

Digitalization In Rural and Urban Areas: Impact, Issues and Challenges On 21st Century.

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ABSTRACT

"Necessity is the mother of invention" it mean human existence depends on essential of their livelihood. Digitalization is to the channel of changing information into a digital area. It involves the adoption and use of digital technologies to transform business processes, activities, and models. Here are key aspects of digitalization. Converting analog information, such as text, images, and sounds, into digital formats that can be processed and stored electronically, and everything its aid of technologies. Utilizing digital technologies such as computers, smart phones, software applications, and networks to automate tasks, improve efficiency, and enable new capabilities. Applying digital technologies essential to innovate business models, streamline operations, enhance customer experiences, and create a new path for generating revenue stream. Facilitating instant communication and connectivity through digital channels such as email, messaging apps, social media, and video conferencing and its part of e-mapping of technologies. Managing and analyzing large volumes of data (big data) to derive insights, make informed decisions, and personalize services. Automating repetitive tasks and processes through digital tools and technologies to increase productivity and reduce costs. Implementing dimension to protect digital assets, data, and privacy from cyber threats and unauthorized access. Influencing how individuals interact, communicate, work, learn, and consume information in a digital-first world. Digitalization is not just about adopting technology but also about leveraging it strategically to drive innovation, competitiveness, and growth across various sectors of society and the economy. It is a fundamental aspect of the broader digital transformation sweeping across industries globally. The purpose of this paper is to understand digitalization and its impact on rural India

Keywords: Digitalization, E-commerce, and Internet related things.

INTRODUCTION

The digital revolution has transformed the way societies function, influencing communication, education, commerce, healthcare, and governance. In India, urban areas have witnessed rapid adoption of digital tools and internet services, whereas rural regions are still catching up. This urban-rural digital divide poses significant challenges to inclusive development.

Digitization refers to the integration of digital technologies into everyday life by digitizing everything that can be digitized. With the advancement of the internet and mobile technology, India is undergoing a massive transformation. Digital platforms are playing an increasingly vital role in e-governance, digital payments, online education (which is including ITC tools), and e-commerce. However, the infrastructures are not being equally shared.

Urban centers enjoy a robust infrastructure that supports high-speed internet, wider access to smart phones and computers, and greater exposure to digital content. Meanwhile, many rural areas lack even basic digital infrastructure. This has resulted in a disparity that affects access to information, opportunities, and services, thereby hindering socio-economic development in rural areas.

This paper aims to delve deeper into these issues and understand the factors contributing to the digital divide. It also highlights the various government initiatives undertaken to reduce this gap and provides suggestions to ensure that rural India is not left behind in the digital age.

REVIEW OF LITERATURE

Several studies have explored the digital divide globally and within India. According to a report by the Internet and Mobile Association of India (IAMAI), internet penetration in urban India is over 70%, while rural India still struggles at around 35%. Scholars like Prasad and Suri (2020) have highlighted the role of digital literacy, infrastructural facilities, and socio-economic status in determining digital access. Other studies point to the importance of mobile technology and government schemes such as Digital India in narrowing the gap (Mehta & Agarwal, 2021).

Kumar and Singh (2019) this study investigated the availability of ICT infrastructure and found that while urban schools and institutions are well-equipped, rural schools lack basic resources like electricity and computers. Their study emphasized the correlation between infrastructure and digital participation.

Agarwal et al. (2020) this study discussed the influence of economic disparities on digital adoption. They found that income levels directly affect the ability of individuals to own smartphones or computers and afford data plans, which contributes to the widening digital gap.

Mitra and Dey (2021) explored gender disparities in digital access in rural areas, concluding that women are less likely to have independent access to digital devices due to social and cultural norms, despite the availability of infrastructure.

Bansal (2018) evaluated the success of the Digital India initiative, noting that while the policy is ambitious and has made considerable progress in urban centers, rural implementation suffers from bureaucratic delays and a lack of coordination among stakeholders.

OBJECTIVES OF THE STUDY

1. To analyze the level of digital access and usage in rural and urban areas.
2. To compare the infrastructure and digital literacy between rural and urban populations.
3. To evaluate the effectiveness of government initiatives in promoting digitization.
4. To identify the challenges and barriers faced by rural communities in adopting digital technologies.
5. To suggest policy recommendations for bridging the digital divide.

SCOPE OF THE STUDY

The study focuses on assessing the current level of digitization in rural and urban areas have been facing tackle challenges of India. It examines infrastructural development, digital literacy, usage patterns, and the effectiveness of government initiatives. The geographical scope includes selected districts representing both urban and rural settings, while the thematic scope covers internet accessibility, affordability, and user engagement across sectors like education, commerce, and governance.

Digitalization has brought significant impacts on rural India across different aspects

Positive Effects

1. **Access to Information:** Digital platforms have enabled rural residents to access information on government schemes, healthcare, education, agriculture techniques, and markets more easily.
2. **Financial Inclusion:** Through digital banking and payment systems (like UPI), rural communities have gained access to formal financial services, reducing dependency on cash and enabling easier transactions.
3. **Agricultural Development:** Farmers can now access weather forecasts, market prices, and expert advice through apps, improving crop management and market decisions.
4. **Education and Skill Development:** Digital learning platforms have extended educational opportunities in remote areas, offering courses and resources that were previously inaccessible.
5. **Healthcare Services:** The revolutionary penetration in Medi-drug or Telemedicine has made healthcare more accessible, allowing rural residents to consult doctors remotely, receive diagnoses, and access medical information.
6. **Entrepreneurship:** Digital platforms have facilitated the growth of rural enterprises by providing market access, e-commerce opportunities, and business networking.
7. **Government Services:** Digitalization has streamlined the delivery of government services such as issuing documents, subsidies, and welfare benefits, reducing bureaucracy and corruption.
8. **Employment Opportunities:** Digital platforms have created job opportunities in fields like IT support, data entry, content creation, and online sales, reducing rural-urban migration.
9. **Infrastructure Development:** The need for internet connectivity has spurred infrastructure development, including broadband expansion and mobile network coverage in rural areas.

Over all digitalization has been transformative for rural India, offering new opportunities for economic growth, education, healthcare, and quality of life improvements.

Negative Effects

While digitalization brings numerous benefits, it also has some negative impacts, particularly in the context of rural areas and society at large:

1. **Increased Inequality:** Digitalization can exacerbate existing inequalities between those who have access to technology and those who do not. Rural areas often lag behind in access to digital infrastructure and devices, widening the rural-urban digital divide.
2. **Job Displacement:** Automation and digitalization can lead to job losses, particularly in sectors where manual labor is replaced by technology. This impact can be felt more acutely in rural areas where traditional livelihoods like agriculture and small-scale industries may be affected.
3. **Digital Dependency:** Over-reliance on digital platforms for essential services such as banking, healthcare, and education can disenfranchise those who are not digitally literate or do not have access to reliable internet connectivity.
4. **Privacy and Security Concerns:** Increased digital transactions and data sharing raise concerns about privacy breaches, identity theft, and cybercrimes, especially in areas with low awareness and understanding of cyber security practices.
5. **Cultural Erosion:** Digital media and globalization can contribute to the erosion of local cultures and languages as global content and trends dominate online spaces, potentially marginalizing indigenous knowledge and traditions.
6. **Health Impacts:** Excessive screen time and digital device use can contribute to physical health issues such as eye strain, musculoskeletal problems, and disrupted sleep patterns, affecting overall well-being.
7. **Environmental Impact:** The production and disposal of electronic devices contribute to environmental degradation through resource extraction, energy consumption, and electronic waste generation, which can pose environmental challenges if not managed properly.
8. **Digital Divide Reinforcement:** Despite efforts to bridge the digital divide, digitalization can reinforce socioeconomic disparities if not implemented inclusively, leaving marginalized communities further behind in access to opportunities and resources.
9. **Misinformation and Disinformation:** Digital platforms can amplify the spread of misinformation and disinformation, leading to social polarization, distrust in institutions, and undermining of democratic processes, particularly in rural areas with limited media literacy.
10. **Technological Dependence:** Over-reliance on technology for everyday tasks can reduce traditional skills and knowledge, potentially weakening resilience to disruptions such as power outages or internet downtime in rural areas.

Addressing these negative impacts requires a balanced approach that promotes equitable access to digital resources, enhances digital literacy, ensures cyber security measures, and safeguards cultural diversity and environmental sustainability in the digital age.

The gap between rural and urban digitalization in India is significant and influenced by several factors:

1. **Infrastructure Disparities:** Urban areas generally have better infrastructure such as reliable electricity, high-speed internet connectivity, and mobile network coverage compared to rural areas where such infrastructure is often lacking or unreliable.
2. **Digital Literacy:** Urban populations typically have higher levels of digital literacy due to better access to education and exposure to technology from an early age. In contrast, rural populations may have limited exposure to digital devices and skills training.
3. **Access to Devices:** Smart phones and computers are more prevalent in urban areas, whereas rural areas may have lower ownership rates due to affordability issues and limited availability of devices.

4. **Language and Content:** Most digital content and services are available in English or major regional languages, which may not be accessible or relevant to rural populations who primarily speak local dialects.

5. **Economic Disparities:** Urban households generally have higher incomes and purchasing power, making it easier to afford digital devices and data plans compared to rural households where affordability is often a barrier.

Reducing the gap between rural and urban digitalization requires targeted efforts such as expanding digital infrastructure, promoting digital literacy programs tailored to rural needs, ensuring affordability of devices and data plans, localizing content in regional languages, and fostering digital entrepreneurship in rural communities. Government policies and private sector initiatives play crucial roles in addressing these disparities and ensuring equitable access to digital opportunities across the country.

Digital India has played a pivotal role in the socioeconomic upliftment of rural people in several ways:

In our country digitalization has positively changed the remotest and isolated villages. Leading them to interact and learn from rest of the world. But there is still lag between urban development and rural its due to lack of digital literacy and availability of infrastructure to support digital initiatives. After digital revolution technology has been used in majority of sectors it such as transport, communication, education, health care, citizen services, financial services, etc. It has made a huge difference in socio-economic upliftment of rural people. It of nation as a whole and inclusive growth. Digitalization has bridged the urban-rural divide by empowering rural communities with access to information, markets, financial services, education, healthcare, and employment opportunities. This has contributed significantly to their socio-economic development, improved living standards, and overall development.

Key initiatives undertaken by MeitY under Digital India programme across the country is as follow

Aadhaar: Aadhaar provides 12 digit biometric and demographic based identity that is unique, lifelong, online and authenticable.

Common Services Centres – CSCs are offering government and business services in digital mode in rural areas through Village Level Entrepreneurs (VLEs).

Digi-Locker: Digital Locker provides an ecosystem with collection of repositories and gateways for issuers to upload the documents in the digital repositories.

My Gov – It is a citizen engagement platform that is developed to facilitate participatory governance.

Meri Pehchaan – National Single Sign-on (NSSO) platform called MeriPehchaan has been launched in July 2022 to facilitate / provide citizens ease of access to government portals.

Digital Village: MeitY has also initiated the 'Digital Village Pilot Project' in October, 2018. 700 Gram Panchayats (GPs)/Village with atleast one Gram Panchayat/Village per District per State/UT are being covered under the project.

National Knowledge Network: A high speed data communication network has been established to interconnect Institution of higher learning, and research.

CONTRIBUTION OF DIGITAL INDIA IN EDUCATION

Through digitalization quality and affordable education got accessible to the remotest corner of the country irrespective geographical boundaries. With at most conveniency and as per individuals capability and pace. Government has taken various initiatives under digital education programme:

- **The National Mission on Education through Information and Communication Technology:** for online teaching and learning.
- **SWAYAM portal:** for online courses at the school (9th to 12th) to Postgraduate Level.
- **SWAYAM Prabha:** there are 32 DTH channels.
- **The National Digital Library of India (NDL):** it is repository of learning resources with a single-window search facility.

- **E- Pathshala** it provides e-content for learning.
- **DIKSHA platform**: for e-content for school level education.
- **PM eVIDYA** it unifies all online education modes.
- **The Digitally Accessible Information System (DAISY)** by the National Institute of Open Schooling (NIOS) for differently-abled students.

ANALYSIS AND INTERPRETATION

1. **Infrastructure and Connectivity**: Urban areas show a higher rate of broadband and mobile internet penetration. Rural areas face issues like low network coverage, frequent outages, and fewer service providers.
2. **Digital Literacy**: Urban residents generally have higher levels of digital literacy due to better education and exposure. Rural areas often lack formal training facilities.
3. **Usage Patterns**: Urban users commonly access online services for banking, education, shopping, and entertainment. In contrast, rural usage is mostly limited to social media and basic communication.
4. **Government Initiatives**: Schemes like BharatNet, PMGDISHA (PradhanMantriGramin Digital SakshartaAbhiyan), and CSCs (Common Service Centres) are contributing towards improving rural digitization, but their reach and effectiveness vary.
5. **Affordability and Accessibility**: Devices and data plans are more affordable and accessible in urban areas. In rural regions, cost is still a barrier.

FINDINGS

- A significant digital gap exists between rural and urban areas.
- Urban residents enjoy better infrastructure, connectivity, and literacy.
- Government initiatives are helpful but need better implementation.
- Digital inclusion can empower rural populations economically and socially.
- Community involvement and localized content can improve rural participation.

SUGGESTIONS

- Enhance infrastructure in rural areas by expanding broadband connectivity.
- Promote digital literacy through community-based programs.
- Provide subsidies for digital devices and internet plans in rural regions.
- Strengthen public-private partnerships for faster implementation of digital schemes.
- Encourage development of regional language content and apps.

CONCLUSION

Digitalization holds significant promise for transforming rural India by improving access to information, financial services, education, and market opportunities. However, addressing infrastructure gaps, promoting digital literacy, and ensuring the security and inclusivity of digital solutions are crucial for maximizing the benefits of digitalization in rural areas. Government initiatives, private sector involvement will be key in overcoming challenges and fostering sustainable development through digital technologies in rural India.

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