforts of the government to develop a conducive Digital environment through 'Digital India'

Keywords: *Digital, Industrial Revolution, Disruption, Networked Readiness*

INTRODUCTION

The Industrial world has been through many revolutions with time. The mechanization of Production after invention of steam power led to the First Industrial Revolution. The use of electric power for mass production and coming in of Production line was the phase of Second Industrial Revolution. The advent of electronics and Information technology leading to automation of Production was the coming of the Third Industrial Revolution. But currently we are witnessing innovations, based on a fusion of technologies, such as multiplicity of mobile devices, huge storage capacity, access to knowledge, unprecedented processing power, technological breakthroughs in artificial intelligence, autonomous vehicles, robotics, Internet of Things, quantum computing etc. which is not a mere prolongation of the Third Industrial revolution, but the advent of the Fourth Industrial revolution This revolution, evolving at an exponential pace, is resulting in emergence of wholly new types of Business models across industries and transforming entire systems of production, management and governance, creating better customer experiences, streamlined operations and increased profitability. This transformation in business models affecting the value proposition of existing goods and services is known as Digital Disruption. It is a digital development that affects our personal and Business goals.

Consumerisation of IT has increased the potential for digital disruption across industries. Media & Entertainment through TV channels has been disrupted by Amazon, Netflix and Hulu Plus, by changing the way content is accessed by customers and monetized by advertisers. Traditional companies such as ABS, NBC etc. need to transform into web-delivery, video-on-demand to compete with the digital entrants. Cab companies like Uber and Ola have disrupted the business of transportation. The yellow-black taxis in Mumbai have come up with a competitor app 9211 to face this disruption. Exponential technologies such as artificial intelligence, advanced robotics, sensor-based technologies will fuel disruption in retail in the coming years. New disruptive trends such as democratization of technology, crowdsourcing and crowdfunding, maker movement and gamification are likely to have a deep impact on retail sector. Banking sector is also witnessing disruption with more and more customers

switching to digital banking and development of mobile wallets for payment. Banks are coming up with app based payment systems. The phenomenon is synonymous with every sector of India.

OBJECTIVES

1. To understand the Digital Disruptions resulting from the advent of the Fourth Industrial Revolution.
2. To assess the opportunities and challenges associated with Digital Disruption.
3. To understand the extent of Disruption in Indian Business models due to Digital revolution.
4. To analyse the preparedness of India at global level to face Digital Disruption.

RESEARCH METHODOLOGY

Data has been used from the 'Global Information Technology Reports' of The World Economic Forum for the years 2015 and 2016 for analyzing the Network Readiness of India at the global level. Secondary data has been used from various online sources, websites and journals for the purpose of Research.

LIMITATIONS

1. Time constraint is a major limitation of the study.
2. Statistical analytical tools have not been applied for the Research

CHALLENGES AND OPPORTUNITIES

1. Potential to raise global income levels and improvement in the quality of life of populations around the world. Technology has brought in new products &services that increase efficiency and pleasure of our personal lives. Consumers can access any service remotely.
2. Technological innovations will increase efficiency & productivity of manufacturers and service providers, bringing down the costs of transportation, communication, logistics and global supply chains, resulting in improving the prices, speed and qualityof value delivery, opening new markets and driving economic growth.
3. Major changes are occurring on the consumer's side as transparency is increasing and new patterns of consumer behavior built upon access to mobile networks and data are seen, which is compelling companies to rethink on their design, markets, products and services.
4. The revolution has the potential to disrupt the labour market, as automation substitutes labour across economies. It is also likely that intellectual and highly skilled workers may be in demand to handle the technology, creating a job market segregated into low-skill low-pay and high-skill high-pay segments.
5. The providers of physical capital- the investors and shareholders also stand to gain in the environment of innovation. In the wake of such a scenario, the fourth Industrial revolution can become an economic and societal concern.
6. New technologies and platforms can increase the citizen-government engagement, with citizens voicing their opinions and supervising public authorities. Even governments can increase their controls over populations, based on pervasive surveillance systems and the ability to control digital infrastructure. The governments have to evolve, subjecting their structures to transparency and efficiency.
7. For 50 years, IT industry was bringing data to the 'computer', But now, successful IT companies are bringing computing- analytics, insights and action- to the data, which can be tapped by the business world for the benefit of itself and consumers.

INDIA AND DIGITAL DISRUPTION

In the wake of Digital disruption, India's drive for growth lies in its efforts to upgrade old-economy physical infrastructure and new-economy technologies. From being a laggard at the start of the dotcom boom in the 1990's, India has emerged as a leader in digital innovation. Globally, India has the third largest number of start-ups. In 2015 alone, USD 9b was invested in technology startups. The effect of this massive capital infusion will be felt in the coming years as these companies rapidly scale-up new business models. The motivation for this investment in the digital start-ups arises from the fact that India has a large internet user base. India is ranked either first or second globally, in monthly active users of internet leaders such as Facebook, Whatsapp, Twitter and Youtube. The growth of internet users is driven by penetration of mobile

internet. Around 65% of internet traffic in India comes from mobiles. According to Cisco estimates, in 2019, there will be 545m Internet users, 654.1m smartphone users and 1.6b networked devices in India. In 2019, the mobile traffic will be equivalent to 51x the volume of entire Indian Internet in 2005, whereas, video will be 66% of India's mobile data traffic. More devices will lead to more interaction and change in processes in every sphere of our life. Across industries in India, digitization has the potential to create $393.4b, and in the country's public sector, the potential to create $116.2b, in value over the next decade.

Digital innovators are posing a threat to incumbents across sectors such as retail, transportation, food services, healthcare, finance and education in India. Digital disruption will change the way work is done in India. One of the positives is the capability of Digital disruptors in aggregating unorganized players such as taxi drivers, tradesmen, mom and pop retailers etc., connecting them with customers and giving them tools to compete with market leaders. On the other side, automation and artificial intelligence in the IT sector, is creating 24% lesser jobs in the sector.

Digital enabled companies are scaling up at a faster rate in India due to their asset-light model and technology centric approach. This means they are growing up faster as their costs are lower due to need of fewer people and less infrastructure. For example, India's leading brick and mortar apparel retailers had sales between Rs 1000 to 3000 crores in 2015, after being in business for 15 to 20 years. Whereas, online fashion retailer Jabong scaled up their business to cross 500 crore in only 3 years.

Realising the potential of digitization to address the expectations of citizens and fuel growth of the nation, government has laid the groundwork for transformation with the 'Digital India' initiative. It involves creation of large-scale digital infrastructure, digitally –enabled government services and increased digital empowerment of citizens

ANALYSIS OF THE PREPAREDNESS OF INDIA FOR MAKING DIGITAL DISRUPTION AN OPPORTUNITY

The level of preparedness of India has been analysed with the help of Networked Readiness Index (NRI), published by The World Economic Forum in the "Global Information Technology Report" of 2016 and 2015. Networked Readiness is a key indicator of how countries are doing in the digital world. It measures how well an economy is using information and communications technologies to boost competitiveness and well being. The index is calculated from data gathered from international agencies such as Telecommunciation Union, UNESCO, other UN agencies and World Bank. Further indicators come from the World Economic Forum's Executive Opinion survey done in more than 140 countries.

Networked readiness depends on whether a country possesses the DRIVERS necessary for digital technologies to meet their potential, and on whether these technologies are actually having an IMPACT on the economy and society.

The Framework of Networked Readiness Index is as below:

DRIVERS	IMPACT
1. Overall Environmentsubindex: • Political & regulatory environment (9 indicators) • Business and Innovation environment(9 indicators) 2. Readiness subindex: • Infrastructure (4 indicators) • Affordability (3 indicators) • Skills (4 indicators) 3. Usagesubindex: • Individual usage (7 indicators) • Business usage (6 indicators) • Government usage (3 indicators)	1. Economic impacts (4 indicators) 2. Social impacts (3 indicators)

Source: reports.weforum.org/global-information-technology-report-2016/ networked-readiness-index/

FINDINGS

India ranks 91 amongst 139 countries with a value of 3.8 in its Networked Readiness index as per the "Global Information Technology Report" of 2016. The comparative rankings of India in the four major subindices are as given below:

Subindex	Rank in 2016	Rank in 2015
Environment subindex	99	101
Readiness subindex	88	83
Usage subindex	103	103
Impact subindex	73	73

Source:https://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/,https://reports.weforum.org/global-information-technology-report-2015/networked-readiness-index/

The Comparison of ranks of few indicators within each sub-index is as given below:

Subindex	Pillar	Indicator	Rank in 2016	Rank in 2015
Environment subindex	Business & Innovation environment	2.01: Availability of latest techology	108	110
		2.02: Venture Capital availability	13	20
Readiness subindex	Infrastructure	3.02: Mobile network coverage	111	110
		3.03: International Internet bandwidth (kbps)	116	113
	Affordability	4.02: Fixed Broadband internet tariff	36	13
	Skills	5.01: Quality of Educational system	43	45
Usage subindex	Individual usage	6.01: Mobile phone subscriptions/ 100 population	120	123
	Individual usage	6.02: Percentage individuals using internet	107	115
	Individual usage	6.05: Fixed Broadband Internet subscription/100 population	105	104
	Business usage	7.04: B2B internet use	108	119
		7.05: B2C internet use	77	95
	Government usage	8.01: Importance of ICTs to govt's vision	62	71
Impact Subindex	Economic impacts	9.01: Impact of ICTs on new services and products	89	87
		9.03: Impact of ICTs on new organizational models	65	89
	Social impacts	10.01: Impact of ICTs on access to basic services	70	76

Source:https://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/,https://reports.weforum.org/global-information-technology-report-2015/networked-readiness-index/

1. The ranking of India's**Networked Readiness Index** has slipped to **91**st rank(2016) as compared to 89th rank in 2015 Report.
2. There has been improvement in **Environment sub-index** from 101st rank to 99th.
3. Ranking related to Availability of latest technology and venture capital availability has improved as compared to previous year's rankings.
4. **Readiness subindex** ranking shows a slump from 83 in 2015 to 88 in 2016.
5. Mobile network coverage and International Internet bandwidth have lost it rankings
6. The Affordability of Fixed Broadband bandwidth has reduced as the rank has changed substantially.
7. Ranking of Quality of Education is almost similar.
8. **Usage subindex**ranking is stable at 103.
9. There is a small improvement in mobile phone subscription from 123 to 120.
10. The percentage of individuals using internet has improved from 115 to 107thrank.
11. Internet usage show good improvement with B2B ranking improving from 119 to 108 and B2C ranking improving from 95 to 77.
12. Government usage in terms of importance of ICTs to government vision has improved from 71st rank to 62nd.
13. **Impact subindex** is stable at 73rd rank.
14. Impact on ICTs on new services & products has changed slightly from 87th rank to 89th .
15. Impact on ICTs on new organizational models has improved tremendously from 89th to 65th rank.
16. Impact of ICTs on basic services has improved substantially from 76th rank to 70th rank.

CONCLUSION

1. India's ranking of 91st out of 139 countries in 2016 and 89th out of 143 countries in 2015 in the Networked Readiness Index, is an indicator of lack of preparedness to face the Digital Disruption which has arrived.
2. The Business and Innovation environment of the country is improving leading to betterment of Environment subindex to face Disruption in a better manner
3. Infrastructure & Affordability of Internet needs to be enhanced to increase the Readiness subindex of NRI in order to convert Digital Disruption into an opportunity.
4. Individual, Business and Government usage of Internet is increasing which can be an opportunity.
5. Economic & Social indicators show a mixed movement leading to overall Impact subindex being unchanged.

India lacks in preparedness to utilize the opportunity arising out of Digital Disruption, due to various parameters such as Infrastructure, Affordability, Skills and General Business Environment. If these areas are not addressed, then the high potential and increased usage cannot be channelized into value addition for businesses and the nation as a whole.

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