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Digital Divide to Digital Dividend: Challenges and Opportunities

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Abstract- The world has experienced the growing inequalities between the haves and the have-nots. Digital divide has been at the core of the reasons for such inequality. India has been witnessing revolutionary growth in the field of Information and Communication technology (ICT) but the fruits of such growth have accrued to a small strata and the trickle down theory has also failed. Digital dividend, the broader development benefits from using these technologies—have lagged behind. In many instances digital technologies have boosted growth, expanded opportunities, and improved service delivery. Yet their aggregate impact has fallen short and is unevenly distributed. Latest available data has been analysed to evaluate the effect of digital technologies on people in general.Various contradictions have been brought to surface. For digital technologies to benefit everyone everywhere requires closing the remaining digital divide, especially in internet access. But greater digital adoption will not be enough. To get the most out of the digital revolution, countries also need to work on the "analog complements"—by establishing rule of law, by ensuring a level playing field among all the stakeholders, by providing education/skill to the labour for taking full advantage of demographic dividend and by making all institutions accountable to citizens.

Index terms- ICT;trickle down;Digital divide;Digital dividend;analog complements

1.INTRODUCTION

The world has experienced the growing inequalities between the haves and the have-nots[11]. Digital divide has been at the core of the reasons for such inequality. India has been witnessing revolutionary growth in the field of Information and Communication technology (ICT) but the fruits of such growth have accrued to a small strata and the trickle down theory has also failed.Digital divide is not a stand alone concept, it is strenghtened by a variety of reasons and digital divide in turn affect people in variety of ways[1].Subsequent governments (both at the Union as well as State level) have taken steps to bridge the divide through various initiatives.Now that the present government is taking active interest in promoting digital technology in all areas of life, the problem of digital divide can be converted into Digital Dividend.The objective of this paper is to highlight the opportunities that exist in today's India that can enable it to get benefits of Digital technologies-not just for the upper classes but for the lower classes too.

2.FACTS ON DIGITAL DIVIDE WORLD-WIDE

Though, over two-thirds of the world population lives within an area covered by a mobile broadband network and that ICT services continue to become more affordable, still more than half of all people are not yet using the Internet and large differences in terms of broadband speeds and quality exist[2].

The five fastest countries have download speeds around 40 times faster than the five slowest. Singapore tops the table at 55.13Mbps, compared to Yemen, which is more than 162 times slower at just 0.34Mbps. India is ranked at 119th position with an average download speed of 2.1Mbps[14].

Though Mobile-broadband networks reach 84% of the global population but still only 67% of the rural population is covered[15].

By end 2016, 53% of the world's population – are not using the Internet.Comparing the data continent wise, in the Americas and the CIS regions, about one third of the population is offline.While almost 75% of

people in Africa are non-users, only 21% of Europeans are offline[2].

Internet penetration rates are higher for men than for women in all regions of the world. The global Internet user gender gap grew from 11% in 2013 to 12% in 2016. The gap remains large in the world's Least Developed Countries (LDCs) - at 31%.

Almost half (47%) in the world are using the Internet but only one out of seven people in the LDCs.Developed regions are home to one billion Internet users, compared to 2.5 billion users in the developing world.Almost two-thirds of households in the Americas are connected, compared with half of all households globally[1].

In early 2016, three out of four fixed-broadband subscriptions had advertised speeds of 10 Mbit/s and above in the developed countries, compared with two out of four in the developing countries.In the LDCs, overall fixed-broadband penetration remains very low and only 7% of fixed-broadband subscriptions are advertised at speeds above 10 Mbit/s[15].

By early 2016, total international Internet bandwidth had reached 185'000 Gbit/s, up from 30'000 in 2008.Africa has the lowest international connectivity of all regions: there is twice as much bandwidth per inhabitant available in Asia and the Pacific, four times as much in the CIS region, eight times as much in the Americas and more than twenty times as much in Europe.Lack of international connectivity is a major bottleneck in the Internet infrastructure of LDCs[2].

3.DEFINITION OF DIGITAL DIVIDE

Digital divide can be defined in various ways depending upon the level of abstraction. At the lowest level of abstraction, it can be defined as the gap that exists between those who have and those who do not have access to technology (telephones, computers, Internet access) and related services. [21]

At an increased level of abstraction, it can be defined as well-documented distance between the information rich and the information poor.

In descriptive terms, it is defined as the gap in opportunities experienced by those with limited accessibility to technology, especially the Internet. This includes accessibility limitations in social issues, cultural issues, disability issues, economic issues, learning issues, etc. [16].

Above-mentioned definitions can be summarised by saying that people are living in two completely different worlds depending on whether they have access to information or not.This information changes their relation to the society in general and to the market forces in particular.

4. IMPLICATIONS ON SOCIETY

Knowledge is power and information after processing becomes knowledge thus access to information is practically access to power[6].Power can be used to change the indivisual's relations to his/her surroundings.

(1) Cultural implications: Those who have information about various cultures are better prepared to make sense of the changing world and are amenable to changes,thus are better in consonance with the society[18].

(2) Economic implications: Literacy of computer can help individual in getting job in the market. Better financial decisions can be made after processing all the available information in the shortest possible time.Online buying and selling of goods and services,transfer of funds at the click of the mouse are other examples of economic implications of digital divide.In summary, digital technologies help businesses become more productive; people find jobs and greater opportunities; and governments deliver better public services to all[13].

(3) Social implications: Better knowledge of self and others based on the observation of the happenings around help harmonizing the social relationships.The physical barriers wither due to the use of ICT.Social networking sites have been very influencial in connecting people.Local cultural values find a platform to showcase themselves to the global audience[9].Thus local traditions can become the part

of global traditions.Research on the personal and social motivations that dispose people to volunteer and to sustain their volunteerism[7],for example, suggests that communities with strong social ties and connectivity may be more promotive of volunteerism and other forms of citizen participation than communities characterized by lower levels of social capital[8].

(4) Environmental implications: Best environmental practices spread to different communities and thus can be used to protect the environment.Measures of pollution control,solutions for better solid waste management,flood control,other natural and man made disasters can be found through sharing of innovative solutions[13].

5.FACTORS RESPONSIBLE FOR DIGITAL DIVIDE IN INDIA

India is the second largest country in the world in terms of population.A large population live in rural areas of which a large percentage is illiterate and people speak various types of languages which makes it difficult to take advantage of digital resources. The digital revolution too requires an enabling environment that India has not put in place as yet. The main bottleneck is infrastructure. Access to technology is constrained by infrastructure parameters like electricity, IT penetration, teledensity and Internet industry [16].The factors responsible for digital divide are as below:

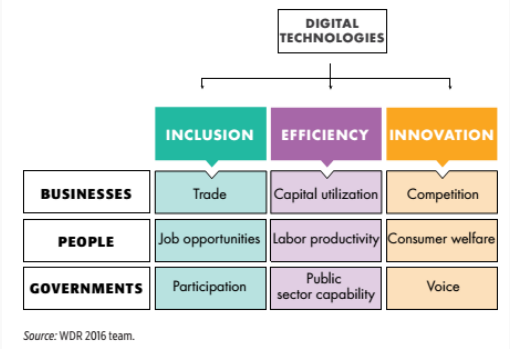
(1) Electricity: It's the basic input to operate all digital devices.In India around one-fourth population doesn't have access to electricity[17]. Though India's population is 18% of the world, still it uses only 6% of the world's primary energy. Per-capita energy demand in India has grown by an even modest 46% since 2000 and remains only around one-third of the world average, slightly lower than the average for the African continent[3].

(2) IT infrastructure: Though very important parameters of MDGs, India struggles in the bottom of the benchmarked nations in terms of internet users and telephone lines. A large portion of the population in the country, particularly in rural areas, is not able to access ICT infrastructure that is often characterized as poor in quality[1].

In India, as on July, 2016 only one-third population use internet. If we compare India with the world then around 13.4 % of the total internet users are Indians[5].

Broadband penetration in India is only 7%.Thus India is even behind countries like Thailand, Singapore and Malaysia in broadband penetration[12].

6.OPPORTUNITIES TO CONVERT DIGITAL DIVIDE INTO DIVIDEND



Digital technologies, through Inclusion, Efficiency and Innovation may be helpful to all viz. Businesses, People and Governments as shown above[15].

Government of India has launched the scheme "**Deendayal Upadhyaya Gram Jyoti Yojana**" for rural electrification. The erstwhile Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) scheme for village electrification and providing electricity distribution infrastructure in the rural areas has been subsumed in the DDUGJY scheme.

Under this scheme, as on 30th June 2015, works in 1,10,146 un-electrified villages and intensive electrification of 3,20,185 partially electrified villages have been completed and 220.63 lakh free electricity connections have been released to BPL households[17].

The government is promoting use of digital technologies through its policies and programmes. **Digital India**, a flagship programme of the government, aims to provide the much needed thrust

to the nine pillars of growth areas, namely Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access Programme, e-Governance: Reforming Government through Technology, e-Kranti - Electronic Delivery of Services, Information for All, Electronics Manufacturing, IT for Jobs and Early Harvest Programmes. Each of these areas is a complex programme in itself and cuts across multiple Ministries and Departments[4].

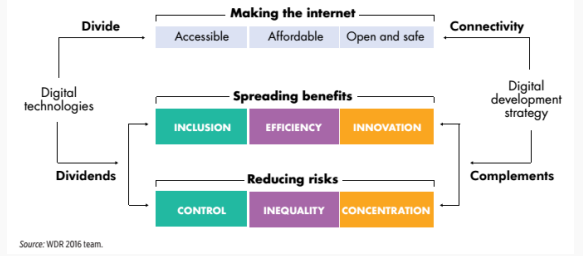
Make in India programme has been launched which aims to develop an ecosystem where domestic industries of power sector and electronics sector can flourish.It will help in the growth of ICT technologies[1].

The number of web users in India will see a two fold rise in five years from 2015 to 2020 because of increased internet penetration in rural areas. India, whose Internet user base is second largest after China, will remain the fastest growing market. India's Internet consumption has already exceeded the US to become number two globally and by 2020, the Internet is expected to penetrate deeper in hinterlands of the country, helping create more opportunities for everyone[4].

There are some contradictions too. Some countries like North Korea, China,UAE have put restrictions on the use of ICT sothat their respective citizens are not aware of the happenings around the world.In the same way the use of internet voting can lead to biasing towards the rich and thus ICT will be disastrous[15].

7. CONCLUSION

No power can stop an idea whose time has come. The government is giving utmost importance to digitisation of all processes. The human society is ever more aggressive in demanding its rights. Democratisation of information will lead to empowerment of people.It will happen certainly through digital-technology in near future.We need to be careful that the material development does take place along with the non-material development. Otherwise there will be cultural dissonance and deviance in the society will increase.



The above figure describes that Digital development strategies need to be broader than ICT strategies[15]. Connectivity for all remains an important goal and a tremendous challenge. But countries also need to create favorable conditions for technology to be effective. When the analog complements are absent, the development impact will be disappointing. But when countries build a strong analog foundation, they will reap ample digital dividends—in faster growth, more jobs, and better service. To get the most out of the digital revolution, countries also need to work on the "analog complements"[15]—by establishing rule of law,by ensuring a level playing field among all the stakeholders, by providing skill to the labour for taking full advantage of demographic dividend and making all institutions accountable.

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REFERENCES

[1] Lal, K. (2016). Investigating ICT infrastructure to develop an information society in India. *Universal Access in the Information Society*, 1-12.
[2] International Telecom Union (2016). ICT Facts and Figures Report
[3] International energy agency, (2015) India Energy outlook
[4] Telecom Regulatory Authority of India, (2016). Digital facts Report
[5] Digital Divide basic fact-sheet .Available from: <www.InternetLiveStats.com>
[6] Bajwa, G.S., (2003). ICT policy in India in the era of liberalization: Its impact and consequences.

Global Built Environment Review 3, 49–61.

[7] Snyder, M. & Omoto,A.M. (2000). Doing good for self and society: Volunteerism and the psychology of citizen participation.In M. Van Vugt, M. Snyder, T. Tyler, & A. Biel(Eds.),Collective helping in modern society: Dilemmas and solutions (pp. 127-141).London:Routledge.

[8] Snyder, M., & Omoto,A. M. (2001). Basic research and practical problems: Volunteerism and the psychology of indivisual and collective action. In W.Wosinska,R. B. Cialdini,D.W.Barrett, & J. Reykowski(Eds.), The practice of social influence in multiple cultures (pp.287-307). Mahwah,NJ: Erlbaum.

[9] Borgida, E., Sullivan, J. L., Oxendine, A., Jackson, M. S., Riedel, E., & Gangl, A. (2002). Civic culture meets the digital divide: The role of community electronic networks. *Journal of Social Issues*, *58*(1), 125-141.

[10] Ghosh, S.K., (2003). Information Technology: Internet Service Providers. ICRA, India. Available from: <http://www.icraindia.com/biz-arch/200310ISP.pdf>.

[11] Helbig, N., Gil-García, J. R., & Ferro, E. (2009). Understanding the complexity of electronic government: Implications from the digital divide literature. *Government Information Quarterly*, *26*(1), 89-97.

[12] India Telecom News, (2003b). Internet subscriber base in India. Available from: <http://www.indiatelecomnews.com/ statistics.htm>.

[13] Williams, E., Kahhat, R., Allenby, B., Kavazanjian, E., Kim, J., & Xu, M. (2008). Environmental, social, and economic implications of global reuse and recycling of personal computers. *Environmental science & technology*, *42*(17), 6446-6454.

[14] Broadband download speed report (2016). Available from:<www.cable.co.uk>

[15] World Development Report, (2016) Digital Dividends

[16] Rao, S. S. (2005). Bridging digital divide: Efforts in India. *Telematics and informatics*, *22*(4), 361-375.

[17] Niti Aayog, (2015) Report of the expert group on 175 GW RE by 2022

[18] Tharayil, A. J., & Rajeev, K. R. (2003). Towards bridging the digital divide in India: Challenges and Opportunities from a national perspective. *INFORMATION SOCIETY WATCH-INDIA.*