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Digital Divide in India: An Overview

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ABSTRACT

The phrase "digital divide" refers to the disparity between those who have access to information and computing technology and those who do not. A few facts about the digital divide are presented in the article, concentrating on the regional and national outlooks, including the Indian scenario, its definitions and types, factors widening the digital divide, types of digital divide, reasons for the digital divide, as well as programmes for digital inclusion. It emphasises the digital divide in the Indian context by addressing its infrastructure constraints, which comprise energy, IT penetration, teledensity, and the online business, as well as its supporting policies. It also highlights projects that have contributed to narrowing the digital divide in India, such as Akashganga, Passenger Reservation System, Bhoomi, Gyandoot, Warana wired villages, Village Knowledge Centre, Information Village Research, Akshaya e-centres, E-Chaupal, the Simputer Project, and

others. Due to the digital divide, developing countries are unable to fully utilize the internet's potential to eradicate poverty and boost economic growth.

Keywords : Digital divide; NTIA; Teledensity; ICT; Information Technology; India;

INTRODUCTION

An unidentified source created the term "digital divide" in the mid-1990s, and it became popular with the Telecommunications Act in 1996. In the 1990s, the NTIA (National Telecommunications and Information Administration) mandate was broadened to include universal Internet service capability. The NTIA collaborated with the Census Bureau to collect data on computer ownership and internet connection, as well as to explore the influence of personal characteristics and three geographical variables: rural, urban, and central city. Only 3% of Americans were using the internet in 1994. Researchers hypothesised that the reason why just 3% of individuals use the internet is merely a matter of affordability. As a result, early studies on the digital divide concentrated on giving economically disadvantaged people with physical internet access and associated technologies. However, according to Kemly, who analyzed the notion historically, the link between technology and progress has typically been interpreted as a lineal relationship. It is expected that access to ICTs and the creation of digital opportunities would minimise the digital divide.

The word "digital divide" refers to the disparity among citizens, families, enterprises, and geographic locations at various socio - economic levels in terms of their access to information and communication technology as well as their usage of the Internet for a wide range of activities. There is an economic and social distinction between regions or countries that are outside or behind the information era and those that have fully benefited from the informatics transformation and begun the digital economy. Roti, kapada, makan and Internet

is the new phrase coined by NASSCOM Chief, Dewang Mehata. The basic needs of man are roti, kapada, makan, and the Internet. The Internet is a new addition in the digital age. The Internet is a powerful force that enables a developing country like India to emerge as a competent nation by bringing a lot of opportunities and options. But to become an information superpower of the globe, the main challenge before India is the frightening gap between the information haves and information have-nots, i.e., digital divide. India, the world's second most populous nation, is working to alleviate poverty, political uncertainty, illiteracy, and to build a robust architecture to overcome the digital divide.

LITERATURE REVIEW

Panda, Chhatar & Mharana (2013) discussed how the digital divide might affect the Indian situation as well as the rest of the world. The creation of digitally rich and digitally poor groups inside societies, and maybe in the global environment, is due to the phenomenon of digital discrimination that exists among diverse social, political, and working groups.

Joseph & Nath (2012) conducted a thorough investigation into the various impediments to bridging the digital divide, especially in India, and looked at some of the government of India's initiatives in light of combining state-level and community-level experiences in outlining a broad ICT structure.

Kumar & Kumara (2018) conducted a study on the digital divide in India among rural and urban students' usage and non-usage of ICT. According to the study's findings, only 20.66 percent of rural students and 69.70 percent of urban students utilised computers for various academic objectives. Furthermore, the majority of rural and urban students believed that "electric power failure" and "lack of computer" abilities were the most significant barriers to computer use.

Bist (2007) examined the digital gap in India, as well as the numerous ICT projects that have been implemented, as well as the significant problems and essential solutions to bridging the digital divide in India. As a result, developing nations such as India have made major investments in these technologies and integrated them into development programmes in order to reap the benefits of such advancements in their societies.

DEFINITION OF DIGITAL DIVIDE

According to the World Economic Forum (2002), the digital divide may be defined as "the issue of digital divide extends more broadly than merely that of direct access to technology." Instead, it can be conceived of as the disparity between how different nations are using information and communication technologies as a tool for social and economic development.

The American Library Association (2002) defined the digital divide as "access to information through the Internet and other information technologies and services and in the skills, knowledge, and abilities to use information, the Internet, and other technologies".

Van Dijk (2000) and NTIA (1999) defined the digital divide. "The digital divide" is the gap between those with and those without access to information and communication technology.

OECD's definition on digital divide "Gaps between individuals, households, businesses, and geographic areas at different socio-economic levels with regard both to their opportunities to access ICTs and to their use of the Internet for a wide variety of activities."

Academic definition of digital divide as "the term digital divide refers to the disparity in accessing to the technologies and resources of the information and communication. The digitalization of the economy and the society may produce

differences and gaps amongst individuals, households, businesses, and geographic areas, rich and poor countries". "The well-documented distance between the information rich and the information poor". "The gap between the technology haves and have-nots". "The gap that exists between those who have and those who do not have access to technology (telephones, computers, Internet access) and related services". "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".

Network connectivity, human skills, knowledge and application, IT competency, and IT use in business are used to measure the digital divide. The technical gap can be calculated from multiple angles, all of which are valid.

KINDS OF DIGITAL DIVIDE

The digital divide comes in two forms:

Vertical Divide : Gap between Information technology users and nonusers

*   Inequality (First level divide)

    Horizontal Divide : Gap among Information technology users

*   Integration problem (Second level divide)

Table 1. Categorization of Digital divide: Global; Regional; National

The global digital divide	The regional digital divide	The national digital divide
Internet users make up only 6% of the world's population, and 85% of them live in wealthy countries, where 90% of Internet hosts are	South Korea is anticipated to be 50% online by 2004, whereas Indonesia will be 1%. Between them is India.	Maharashtra, Karnataka, Tamil Nadu, and Andhra Pradesh are more digital than Bihar and Uttar Pradesh. Urban–rural, educated–

situated.   uneducated, and rich–
                                                       poor digital divides
                                                       exist within states.

DIGITAL DIVIDE AND INDIAN SCENARIO

The Digital Divide in Experts predict that India will become one of the world's information superpowers. However, the second most populous country, with 15% of the world's population, has 40% of its people living below the poverty line, most of whom lack basic essentials such as drinking water and sufficient sanitary facilities, and over 40% are illiterate. Approximately 65 percent of people live in the rural areas and rely on the agriculture economy. Only 3.63 percent of the population has access to a telephone, and fewer than one percent has a personal computer. There are around 7.5 million installed PCs in the nation. Overall, the top four metros (Delhi, Mumbai, Calcutta, and Chennai) accounted for 53 percent of all PC purchases. According to the Ministry of IT, the goal for 2008 is to increase the number of PCs per thousand population to 20 per thousand people, which is significantly lower than in Western and European nations.

FACTORS WIDENING THE DIGITAL DIVIDE

Internet use is increasing, and the gap between high-income technological "haves" and low-income "have-nots" is widening. Internet use therefore indicates which side of the split each individual is on. Poor infrastructure, unstable governance, low literacy, income, age, education, race, family type, and geographic location are recognized as the most critical variables dividing the 'haves' and 'have-nots' in India. While it is acknowledged that a complex set of causes led to the split, each of these is explored below.

(a) Poor Infrastructure

The most important elements in this include the existing infrastructure such as communication facilities, electricity,

telecommunications, markets, and governmental and non-governmental organizations are lacking this. That's why India is facing the problem of the digital gap. India has a strong network infrastructure in place, ·with train reservation systems, stock market transaction systems, NICNET connecting the centre and the state governments, and so on. India spends around 28% of its overall budget on ICT. Despite these measures, India is experiencing a digital divide.

(b) Instable Government and its Policies

One of India's key issues is the lack of a stable and competent central government. Problems must be tackled as a result of the administration's and its unstable policies. In the "corruption perception index," India is ranked 75th, while China is ranked 58th. This necessitates a political environment devoid of corruption, as well as a stable government at the centre. These figures demonstrate the need for change in the way we operate today. We must also urge the learned and educated communities to enter politics so that they may give leadership and lead the country.

(c) Low Literacy

The rate of education and literacy in India varies widely from region to region. The most fundamental problem we face in solving the digital divide is ensuring that every child in our nation obtains at least a basic education. If education wasn't a right, the country would undoubtedly suffer from significant imbalances. This is true irrespective of the "digital" aspect of the gaps. According to the 2001 census, India's total literacy rate was 65 percent. Kerala has one of the highest literacy rates in India, as do many of the northeastern states. Education level and internet usage are significantly connected.

(d) Linguistic Diversity

India has a vast population and a diverse linguistic landscape. India is confronted with the most challenging

difficulties of any country. In contrast to the United States, where 97 percent of the population speaks, writes, and reads English, basic literacy in one mother language (the capacity to write one's name) is available to significantly more than half of the people in India, less than half of the female population.

(e) Economic factors

In India, poverty is the greatest obstacle to development. Internet dissemination, which was intended to increase PC usage, has only reached 1% of the public, with 10 million users. There have been several recent projects utilising wireless in local loop technology, but there is still more ground to cover on this front.

(f) Individual Income

While a mix of factors impacts whether or not an individual is online, income is the best predictor. As income grows, online penetration rises across the board. Higher-income households are 20 times more likely to have the internet and 9 times more likely to have a computer than lower-income households.

(g) Age

Young individuals appear to be more comfortable with modern technology and are better equipped to profit from it than older ones. Elders are less likely to own a PC and become less inclined to use it. The Internet is used by the greatest number of people between the ages of 35 and 44. Seniors, aged 55 and above, have the lowest internet penetration of all age groups, with children aged two to twelve and seniors over 65 lagging below the national average.

(h) Education

The level of education and the amount of time spent on the internet are closely associated. Those with a college education are more than 9 times more likely to use the internet

than those with only a high school diploma. Literacy may be to blame for the huge variation in usage. Despite efforts to make the internet a truly multimedia experience, text-based information makes up the vast bulk of online content.

(i) Race

The difference between non-Hispanic whites and Hispanics has expanded by 42 percent, while the disparity in internet access has extended by 56 percent. Higher income levels, regardless of race, are associated with a higher chance of owning a computer at home. The same is true in terms of education, with better levels of education being linked to having a computer at home.

(j) Household Type

Access to the Internet in the home is influenced by family structure. Internet penetration is highest among married couples with children under the age of eighteen, and lowest among female-headed households with children. The number of single-parent households has increased in recent years, particularly among those headed by moms who have never married.

(k) Gender and Family structure

Boys are more likely than girls to use computers and the Internet. Children's households have more computers and Internet access than non-families. children's Those who live with their families have more access than those who do not.

CAUSE OF DIGITAL DIVIDE IN INDIA

70% of India's population lives in villages. According to the 2011 census, the country's literacy rate is 74.04%, or 82.14 for males and 65.46 for females. There are 22 languages officially recognized. Despite a thriving and rapidly expanding IT industry, access to information and communication technologies (ICTs) is still limited, especially

in rural regions. There are certain conditions that must be met in order for a revolution to occur. The digital revolution, too, requires an enabling environment, which India has not yet established. The key obstacle is infrastructure access to technology, which is limited by infrastructure characteristics such as energy, IT penetration, and teledensity, as well as the Internet industry.

Electricity : The condition of electricity is very pathetic, especially in towns and villages; electricity is not supplied for more than 6 hours. This is the big reason for the lack of access to the internet.

IT penetration : The current metrics of IT penetration in Indian society are woefully inadequate. The personal computer (PC) penetration is 0.58 percent (Asian penetration is 3.24 percent, while the global average is 7.96%). A new computer still costs more than Indian Rupees (INR) 20,000, with basic supplementary software (MS Windows, MS Office, and anti-virus), which costs an additional INR 20,000.

Teledensity : India's national teledensity remains one of the lowest in the world, rising from 0.06 percent in 1990 to 2.86 percent in 2000, 3.58 percent in 2001, and 5 percent in 2005. (2003). 2001-2003 rural teledensities were 0.93 and 10.16. The new telecom policy of India in 1999 aims to expand telephone penetration to 7% (75 million telephone connections) by 2005 and 15% (175 million connections) by 2010.

Internet industry : Videsh Sanchar Nigam Limited introduced the Internet to India for general usage in 1995. (VSNL). The present Internet subscriber base is barely 0.4 percent, in stark contrast to Asian nations such as Korea, which has 58 percent, Malaysia, which has 11 percent, and China, which has 2 percent. 86, Internet Services; 86, List of ISP Authorization under Unified License VNO as on 31.03.2022. The GOI has accelerated the "information age" and "convergence" by establishing development and progress policies with the goal of "Internet for All."

TYPES OF DIGITAL DIFFERENCE

School Access

The inequitable availability of digital technology in classrooms is referred to as "school access." Although disparities in computing technology and Internet access between high and poor socioeconomic class schools have narrowed, they remain. Furthermore, some schools employ new technology for enrichment activities for children who are already performing well, resulting in reduced computer access for at-risk pupils.

Home Access

Home access refers to the availability of computers and Internet connectivity in children's homes. High-income schools are pretty certain that nearly all of their pupils have access to a personal computer and the Internet. Teachers at low-income schools, on the other hand, are aware that many Kids may lack these resources or may confront tough circumstances that prohibit efficient use of the Internet for academics.

Gender Gap

Some concerns that women were being refused computer access have faded. Girls use computers similarly to boys, but differently. Girls use digital technology to engage with pals, but boys play computer games. Nonetheless, girls are still underrepresented in computer science and other technological fields.

Generation Gap

This last gap examines student-teacher inequality. Many young people nowadays have grown up with digital gadgets and the internet. These young people frequently feel more at peace in a digital environment than in traditional print materials. They want and expect quick access to a variety of information sources, learning materials in a variety of media,

and opportunities to network and connect with peers online. Educators today didn't grow up using computers, the Internet, and other digital media.

EFFORTS TO BRIDGE THE DIGITAL DIVIDE IN INDIA

These excellent projects helped bridge India's digital gap.

Bharat Net Project

The world's largest rural broadband project, "Bharat Nets' goal is to provide broadband connectivity to all 2.5 lakh gram panchayats of India. Implementation of the project in two Phases: Phase-I to connect 1 lakh gram panchayats is completed. Implementation by CPSUs: BSNL, Rail Tel, and PGCIL. Existing BSNL fibre (from Block to Gram Panchayats) was utilised to install and link new OFC under the project. Currently, work is being done on balancing Gram Panchayats. Phase-II connect around 1.42 Lakh Gram Panchayats excluding Block Head Quaters & including GPs over Satellite media. Optical Fiber Cable from Block to Gram Panchayats-lifetime network maintenance by specialised fibre suppliers for Gram Panchayats.

Passenger reservation system: The computerization of the passenger reservation system in Indian Railways is the most successful example of an Information Communication Technology project in India that has benefited the ordinary man.

Akashganga : This project promotes timely milk collection via IT, increasing earnings for rural milk farmers in Anand, West India. The basic milk collection procedure involves weighing the milk with an electronic scale, recording the member ID using computer software, fat testing with the creating a pay slip with this information and the amount to be paid. Aside from managing databases and Internet access at the Dairy Cooperative Society, the Dairy Information Services

booth provides a variety of animal husbandry-related services. This project has been deployed in over 600 sites and is utilised 24 hours a day, 365 days a year.

Akshaya e-centers : These e-centers are located throughout Kerala and enable information and communication technology access to all segments of society, including those living in rural areas. These provide individuals in Kerala with the chance to gain skills through functional IT literacy training and the development of relevant local content geared to benefit all interest groups. These have contributed to economic growth by providing direct job possibilities. These centres' sites are deliberately designed and physically scattered to accommodate individuals from all across the state and to establish a robust Internet network to guide and assist e-governance projects, communication improvements, e-commerce, and information dissemination. This programme is notable for cultivating entrepreneur spirit by choosing people who can maintain efforts and are devoted.

Bhoomi : It's a GOI initiative to computerize property records in numerous states with NIC help. In 1991, Karnataka's largest Bhoomi project began. Karnataka's Revenue Department digitised 20 million land ownership records for 6.7 million farmers. Farmers needed a Village Accountant to get a copy of the Record of Rights, Tenancy, and Crops (RTC) for tasks like securing bank loans. At computerised land record kiosks, you may now buy a printed RTC for INR 15.

Gyandoot : Gyandoot is a word that means "information messenger." It is essentially a community-owned, technologically advanced, and environmentally friendly information kiosk that makes use of WLL technology. It is a collaboration between Drishtee and the district government of Madhya Pradesh's tribal Dhar to overcome the digital divide in rural India. This project includes 20 village information kiosks located in five district blocks. The complete network of 31 kiosks spans 311 Panchayats (village committees), over 600

villages, and approximately half of the district. Users pay for kiosk services. Information kiosks are run by rural youth. This is the government's most impressive e-governance effort.

Information village research : It's a GOI initiative that shows how ICTs may improve rural living, especially for impoverished farmers and those without assets in Pondicherry, South India, via a LAN erected across 10 villages using a hybrid wired and wireless network. It strengthened locals by enhancing their knowledge through village knowledge centres. The majority of information is gathered and fed by the local community, and the centres are run by volunteers.

Warana wired villages : The IT Task Force of the Prime Minister's Office has initiated the Warana Wired Village Project to showcase the use of ICT to accelerate 70 villages around Warana in Kolhapur and Sangli, Maharashtra, which are undergoing socioeconomic development. It is carried out in collaboration with the NIC, the Planning Commission GOI, the Directorate of IT, Govt. of Maharashtra and the Warana Sahakari Dugdh Utpadan Prakriya Limited (WSDUPL) in Warana Nagar. The Warana complex was chosen as an example of effective integrated rural development through cooperative organization. This complex includes 25 cooperative societies with a combined yearly sale of Rs 6 billion that make sugar, dairy products, poultry, and building operations.

Simputer Project : Simputer is a low-cost, portable computer that brings IT to the people. It uses sight, touch, and audio to eliminate the need for IT skills. Scientists at IISc, Bangalore (Indian Institute of Science) created it, and the Encore software put it into action. This initiative arose from the country's rural demographic's need for a cheap access device. The Simulator's built-in Smart Card capability allows it to be shared by a community. The approximate cost has been set at half that of a regular computer.

E-chaupal : Within 4 years, E-Choupal has grown to be the greatest project across all world wide web initiatives in rural India. It serves about 500,000 farmers in four states, including Madhya Pradesh, Karnataka, Andhra Pradesh, and Uttar Pradesh, who cultivate a variety of commodities like soybeans, coffee, wheat, rice, and pulses. Gyandoot and e-Choupal both have a commercially feasible technique for raising funds. As a result, they appear to be successful.

ROLE OF RURAL LIBRARIES IN BRIDGING INDIA'S DIGITAL DIVIDE

To change the information environment in the rural areas of India, major issues like infrastructure, the economy, and other aspects have to be taken into consideration. The changing political scenario and the empowerment of the village level local bodies to set up rural libraries and information centers will affect the information environment and the role of the village librarian.

Community's Learning Center : Community's Learning Center produces a general diffusion of information between small, ill-defined and constantly shifting groups. It is prophesized that a free community information exchange is destined. The Learning Center provides reliable, useful, and up-to-date information to rural communities.

Community Information Center : In Kerala, the Department of Information Technology opened the first computerized rural information center at the Kallara Gram Panchayat Library in the Trivandrum District. Fourteen rural information centers have also been built, one in each district in the state. These centres provide free Internet connectivity to rural residents. "Sevana," a package, includes data on different government schemes, programmes, basic information on local authorities, connections to essential sites, and other details pertinent to the rural community.

Other Roles of the Rural Library

- Rural libraries help the rural population to remain up-to-date with the latest information on technical development.

- It helps agriculturists and farmers and provides necessary information about the latest developments in the field of agriculture, chemistry of soil, crop markets, livestock, farm mechanics, crop protection, crop insurance; etc.

- Educates the villagers and helps them to understand the importance of information in the digital age.

- Rural Library processes government-generated information in a lucid manner so that the villagers understand the new developments in social, political, economic, and other fields of activity. The village library should act as an information base for healthy community life and wholesome family life in the village.

- It plays a major role in the literacy campaigns and acts as the mainstay in e- learning to bridge the geographical distances.

CONCLUSION

The digital divide can never be addressed in solitude; thus, the endeavour must be multifaceted. Information and communication technologies are two of the technologies that can help break down barriers. The development of ICT infrastructure and content are fundamental approaches, and a deliberate push toward technological progress will undoubtedly narrow the gap. While the digital divide is a contemporary problem, technological differences have been a problem for much longer. There are two ways to allow a larger populace to benefit from technological and informational revolutions: improving literacy levels and designing appropriate IT tools around user capabilities. Enhancing institutional capacity and aid efficacy appear to be critical to

reducing the digital divide. Similarly, it is very simple to believe that simply giving someone access to the Internet will eliminate all potential access inequalities among users. Rather, a more sophisticated strategy for the "digital divide" and a more complete knowledge of digital inequality are required if we are to avoid further asymmetries among different sectors of the population as a result of differences in ready access to everything that the Internet offers.

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