Digital Transformation in Tourism: Bridging Rural and Urban Experiences in India

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Abstract—**This study explores the impact of digital transformation on bridging the gap between rural and urban tourism experiences in India. It highlights how digital technologies, such as mobile applications, augmented and virtual reality, and big data analytics, are reshaping the tourism industry by connecting less-visited rural destinations with urban tourists. The transformation is enabling the creation of sustainable tourism practices, enhancing the overall tourist experience, and promoting rural areas as viable tourism destinations. However, it also presents challenges, including the risk of a digital divide between urban and rural areas, which necessitates public intervention and strategic policies. The study emphasizes the importance of community engagement, government initiatives like the Digital India program, and the role of new technologies in creating a more inclusive and equitable tourism landscape. The findings suggest that while digital transformation offers significant opportunities for the tourism industry, careful planning and implementation are required to ensure that these benefits are shared equitably across both rural and urban areas.**

Index Terms—**Digital transformation, Rural & urban tourism, Strategic policies, Digital India program, Sustainable tourism, Digital divide, Government initiatives, etc.**

1. INTRODUCTION

The tourism industry is in the midst of a digital transformation. Digital technologies - such as mobile devices, social media, and big data - enable new and enhanced tourist experiences, not only at the urban but also at the rural destinations (Buhalis, 2019). Moreover, the sharing of tourism experiences through social media and other digital platforms - for example, by uploading photos - is changing the nature of the involvement at the destination. Ubiquitous connectivity and the widespread use of location-based technologies enable the emergence of new digital business models (e.g., by converting peer-to-peer transactions of knowledge) and of social media-enabled communities. All these trends reinforce the need to better understand what is claimed to be a digital transformation of tourism and its consequences for the planning and management of tourist destinations in both rural and urban areas. As a developing country where most rural regions are off-the-beaten-track, India is facing various challenges in its effort to make new tourism gains. If rural tourism can contribute to this effort, it needs to be better understood as to how it differs from its urban counterpart, and how the digital transformation permeates these tourism forms (Baggio & Del Chiappa, 2012). Specifically, to contribute to this effort, a reflection on how digital and urban tourism interacts in India is given first, followed by focusing on the case of rural tourism and the needed digital technologies. The aim is to highlight and discuss how, and the extent to which, rural tourism can benefit from the ongoing digital transformation of sectors like urban tourism.

The Supply Side Dimension addresses the need of the suppliers and service providers regarding bridging the digital technology divide between rural tourism offers and urban tourism offers. The Demand Side Dimension is bridging the demand and supply experiences in urban and rural tourism segments. It encompasses connecting the experiences of urban tourism with the complementing services in the rural segment of the same experience offered from its local view. The Infrastructure Dimension addresses the need for Digital Transformation (DT) infrastructure linking rural and urban tourism offers. The Promotion & Development Dimension deals with the marketing strategies and operations for marketing the rural tourism experiences, which are still at a nascent stage. The Skill Development Dimension encompasses the integration of the skill development of the

stakeholders across the value chain connected with the tourism transections either as revenue generating or experience sharing is acknowledged (Buhalis, 2019)(B. Arewa, 2022).

The growing divide between rural and urban experiences has become more significant with urbanization and migration trends (Reddy Kummitha, 2018). While urban-centric tourism often overlooks rural challenges, rural areas hold rich cultural heritage, lesser-known art forms, and historical structures that are vital to global tourism. The digital transformation in tourism can bridge these gaps by promoting sustainable tourism practices, enhancing cultural exchange, and offering economic opportunities, particularly for women in rural communities (Ammirato et al., 2014). This approach not only benefits urban tourists but also supports rural development, reduces seasonality in tourism, and promotes sustainable practices. Digital platforms can make it easier for travelers to discover, customize, and enjoy unique rural experiences, thereby fostering a deeper connection between rural and urban landscapes.

2. TOURISM INDUSTRY IN INDIA

Tourism is a social phenomenon driven by the inherent desire of humans to explore new places, cuisines, and destinations. It has significantly contributed to the economy by attracting a large number of both foreign and domestic tourists, whether for professional or leisure purposes. This influx results in increased foreign exchange income and greater employment opportunities, which in turn stimulate the growth of the tourism industry and overall economic development (J Anson & Avin, 2016). India, with its rich cultural heritage and diverse religious beliefs, offers numerous tourist destinations that attract a large number of visitors. The United Nations designated the decade from 2006 to 2015 as a period for promoting education for sustainable development, focusing particularly on the needs and aspirations of rural and underdeveloped areas worldwide. This initiative aimed to encourage and support a global movement toward sustainable development, especially in rural regions (Reddy Kummitha, 2018). Ecotourism, a concept that emerged in the 1970s, plays a crucial role in achieving sustainable development goals in developing countries.

Digital transformation in tourism involves leveraging technology and digital platforms to enhance the tourism experience for users. It seeks to bridge the gap between rural and urban tourism by offering a platform where the experience of rural tourism can be accessed from the comfort of one's home (Nian Tang et al., 2022). This transformation enables virtual experiences of places or activities that would typically require physical presence, allowing users to gain a better understanding of what to expect. As a result, it enhances the tourism experience for both rural and urban tourism, contributing to an improved overall tourism experience in India. Tourism is one of the largest service industries globally and serves as a key driver for economic growth and country development (Buhalis, 2019). In India, rural tourism holds significant potential for providing a sustainable competitive advantage, aiding the growth and development of the tourism industry. Tourism fosters relationships and cultural exchange among people from diverse backgrounds. Rural tourism involves travel to rural areas with low population density, away from urbanized regions, for recreation or leisure. On the other hand, urban tourism refers to travel to cities outside one's residential area.

Rural tourism offers unique and authentic experiences that cannot be replicated in urban areas (Mendonça et al., 2018). However, it is often seen as a missing link in the tourism value chain, as many regions invest in infrastructure and experiences without effectively communicating these to potential visitors. This lack of integration between production, infrastructure, and communication leads to unfulfilled objectives, such as lower visitor numbers compared to similar regions. While rural tourism can attract urban tourists and link tourism budgets with potential visitors, challenges arise in aligning the demand and supply sides, as well as in matching budgetary needs with investment decisions. Despite these challenges, rural tourism is valued positively in national development strategies, offering opportunities for community development in local regions. Tourism acts as an economic bridge between rural and urban experiences, but the supply of rural tourism is often lacking in experience and visibility within the urban-based tourism industry. To address this, a technological platform that packages rural tourism experiences through local producers and markets them via an urban-based online reservation system could create new opportunities and readiness

on both sides (Nian Tang et al., 2022). Digital advancements have already facilitated the emergence of technology-enabled experiences in urban areas, with city tours based on "smart technology" and producer-based packages offered by locals. This approach would allow for the offering of experiences beyond those provided by global hotel and sightseeing enterprises, enhancing social interactions and bridging the gap between rural and urban tourism.

3. RURAL TOURISM IN INDIA

The pandemic has accelerated digital transformation, bridging the gap between rural and urban experiences. As urban life becomes more hectic, tourists increasingly seek the untouched allure of rural areas—a peaceful retreat from city life. This trend reflects a growing desire for immersive, authentic experiences. Urbanites now crave the unique opportunities that rural tourism offers, such as the tranquility and simple pleasures of village life (Bhan & Singh, 2014). Rural tourism symbolizes a yearning for an unexploited, untouched world. Various forms of rural tourism, like homestays in Kasol and eco-tourism in the Sundarbans, are tapping into these opportunities. However, merely replicating urban tourism in rural settings won't suffice. A thoughtful approach is needed to identify the right opportunities, experiences, and potential fears these offerings might evoke.

In India, rural hamlets like Kasol in Himachal Pradesh are emerging as distinct tourist destinations, offering experiences that contrast with easily accessible hill stations and beaches. The journey to these rural areas, such as the five-hour ride to Kasol, adds to their appeal, making them feel like undiscovered Edens (Reddy Kummitha, 2018). In rural southern India, visitors can experience a slower pace of life, where simple pleasures like sipping tea and enjoying silence are central. At night, under a starry sky, the rural world reveals itself as a place rich in both charm and mystery. While initial cultural exchanges in these settings may be tinged with fear, such as imaginings of ghosts or wild animals, these experiences soon give way to a deeper appreciation of the rural world. This world, with its complexities, class struggles, and patriarchal structures, offers a unique and thought-provoking contrast to urban realities.

The rise of technologies like IoT, wearables, sensors, beacons, and big data is transforming tourism by linking urban experiences with rural challenges through the rapid platformization of tourism. This integration has created monopolistic conditions for stakeholders, including tourism suppliers from various sectors offering diverse experiences. By leveraging technology, the concept of "smartness" is envisioned to provide top-tier micro and small agri/forest-based experiences for city tourists, aimed at bridging gaps in space, time, economies, welfare, and sustainability. While the topic of routing and traveling salesmen is well-known across various fields, it has not been fully explored within tourism, especially in connecting Indian cities to rural hinterlands. Curating datasets for rural tourism that meet quality, safety, and viability standards, along with emerging platform constraints for seamless connectivity, underscores the socio-economic research interest in the digital transformation of tourism (Mohan Mishra, 2012). This transformation aims to address the economic disparities between rural tourism and urban growth, promoting a more integrated and sustainable tourism experience.

4. URBAN TOURISM IN INDIA

Urbanization has fueled the growth of urban tourism, making it the fastest-growing segment globally due to its safety, security, and convenience. India's urban centers, rich in cultural heritage, hold significant potential for tourism, but development has been uneven, with only a few cities fully capitalizing on this opportunity. This disparity raises questions about India's approach to urban tourism and its broader impact on the tourism system. Conventional tourism models have struggled to address the unique challenges of urban tourism, highlighting the need for more effective frameworks (Reddy Kummitha, 2018). Innovative digital solutions, such as mobile access to information and Augmented Reality (AR) applications, are bridging the gap between rural and urban tourism, enhancing the overall tourist experience. These technologies enrich both rural and urban environments, making destinations more attractive and connected (Mohan Mishra, 2012). Case studies from India demonstrate the potential of digital tools to improve rural-urban connectivity and tourism experiences, while also addressing the challenges and opportunities of digitizing these shared experiences.

Key Features and Attractions

Digital transformation in tourism initially began with a focus on rural tourism, but it has since become more refined in urban settings. Despite the proximity of urban experiences to rural ones, digital technologies have played a crucial role in bridging the gap between these two. The cultural diversity and traditions of rural heartlands need exposure and preservation, yet these areas face significant socio-economic challenges due to rapid urbanization and migration to cities, leading to the growth of slums with poor living conditions. While there is a growing demand for rural tourism, there is also a need for a technological and legal framework to connect rural and urban tourism experiences effectively. One proposed solution is a comprehensive Travel App that facilitates seamless travel between rural and urban areas. This app would integrate features like superfast vehicles with inbuilt boarding and lodging, communication assistance, and secure e-wallet payment options, ensuring a holistic travel experience (Buhalis, 2019; Mohan Mishra, 2012). Additionally, the concept includes various innovative transportation options, such as Double-Decker Buses, Cordless Trams, Cycling Buses, and E-vehicle buses, designed to enhance the connection between urban and rural landscapes. The proposed technology solution should cater to economically disadvantaged groups and low-skilled individuals, providing them with the necessary exposure and experience to appreciate both the native heartland and the technology.

Technological Integration

In the wake of modernization and technological advancement, rural and urban tourism experiences can be unified on a common platform through the use of technology, regardless of geographical location. Promoting rural tourism in India can help bridge the existing divide between urban and rural tourism, integrating lesser-known places into more established tourism networks. This integration would also promote sustainable development, enhancing the overall condition of rural areas surrounding urban centers. Technological tools, such as mobile applications and digital backend solutions, can facilitate seamless connectivity between rural and urban tourism destinations, enriching the experience for both tourists and stakeholders (Buhalis, 2019). The digitalization of tourism will not only streamline business operations but also attract more tourists, thereby boosting the economies of rural areas and the country as a whole. Despite India's current underutilization of technology in tourism, particularly in rural tourism, the future looks promising as developments in this field continue to progress (Mohan Mishra, 2012).

5. ROLE OF DIGITAL TECHNOLOGIES IN TOURISM

Digital technologies are increasingly crucial in enhancing tourism by offering added value through digital experiences. These technologies provide a competitive edge by promoting smartness, which contributes to regeneration, sustainability, and an improved quality of life for residents. Smart destination designs improve visitor experiences by integrating a holistic view of smart cities, while e-Experience fosters open participation, allowing digital social experimentation. This approach empowers users, enhances engagement, and reduces negative economic, social, and environmental impacts (Buhalis, 2019). Different e-channels enable collaboration among friends, visitors, stakeholders, and citizens in both rural and urban contexts, supporting a highly participatory approach to tourism (Mohan Mishra, 2012). Innovative digital, user-generated channels focus on a consumer-centric experience, unleashing collaborative creativity and enriching the value of destinations. This content is widely shared across multiple e-channels, driven by social networks, and is rapidly shaping the tourism industry in India. In Union Territories like Jammu & Kashmir, new digital initiatives are promoting rural tourism by highlighting culture, heritage, tradition, art, craft, indigenous life, and eco-fragile landscapes. To enhance visibility, technology-based channels such as potential apps and 360-degree virtual tours can provide a digital edge for rural tourism, benefiting both domestic and inbound destinations.

Mobile Applications and Websites

Mobile applications and websites are essential tools in bridging the gap between rural and urban tourism experiences in India. Mobile apps facilitate the dissemination of promotional content, allowing rural and urban destinations to reach and attract users effectively. These platforms enable local communities to showcase their unique experiences on a common platform, increasing visibility and accessibility.

Similarly, tourism websites play a crucial role in promoting destinations by providing extensive information on tourist spots. These websites should be creatively designed with user-friendly features to ensure user satisfaction and enhance the overall site visit experience (Mohan Mishra, 2012). With the internet's rapid growth, websites have become indispensable for promoting rural and urban tourist destinations, offering information on places, accommodations, and attractions. In particular, rural destinations, which often lack access to advanced technologies, rely heavily on these digital platforms for promotion and growth. Tourism websites also support booking, reservation, and information access, making them vital for both rural and urban tourism. As rural areas gain popularity due to the technological and economic growth of urban populations, these digital tools are increasingly important (Ramos-Soler et al., 2019).

Augmented Reality and Virtual Reality

The advent of augmented reality (AR) and virtual reality (VR) technology has opened new possibilities in the tourism sector. These technologies are becoming more affordable and accessible, making it easier to integrate them into everyday use, from mobile phones to advanced gadgets (Ezekiel Macdonald Mofokeng & Kenny Matima, 2018). AR, in particular, has proven valuable in tourism, allowing tourists to pinpoint their location and access information about their surroundings through sources from the web (Jung & Han, 2014). AR's dynamic and interactive nature is especially beneficial for educational tourism purposes. In the context of tourism, AR and VR can enhance the gaming experience by allowing players to navigate between urban and rural settings. However, the time required to reach these destinations can be a drawback. By improving the mobility of tourism games through mobile AR technology, gaming tourists can enjoy similar on-site experiences in both rural and urban environments. Geographical-based information recommendation systems can further enhance these experiences by helping service providers identify tourists' preferred destinations based on their travel patterns. Innovative digital experiences in tourism are not just about provider-driven initiatives. Tourism is increasingly seen as a co-creation process, where both providers and travelers contribute to creating value. For example, Whistler Bungee allows travelers to create their own bungee videos before the actual experience, which they can share on social media, blending urban and rural tourism experiences. However, the complexity of bridging rural and urban experiences through current service delivery modes suggests that more advanced solutions are needed to fully support decision-making and enhance the overall tourist experience.

6. CASE STUDIES OF SUCCESSFUL DIGITAL TRANSFORMATION INITIATIVES

With increasing mobility, there is a great need to provide the opportunity of unique experiences to tourists between rural and urban setups. The digital divide between urban and rural setup is ruining the scope of such experiences. Digital technology is often adopted as an afterthought, accepted in a rush, and used in confined areas for doing what was done earlier, but faster and better using computers (Ammirato et al., 2018). However, digital technology needs to be planned, developed, piloted, rolled out, and refined through dialogue with potential users and the communities it is intended to serve. It should be looked upon as a long-term process rather than a one-time fixed investment. The changes being brought in altering mindsets, skills, and attitudes need a perspective on the impact of development. The proper and timely deployment of technology would lead to innovative means by which rural areas can provide experiences unique only to them without compromising on the quality of service and access these tourist sites provide.

The sheer scale of the rural population of places like India presents an opportunity for a large local customer base that can provide the means for earning income and creating jobs in rural settings (Mohan Mishra, 2012). The marketing of tourist sites should be done primarily through mobile technologies as this can encourage connectivity to towns and cities. The Tiger Reserve at Coorg wants to showcase its wildlife and subsequently wants the service of a local travel agency for providing a transport service for Jeeps and guides, offering a 2-day package that covers excursions to nearby sites. Digital technology is best suited in this regard as it can combine various attributes like live images from the forest using CCTV, creating a tourist interest, engaging, and encouraging advance booking using the Internet. However, to

counter concerns of poaching regarding live images, images from a wildlife sanctuary in the Mysore District would be used.

Make My Trip

A leading online travel company at national and international levels involved in digital transformation in tourism is Make My Trip. The company was founded by Deep Kalra. The technology and platforms developed by Make My Trip are bridging the gap of tourism experience between rural and urban areas. The innovative solutions by Make My Trip amplify the overall travel experience of both domestic and international tourists and also help in the growth of identified rural tourism destinations. The concept of tourism in rural areas has great potential in India to attract tourists as the country is known for its cultural diversity. No appropriate digital platform exists for promoting rural dance and other cultural shows showcasing the local arts. Such platforms at national and international levels would help bridge the gap between the artists and potential clients (Mohan Mishra, 2012). Make My Trip is actively involved in promoting identified rural tourism destinations. With just a click on the mouse, the tourist can see the available tourism products (rail/flight/cab/sightseeing) in the country. Both domestic and international tourists have a choice to search or plan their itinerary with all travel solutions from one single website. Other innovations include details on hotels, cabs, and sightseeing, and the trip's end-to-end solutions covering various modes of transport availability, and that too, with different service levels. Such online e-commerce platforms and solutions remain absent in rural areas with limited transaction options poor travel/tourism experience.

OYO Rooms

From being an era of domestic tourism to growing global tourism with a shift in tourist behaviors, desire for diversification in choices, accommodations, and experience, it becomes inevitable on the look for the tourism industry transformation (Mohan Mishra, 2012). From semicircle interior transport to travesty of ocean experience, the one-stop solution for hot air ballooning to safari in ship, ray of leisure experience amidst azure cityscape with hospitality solutions turned to commercial aspect while being a manifestation on domain ruins. The wealth of nations that live at ease with oases and tropical paradises appearances immersed with ecstatic aspirants being grabbed were turned to riches with pivots to feel velvety momentum. Kolkata known as the city of joy with pillared serenity to debut steamer was dwarfed amidst the crude ambiance of broader perspective of luxury in hospitality. Hotel Cully Club dunked in tranquility puppeteered with wooden domino floaters, handmade entertainments, tasting stories of life across lakes on steamers encouraging buoyancy became the edge for early urban tour experience. Its counterpart Hotel Girish also come into existence after some time only focussing into the angler association (Arora, 2019). The aftermath splurge of hotel chains turned the forum to Faisal's diyas on deoghar. The unnoticed towns in hinterlands darker inhibited by a layer of astigmatism emerged as financial descendants where OYO rooms scattered like imagination medicine on every gully. This awe of cozy epitome of white veil further debated the erudite aspect.

7. GOVERNMENT INITIATIVES AND POLICIES

The impact of government initiatives and policies in facilitating digital transformation in the tourism sector, bridging the urban-rural experiences in India has been elaborated. It analyzes various initiatives and policies undertaken by the Indian government in terms of digital transformation in tourism with special emphasis on the digital India initiative. Impacting upon the tourism industry, other than the tourism policy at the central level, various states have also felt the need for formulating tourism policy for better tourism development within the state (Mohan Mishra, 2012). The guidelines laid down by the Ministry of Tourism, Government of India in September 2002 as well as Ministry of Rural Development in formulating the tourism policy at the state level has indicated the necessity of developing rural tourism in the country with an objective of enhancing the livelihood option for the rural people through it (Reddy Kummitha, 2018). As a concomitant effort in this direction, the tourism policy of the State has taken a very cautious approach towards rural tourism development through active participation of the local Gram Panchayats, NGOs and SHGs (Women) under the PRIs. Though adequate efforts are being taken to promote rural tourism in the state, some more initiatives are felt to be necessary for a more effective and fruitful rural tourism development in agriculture/labour based village.

Digital India Program

India has a widely heterogeneous populace, with rural and urban areas having quite distinct ways of life. India is the 4th ranked tourist nation in the world, with sprawling tourism points across the continent, particularly the heritage monuments and then the world's 7th largest country with fascinating rural diversity and other tourist spots. However, the rural and urban experiences of tourists in India need to be bridged; there must be the same access to information and digital economy across India (Reddy Kummitha, 2018). Digital India Programme is one of the national priority projects/integrated missions of the Government of India aimed at "Transforming India into a digitally empowered society and knowledge economy". The vision of "Digital India" was posted by Prime Minister Modi on 01st July 2015 and was approved by the Union Cabinet on 20th August 2015. The mission of "Digital India" is to provide digital infrastructure as a utility to every citizen, governance and services on demand, and to make citizens digitally empowered (Mohan Mishra, 2012). Digital India encompasses all citizens of the country, including a large number of rural citizens who do not have access to better tourism opportunity due to lack of required investment in terrestrial or air transport and in providing competition for digital economy. Over the past few decades, India's economy has grown at a rapid rate and the introduction of new and affordable technology has provided interesting and innovative facilities to the citizens of the country. Digital India Programme is playing a crucial role in bridging the rural and the urban experience. The Digital India Programme mechanism to address digital divide issues across the nation is a panacea for bridging tourism experience across the nation with heavy tourist influx and minimal tourist activeness (the needs of the currently not-digital serviced remote towns/villages near tourist spots for Internet and Sat-Phone access.) The Gov and State Gov-Ms have invested lots of money on developing wide area tourist places, which is not of great use if the right of access information regarding this is not reached to all. The Programme provides opportunities for start-up service providers (consultancy firms) having India novel mechanism for bridging the access-information gap in tourism experience. In India, the tourism sector has evolved in a rapid manner and has opened up wide opportunity for national and state revenue earnings. The tourists coming to India seek an overall tourism experience (such as local food, cultural and heritage diversity, shopping, co-traveling, environmental sustainability etc).

National Tourism Policy

In terms of national tourism policy, On February 23, 2021, India's Union Minister for Tourism Kishan Reddy declared at the National Webinar on "Digital Platforms for Tourism Sector in Post-Covid Scenario" organized by the Ministry of Tourism, "How can tourism in India be made global by simply employing digital means? Is there a master plan along these lines?" Responding to this concern, the Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis, Bhopal and the Indian Government's Ministry of Tourism together organized the 'EK BHARAT, SUNDAR BHARAT' National Conference on Digital Transformation of Indian Tourism. The theme of the conference, 'EK BHARAT, SUNDAR BHARAT', aptly captures the essence of the need to own, preserve and promote tourist destinations in rural India in view of rapid urbanization and growing environmental concerns. 'EK BHARAT, SUNDAR BHARAT' envisages bridging rural and urban experiences by creating equal opportunities for rural regions highlighting their local assets, heritage, art, culture, cuisine, spirituality, unexplored natural vistas, landscape, flora & fauna, and local folk crafts. National tourism policy needs to drive the development of rural tourism destinations in a planned and sustainable manner conducive to the improvement of living standards of the local communities and encompassing involvement of all the stakeholders like the Panchayati Raj Institutions, State Tourism Departments, Local Communities, and the Private Sector (Reddy Kummitha, 2018).

8. CHALLENGES AND BARRIERS TO DIGITAL TRANSFORMATION IN INDIAN TOURISM

Digital transformation has emerged as a critical tenet for the ongoing and upcoming survival and growth of the tourism industry worldwide. Most countries have undertaken this transformation journey propelled by governmental and industrial policies. The Indian tourism industry has also unveiled programs and schemes to take up digital transformation initiatives. The role of digital transformation in bridging tourism experiences between urban and rural destinations is

especially important in the Indian context. However, there exist various challenges and barriers to digital transformation initiatives in the Indian tourism industry. Literature on this topic is sparse. The chapter examines the challenges and barriers to digital transformation initiatives in the tourism industry in India. Qualitative interviews were conducted with stakeholders of the Indian tourism industry. The insights from the interviews were analyzed using thematic analysis using QSR NVivo software. The findings highlight key challenges and barriers to digital transformation faced by the stakeholders of the tourism industry in India. The findings would have implications for other developing and developed nations.

The Indian tourism industry is pivotal for the nation's economy and is emerging as a massive employment provider. As per the World Travel and Tourism Council research report, India's travel and tourism sector is likely to recover to pre-pandemic economic levels by 2024, or in other words, by 2023 India's tourism GDP is expected to stand at Rs 5.5 trillion (US$ 82 billion), expanding at a CAGR of 25.9 percent. However, tourism, being one of the sectors with maximum exposure due to the pandemic, is crucial to recover the losses suffered by the economy. Major countries around the world are now preparing and updating the required infrastructure, policies, and plans to kick-start the tourism operation. Transportation, hospitality, and travel services are the major contributors to the tourism industry's economic growth. Subsequently, the recovery plans are focused on upgrading the digital infrastructure of the said sectors for the advanced digitalization of tourism services.

Digital infrastructure enhancement will aid maximum coverage in seamless connectivity between the urban and rural landscapes, which ultimately helps bridge tourism disparities in terms of destination experience between urban and rural tourism in developing countries. This will further aid maximizing the exposure of rural tourism based on the unique offerings of these "off the beaten track" destinations. Enhancing the rural tourism sector is necessarily important for the holistic growth of the overall tourism industry in the development of the economy, procuring employment, and protection of cultural heritages and natural environments. The transformation of digital tourism infrastructure will exponentially enhance the accessibility and comfort of tourism services in these rural destinations. However, there exist barriers to the adoption of digital transformation by the stakeholders in developing nations which need to be addressed promptly to tap the true potential of tourism recovery.

Infrastructure and Connectivity Issues

The Government of India scheme, Kisan Credit Card(KCC), which aims to provide credit in activities like cultivation of crops and investment requirements in agriculture has been in implementation since 1998. Later on, it was extended to the financing of other requirements of farmers on a whole/holistic basis such as agriculture produce marketing, household expenditure, and investment activities. In accordance with KCC scheme guidelines, a rupee card with a limit fixed on the basis of income and repayment capacity along with a passbook will be provided to farming communities by the banks. The Indian government has come a long way in promoting e-wallets. It has launched UPI solutions and the BHIM app for a smooth transition from traditional banking to digital banking (K A et al., 2021). The National Payments Corporation of India (NPCI) actively promotes faster growth and promotion of digital payments via UPI.

E-commerce opportunities have been crucial in purchasing and selling agro-based products and handicrafts. Rural communities will have a platform to showcase their diverse cultures and crafts helping in the promotion of tourism. The GeM portal has been set up as an e-marketplace for procuring everyday common consumer goods. The GeM portal will help Self Help Groups (SHGs) and artisans flourished their business. The government of India has taken several initiatives for the promotion of rural internet penetration. Major projects of these kinds include BharatNet, PMWani and Digital India. The Digital India campaign is an initiative taken by the Government of India to connect rural areas with the rest of India via high-speed internet networks and increase broadband connectivity. BharatNet, one of the flagship projects of the Digital India campaign, aims to create an ambitious robust middle-mile infrastructure using optical fibre for broadband connectivity to all Gram Panchayats. The financial and social benefits of rural citizens as a result of the Digital India program implementation will be enormous. Development in connectivity will help them in a high engagement in public services, job search, etc.. High-

speed connectivity will help in providing citizens with access to health management services. With the broader objective of setting up a ubiquitous free public Wi-Fi network for the country, "PM Wi-Fi Access Network Interface" (PM-WANI) is expected to help in making wireless internet facility available across villages similarly to the way the telecommunication facility was made available through the establishment of STD booths, PCOs etc.. PM-WANI aims to attract private agencies and entrepreneurs to provide internet service to the rural population, helping in the growth of more local internet service providers (ISPs) in villages, curbing the monopoly of few corporations providing internet services at expensive rates.

Digital Literacy and Skills Gap

The initial challenges faced by Tourism Operators, Host Communities, and Travelers in adopting digital tools and platforms are primarily attributed to the low levels of digital literacy, knowledge, and skills development within political and social governance systems. Although digital infrastructure development has been accelerated and improved, local community literacy levels and the ability to adopt a variety of tools and platforms remain low. On the other hand, youth populations are interested in available digital tools but face the challenge of being unable to afford personal devices and internet connectivity (Tiwasing et al., 2022). Therefore, knowledge, skills, and ability combinations need to be tackled and prioritized to adequately address and close the digital skills gap. Sustainable policies, programs, and actions aimed at digital, skills, and lifelong learning knowledge development will contribute to building inclusive and small-and medium-sized enterprises-driven economies. The digital and skills gap will widen further unless youth populations and host communities in emerging economies and rural areas are prioritized. There is a risk that the digital economy within the tourism experience, destinations, services, and products will be driven by the most developed urban economies within India. Still, the digital economy does have the capabilities to customize, personalize, and share the entire tourism chain (Nian Tang et al., 2022). Therefore, partnerships developed between urban and rural areas must work on closing specific digital skills, knowledge gaps, and adoption of tools to give rural tourism operators (experiences and supply side) the ability to develop products to meet the urban traveler wanting to consume the tourism experience.

There are tourism experiences available within rural areas to support this gap but the products are shaped and driven by inputs from urban areas and where young populations are literate, knowledgeable and skilled in tourism building social media driven products.

9. FUTURE TRENDS AND INNOVATIONS IN DIGITAL TOURISM

Digital tourism in India, particularly in rural areas, has historically received less attention than its urban counterpart. However, recent efforts have focused on exploring digital tourism opportunities across both rural and urban destinations using a mixed-methods approach with various digital tools and technologies. Studies have identified significant differences in travel experiences at rural versus urban destinations, particularly regarding the use of digital elements and technologies (Ammirato et al., 2014). The future of tourism in India is expected to be shaped by technological advancements, with emerging tools and technologies like AI, AR, VR, 3D printing, and data analytics predicted to significantly enhance the tourism experience and drive innovation (Buhalis, 2019).

Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) has the potential to revolutionize the tourism industry by offering personalized recommendations and streamlining the trip planning process. AI-based systems, similar to those used by platforms like Netflix and Amazon, can recommend travel destinations, hotels, transportation, and activities, making the planning process more convenient for tourists. Additionally, AI technologies can analyze vast amounts of data to provide valuable insights for tourism professionals, improving service quality and competitiveness (Geisler, 2018). Chatbots are already being used by tourism companies to enhance customer service during and after trips, further demonstrating AI's potential in the industry (Buhalis, 2019).

Blockchain Technology

Blockchain technology offers a solution to several challenges in India's tourism industry, such as the lack of well-curated data, complicated ticketing systems, and poor standardization. The integration of ICT with blockchain can create a democratic system that allows for seamless, enjoyable rural and urban tourism

experiences with a single ticket. This "triple web" concept combines the internet, social media, and mobile web with WEB3.0 technology to build a trust-based system for developing and promoting tourism (Ezekiel Macdonald Mofokeng & Kenny Matima, 2018). The use of blockchain in tourism also enables the creation of continuous and interactive tourism information, leveraging Big Data to enhance public perception accuracy and decision-making. The massive volume of data generated daily in cyberspace, including billions of clicks and millions of image uploads, presents an opportunity to enhance tourism through Big Data. By capturing real-time digital information and integrating it with cloud-based systems, tourism professionals can improve decision-making and provide more accurate and personalized experiences for tourists. This "collective experience beyond Big Data" approach enables flexible combinations of tourism events, preserving the unique flavor and rhythm of each event while offering a more comprehensive understanding of tourism phenomena across multiple cities (Maythu et al., 2024).

10. SUSTAINABLE TOURISM PRACTICES IN THE DIGITAL ERA

Digital transformation is playing a critical role in promoting sustainable tourism practices in India by bridging the gap between rural and urban experiences. The growth of the tourism industry has prompted government intervention to ensure sustainability, with the Indian government encouraging the adoption of sustainable practices through various policies (Stankov & Gretzel, 2021). Current technological trends, such as blockchain, IoT, AI, social media, mobile applications, and big data, are not only shaping innovative businesses in tourism and hospitality but also fostering sustainable tourism by implementing environmentally friendly and socially responsible strategies (Reddy Kummitha, 2018). The tourism and hospitality sector significantly contributes to the national economy, GDP, and employment. However, the future of tourism is threatened by issues arising from tourism activities. NATGEO's 2020 travel destinations report highlighted 25 sustainable tourism destinations globally, focusing on environmental conservation, community engagement, and economic development. Urban businesses are encouraged to develop itineraries that introduce less-visited rural areas, while rural stakeholders are integrating their plans with the necessary infrastructure, transport, technology, and digital tools to support this integration.

Environmental Conservation and Preservation

One of the main challenges for the future of tourism is the effective use of novel technologies in developing smart tourism destinations that are economically viable, socially equitable, and environmentally sustainable. There is a critical need to bridge the gap between rural and urban experiences through technologies like augmented and virtual reality, which can offer virtual experiences of rural events and attractions. For example, events like 'Taal Savar' in Sikkim or the 'Carnival' in Goa could be virtually experienced by urban tourists, strengthening the connection between rural and urban tourism (Reddy Kummitha, 2018). Digital transformation in tourism is expected to play a leading role in supporting rural tourism while ensuring environmental conservation for future generations. However, the rapid and unchecked application of technology could lead to significant environmental degradation, potentially threatening the survival of rural tourism itself. Therefore, a carefully planned and competitive approach is necessary to balance technological advancements with environmental preservation, ensuring that the application of technology does not result in irreversible damage to nature and ecosystems (Buhalis, 2019).

Community Engagement

Digital transformation in tourism presents both opportunities and challenges, particularly for agents facing resource constraints. Community engagement plays a crucial role in shaping and enabling rural tourism after the introduction of digital technologies, especially in bridging rural and urban experiences (Reddy Kummitha, 2018). Community engagement in developing digital platforms involves three key mechanisms: collective engagement, organic engagement, and responsive engagement. These mechanisms either enable or constrain the activities of tourism platform developers, rural residents, and industry actors. Understanding these dynamics is essential for advancing digital innovation and platform competition in the tourism industry (Ammirato et al., 2014). The "Rural Breathe" platform, co-developed with rural community members, showcases stories that bridge rural and urban perspectives, highlighting the

resourcefulness of rural residents. This platform inspires urban visitors to explore rural areas and introduces local guest house owners, farmers, and restaurateurs as new tourism suppliers, thereby diversifying and enriching rural tourism experiences.

11. CONCLUSION AND RECOMMENDATIONS

Digital technology can serve as a bridge between rural and urban tourism-oriented experiences of India, contributing towards an inclusive, equitable, and varied experience for travelers. It can bring unexplored off-the-path rural touristic spots into the wider fold of urban travel experiences. However, there are several barriers preventing the coalescence of this rural-urban experience. Viable circular processes need to be designed to encourage the collective efforts of multiple stakeholders, so as to better leverage the promises offered by technology for the travel sector of rural economies. The multiplicity and disparity of tourism experiences along with socio-economic factors need to be properly exploited to better design and curate travel experiences. The results of this study draw significant implications for industry stakeholders, policymakers, and local communities (Nian Tang et al., 2022). This research solidifies the promise of digital technology for tourism in rural locations and travel experiences apart from the focal urban-centric locations (Nicolau Almeida et al., 2018). It also emphasizes the importance of other factors such as purpose, motivation, and socio-economic factor in considering tourism travel experiences. It helps better connect rural and urban locations and tourism experiences by providing a framework for industry stakeholders to mobilize individual efforts towards achieving a common target. Moreover, it opens new avenues of further research apart from the simplistic individual perspectives taken conventionally in the field of travel and tourism in previous studies.

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