

Digital Transformation Challenges in Rural Tourism and Role of Local Government: Qualitative Study in Annapurna Base Camp of Nepal

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Abstract

Digital transformation in rural tourism is a significant issue in developing countries like Nepal. The present study aims to explore the challenges in digitalization in the rural tourism sector in the Annapurna Base Camp (ABC) region, along with analyzing the role of the local government in the region. The study adopted the qualitative research design with in-depth interviews with ten key stakeholders, including tourism entrepreneurs, local representatives, government authorities, ACAP representatives, and internet service providers. A qualitative analysis with transcribing and thematic analysis to present the findings of the study. The study concluded that the rural tourism in the studied area faces the challenges of governance, structural, and digital integration. The tourism value chain and the growth of rural tourism are established with the government's role. The existing role is minimal and needs improvement in the capability of digitalization, infrastructure, and improving the local governance to attain a high integration of digital transformation in rural tourism. Digital empowerment strategies can promote digital transformation in rural tourism. Local government may accelerate digital capability, facilitate digital systems, build a digital trust mechanism, and foster stakeholder collaboration.

Keywords: challenges, digital empowerment strategies, digital technologies, digital transformation, rural tourism

Introduction

Among the fastest growing sectors, the tourism industry contributes 10.9% to the global GDP and helps create jobs and income generation (World Economic Forum, 2025). The generation of sustainable employment opportunities, to secure livelihoods of distant and remote areas, developing countries heavily rely on the tourism sector. The model of rural tourism sustainable development focuses and empowers communities to leverage their cultural heritage and natural resources for the development and economic growth (Yanan et al., 2024). This allows the income generation streams and preserve their environmental assets and cultural practices as well.

The rural tourism draws the tourists and captures their attention with the natural landscapes, cultural heritage, traditional living, and community involvement with various activities (Lane, 1994). This type of tourism creates jobs, increases small business development, and strengthens the local economy in the area. In addition, the sustainable resources management, protection of nature and cultural heritage. Beyond this attraction, this form of tourism is meaningfully generated, employment growth of the small businesses, and a contribution to the local economy. Despite this, the deep-rooted poor structural support, including the

insufficient development of infrastructure, lack of supporting digital skills, and challenges to market access, affects developing nations like Nepal (Kafle, 2022). Not only the investment, but commitment to empowering the rural communities at the root level would also be required.

One of the vital elements that transforms the tourism sector is digital technology, that will lead to the modernisation of the marketing element of the designation, tourist attraction, and the mindful service delivery. In this font, the new opportunities are created through the new digital platform like e-payment system, e-reservation, e-application and the social media marketing (Ugurlu, 2022). In comparison, the urban tourism sectors have applied the digitalisation in a rapid pace, where in the rural tourism lacks the adaptability of the same. This reflects the accessibility of the benefits to the rural tourism through adaptation of digital technology and barriers like lack of infrastructure, socio cultural, educational and financial (Mahapatra & Singh, 2025). Similarly, the potential of realising the digital technology, which is not able to integrate in the rural tourism because of the digital divide like limited access to the internet connection, skills, and support.

The local government can play a vital role by developing the digital infrastructure with digital governance and regulation, along the collaboration with the different stakeholders to enhance the rural tourism. To develop the tourism sustainably, the local governments can support the rural stakeholders and create their engagement and effectiveness (Purnomo & Purwandari, 2025). Although, the benefits of the digitalisation is higher in tourism sector, country like Nepal is yet to harness the benefits of the same. The continuation of the challenges in governance and collaborative coordination are always an obstacle in adaption of the digitalisation in rural tourism sector.

Being a major tourist destination in Nepal, Annapurna Base Camp region it has a potential application of digital transformation. It can be utilises in improvement of service delivery, marketing elements, linking local areas and the stakeholders to the outer world. It will boost the tourism in the area. The region suffers obstacles like no proper digital systems, lack of the infrastructure helping digitalisation, with ineffective governance (Bhattarai et al; 2024).

The aim of the present study is to explore the digitalisation in the tourism sector in Annapurna Base Camp region. Additionally, the study examines the local government's support in the digital transformation in rural tourism.

Review of Literature

Social capital theory has been the foundation for the present that examines how digital technology exists. This theory shows that community trust, social and shared network, along with shared community standards, can be barriers to digital transformation. Purnomo and Purwandari (2025) mentioned that the digital project depends on social networks and trust between the governance structures and public involvement. Stakeholder theory holds that all residents, business owners, government officials, and tourists must participate in stakeholder engagement activities in accordance with stakeholder engagement models. The Philippine case used stakeholder engagement theory to show that local community members need empowerment, as they are vital stakeholders driving the digitalization of tourism (Lapuz, 2023).

Researchers have used the Technology Acceptance Model (TAM) to examine how individual

tourists adopt new technologies used in the tourism industry. Yan et al. (2024) used the Technology Acceptance Model, along with planned behavior elements, to show that tourist program usage depends on their assessments of program usability and program value. Institutional theory explains how government policies and professional norms create regulatory and normative pressures that influence technology adoption patterns. Rural digitalization experts consider institutional pushes to be drivers of technology adoption, but they warn that bureaucratic systems create obstacles to progress (Soares et al., 2021). The local governance theory requires decentralized decision-making systems that enable citizen participation through its collaborative and network governance models. Research shows that successful digitalization of rural tourism requires local governments to play three roles: fostering development and unifying resources through collaborative governance with community and private stakeholders (Chen et al., 2025). The combination of these theories demonstrates that rural digital tourism relies on two factors: social networks and institutional systems, as well as citizen attitudes, measured through TAM, and institutional pressures and governance frameworks.

Digital Technologies in Rural Tourism and the Nepal Context

Digital transformation, such as online platforms, that enables the access to the global market, decreasing the reliance of traditional agents and increases market accessibility, creates opportunities for the local business (Buhalis & Law, 2008; Ugurlu, 2022). Similarly, social media platforms supports as an additive cost-effective tool for e-marketing for the tourism sector. This enhances the rural tourism attraction in the destination and facilitates showcasing the cultural heritage (Xiang & Gretzel, 2010; Mahapatra & Singh, 2025).

The integration of the e-payment systems and e-wallets supports the cashless transactions and improves financial management for entrepreneurs involved in rural tourism (Liu & Jiang, 2025). Additionally, technologies like GIS, GPS supports the navigations in the destination, mapping the desination and as well the management of the protected areas. Alike, cloud-based property management supports the local tourism operators in their daily needs of the business like managing the bookings and financial management (Buhalis & Law, 2008; Romero & Mammadov, 2025). Moreover, the chatbots, engines that recommend support the tourist engagement and personalise the travel experiences (Gretzel et al., 2015; Joko Haryona et al., 2025). Having these technologies and its adoption is not the same in the destinations, especially the rural destinations in developing countries, that featured a lack of infrastructure and finance, barriers to culture and society (Ferrari et al., 2022).

Similarly, the technologies that enhance the rural tourism functionally enhance the destination identity, engagement of tourists in a cost-effective way (Xiang & Gretzel, 2010; Ugurlu, 2022). Financial management that facilitates cashless transactions (Liu & Jiang, 2025), financial inclusion for entrepreneurs (Lin & Ye, 2025), e-learning supports rural stakeholders a skill development facilitation (Joko Haryono et al., 2025; Bai & Yang, 2025), cloud based systems (Romero & Mammadov, 2025; Buhalis & Law, 2008), GIS tools for safety in the area (Buhalis & Law, 2008; Gretzel et al., 2015), AI chatbots (Ferrari et al., 2022; Mahapatra & Singh, 2025), apps that enable real time interactions (Gretzel et al., 2015; Neuhofer et al., 2015) boosts the rural tourism in the destination.

In contrast, there is a digital divide and uneven presence of digital technology in Nepal, especially in the tourism sector. Dhungana (2023) presents the limited presence of online

booking, social media use, and digital payments to attract tourists in the destination. The use of digital strategies and the use of digital channels are limited (Dhungana, 2024), along with the digital adoption in the trekking areas in Annapurna and Everest (Bhattarai et al., 2024). An inconsistent internet, lack of digital awareness, and limited resources (Kafle, 2022) hinder the Annapurna Conservation Area Project (ACAP) to excel in digitalization for a comprehensive digital ecosystem (Bhattarai et al., 2024). In existence, there is a divide in digital technology adoption across major tourism destinations. In the national capital area, the concentration of international tourism business or travel agencies has adopted digital adoption (Dhungana, 2023), whereas other destinations like Pokhara have slow adoption rates. Likewise, a growing adoption can also be seen in the use of e-payment mechanisms in remote trekking areas (Sharma et al., 2025). In the Everest region, one can see the adoption of GPS navigation, satellite communication (Bhattarai et al., 2024). Similarly, wildlife tourism areas use online booking and social media presence with limited technology adoption (Kafle, 2022). In the ABC area, there is a fragmented adoption of digital technology (Bhattarai et al., 2024).

Empirical studies identify a suite of barriers in developing-country and rural contexts. The digital tourism industry faces severe restrictions because people need reliable electricity, broadband connections, and strong ICT systems as basic requirements. Expert surveys note that limited connectivity is a major rural barrier (Ferrari et al., 2022). The digital skills gap, together with a digital literacy deficiency, constitutes a major additional obstacle. Rural residents need ICT training to increase their use of technology, but most lack the basic knowledge. Bai and Yang (2025) report that left-behind women in Chinese villages face limited educational resources and weak digital skills, which limit their participation in digital village initiatives. The issue is made worse by socio-cultural factors and gender-based discrimination. Traditional norms and gender roles may prevent women and older residents from accessing or trusting new technologies; strengthening women's digital empowerment is often necessary to break these glass ceilings (Lapuz, 2023). The locals who doubt technology and fear privacy loss have developed negative attitudes that stop them from using digital platforms. The researchers found that rural stakeholders show distrust toward new ICT systems and hold cultural beliefs that prevent them from accepting new technologies (Ferrari et al., 2022). The digital divide in rural tourism development manifests as inadequate infrastructure, which limits local ICT capabilities, creates gender and cultural barriers, and engenders institutional resistance.

Role of Local Government in Digital Transformation and Rural Tourism

Digital transformation of rural tourism development depends on local governments, which serve as essential support systems. Local authorities in developing regions create and implement tourism development strategies, build essential infrastructure, and implement training initiatives (Dhungana, 2023). The study by Lastiti Veri Anggaini et al. (2022) demonstrates that municipalities function as tourism village developers, handling their organizational duties while partnering with private and community stakeholders. Local governments establish public assets through their policy efforts, including creating municipal high-speed internet connections to eliminate access barriers. The organization operates digital literacy training programs targeting small business owners and tour guides. Governance research shows that government trustworthiness directly determines how much tourists support visiting destinations. Kim et al. (2025) used social capital and stakeholder theory to

demonstrate that trust in local authorities indirectly increases community support for tourism when accompanied by active public participation. Research on collaborative governance shows that local governments act as primary organizers of multi-stakeholder partnerships in rural tourism (Dhungana, 2024). Through these networks, they achieve their goals of aligning stakeholder interests and distributing resources.

Digital Empowerment Strategies for Rural Tourism

The literature recommends multiple empowerment strategies to address existing challenges. The primary focus should be on educational training programs. Tailored digital literacy programs for tourism operators, guides, and artisans can boost tech use; for instance, Bai & Yang (2025) recommend differentiated training for women in rural China to enhance their ICT skills and participation. The development of infrastructure is equally important, as experts advocate for public funding of broadband and mobile networks that enable digital tools to operate effectively.

The systematic review conducted by Joko Haryono et al. (2025) found that effective rural tourism digitalization requires organizations to implement three successive stages, beginning with the empowerment phase and progressing through the integration phase to the final stage of innovation. The empowerment process enables rural communities to utilize digital technology through three essential components: capacity building, infrastructure development, and networking capabilities.

Research Gaps and Future Directions

The existing literature contains important research gaps that should be addressed once new information becomes available on the subject matter. Researchers observe that most investigations yield typical results through cross-sectional analysis, which shows only digitalization development at a single point in time. The process by which digital technologies empower rural tourism warrants further study, as Lin & Ye (2025) identified this gap in their research. The existing literature lacks sufficient research on how local community factors affect digital transformation processes in rural tourism areas. Researchers need to investigate how different contexts, which include multiple countries and cultures and different types of rural destinations, affect their long-term effects on both livelihoods and equity distribution.

The existing knowledge base contains three gaps that need to be addressed through gender-based research that goes beyond identifying barriers to determine which empowerment methods increase female participation; policy research to determine which digital policies succeed; and theoretical framework research to combine TAM with social capital and institutionalism. Bai & Yang (2025) argue that future research should incorporate multiple multidimensional factors, accounting for regional differences. The research team recommends that researchers conduct case studies using mixed-methods approaches to examine stakeholder relationships through longitudinal field research of pilot projects. Theoretical frameworks and empirical research on digital transformation in rural tourism will advance through future research that examines how barriers interact with strategic options across different time periods and system levels.

Materials and Methods

This study is based on a primary survey and adopts a qualitative research design. A qualitative study explores the challenges of digital transformation in rural tourism and the role of local

government in the ABC region. A purposive method was used to select participants for the study. The interview schedule was prepared with reference to previous literature, with the identified functional and digital technologies for rural tourism. The present study focused on the marketing, financial management, HRD, visitors’ management with the communication pattern, technologies used in the region like online booking platforms, e-payment systems, e-navigations, cloud-based systems and e-learning platforms. The interview schedule comprises areas like the role of local government, digital transformation, digital empowerment and the functional areas of the technologies. The study conducted in-depth interviews with tourism entrepreneurs, local government authorities, ACAP representatives, and internet service providers, along with the local community leaders. The information was collected during the first week of September 2025. Interviews were conducted with ethical considerations and lasted for 30 to 40 minutes. The qualitative analysis was done with transcribed responses, with thematic analysis. Table 1 presents the demographic characteristics of the participants.

Table 1

Demographic characteristics of participants

Participant	Gender	Age	Education	Profession
P1	Male	41	High school	Entrepreneur
P2	Female	54	Primary	Entrepreneur
P3	Male	38	High school	Entrepreneur
P4	Male	55	High school	Ward chairman
P5	Female	47	Primary	Ward member
P6	Male	42	High school	Ward member
P7	Male	38	High school	Local leader
P8	Female	43	High school	Local leader
P9	Male	31	Bachelor	Internet service provider
P10	Male	45	Bachelor	ACAP representatives

Note: Field Survey 2025 and authors’ calculations.

Table 1 The qualitative study shows that the majority of participants (70%) are male. Most participants (70%) are aged 40 to 55 years, and the majority (60%) have a school and 10+2 level of education. Qualitative data consists of ten stakeholders, including local tourism entrepreneurs, local community leaders, local government authorities, technology providers, and ACAP representatives. Qualitative interviews focused on three issues related to digital transformation and rural tourism in the ABC region.

Results and Discussion

Digital Transformation Challenges in Rural Tourism

Digital literacy among rural populations is relatively low, which impedes digital transformation (Marsdenia, 2022). A low level of digital literacy in rural tourism hampers digital transformation. P1, P2 and P3 mentioned that, “*One of the biggest challenges is a lack of digital education. It is difficult to handle digital platforms. Even though smartphones have*

simplified many processes, a learning gap still slows adoption. Without ongoing support and training, many people in rural communities hesitate to use technology for their businesses. Similarly, P2 and P5 mentioned that, "Many people lack confidence in using digital tools. Even with access to smartphones, they often rely on their husbands or children to handle digital transactions and marketing. This dependency slows down their ability to become independent entrepreneurs. We need training programs that specifically focus on building confidence among women." P4 mentioned that problems with digital platforms and the unwillingness to adopt technology contribute to low digital literacy in rural areas. A lack of self-confidence in fintech use, dependence on male family members, and a need for confidence-building programs are essential to empowering rural people. A digital platform offers a wide range of opportunities to enhance visibility and accessibility, thereby empowering rural tourism. Digital tools can leverage the rural tourism market and empower the local economy.

Digital infrastructure and connectivity limit the value of rural tourism. There is a nexus between digital infrastructure and rural tourism development. Improving internet connectivity, boosting tourism infrastructure, and advancing digital finance are critical paths of tourism development (Liu & Jiang, 2025). P1, P3 and P9 mentioned that, *"Poor internet connectivity and unreliable electricity supply make it hard for rural entrepreneurs to rely on digital tools fully. In my business, I wanted to introduce instant services in many cases, but unstable internet access has made it impossible. Many rural entrepreneurs face similar challenges because digital solutions require a stable infrastructure that is still lacking in some parts of the region. P2 and P8 mentioned that many entrepreneurs who run homestays or sell handicrafts often struggle with inconsistent internet connectivity. If they cannot respond quickly to customer inquiries or online orders, they lose business. We need better network infrastructure, as well as offline-friendly digital tools that allow them to work even with limited internet access. Likewise, P5 mentioned that many women entrepreneurs lack stable access to power, limiting their ability to use digital devices effectively. In addition to improving internet connectivity, we need better energy solutions, such as solar-powered charging stations, to ensure that digital tools can be used reliably."* Infrastructure limitations, barriers to implementing digital solutions, and a lack of reliable technical foundations affect digital transformation in rural sectors. Since connectivity issues are impacting the rural tourism business, there is a need for offline-capable digital tools and infrastructure improvements. Given that many empirical studies find that digitalization positively influences rural tourism (Liu & Li, 2024; Zhang et al., 2024), adequate effort is needed to expand digital infrastructure.

As tourism is a key driver of economic growth, it is essential to identify the socio-cultural barriers that hinder the empowerment of rural communities (Summers et al., 2019). Local government and stakeholders' support can reduce such barriers and empower the economic growth of rural people. P5 and P8 highlighted, *"Social and cultural barriers play a big role in limiting women's access to digital technology. Some families believe that women should focus on household duties rather than business activities, so they do not support their learning of digital skills. Even when digital training programs are available, some women are discouraged from attending because they are expected to prioritize family responsibilities. Likewise, P2 mentioned that many women in our region still face social and economic barriers to digital access. Traditional gender roles mean they have limited time to learn new technologies. Additionally, smartphone and internet costs are high for low-income families,*

making it difficult for women to invest in digital tools for business. Similarly, P7 mentioned another major challenge is the lack of financial independence. Many women depend on their husbands or male family members for money, making it difficult for them to invest in smartphones, mobile data, or online business tools. If there were financial support programs or small grants for women entrepreneurs, it would be easier for them to access and utilize digital technologies.” Sociocultural restrictions on women's roles, family discouragement, and prioritization of domestic duties over business development are affecting digital transformation in the rural sector. Since financial dependence limits business expansion, there is a need for women-focused funding programs to reduce barriers to acquiring digital tools.

Secure digital payments are another concern of rural people that affects digital transformation in rural tourism. Digital payments are increasing today, facilitating digital transformation in rural tourism. However, the transformation is relatively slow due to digital payment security barriers that discourage several users (Grimes, 2003). P3 and P9 mentioned that *many rural people lack confidence when using digital tools. Even when training is provided, they fear making mistakes or being scammed online. This fear prevents them from exploring new opportunities such as online selling or digital marketing. More awareness campaigns, along with mentorship from experienced digital users, could help boost their confidence and encourage wider adoption of technology. P2 and P5 mentioned that some women fear online fraud and scams, which discourages them from adopting digital payments and e-commerce. Cybersecurity education should be included in digital literacy programs so that women can use digital tools safely and confidently.* Fear of digital technology and fraud, along with significant concerns about cybersecurity and online scams, are affecting digitalization in rural tourism. For this, rural tourism enterprises need to focus on educating through secure digital payment procedures.

Based on the above themes, digital literacy, digital infrastructure and connectivity, socio-cultural barriers, and secure digital payment procedures are affecting digital transformation in rural tourism.

Role of Local Government in Digital Transformation

The role of local government is crucial for digital transformation. A robust digital literacy program supported by local government can promote digital awareness among rural communities. It enables the adoption of digital platforms and finally helps to expand rural tourism (Atar et al., 2025). P1 and P3 mentioned that *“The local government has organized a few digital literacy workshops, but these programs are not effective enough. Many people in my village still find it difficult to use smartphones beyond basic calling and messaging. Women in the more remote parts of the region are often left out because programs are conducted in central areas, making it difficult for them to attend. P7 added, I believe the local government should introduce constant training programs rather than one-time sessions. Then, it will gradually increase the use of digital tools in their businesses. Digital literacy programs should be accessible to all, including the elderly and those with lower levels of formal education. Local government can raise awareness among rural people to make digital tools useful for daily life and business.”* Local government has initiated digital literacy programs, but they are inadequate. Local government can digitally empower through targeted digital literacy campaigns in remote areas, ultimately helping promote rural tourism.

Local government can play an effective role in developing a digital foundation, delivering

digital literacy training, and supporting the promotion and marketing of digital initiatives. Digital-based community empowers rural people and promotes rural tourism (Setiawan, 2024). P4 and P6 stated that, *“The government has taken steps to expand mobile networks and encourage digital payments, but it is still not sufficient. Many entrepreneurs, especially women running small businesses, still struggle to use online platforms due to limited education and awareness. More targeted initiatives, such as hands-on training sessions, could help bridge this gap and encourage more women to adopt digital solutions. Likewise, P2 and P5 mentioned that, there are still traditional barriers that prevent women from fully taking advantage of these opportunities. Without access to digital tools, it becomes difficult for women to participate in online entrepreneurship or digital marketing. The government should work on making digital devices more affordable and accessible.”* Local government policy may be essential for addressing issues related to digital infrastructure, women's struggles with online platforms, targeted skill development, and affordable digital access solutions for digital transformation in rural tourism.

Stakeholders' engagement and collaboration improve digital transformation in rural tourism. Technology is a critical issue in digital change, particularly in rural tourism. The active engagement of residents in using digital platforms and the local government's collaboration with stakeholders improve the application of digital technology in rural tourism (Lapuz, 2023). P6 and P10 mentioned that, *“The local government has initiated some digital literacy programs, but they are still limited in scope. Many rural communities lack awareness of digital opportunities, and cultural and economic barriers especially leave women behind. We are trying to integrate digital training into existing community programs, but we need stronger collaboration with NGOs and the private sector to expand these efforts. Similarly, PP7 and P8 mentioned that, “Women need not just training but also ongoing support. If the government can set up digital resource centers in each ward, women could get regular guidance on using technology for business and communication. The local government has set up free Wi-Fi zones in some community centers, which is a good step, but many women cannot make use of them due to household responsibilities. If there were mobile training units, more women would be able to develop digital skills. Further, P9 mentioned that “the government should provide incentives for private companies to expand digital services in rural areas. Reducing taxes on internet services and supporting infrastructure development would help service providers reach more remote locations.”* This would make digital access more affordable for small businesses and households. Stakeholder collaboration, sustained support systems, the establishment of local digital resource centers, the provision of flexible/mobile training solutions, the encouragement of private-sector incentives, and affordable access solutions are useful mechanisms for expanding digital transformation in rural tourism.

Digital Empowerment Strategies for Rural Tourism

Access and use of digital technology can empower economic activities, particularly in rural tourism (Lin & Ye, 2025). Digital transformation promotes rural tourism, increases accessibility and interaction, connects tourists to the destination, forecasts tourists' sentiment and feedback, and ensures tourist safety (Lapuz, 2023). Digital platforms are believed to be an effective tool for strengthening sustainable rural tourism. P1 and P3 mentioned that, *“Digital literacy programs should be accessible and teach skills such as online marketing and digital payments. Continuous support and mentorship are needed for applying digital tools.”* P7 mentioned that, *“Digital groups help to share knowledge and support one another with online business activities. A strong network of rural tourism entrepreneurs would make*

digital adoption easier.” P6 mentioned that, “Financial barriers discourage digital use. Support programs should be introduced to access digital platforms. P10 mentioned, “Many people in rural areas cannot start digital businesses due to limited access to the internet and digital services. Improving network infrastructure in rural areas is essential. Many rural entrepreneurs are interested in using digital tools but face connectivity issues.” Accessible digital literacy, affordable technology, ongoing mentorship, peer-to-peer learning networks, and community-based digital support improve digital transformation in rural tourism.

Gender-based initiatives empower people in digital technology and promote digital transformation in rural tourism. Opportunities and risks associated with digital tools may generate gender inequality for women-led rural tourism enterprises. Digital inequality is more about access, literacy, fluency, and device ownership (Alam et al., 2022). P2 and P8 mentioned that, *“A women-led online platform for promoting homestays, handicrafts, and tour services can increase visibility. Establishing women’s digital learning hubs that provide continuous support and mentorship would be highly effective”*. P8 further mentioned, *“These hubs could provide step-by-step guidance on using digital tools for business, helping women build confidence in their skills over time.”* P4 mentioned that the, *“Awareness campaigns should be conducted to change cultural perceptions that limit women’s access to technology. If more women see the successful women entrepreneurs as role models in their community, they can be motivated to learn and engage in digital entrepreneurship. Women’s digital empowerment should be linked to sustainable tourism initiatives.”* Dedicated women’s learning centers, empowering socio-cultural values, gender-focused digital inclusion initiatives, role model visibility, and local entrepreneur inspiration may promote digital transformation in rural tourism.

Local government, community cooperatives, and stakeholders’ collaboration facilitate the expansion of digital use in rural tourism (Lamichhane et al., 2024). Digital-based initiatives led by the community and stakeholders empower rural people, promote digital transformation, and expand rural tourism (Setiawan, 2024). P6 and P4 mentioned that, *“the government should introduce policies that make digital access more affordable for women entrepreneurs. Providing financial support for smartphones and internet access, along with free digital training, would significantly increase women’s participation in digital tourism. P7 and P8 mentioned that the, “affordable internet and smartphones through subsidies would help more women embrace technology. Community cooperatives can provide mentorship and shared learning opportunities.”* P9 mentioned that the, *“Government incentives, such as grants and tax benefits, would further encourage digital participation.”* Removal of financial barriers in accessing digital technology, expansion of digital foundations, digital inclusion initiatives, policy-driven digital programs, stakeholders’ support, and collaboration are essential for digital transformation in rural tourism.

The thematic analysis was used to analyze the qualitative data. Description codes were developed from the recorded interviews at first. Then, the data were grouped into three description codes and linked to the first-order codes. The details of the qualitative data have been presented in Table 2.

Table 2

Details of qualitative data

S.N.	Description codes	First-order themes
1.	Digital transformation challenges in rural tourism	Low digital literacy; problems with digital platforms; digital infrastructure and connectivity constraints; sociocultural restrictions on women's roles; Secure digital payments
2.	Role of local government in digital transformation for rural tourism	Digital literacy campaigns; developing a digital foundation; affordable digital access; developing sustained support systems, establishing local digital resource centers
3.	Digital empowerment strategies for rural tourism	Accessible digital literacy; affordable digital technology; ongoing mentorship; peer-to-peer learning networks; community-based digital support; gender-focused digital inclusion initiatives; expanding digital foundations; policy-driven digital programs; stakeholders' support and collaboration

Note: Sub-theme development based on participants' responses.

Table 2 shows the three domains of qualitative data: digital transformation challenges in rural tourism, the role of local government in digital transformation for rural tourism, and digital empowerment strategies for rural tourism. Based on these codes, first-order themes were developed to capture the lived experiences of 10 participants through qualitative inquiry.

Table 3 explores second-order themes generated from the first order. It also reflects relevant theories of digital transformation challenges in rural tourism and the role of local government.

Table 3

Details of themes and relevant theories

Second-order themes	Relevant theories
Digital impairment, structural obstacles, and governance concerns	Social capital theory Technology acceptance model (TAM) Institutional theory Stakeholders' theory Local governance theory
Digital capacity expansion, digital infrastructure collaboration, and local governance	
Inclusive digital capacity initiatives, community-based digital support system, governance empowering mechanism	

Note: Sub-themes and themes are developed based on participants' responses.

Based on the findings reflected in Table 3, digital transformation challenges in rural tourism are linked to digital impairment, structural obstacles, and governance concerns. These findings are consistent with Gómez-Carmona et al. (2023), who found that the use of digital platforms can be expanded through collaboration and engagement with stakeholders, the establishment of trust in digital systems, and the acceleration of the widespread adoption of digital services. The tourism industry is well-positioned to adapt to a changing environment in a prevailing society by expanding smart tourism that promotes rural tourism (Arbidane et al., 2023). Digital transformation for rural tourism requires addressing technological, human capital, and institutional dimensions (Romero & Mammadov, 2025).

The role of local government in digital transformation for rural tourism is inadequate and needs to expand digital capacity, collaborate on digital infrastructure, and strengthen local governance. These results align with Purnomo and Purwandari (2025), who argue for integrating technological advancements, guidance, and expanded governance into local tourism policies. Enhancing digital governance ability is critical to transforming rural tourism. Local government may improve digital governance ability by establishing an online public monitoring system, optimizing the management information system, developing digital infrastructure and platforms, and strengthening digital mechanisms (Xu & Dai, 2024).

Digital empowerment strategies for rural tourism include inclusive digital capacity initiatives, a community-based digital support system, and a governance mechanism. These research outcomes support the findings of Su et al. (2025) that digital capabilities positively impact household earnings, livelihood strategies, and socio-cultural education through innovative digital models in rural tourism. Collaborative mechanisms, capacity building initiatives, adaptive innovation, and governance systems are the key drivers of digital transformation in rural tourism (Suriyankietkaew et al., 2025).

The theoretical framework (social capital theory, technology acceptance model, institutional theory, stakeholder theory, and local governance theory) strongly supports the second-order themes. Social capital theory claims that digital resources for tourism in rural areas are embedded within the community, fostering collaborative learning through peer-to-peer and mentorship networks to build collective digital engagement (Dickinson et al., 2017; Sharma et al., 2025). TAM describes users' perceptions of digital capability, access for all, and building digital infrastructure to support both the use of technology and the community's ability to use it (Sharma et al., 2025). Institutional theory focuses on legitimizing digital initiatives and minimizing risk through building users' trust in digital technology (Pathak et al., 2025). The stakeholder theory describes the role of local government as a crucial partner in collaborative efforts among local entrepreneurs, local tourism, financial institutions, and other local entities to leverage digital ecosystems and create shared value (Duarte Alonso & Nyanjom, 2017). Finally, local governance theory describes the role of local government by creating a collaborative decision-making system that enables all local entities to participate in policymaking and fosters sustainable digital development in rural tourism (Panyik, 2015).

Conclusion

Rural tourism is an economic drive that improves livelihoods and strengthens local economies in developing nations like Nepal. Digital transformation in rural tourism is a significant issue like digital and structural barriers, with governance concerns. Digital technology reshapes core principles of the tourism value chain and transforms rural tourism. The focus of local government is inadequate and must expand digital capacity, collaborate on digital infrastructure, and strengthen local governance for fostering digital transformation in rural tourism. It is necessary to strengthen a digital platform through enabling mobile/digital payments, providing digital education, and advancing a digital collaboration system. With a sustained commitment, inclusive policy design with a multi stakeholder engagement and commitment should be prioritized, so that the potential for rural tourism transformation with digitalization.

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