

Digital technologies and sustainable empowerment of rural communities

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Abstract - This paper examines the key imperatives of digital technologies towards empowering rural communities. Digital technologies are vital for sustainability and empowerment whether rural or urban India. Digital technologies drive economic growth through good market access, e-commerce and financial inclusion thereby improving governance with digital platforms and enhancing resource management in rural India. These technologies provide market access and efficient service delivery. In June 2024 95% of the villages were declared as having Internet user connectivity. By 2025 June it is said that nearly 2.19 village Gram Panchayats had internet connectivity. This large internet dissemination has supported the rural India in enabling access to government schemes, financial services, online education, and telemedicine and health care services. The increase in number of UPI payments, online commerce and online educational advancements has proved that rural India is progressing faster than Urban India by adopting to digital technologies. Addressing the challenges of persistent digital divide, inadequate digital infrastructure and digital illiteracy, government has made several positive moves with several schemes. But as digital technologies have been penetrating to rural India, the threat of protecting personal data from cyber threats poses a greater challenge. Providing protection to millions of rural internet users with secure data management practices and policies calls for timely intervention from the Union Government. Besides, lack of coordination between various government departments and private service providers needs to be corrected before it leads to fatal consequences on National economic advancement.

Keywords: Rural communities, Digital technologies, sustainability empowerment.

I. INTRODUCTION

India has 1,002,85 million internet users as on 30th June 2025 out of which rural internet users account for nearly 55% of the internet users in the country. The rural internet users' access is growing rapidly driven

by increased usage of Indic languages and the expansion of services like hi speed internet through Bharatnet connectivity. This Bharath net initiative monitored by the Ministry of Communications seeks to empower rural India by fostering inclusive growth and bridging the gap between urban and rural communities. Bharat Net is proving to become not just a digital infrastructure project, but it is the back bone of India's journey towards a truly digital India. In 2011 to address the digital gaps between urban and rural India, increase the access to hi speed internet national optical fibre Network programme was started and in 2015 this scheme was revised and renamed and Bharathnet it is considered as the largest rural broadband connectivity globally. It aims at establishing digital connectivity in rural India by providing affordable high speed broad band connectivity.

In August 2023 Government of India came up with amended Bharath net program by providing internet access to non-Gram Panchayat villages numbering 3.8 lakhs which gave additional digital power to rural India. Digital Bharath Nidhi is a fund aiming at improving the quality and accessibility of tele communications services in India was launched in 2023 is supporting rural Indian digital initiatives. It is providing affordable and high quality mobile and digital services in rural and remote places with last mile connectivity access.

The impact of digital technologies on rural communities

Digital technologies have been connecting remotest villages of rural India with high-speed internet enabling access to government services, online education telemedicine and health care services.

1. Digital technologies support to online transactions- Rural communities have been able to participate in digital commerce access to financial and banking services and explore entrepreneurial opportunities. According to India Brand Equity Foundation (IBEF) , Indian online market will reach 188 billion USD by the end of 2025. Online platforms like Amazon, Flip cart, Nykaa, Blink it, Misho, Mynthra etc are very popular in rural India. It is estimated that there are over 500 million active social media users. They use Face Book, Instagram, What’s App, Twitter etc. Besides popularity of Share Chat and MOZ are increasing because they provide online services in regional languages. According to KPMG, Indian internet users demand content in regional languages rather than English. Unified payments interface UPI continues to record strong growth in 20205 strong growth average daily transactions values crossing 90,446crore in august 2025 This significant increase reflected the UPI’s deeper penetration to rural India UPI is used for retail purchases bill payments ad business transactions proving a corner stone in Indian digital growth.
2. Digital technologies support to online education- In recent years online education has emerged as a transformative force breaking barriers that has hindered access to quality education in rural India with digital technologies penetrating tot rural India the landscape of education is making a remarkable shift by ensuring even rural learners can access online educational resource on par with urban students.
3. Digital technologies support to entrepreneurship- The digital technologies have support rural people to opt for income generative side businesses. According to NCPI (National Payments Corporation Of India), there are more than 5 million UPI transactions per month in 2023-24. Digital technologies support allows rural businesses and artisans to connect with larger global markets thereby reducing reliance on local markets. Mobile banking and e payments empower rural people to improve access to financial services. It supports in enhancing savings and encourages their entrepreneurship and leadership.

4. Digital technologies support to online health services -The rural people have been able to get good access to tele health services, bridging the resource gap in health care sector. Government schemes like e sanjeevani are helping rural people with specialised consultations and medicinal support. By delivering health care directly to patients on boo bile devices tele-medicine has supported that rural people with overcoming constraints such as shortage of medical staff, expert consultation, through guidance and timely supportive interventions. It has helped in early detection of diseases, preventive tactics and rehabilitation effective telemedicine implementation India’s primary health care system. By February 2023, 100.11 million patients were serviced at 115,234 health and wellness centres via 15,731 by hubs and 1,152 online OPDs staffed by 229,057 telemedicine trained medical specialists and super specialists E Sanjeevani has been expanded to cover over one million consultations per day.

Telemedicine trained medical specialists	Health and wellness centres	Patients serviced
229,057	115,234	100.11 million

Source: Digital transformation of rural India <https://www.pib.com>

5. Digital technologies support to local self-governance - Digitalization plays a key role in economic development of a nation and as it supports local self governance institutions with transparent mode of governance. The Gram Panchayats across rural India are connected through Digital technologies backed by Bharat Net. As a result e governance has become more performing and reachable. Local self Government institutions have been able to convey transparency in project spending, routine expenditure of local government, projects inlay statements, annual budgetary allocations budgets and other details to rural public. The digital technologies have brought larger citizen participation in the meetings of the Gram Panchayats. This consistency in attendance has constructively brought efficiency in Gram Panchayat’s structural working there by making the administration of rural Gram Panchayats more competent and clear.

6. Digital technologies support to Government initiatives-Government of India in a move to bridge digital divide in rural areas and ensuring digital services reaching every remote village has made several initiatives. Digital India campaign launched in 2015 played a very important role in improvising the digital infrastructure in rural areas provided universal access to mobile connectivity, public internet and wifi services As a result the number of internet users in rural India rose sharply as shown in this table.

2020	2024
285.97 million	398.35million

Ministry of Electronics and information technology has launched the Digital India Common Service Center Projects (DICSC) in gram Panchayats across India. Besides, India is moving towards LEO (Low Earth Orbit) and MEO (Medium Earth Orbit) based satellite services to further improve broadband access in rural and remote places. Government of India foresees each CSC will be equipped with high-speed broad band connectivity and modern infrastructure to function as a multi functional service centre This also aims to empower village level entrepreneurs fostering local economic growth and creating job opportunities locally. Additionally, GPS mobile vans are being deployed to all rural areas to promote government schemes.

II. CONCLUSION

Thus, digital services that empowers rural people and promote inclusive growth is considered as the corner stone of Indian economic advancement. By addressing the digital gaps and by enhancing access to essential services there is a need to up lift rural India and integrate them into the broader digital economy through prioritising on marginalised and socially backward communities. Besides, providing protection to millions of rural internet users with secure data management practices and policies calls for timely intervention from the Union Government. Added to this, lack of coordination between various government departments and private service providers needs to be corrected before it leads to fatal economic consequences.

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