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Original Article

Innovative Digital Marketing Strategies in Rural Tourism: Leveraging Augmented Reality and Intelligent Algorithms in Technological Ecosystems

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Abstract

Purpose- This study aims to identify and analyze innovative digital marketing strategies in rural tourism, with a specific focus on leveraging Augmented Reality (AR) and intelligent algorithms within technological ecosystems. The main research question is: How can augmented reality and intelligent algorithms be utilized to enhance digital marketing in rural tourism to effectively attract tourists and promote sustainable local development? This research addresses a gap in the integration of AR and artificial intelligence in rural contexts, where prior studies have often examined these technologies in isolation and with less emphasis on rural settings.

Design/methodology/approach- Employing a qualitative exploratory approach and thematic analysis method, data were collected through semi-structured interviews with 16 experts in digital marketing, information technology, and management. Snowball sampling was used for participant selection, with theoretical saturation achieved after the 16th interview.

Findings- The analysis revealed seven overarching themes: technological transformation of the tourism experience (e.g., AR virtual tours and AI personalized recommendations), empowerment of local communities (through digital literacy training and local content production), redefinition of marketing strategies (e.g., location-based marketing and algorithm-optimized advertising), cultural and environmental sustainability (preservation via virtual museums and reduced ecological impact), implementation barriers (e.g., weak infrastructure and ethical concerns), horizons of innovation and research (e.g., gamification and metaverse), and digital identity reconstruction (through cultural branding with emerging technologies).

Research limitations/implications- Limitations include the focus on a specific cultural context (e.g., rural Iran), lack of longitudinal data for long-term change analysis, and reliance on qualitative data potentially influenced by researcher bias. Implications suggest longitudinal studies to assess long-term technology impacts and comparative research across diverse regions.

Practical implications- Rural tourism managers can develop localized AR platforms, implement digital literacy programs for local populations, and deploy AI-powered location-based marketing systems to boost tourist attraction and enhance local sustainability.

Originality/value- This study provides the first comprehensive framework for integrating AR and intelligent algorithms in rural tourism marketing, emphasizing rural-specific challenges like infrastructure deficits and cultural resistance, adding value for sustainable development in developing regions.

Keywords- Digital marketing, Rural tourism, Augmented Reality, Intelligent Algorithms, Sustainable development.

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1. Introduction

The integration of digital marketing strategies into rural tourism has gained significant importance as destinations seek to enhance visibility and attract diverse tourists, fostering sustainable local development. Recent advancements in Augmented Reality (AR), Artificial Intelligence (AI), and Big Data have opened innovative avenues for marketing, enabling rural regions to leverage immersive technologies and data-driven insights (Xie, 2022; Wang, 2023). This study addresses the research question: *How can augmented reality and intelligent algorithms be utilized to enhance digital marketing in rural tourism to effectively attract tourists and promote sustainable local development?* The objectives include identifying innovative marketing strategies, analyzing the impacts of AR and AI on tourist behavior and community engagement, and proposing solutions to overcome implementation barriers in rural contexts. Despite a growing body of literature on emerging technologies in tourism, a critical research gap persists regarding the integrated use of AR and AI in rural tourism marketing. Most studies have focused on urban or well-established tourist destinations, leaving rural-specific challenges—such as weak technological infrastructure, limited digital literacy, and cultural resistance—underexplored (Krishnamma, 2025; Alsufyani, 2025). For instance, while AR enhances tourist engagement through immersive experiences, studies indicate that over 60% of AR projects in rural areas fail due to inadequate internet connectivity (Jang et al, 2023). Similarly, AI-driven personalization improves marketing effectiveness, but privacy concerns and cultural resistance in local communities can hinder adoption (Irsyad et al, 2024). This gap underscores the need for comprehensive studies that examine the synergy of AR and AI in rural tourism, particularly in developing regions like Iran, where digital marketing remains underutilized.

The transformative potential of AR and AI in rural tourism is well-documented. AR creates interactive experiences, such as virtual tours and QR-based applications, that showcase cultural and natural attractions, enhancing visitor satisfaction and promoting local heritage (Zaifri et al, 2023). AI, through recommender algorithms and data analytics, optimizes marketing campaigns by predicting trends and tailoring content to diverse tourist segments (Dewi et al, 2025). The COVID-19 pandemic further accelerated this digital transformation, pushing rural destinations to adopt strategies like social media marketing and influencer collaborations to align with evolving consumer preferences for safe and personalized experiences (Vu et al, 2025; Kristiani et al, 2025). Big Data plays a pivotal role in understanding tourist behavior, enabling targeted marketing that aligns with sustainable practices (Nannelli et al, 2023).

This study focuses on rural areas, particularly in developing regions like Iran, examining specific AR tools (e.g., QR-based apps and virtual tours) and AI tools (e.g., recommender systems and data analytics) within cultural and natural destinations. Key limitations include weak technological infrastructure, low digital literacy among local communities, and privacy concerns, which may constrain technology adoption (Jang et al, 2023; Ying et al, 2024). The scope excludes urban tourism contexts and focuses on rural-specific challenges and opportunities.

In conclusion, the convergence of AR, AI, and Big Data in digital marketing offers transformative opportunities for rural tourism. By embracing these innovations, rural destinations can enhance marketing efforts, foster deeper tourist engagement, and promote sustainable practices that benefit local communities and the environment (Kumar and Barua, 2024). This study contributes to understanding how these technologies redefine marketing strategies, addressing empirical themes such as technological transformation, local community empowerment, marketing redefinition, sustainability, barriers, innovation, and digital identity in rural tourism contexts.

Table 1. Comparative Table of Research Gaps in Rural Tourism Digital Marketing

Previous Studies (Reference)	Research Gap in Previous Studies	How This Study Addresses the Gap
Xie & He (2022)	Focus on smart technologies (big data and AI) in general tourism, without integrating AR and AI in rural contexts or analyzing rural-specific challenges like weak infrastructure.	This study integrates AR and AI, analyzing rural challenges (e.g., infrastructure, digital literacy) in developing regions like Iran, focusing on sustainable digital marketing.
Wang et al (2023)	Emphasis on AR interactive experiences in tourism, but limited to urban destinations and lacking integration with AI or analysis of rural challenges like cultural resistance.	Integrates AR with AI for interactive experiences in rural cultural/natural destinations, critically analyzing cultural resistance and proposing community empowerment solutions.
Krishnamma et al (2025)	Examines technology adoption challenges in tourism, but lacks focus on rural contexts, AR/AI integration, or privacy analysis in digital marketing.	Focuses on privacy as a key limitation in rural areas, proposing specific AR/AI tools (e.g., QR apps, recommender algorithms) for safe, sustainable marketing.
Alsufyani et al (2025)	Analyzes technology challenges in tourism, primarily urban, without exploring AR/AI synergy in developing rural contexts.	Examines AR/AI synergy in rural Iran, analyzing developing region challenges like low digital literacy and proposing local training for empowerment.
Jang et al (2023)	Notes AR project failures due to weak infrastructure, but lacks integration with AI or focus on sustainable rural marketing.	Combines AR with AI to overcome infrastructure issues, proposing targeted marketing strategies that enhance environmental and economic sustainability.
Irsyad et al (2024)	Examines AI personalization in tourism, but lacks AR integration or analysis of cultural resistance in rural communities.	Integrates AI personalization with AR experiences, critically analyzing cultural resistance and proposing culturally sensitive solutions for rural adoption.
Zaifri et al (2023)	Focuses on AR interactive experiences, but limited to general aspects without rural challenges or AI integration.	Extends AR experiences to rural destinations with AI integration, enhancing tourist satisfaction and local heritage preservation, linked to sustainability and innovation themes.
Dewi et al (2025)	Analyzes AI algorithms for personalized marketing, but lacks focus on rural areas or AR integration.	Uses AI for personalization in rural marketing, combined with AR for effective campaigns, proposing solutions for higher conversion and local retention.
Vu et al (2025)	Examines COVID-19's impact on digital transformation, but lacks focus on AR/AI in rural contexts.	Integrates COVID-19 impact with AR/AI for post-pandemic rural strategies, like social media and influencers, to attract safe tourists.
Kristiani et al (2025)	Notes digital strategies like social media, but limited to general aspects without AR/AI integration in rural areas.	Combines social media with AR/AI for rural marketing, focusing on destination appeal and sustainability to overcome rural challenges.
Nannelli et al (2023)	Role of big data in targeted marketing, but lacks AR/AI integration or rural challenge analysis.	Integrates big data with AR/AI for sustainable rural marketing, analyzing tourist behavior and aligning with local and environmental needs.
Ying et al (2024)	Examines digital literacy limitations, but lacks focus on rural tourism marketing with AR/AI.	Proposes digital training for rural communities as a solution to literacy barriers, linked to empowerment and AR/AI adoption.
Kumar & Barua (2024)	Emphasis on sustainability in digital tourism, but lacks integrated AR/AI focus in rural areas.	Focuses on sustainability through AR/AI, proposing local economic development and environmental preservation, linked to digital identity and innovation themes.

Table 2. Table of Introduction Aspects in Rural Tourism Digital Marketing

Aspect	Description	Sources
Importance of Digital Marketing in Rural Tourism	Integration of digital marketing strategies enhances visibility, attracts diverse tourists, and promotes sustainable local development through interactive technologies and data-driven insights.	Xie & He (2022), Wang et al (2023), Kumar & Barua (2024)
Research Gap	Limited studies on the integrated use of AR and AI in rural tourism marketing, with most research focusing on urban destinations. Challenges like weak infrastructure, cultural resistance, and privacy concerns in rural settings remain underexplored.	Alsufyani et al (2025), Jang et al (2023), Irsyad et al (2024)

Research Question	How can augmented reality and intelligent algorithms be utilized to enhance digital marketing in rural tourism to effectively attract tourists and promote sustainable local development?	Zaifri et al (2023), Dewi et al (2025)
Objectives	Identify innovative marketing strategies using AR/AI, analyze their impacts on tourist behavior and community engagement, and propose solutions for barriers like infrastructure and digital literacy in rural contexts.	Nannelli et al (2023), Vu et al (2025)
Recent Studies	AR enhances tourist engagement through virtual tours and QR-based apps, preserving local heritage. AI optimizes marketing with recommender algorithms and data analytics. Social media and influencer collaborations align with post-COVID preferences.	Wang et al (2023), Zaifri et al (2023), Dewi et al (2025), Kristiani et al (2025), Vu et al (2025)
Scope	Focus on rural areas in developing regions (e.g., Iran), examining specific AR tools (QR-based apps, virtual tours) and AI tools (recommender systems, data analytics) in cultural and natural destinations, excluding urban contexts.	Nannelli et al (2023), Alsufyani et al (2025), Ying et al (2024)
Limitations	Weak technological infrastructure (e.g., over 60% of AR projects fail due to poor internet), low digital literacy among local communities, and privacy concerns related to AI-driven data collection, limiting technology adoption.	Jang et al (2023), Irsyad et al (2024), Krishnamma et al (2025), Ying et al (2024)
Empirical Themes	Technological transformation (AR/AI integration), local community empowerment (digital training), marketing redefinition (personalized campaigns), sustainability (cultural/environmental preservation), barriers (infrastructure, privacy), innovation (new marketing tools), and digital identity (redefining rural destinations).	Kumar & Barua (2024), Zaifri et al (2023), Dewi et al (2025), Nannelli et al (2023), Bretos et al (2023)

2. Research Theoretical Literature

The integration of digital marketing strategies into rural tourism has attracted increasing scholarly attention in recent years, particularly with the advent of technologies such as Augmented Reality (AR), Artificial Intelligence (AI), and Big Data. These technologies have fundamentally transformed how rural destinations interact with potential tourists, significantly enhancing marketing effectiveness and the overall tourist experience (Xie & He, 2022; Vu et al, 2025).

Augmented Reality, as a powerful marketing tool, enables the delivery of immersive and interactive content that enhances visitor satisfaction and engagement. Through virtual tours and real-time visualizations, AR allows tourists to explore destination attractions before their visit, thereby enriching their decision-making process (Bretos et al, 2023). This technology not only enhances user experience but also plays a critical role in preserving local culture and heritage, while increasing marketing effectiveness through personalized content based on individual preferences (Setiawan, 2024; Ozdemir, 2021).

The integration of digital technologies into rural tourism has increasingly been recognized as a critical strategy for enhancing tourist engagement and promoting sustainable local development. This theoretical background examines the application of Augmented Reality (AR), Artificial Intelligence (AI), and Big Data in digital marketing within rural tourism contexts. By leveraging theoretical frameworks such as smart tourism, the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT), this study elucidates the relationships between these technologies and marketing outcomes, addressing the research question:

How can augmented reality and intelligent algorithms be utilized to enhance digital marketing in rural tourism to effectively attract tourists and promote sustainable local development?

Recent studies emphasize the transformative potential of AR and AI in tourism marketing. AR enhances visitor experiences by providing immersive interactions with cultural and natural resources, thereby increasing satisfaction and engagement (Zaifri et al, 2023). In contrast, AI enables personalized marketing strategies by analyzing data and providing customer insights, which are vital for attracting diverse tourist segments (Dewie et al, 2025). Big Data plays a pivotal role in understanding consumer behavior and preferences, enabling targeted marketing that aligns with sustainable practices (Nannelli et al, 2023).

2.1. Conceptual Framework

The theoretical framework of this study is rooted in the smart tourism paradigm, which emphasizes the integration of advanced technologies to enhance tourist experiences and destination competitiveness. The UTAUT model provides insights into the adoption of AR and AI technologies by users, indicating that performance expectancy, effort

expectancy, social influence, and facilitating conditions significantly impact technology acceptance in tourism (Çalişkan et al, 2023). This framework facilitates an examination of how AR and AI redefine marketing strategies in rural tourism.

2.2. Conceptual Propositions

- **Proposition 1**: The implementation of AR in rural tourism marketing enhances tourist engagement by providing interactive and immersive experiences, ultimately leading to greater visitor satisfaction and loyalty (Zaifri et al, 2023).
- **Proposition 2:** AI-driven personalization of marketing improves the effectiveness of digital marketing strategies, resulting in increased conversion rates and customer retention in rural tourism contexts (Dewie et al, 2025).
- **Proposition 3:** The use of Big Data analytics in understanding tourist behavior and preferences strengthens sustainable tourism practices by enabling targeted marketing that aligns with local community needs and environmental considerations (Nannelli et al, 2023).

Despite the promising applications of AR, AI, and Big Data in rural tourism, several limitations persist. Weak digital infrastructure in rural areas can hinder the effective implementation of these technologies, leading to disparities in access and participation (Jang et al, 2023). Additionally, privacy concerns related to data collection and usage pose significant challenges, potentially deterring tourists from engaging with digital marketing initiatives (Krishnamma et al, 2025). Furthermore, limited digital literacy among local communities can constrain the successful adoption of these technologies, necessitating targeted training and support (Ying et al, 2024).

The integration of AR, AI, and Big Data into digital marketing offers significant opportunities for enhancing rural tourism. Future research should focus on empirical studies that explore the long-term impacts of these technologies on tourist engagement and sustainable development. Moreover, addressing barriers to technology adoption, such as infrastructural limitations and privacy concerns, will be essential for maximizing the benefits of digital marketing in rural tourism contexts.

On the other hand, AI technologies—particularly predictive analytics and recommendation systems—play a crucial role in optimizing digital marketing strategies. For example, a study conducted in Bali, Indonesia, demonstrated that AI significantly improved audience targeting and engagement rates, ultimately increasing return on investment in marketing campaigns (Dewie et al, 2025). The integration of AI with big data analytics enables the identification of behavioral trends and patterns, allowing for more accurate resource allocation and marketing actions (Lu et al, 2024; Xie et al, 2022). This approach aligns with the concept of smart tourism, which aims to enhance the sustainability and competitiveness of rural destinations through innovative technology adoption (Vu et al, 2025).

Despite the numerous benefits, implementing these technologies in rural areas poses several challenges. These include high implementation and maintenance costs, inadequate technological infrastructure, and limited digital literacy among local stakeholders—all of which hinder the adoption of advanced technologies like AR and AI in rural tourism (Dewie et al, 2025) One of the critical factors in ensuring the sustainability of rural businesses is the establishment of adequate and appropriate infrastructure. Equally important is the acceptance of technology by rural communities, their trust in these innovations, and the provision of relevant training to enhance their digital literacy and engagement with technology.(Anabestani et al, 2024) Limitations in the realm of technology negatively impact employment, economic development, and the well-being of rural residents, while also creating temporal and spatial constraints. (Anabestani et al, 2023).

Additionally, balancing technological innovation with the preservation of cultural authenticity and traditional practices remains a major challenge that requires close collaboration and active participation from local communities (Muntean et al, 2025; Kristiani el al, 2025). Addressing these barriers necessitates digital skill training and government support (Kristiani el al, 2025). Studies suggest that smart rural tourism, as an innovative approach, emerges from the integration of factors such as smart economy, smart governance, smart infrastructure, smart people, smart connectivity, and smart education. According to the research by Anabestani and Barani Aliakbari (2023), a spatial analysis of these factors in the target tourism villages of eastern Kermanshah Province highlights

the critical role of these indicators in promoting sustainable rural tourism development. This study is grounded in the premise that blending smart technologies with the unique characteristics of rural areas can lead to a comprehensive framework for enhancing tourist experiences and empowering local communities. Such an approach, recognized in the theoretical literature as a foundation for spatial planning, emphasizes the importance of aligning infrastructure, community participation, and intelligent management

The COVID-19 pandemic has also played a significant role in accelerating digital transformation in rural tourism. Faced with travel restrictions and health concerns, rural destinations were compelled to strengthen their online presence and adopt digital tools to attract and engage with potential visitors (Kristiani el al, 2025). This experience highlighted the importance of flexibility and rapid adaptation in marketing strategies, offering new opportunities to rethink and innovate traditional marketing models.

Existing literature also identifies multiple directions for future research. These include exploring the role of gamification in AR applications and assessing the long-term impacts of AI on rural tourism marketing (Bretos et al, 2023). Understanding the acceptance of AR and AI technologies among users and stakeholders—especially through frameworks such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM)—is another critical area of inquiry (Çalışkan et al, 2023; Zuhroh et al, 2024). Furthermore, evaluating the effectiveness of different digital marketing channels, such as social media and influencer marketing, particularly in rural tourism, can provide a more precise understanding of successful marketing practices (Saura et al, 2020). In the conducted research on the **bibliometric and content analysis of global trends in digital transformation and rural tourism**, the article identifies five key clusters in studies related to digital transformation within rural tourism:

- The impact of digital marketing strategies on rural destinations.
- The role of digital technology solutions in supporting sustainable tourism development.
- The application of information technology in community-based rural tourism.
- The use of GIS and scanning technologies for rural tourism management.

This study emphasizes the growing significance of digital transformation in rural tourism and proposes future research directions to strengthen the relevance and advancement of this field. (Vu et al, 2025)

In conclusion, the integration of AR, AI, and big data into digital marketing strategies offers unprecedented and innovative opportunities for rural tourism. Despite technical, financial, and cultural challenges, the potential benefits of these technologies in attracting more tourists, enhancing visitor experiences, and fostering sustainable rural development are substantial. Continued and deepened research, along with a focus on training and empowering local communities, is essential for the effective utilization of these technologies and for ensuring a sustainable future for rural tourism.

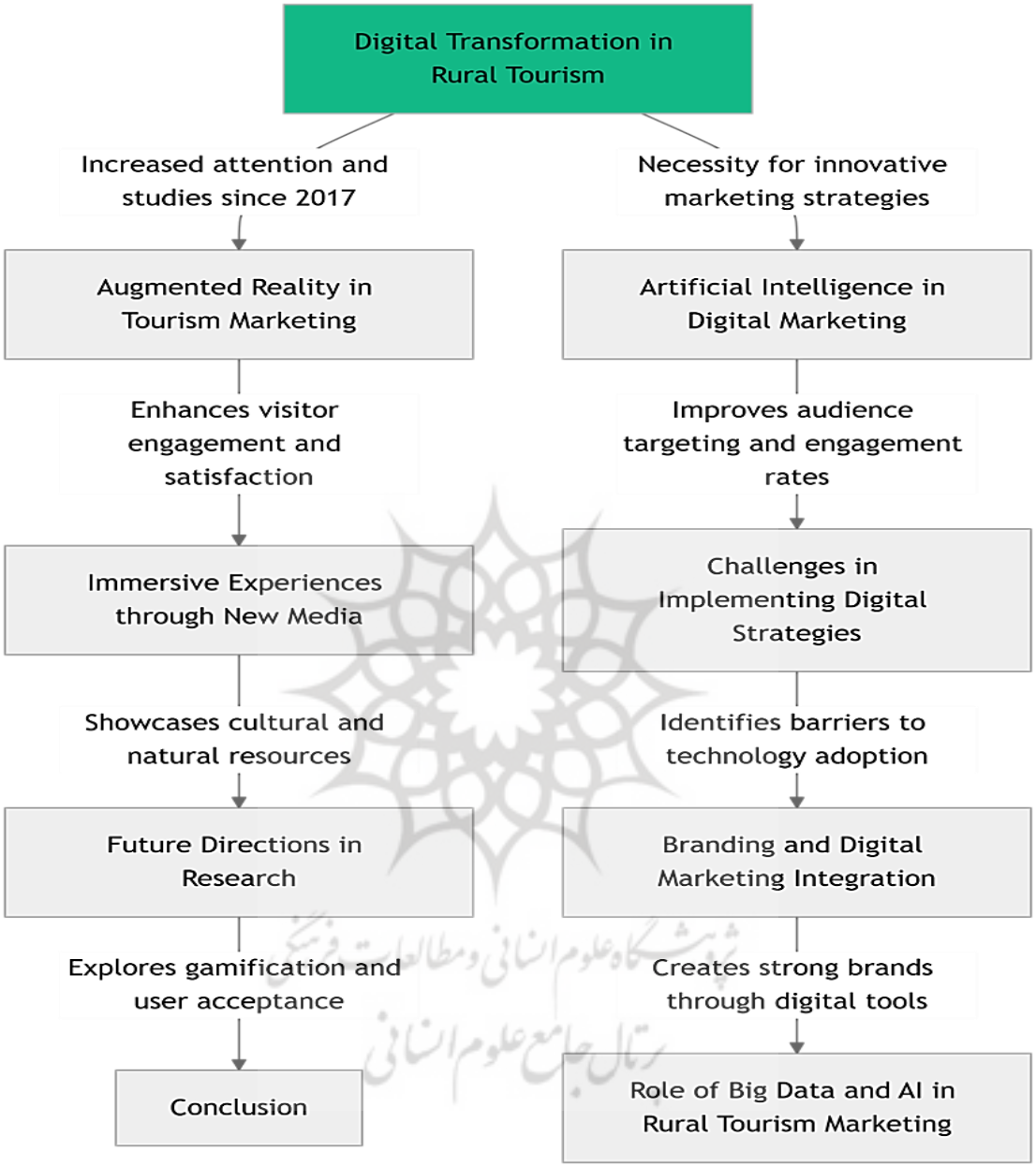

Figure 1. Digital Transformation in Rural Tourism

According to the diagram, multiple key dimensions of digital marketing strategies in rural tourism are interconnected. This framework demonstrates that digital transformation in this domain not only enhances the overall tourist experience but also highlights the pivotal role of tools such as augmented reality (AR) and artificial intelligence (AI) in increasing visitor engagement and satisfaction.

At the same time, the implementation of these technologies entails certain challenges that must be addressed. To overcome such barriers, future research is expected to focus on issues such as gamification and user acceptance, aiming to improve the effectiveness of digital tools in attracting and retaining audiences.

Furthermore, the diagram emphasizes the significance of branding and the integration of digital marketing instruments. The intelligent use of

emerging technologies can contribute to building stronger brands for rural destinations and, through big data and artificial intelligence, pave the way for more sustainable marketing practices.

These insights are derived from recent studies (Xie et al, 2022; Dewi et al, 2025; Wang et al, 2023) which underscore the critical role of technology in advancing and promoting sustainable tourism practices

The diagram also illustrates that digital transformation in rural tourism has evolved along two main pathways:

The Augmented Reality (AR) Pathway- Since 2017, increasing attention has been directed toward emerging technologies such as augmented reality. This technology enhances visitor satisfaction and engagement by creating immersive experiences, thereby enabling a more effective presentation of rural cultural and natural resources. Looking ahead, research is expected to focus on gamification and user acceptance, which will ultimately pave the way for the sustainable development of rural tourism.

The Artificial Intelligence (AI) Pathway- On the other hand, the growing demand for innovative marketing strategies has facilitated the integration of artificial intelligence into this field. AI has improved precise audience targeting and boosted engagement rates. However, the implementation of digital strategies continues to face challenges, such as resistance to technology adoption. Consequently, the integration of branding with digital marketing becomes crucial for building stronger destination brands. Ultimately, big data and AI are expected to play a pivotal role in advancing rural tourism marketing.

3. Research Methodology

The present study is exploratory qualitative research conducted with the aim of identifying and analyzing novel digital marketing strategies in rural tourism. The data were analyzed using the thematic analysis method. This research adopts an inductive approach, which focuses on deriving theory from data, and is grounded in an interpretivist philosophy, emphasizing the understanding of experts' subjective meanings.

The statistical population of the study consisted of experts in the field of digital marketing, specialists in artificial intelligence technologies within advertising agencies, as well as professors of management, marketing, and information technology from universities in Tehran, Isfahan, and Semnan. The selection criteria for participants included possessing academic expertise or practical experience in digital marketing or artificial intelligence—evaluated through their résumés or published works—and having more than three years of managerial experience in relevant projects.

The snowball sampling method was applied, whereby initial experts were identified by the researcher and subsequently, additional participants were recruited through their referrals. In total, 25 participants were selected, with the sample size determined based on theoretical saturation. Specifically, by the 16th interview, overlapping and repetitive codes emerged, and no new information was added to the dataset.

Ultimately, 16 participants were finalized as the representative sample, with theoretical saturation occurring between interviews P7 and P16. However, to ensure greater validity, interviews continued up to P18. The following table illustrates the process of theoretical saturation. The criterion for saturation was the absence of new codes after repeated comparisons.

Table 3. Stages of Interview Saturation

Interview Code	Description	Cumulative Codes up to this Interview	Repeated Codes	New Codes	Saturation Status
P1	Beginning of coding process	36	–	36	Developing
P2	Expansion of basic concepts	64	8	28	Developing
P3	Emergence of complementary concepts	88	12	24	Developing
P4	Overlap with previous interviews	108	15	20	Developing
P5	Gradual reduction of new themes	122	14	14	Developing
P6	Decrease in frequency of new codes	133	11	11	Developing
P7	Beginning of theoretical saturation; identification of key concepts	142	9	9	Start of Saturation
P8	Consolidation of initial concepts	150	8	8	Approaching Saturation
P9	Moving closer to theoretical saturation	158	8	8	Approaching Saturation

Interview Code	Description	Cumulative Codes up to this Interview	Repeated Codes	New Codes	Saturation Status
P10	Minor additions to the model	166	8	8	Approaching Saturation
P11	Continuation of relative saturation	174	8	8	Approaching Saturation
P12	Further reduction of new codes	182	8	8	Approaching Saturation
P13	Nearing complete saturation	190	8	8	Approaching Saturation
P14	Noticeable decline in codes	196	6	6	Approaching Saturation
P15	Almost no new codes	198	2	2	Near Complete Saturation
P16	Complete saturation; no new codes	198	0	0	Complete Saturation
P17	Initial confirmation of saturation with no new codes	198	0	0	Confirmed Saturation
P18	Final confirmation of saturation with no new codes	198	0	0	Confirmed Saturation

The primary data collection tool was semi-structured interviews, conducted in person, by telephone, and online, and recorded with the consent of participants. The interview questions were designed to explore experiences with the use of technologies such as augmented reality, artificial intelligence, big data, and recommender systems in rural tourism marketing, as well as to assess the extent to which these technologies enhance engagement, attract tourists, and contribute to sustainable development. Each interview lasted between 45 and 60 minutes. With participants' informed consent, the interviews were audio-recorded and subsequently transcribed.

Ethical considerations were strictly observed, including obtaining informed consent, ensuring data confidentiality (by storing data on a secure server and anonymizing names), and safeguarding the right to withdraw from participation at any stage.

The interview protocol consisted of five key questions:

3.1. The interview included five key questions

1. How do emerging technologies such as augmented reality and intelligent algorithms contribute to enhancing the effectiveness of digital marketing in rural tourism?
2. What factors facilitate or hinder the successful implementation of digital technologies in rural tourism marketing strategies?
3. What impacts do augmented reality and artificial intelligence have on tourists' experiences, interaction with content, and decision-making in selecting rural destinations?
4. How can the use of digital marketing technologies increase local community participation in tourism development and the preservation of indigenous culture?
5. What role does technology-based digital marketing play in achieving sustainable development goals in rural tourism destinations?

To ensure clarity and comprehensibility, the interview questions were reviewed several times and pilot-tested with three experts. This procedure confirmed that respondents consistently and accurately understood the concepts. The interview protocol table (aligned with the research questions) is presented below:

Table 4. Interview Protocol (Aligned with Research Questions)

Main Question	Objective	Probes (Follow-up Questions)	Alignment with Research Question
1. How do emerging technologies such as AR and intelligent algorithms enhance digital marketing?	To examine the role of technologies	Examples of AR applications in virtual tours	Directly related to the application of AR and AI in attracting tourists and fostering sustainable development
2. What are the success factors for implementing digital technologies?	To identify enablers and barriers	Infrastructural challenges such as poor internet connectivity	Refers to the challenges of implementation in rural contexts

Main Question	Objective	Probes (Follow-up Questions)	Alignment with Research Question
3. What impacts do AR and AI have on the tourist experience?	To analyze the effects on tourist behavior	Influence on interaction and decision-making	Related to the effective attraction of tourists
4. How do technologies enhance local community participation?	To explore community empowerment	Role in preserving indigenous culture	Refers to promoting sustainable local development
5. What is the role of technology-based digital marketing in sustainable development?	To evaluate sustainable outcomes	Sustainable Development Goals (SDGs)	Directly aligned with the core research question

The data obtained from the interviews were analyzed using **thematic analysis** based on the six-step framework:

1. **Familiarization with the data:** At this stage, the researcher repeatedly and actively reviewed the data with the aim of identifying meanings and patterns. Initial note-taking and marking of emerging concepts—later used in subsequent stages—began here.
2. **Generating initial codes:** After familiarization, initial coding was performed. Relevant segments of the data were identified and coded according to the research focus. Coding could be either data-driven or theory-driven, depending on the research objectives.
3. **Searching for themes:** The initial codes were systematically organized into potential themes. Some codes formed main themes, others became sub-themes, while unrelated codes were discarded.
4. **Reviewing themes:** At this stage, the identified themes were refined through a two-level process: first, by reviewing themes against the summarized codes, and second, by evaluating them against the entire dataset. Coding and theme development continued until a satisfactory thematic map was achieved.
5. **Defining and naming themes:** Once finalized, the themes were defined, named, and analyzed. This included revisiting each theme to specify its scope and detailing the data represented within it.
6. **Producing the report:** In the final stage, the researcher conducted the ultimate analysis and prepared the research report. The report included refined themes and their interpretations. This step-by-step, structured, yet flexible process allowed the researcher to systematically analyze the data and provide reliable findings.

The coding rules were carefully designed and applied to ensure consistency and validity of the data analysis. For the initial codes, an inductive (data-driven) coding approach was employed, meaning that codes were directly derived from the interview transcripts without relying on pre-existing theoretical assumptions, thereby enabling the discovery of natural patterns in the data. Conversely, for identifying and refining themes, a deductive approach was applied, guided by well-established theoretical frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). This inductive–deductive combination enabled the researcher to remain faithful to the data while also benefiting from theoretical frameworks to structure the themes.

To examine coding reliability, the researcher, along with a collaborating scholar (as a second coder), independently analyzed a subset of the data. Four interviews (A, B, C, and D) were randomly selected and coded independently by both coders. The results were then compared, and the level of agreement and disagreement across codes was analyzed. To calculate intercoder reliability, Cohen's Kappa coefficient was employed, which indicates the degree of agreement between two coders. The closer the coefficient is to one, the higher the reliability. The table below presents the results of intercoder reliability.

For this calculation, Cohen's Kappa formula was applied

$$\text{Reliability (\%)} = \text{Total Number of Codes} 2 \times \text{Number of Agreements} \times 100$$

Table 5. Intercoder Reliability Results

Interview ID	Number of Codes	Number of Agreements	Number of Disagreements	Intercoder Reliability
A	50	18	5	0.72
B	46	15	6	0.63
C	48	17	4	0.69
D	54	19	2	0.74
Total	**198**	**69**	**17**	**0.70 (Average)**

To examine the reliability of the research instrument, several measures were undertaken. First, key concepts such as augmented reality and rural tourism marketing were precisely defined to ensure a shared understanding among the interviewees. The interview questions were reviewed multiple times to guarantee their clarity and comprehensibility, and a pilot study with three experts confirmed that respondents correctly understood the concepts. The interviews were conducted uniformly by the researcher, following a standardized interview protocol, which included the sequence of questions and the method of recording responses, to maintain consistency in data collection. Furthermore, the initial findings were presented to five interviewees to assess the stability of the data, and their feedback was used to refine the codes and themes. These measures enhanced the reliability of the analysis and ensured that the research instrument produced valid and consistent results.

To ensure the validity of the findings, triangulation was employed, whereby data were collected from three sources: digital marketing consultants and artificial intelligence specialists in advertising agencies, faculty members from universities in Tehran, Isfahan, and Semnan, and researchers in the field of marketing management. These sources provided diverse perspectives, and by comparing the codes and themes extracted from each source, the consistency of the data was confirmed. In addition, existing theoretical and empirical literature was used as a supplementary source for validation. To control data quality, the preliminary analysis results were presented to five interviewees to verify the researcher's interpretation of their statements. The feedback indicated that some findings required adjustment to accurately reflect the interviewees' intended meanings, and these modifications were implemented. This process not only reinforced the validity of the findings but also ensured that the results aligned with the actual perspectives of the participants.

Researcher reflexivity was considered a critical and self-aware approach. Given the researcher's prior experience in the field of augmented reality (AR), which could potentially influence data interpretation, specific measures were taken to mitigate such biases. One of these measures involved daily journaling, which entailed detailed documentation of the researcher's thoughts, assumptions, and personal preconceptions throughout the data analysis process, helping to identify and manage potential biases. Additionally, regular debriefing sessions were held with research colleagues to obtain external perspectives and critical feedback, thereby preventing unconscious directional influences. Systematic member checking was also conducted, with the feedback used to adjust and refine the findings, substantially reducing bias and enhancing the credibility of the results. These measures provided greater assurance of the neutrality and transparency of the research process. To ensure reproducibility, the research data were organized and maintained manually and systematically in designated folders with precise labeling.

4. Research Findings

In the present study, to identify and analyze rural tourism marketing within the digital marketing ecosystem—particularly considering AI-based technologies—semi-structured interviews were conducted with 16 experts and specialists. The participants included professionals in marketing, AI developers and engineers, digital marketing consultants, and academic faculty members specializing in digital marketing and consumer behavior.

Regarding demographic characteristics, 70% of the participants were male, and 30% were female. Age distribution was as follows: 35% were under 40 years old, 45% were between 40 and 50 years old, and 20% were over 50 years old. Educational backgrounds varied, with 13% holding a bachelor's degree, 37% a master's degree, and 50% a doctoral degree. In terms of professional experience, 25% had less than 10 years of experience, 45% had between 10 and 15 years, and 30% had more than 15 years of work experience.

Table 6. Descriptive Statistics of the Study

Feature	Category	Number (n)	Percentage (%)
Gender	Male	11	70%
	Female	5	30%
Age Group	Under 40 years	6	35%
	40 to 50 years	7	45%
	Above 50 years	3	20%
Education	Bachelor's degree	2	13%
	Master's degree	6	37%
	Doctorate degree	8	50%
Professional Experience	Less than 10 years	4	25%
	10 to 15 years	7	45%
	More than 15 years	5	30%

Table 7. Table of Sample Interviews, Texts, and Initial Code Conclusions

Interview Number	Interview Text	Initial Code Conclusions
P5	"To be honest, we worked in a village where we showcased its attractions using AR. For instance, by scanning a QR code, tourists could see how an old structure used to look, as if it were alive before their eyes! They got very excited and stayed longer."	The use of AR for the interactive display of attractions has increased tourist interest and extended their stay duration.
P9	"We held a free workshop in a village where kids and young people learned how to create content with their phones. We also had a digital course, and one person learned to develop an app and now earns income from selling handicrafts online, which is amazing!"	Free digital training has enhanced the skills of local communities and created new economic opportunities for young individuals.
P12	"In a village, we created a virtual museum that displays local dances and handicrafts using VR. Tourists can explore it without harming the culture. The locals are happy because it preserves their heritage and attracts more visitors."	Virtual museums utilizing VR have improved the preservation of cultural heritage while simultaneously increasing tourist attraction.

The analysis of the interview data resulted in the identification of 198 initial codes, which were categorized into 22 organizing themes (subcategories). Ultimately, these organizing themes were synthesized into 7 overarching themes that represent the identification and analysis of innovative digital marketing strategies in rural tourism, utilizing augmented reality and intelligent algorithms within technological platforms.

Table 8. Analysis of Codes from Interviews on Digital Marketing in Rural Tourism

Overarching Theme	Organizing Theme (Subcategory)	Open Codes (Examples)
Technological Transformation in Tourism Experience	Augmented Reality in Destination–Tourist Interaction	Interactive display of attractions with AR, virtual pre-trip tours, digital reconstruction of old buildings, 360-degree cultural heritage experience, multisensory digital experience, enhancing tourist mental engagement, interactive educational content, improving spatial perception, use of QR codes on tourist routes
	Artificial Intelligence in Preference Analysis	Analyzing past trips, identifying individual preferences, building tourist behavior models, personalized place recommendations, trip scheduling based on timing, travel style classification, sentiment analysis of feedback, personalized messaging, predicting tourist return
	Internet of Things and Geospatial Data	Automatic notifications near attractions, wearable devices connected to destination systems, monitoring crowded spots, GPS navigation, energy consumption control in accommodations, analyzing tourist movement paths, using Beacons on trails, real-time alerts, tourist density analysis
Empowering Local Communities through Technology	Local Content Production by Residents	Recording local narratives, using native language in apps, documenting rituals, local podcasts, local-led tour narration, ritual visualization with AR, transferring traditional knowledge, participatory ethnography, visual content creation by local youth
	Digital Literacy and Education in Villages	Free digital training courses, AR workshops for students, developing local platforms, government support for media literacy, promoting family learning,

Overarching Theme	Organizing Theme (Subcategory)	Open Codes (Examples)
		local digital mentoring, digital content design training, improving digital business skills, personal data management education
	Redistribution of Benefits from Digital Marketing	Increasing handicraft sales, online rental of local homes, income from local advertising, collaboration with local influencers, creating tech-based jobs, digital financial flow in the community, renting technology infrastructure, youth employment in content management, financial benefits from platform partnerships
Redefining Marketing Strategies	Location-Based Marketing	Location-dependent ads, instant offers near attractions, GPS use in apps, alternative route suggestions, tourist flow analysis, location-based digital ticket sales, location-specific discount offers, combining spatial data with demographics, traffic pattern analysis
	Optimizing Advertising with Smart Algorithms	A/B testing campaigns, detecting message effectiveness, interaction rate analysis, dynamic ad budget allocation, selecting channels by region, smart ad scheduling, personalized message design, real-time feedback analysis, improving click-through rates by content redesign
	Using Data Mining to Attract Tourists	Clustering tourists by travel style, identifying less-visited areas, extracting keywords from social media, analyzing tourist return rates, comparing seasonal tourism performance, local trend analysis, length of stay in specific areas, analyzing interest changes over time, complaint analysis
Cultural and Environmental Sustainability	Digital Preservation of Heritage	Creating virtual museums, VR documentation, digitizing local narratives, preserving cultural symbols on platforms, digitally archiving dances and music, simulating traditional ceremonies, 3D scanning, interactive handicraft exhibitions, developing local cultural databases
	Reducing Environmental Vulnerability through Technology	Alerts for sensitive environmental areas, distributing tourists in space and time, using data to prevent overcrowding, monitoring litter on trails, optimizing eco-tourism routes, calculating digital carbon footprints, real-time ecological alerts, optimizing energy consumption, monitoring trees and water resources
	Balancing Technology and Tradition	Using cultural symbols in apps, consulting elders before content creation, displaying traditional textures in digital spaces, preserving local tone in messaging, native storytelling, preventing commercialization of symbols, empathetic participation, integrating digital narratives with rituals, aligning with community values
Implementation Barriers and Challenges	Technological Infrastructure in Villages	Weak internet, lack of AR/VR equipment, absence of local servers, inability to run heavy apps, high bandwidth costs, lack of technical support teams, dependency on urban internet, infrastructure quality disparities, no local cloud services
	Digital Skill Gap	Unfamiliarity with content design, poor media literacy, cultural resistance to technology, inability to analyze data, lack of knowledge of smart tools, generational gap in tech understanding, fear of digital mistakes, dependency on outsiders, shortage of trained personnel
	Ethical and Data Security Challenges	Breaches of tourist privacy, location data leaks, insecure data storage, lack of clear policies, absence of encryption standards, concerns about app eavesdropping, commercial use without consent, lack of awareness of data rights, risks from uninformed use of algorithms
Innovation Horizons and Research	Adoption of New Technologies in Rural Tourism	Acceptance analysis using TAM model, AR adoption among youth, trust in new technologies, cultural impact on acceptance, resistance of traditionalists, motivators for AI use, tourists' familiarity with technology, AR use in nature trips, willingness to try new experiences
	Future of Gamification in Travel Experience	Designing local missions with points, use of digital badges, combining games with navigation, measuring user engagement with challenges, interaction with hidden QR codes, raising digital tourist levels, encouraging responsible tourism, using games for environmental education, virtual point festivals
	Mixed Reality and Metaverse in Destination Marketing	Designing digital destination spaces in the metaverse, simulating interactions in virtual worlds, pre-trip destination experience, creating tourist avatars, linking physical and digital realities, leveraging cultural NFTs, interactive virtual tours, ritual displays in the metaverse, ticket sales in mixed reality
Recreating Digital Identity in Rural Tourism	Cultural Branding with New Technologies	Creating digital symbols from cultural elements, designing interactive AR logos, using native music in apps, building local brand narratives with AI, developing virtual characters to introduce destinations, digital storytelling of

Overarching Theme	Organizing Theme (Subcategory)	Open Codes (Examples)
		village history, game design based on local myths, creating NFTs for cultural symbols, digital social campaigns to strengthen village brand
	Digital Storytelling of Destinations	Producing local stories as multimedia content, combining archival photos with interactive effects, documenting rituals with digital narratives, simulating village historical journeys, video interviews with elders, identity podcasts, reconstructing local tales, interactive storytelling in apps, visual storytelling of time travel
	Symbolic Community Participation in Digital Identity Creation	Collecting symbols from residents, using local language and dialect, involving children in digital design, slogan selection by locals, creating digital characters inspired by real people, choosing colors and symbols from rituals, showing daily life in AR videos, family narratives as brand content, public campaigns for brand design
	Integrating Digital Identity Across Marketing Channels	Using consistent signs and colors on websites, logo and symbol coherence across platforms, shared music in videos, unified brand messaging on social media, digital branding package design, consistent storytelling in content production, visual style coherence in AR, synchronizing digital campaigns with brand narrative, slogan consistency with digital destination voice

5. Discussion and Conclusion

The present study aimed to identify and analyze novel digital marketing strategies in rural tourism, with an emphasis on leveraging Augmented Reality (AR) and intelligent algorithms. Using an exploratory qualitative approach and thematic analysis method, semi-structured interviews were conducted with 25 experts in digital marketing, information technology, and management. Seven overarching themes were extracted: technological transformation in the tourism experience, empowering local communities with technology, redefining marketing strategies, cultural and environmental sustainability, implementation barriers and challenges, innovation and research horizons, and digital identity reconstruction in rural tourism. These themes provide a comprehensive framework for understanding the impact of new technologies on rural tourism marketing and suggest practical solutions to capitalize on opportunities and manage challenges.

The theme of technological transformation in the tourism experience revealed that AR and artificial intelligence significantly enhance tourists' experiences. Codes such as "interactive display of attractions with AR," "virtual tours before travel," and "preference analysis with AI" emphasize creating personalized and interactive experiences. These technologies increase tourist engagement by providing multisensory content and customized recommendations. For example, a study shows that AR offers deeper, more informative interactive experiences, while AI enables personalized experiences tailored to individual tourist preferences. Implementing these technologies significantly increases destination attractiveness and supports sustainable tourism development (Setiawan, 2024).

Correia (2025) explains how AI and AR create personalized and deeply engaging experiences for tourists, improving learning outcomes and visitor satisfaction. The integration of these technologies facilitates immersive interactions with cultural heritage, enhancing cognitive engagement and personalizing the tourism experience.

The theme of empowering local communities with technology focuses on the role of technology in increasing participation and capacity of rural residents. Codes like "local content production by residents," "digital literacy training," and "economic benefit redistribution" indicate strengthening local capacities. These findings align with Mohd (2025), who shows that AR aids in preserving culture and empowering communities by documenting local rituals and presenting them as digital content.

A related study highlights how improving digital literacy among rural women can lead to significant socio-economic empowerment and inclusion. It stresses that digital literacy initiatives can help overcome barriers faced by rural women, enabling access to resources and fuller participation in their communities. This aligns with the idea of local content production and education as empowerment tools (Meenu et al, 2025).

Another research shows that digital literacy training significantly improves rural participants' skills, leading to better economic opportunities through digital marketing of local products. The findings

suggest such training not only enhances individual capabilities but also contributes to the overall economic well-being of the community, supporting the concept of redistributing economic benefits (Budiarto et al, 2024).

The theme of redefining marketing strategies demonstrated that smart technologies make marketing more targeted and effective. Codes like "location-based advertising," "optimization with intelligent algorithms," and "data mining for tourist attraction" reflect transformation in marketing campaigns. El-Alaoui et al (2025) emphasizes that investing in smart digital technologies enables the development of flexible and effective marketing strategies. This study highlights how technologies like location-based ads and data analytics can enhance offer personalization, improving tourist appeal and satisfaction.

Another study discusses how big data and AI-based marketing strategies offer a new level of precision in tourism marketing. It shows that these technologies enable tourism businesses to create targeted marketing campaigns, optimize their reach, and ultimately increase revenue through more effective engagement with potential tourists (Lu et al, 2024).

The theme of cultural and environmental sustainability emphasizes the role of technology in preserving heritage and the environment. Codes such as "digital heritage documentation," "reducing environmental vulnerability," and "balance between technology and tradition" indicate a commitment to sustainability. A related study examined how integrating traditional practices with technology enhances cultural heritage preservation. Findings showed that "technology acceptance" explains about 45.5% of the variance in "cultural engagement," while "digital documentation" accounts for 38% of the variance in "preservation effectiveness." This highlights the importance of digital tools in ensuring sustainable heritage practices (Lukita et al, 2024).

Other research on intangible cultural heritage preservation revealed that digital methods are vital for protecting orally transmitted knowledge and practices. The study emphasized the need for increased awareness and documentation to ensure sustainability of these cultural assets, showing that digitalization plays a crucial role in preserving cultural diversity (Isa et al, 2018).

The theme of implementation barriers and challenges addressed technical, cultural, and ethical limitations in rural areas. Codes such as "weak internet infrastructure," "digital skill gap," and "privacy violations" highlight key obstacles. A study analyzing digital inclusion in rural Ecuador found that only 27% of rural households had internet access compared to 67% in urban areas. It identified "technology infrastructure limitations" and "insufficient digital skills training" as significant barriers. Cultural resistance and economic constraints further hinder equitable access to ICT (Boné-Andrade, 2023).

Another study explored challenges faced by businesses adopting digital marketing strategies in rural areas. Key barriers included "limited internet access," "low digital literacy," and "cultural resistance" to change. The study stressed the need for tailored solutions such as improving local digital infrastructure and promoting digital literacy through partnerships (Garg et al, 2024).

The theme of innovation and research horizons focused on future potentials of new technologies. Codes like "gamification in travel experience" and "mixed reality in the metaverse" illustrate innovative pathways. A study on designing immersive gamified experiences in the metaverse showed these experiences can significantly enhance student learning. Results indicated gamification greatly increases motivation and engagement, principles that can be effectively applied in travel experiences as well (Damasevisius and Sidekersniene, 2023).

Another study introduced the metaverse as a transformative platform for various sectors including tourism. It emphasized integrating extended reality technologies like AR and mixed reality to create immersive experiences and redefine user interaction innovatively. This research highlighted innovative potentials in marketing, education, and tourism, envisioning a promising future for these technologies (Koohang et al, 2023).

The theme of digital identity reconstruction emphasizes technology's role in strengthening destination branding. Codes like "cultural branding with AR," "digital storytelling," and "symbolic community participation" indicate the creation of digital identity. A study focusing on an AR app in Tarragona, Spain, showed AR significantly improves destination brand communication and tourist experiences. It demonstrated that AR apps

can create satisfying tourism experiences and effectively convey destination branding, highlighting AR's high potential in tourism branding strategies (Huertas and Gonzalo, 2020).
Another study examined the use of digital storytelling as a participatory media technique enhancing community engagement. It emphasized that digital narratives can reinforce cultural branding by sharing local community stories, thereby strengthening identity and ties to the destination (Klaebe et al, 2007).
From a theoretical perspective, this study fills the gap in rural tourism marketing literature by elucidating the synergistic role of AR and intelligent algorithms, providing a comprehensive framework to understand the impact of new technologies. Practically, the findings assist rural destination managers in designing effective marketing strategies using digital tools like AR, recommender systems, and location-based marketing, empowering local communities and enhancing cultural and environmental sustainability. However, the success of these strategies depends on managing infrastructural, cultural, and ethical challenges. This study suggests new avenues for future research, including exploring gamification, the metaverse, and technology adoption, which could contribute to sustainable rural tourism development.

Table 9: Comparative Analysis of Themes and Findings in Discussion and Conclusion

Overarching Theme	Key Findings	Connection to Existing Studies	Practical Applications	Challenges and Limitations	Future Directions
Technological Transformation in Tourism Experience	Utilization of AR and AI for interactive and personalized tourist experiences; enhancing mental engagement and customized recommendations.	AR provides deeper, more informative experiences; AI enables personalized experiences (Setiawan, 2024).	Use of AR and AI to enhance destination appeal and support sustainable tourism development.	High costs of technology implementation and need for user training.	Investigating the long-term effectiveness of AR and AI on tourist experiences.
Empowering Local Communities with Technology	Increased participation and capacity of rural residents through local content production, digital literacy training, and economic benefit redistribution.	AR plays a role in cultural preservation and community empowerment through ritual documentation (Mohd, 2025). Digital literacy improves economic outcomes (Meenu et al, 2025; Budiarto et al, 2024).	Strengthening local capacity with training and content creation; creating economic opportunities through digital marketing.	Cultural resistance and limited technology access in rural areas.	Studying the impact of digital training on rural women's participation.
Redefining Marketing Strategies	Use of smart technologies for targeted advertising, optimization with algorithms, and data mining for tourist attraction.	Investment in digital technologies creates flexible marketing strategies (El-Alaoui et al, 2025). Big data and AI increase marketing precision (Lu et al, 2022).	Designing targeted marketing campaigns with tools like location-based ads and data analytics.	Dependence on digital infrastructure and data privacy concerns.	Analyzing the impact of data mining on tourist behavior on a large scale.
Cultural and Environmental Sustainability	Preservation of cultural heritage and environment through digital documentation, reducing environmental vulnerability, and balancing technology with tradition.	Technology enhances cultural heritage preservation with 45.5% acceptance and 38% documentation effectiveness (Lukita et al, 2024). Digital methods are vital for oral knowledge preservation (Isa et al, 2018).	Use of digital tools for heritage protection and reducing environmental impacts.	Lack of resources for documentation and insufficient technology acceptance by local communities.	Examining the long-term impact of technology on environmental sustainability.
Barriers and Challenges in Implementation	Technical limitations (weak internet), digital skill gap, and ethical issues (privacy violations).	Internet access in rural areas is limited (27% vs. 67% urban) with insufficient digital skills training (Boné-	-	Weak infrastructure, cultural resistance, and privacy violations.	Developing local solutions to improve infrastructure.

Overarching Theme	Key Findings	Connection to Existing Studies	Practical Applications	Challenges and Limitations	Future Directions
		Andrade, 2023). Cultural resistance and economic constraints are barriers (Garg et al, 2024).			
Horizons of Innovation and Research	Future potential of technologies like gamification and metaverse for innovative travel experiences.	Gamification increases motivation and engagement (Damasevisius and Sidekersniene, 2023). Metaverse is a transformative platform (Koohang et al, 2023).	Use of gamification and metaverse for immersive and innovative interactions.	Lack of familiarity with new technologies and high costs.	Investigating gamification and technology adoption in rural tourism.
Digital Identity Reconstruction in Rural Tourism	Strengthening destination branding with cultural branding, digital storytelling, and symbolic community participation.	AR improves destination brand communication and tourist experiences (Huertas and Gonzalo, 2020). Digital storytelling enhances community engagement (Klaebe et al, 2007).	Designing branding with AR and digital narratives to strengthen destination identity.	Technical challenges in AR implementation and insufficient community participation.	Studying the impact of digital storytelling on brand identity.

6. Practical Recommendations

1. **Develop native AR platforms to introduce attractions:** Rural tourism destinations can design AR-based applications offering interactive content such as 360-degree virtual tours, digital reconstruction of historical buildings, and display of local rituals. These platforms should be developed with local residents' participation to produce authentic and indigenous content. For example, codes like “interactive display of attractions with AR” and “local narrative tours by residents” highlight AR’s potential to enhance tourist experience and preserve local culture. These tools can be activated via QR codes on tourist routes and, linked to location-based systems, provide customized recommendations to tourists.
2. **Digital literacy training for local communities to produce content:** Given the theme of "empowering local communities," free digital training workshops should be held for rural residents, especially youth. These workshops should focus on digital content design, using AR tools, and managing marketing platforms. Codes like “digital content design training” and “free digital training courses” emphasize digital literacy’s importance in increasing local participation. Such programs can be supported by government or tourism organizations to reduce the digital skill gap and enable local communities to play an active role in creating the destination’s digital identity.
3. **Implement AI-powered location-based marketing systems:** Using intelligent algorithms to analyze spatial data and deliver location-based ads, such as sending discount notifications near attractions or suggesting alternative routes, is recommended as an effective strategy. Codes like “location-dependent advertising” and “tourist flow analysis” emphasize the potential of this approach. These systems can increase tourist engagement using GPS and beacons and help prevent overcrowding at busy spots, also supporting environmental sustainability.
4. **Create virtual museums and digital cultural archives:** To strengthen cultural sustainability, rural destinations can create AR and VR-based virtual museums documenting rituals, handicrafts, and local narratives. Codes like “virtual museum creation” and “digital archiving of dances and music” emphasize the importance of digital heritage preservation. These cultural archives can be developed with community participation and offered to tourists through digital platforms and social networks, increasing destination appeal and preserving local culture.

Table 10. Research Limitations

Limitation	Explanation	Stakeholder Responsibilities	Proposed Timeline for Addressing Limitation
Qualitative data analysis based on an interpretive paradigm may be influenced by the researcher's mindset and preconceptions	Qualitative analysis, due to its interpretive nature, may be affected by the researcher's personal perspectives, although efforts have been made to mitigate bias by focusing on participants' experiences.	Researcher and team for review and validation, in collaboration with independent experts.	Immediate review and validation within 1-2 months post-analysis completion.
Data collection conducted solely through interviews	Limiting data collection to interviews may reduce the depth of analysis, and the use of complementary methods (e.g., observation or questionnaires) could be beneficial.	Researcher and research team for designing complementary methods, in partnership with research institutions.	Design and implementation of complementary methods over 3-4 months.
Conducting the study within a specific time frame may not reflect dynamic changes in user behavior or the market	The temporal limitation of the study may hinder analysis of long-term changes in behavior or market trends; longitudinal studies are recommended.	Researcher and funding supporters for planning longitudinal studies, in collaboration with universities.	Planning and initiation of longitudinal studies over 6-12 months.
Influence of the study's specific cultural context	The specific cultural context (e.g., rural areas of Iran) may limit the generalizability of findings to regions with different cultures.	Researcher and cultural experts for comparative analysis, in collaboration with international researchers.	Conducting comparative analysis over 4-6 months across various regions.
Lack of longitudinal data for long-term change analysis	The absence of longitudinal data restricts the analysis of dynamic changes in tourist behavior or technology impacts.	Researcher and tourism organizations for collecting longitudinal data, in partnership with regional bodies.	Initiation of longitudinal data collection over 12-18 months.

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Authors contributions
The authors equally contributed to the preparation of this article.

Conflict of interest
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References

1. Alsufyani, T., Al-haimi, B., Ahmed, S. A. B., & Alqahtani, M. (2025). The Impact and Future Trends of Augmented Reality on Digital Marketing. *International Journal of Research and Innovation in Social Science*, *9*(4), 4365-4370. https://doi.org/https://dx.doi.org/10.47772/IJRISS.2025.90400312
2. Anabestani, A., Darmanlou, Y. and Rahmani, B. (2024). Analysis of the Impact of Smart Tourism on the Sustainable Development of Rural Businesses in Tafresh County, Iran. *Journal of Research and Rural Planning,* 13(3), 83-99. http://dx.doi.org/10.22067/jrrp.v13i3.2409-1109
3. Anabestani, A., Zolfaghari, M. and Tavakolinia, J. (2023). Development of Impactful Scenarios for Smart Village Approaches on the Sustainability of Peri-Urban Settlements of the Metropolis of Tehran (Case Study: Villages of Islamshahr County). *Journal of Research and Rural Planning*, 12(4), 99-124. http://dx.doi.org/10.22067/jrrp.v12i4.2312-1097
4. Boné-Andrade, M. F. (2023). Inclusión digital y acceso a tecnologías de la información en zonas rurales de Ecuador. *Revista Científica Zambos*, 2(2), 1-16. https://doi.org/10.69484/rcz/v2/n2/40
5. Bretos, M.A., Ibáñez-Sánchez, S. & Orús, C. (2024). Applying virtual reality and augmented reality to the tourism experience: a comparative literature review. *Spanish Journal of Marketing - ESIC*, 28 (3), 287-309. https://doi.org/10.1108/SJME-03-2023-0052
6. Budiarto, B. W., Karyadi, S., Wasiran, W., Pratiwi, R., & Irwan, D. (2024). Improving Digital Literacy of Village Communities in Indonesia through Information Technology-Based Community Service Programs. *Unram Journal of Community Service*, 5(3), 267–271. https://doi.org/10.29303/ujcs.v5i3.716
7. Çalışkan, G., Yayla, İ. & Pamukçu, H. (2025). The use of augmented reality technologies in tourism businesses from the perspective of UTAUT2. *European Journal of Innovation Management*, 28 (4), 1498-1526. https://doi.org/10.1108/EJIM-04-2023-0271

8. Correia, P. (2025). From Virtual to Reality: Enhancing Cultural Tourism Through AI, VR, and the Metaverse. International Conference on Tourism Research.
9. Damaševičius, R., & Sidekersniene, T. (2023). Designing immersive gamified experiences in the metaverse for enhanced student learning. In *2023 International Conference on Intelligent Metaverse Technologies & Applications (iMETA)* (pp. 1-6). IEEE. https://doi.org/10.1109/iMETA59369.2023.10294971
10. Dewi, L. K. C., Putra, I. B. U., Widodo, S., Yudithia, Y., & Soares, A. (2025). An Empirical Study on the Artificial Intelligence Practices on the Digital Marketing Effectiveness within Tourism Village in Bali, Indonesia. *Journal of Digitainability, Realism & Mastery (DREAM)*, 4(01), 1–8. https://doi.org/10.56982/dream.v4i01.290
11. El-Alaoui, A., Lali, K., & Farhaoui, Y. (2025). Smart Tourism for Competitive Territories: Enhancing Marketing Strategies with Intelligent Digital Technologies. Salud, Ciencia Y Tecnología - Serie De Conferencias, 4, 1351. https://doi.org/10.56294/sctconf20251351
12. Garg, A. K., Singh, C., Soni, K., Agarwal, P., & Tripathi, S. K. (2024). CHALLENGES FACED BY BUSINESS WHEN ADOPTING DIGITAL MARKETING STRATEGIES IN RURAL AREAS. *ShodhKosh: Journal of Visual and Performing Arts*, *5*(5), 193–211. https://doi.org/10.29121/shodhkosh.v5.i5.2024.3615
13. Huertas, A., & Gonzalo, J. (2020). The role of augmented reality in destination branding. *Tourism and hospitality management*, *26*(2), 419-436. https://doi.org/10.20867/thm.26.2.8
14. Irsyad, Z., Iswanto, D., & Istiqlal, I. (2024). The Role of Artificial Intelligence and Big Data in Improving Personalization of Tourism Marketing Campaigns to Maximize Tourist Experience. *SCIENTIA: Journal of Multi-Disciplinary Science*, *3*(2), 100–114. https://doi.org/10.62394/scientia.v3i2.146
15. Isa, W. M. W., Zin, N. A. M., Rosdi, F., & Sarim, H. M. (2018). Digital preservation of intangible cultural heritage. *Indonesian Journal of Electrical Engineering and Computer Science*, *12*(3), 1373-1379. http://doi.org/10.11591/ijeecs.v12.i3.pp1373-1379
16. Jang, E.-K., Lim, E. M., Kim, J., Kang, M.-J., Choi, G., & Moon, J. (2023). Risk Management of Methane Reduction Clean Development Mechanism Projects in Rice Paddy Fields. *Agronomy*, *13*(6), 1639. https://doi.org/10.3390/agronomy13061639
17. Klaebe, H., Foth, M., Burgess, J., & Bilandzic, M. (2007). Digital storytelling and history lines: Community engagement in a master-planned development. In Proceedings of the 13th International Conference on Virtual Systems and Multimedia (pp. 108-120). United Nations Educational, Scientific and Cultural Organization (UNESCO). https://web.archive.org/web/20080816072054/http://eprints.qut.edu.au/archive/00008985/01/8985.pdf
18. Koohang, A., Nord, J. H., Ooi, K. B., Tan, G. W. H., Al-Emran, M., Aw, E. C. X., ... & Wong, L. W. (2023). Shaping the metaverse into reality: a holistic multidisciplinary understanding of opportunities, challenges, and avenues for future investigation. *Journal of Computer Information Systems*, *63*(3), 735-765. https://doi.org/10.1080/08874417.2023.2165197
19. Krishnamma, B., Babu, K. & Zacharia, A. M. (2025). Tourism 2.0: Exploring the evolution of smart destinations. J Manag Res Anal, 12(1), 3-9. https://doi.org/10.18231/j.jmra.2025.002
20. Kristiani, R.D., Triraharjo ,Y., Pangestu, A., Wiweka, K. & Setiawan, B (2025). Strategi Pemasaran Digital untuk Menarik Minat Wisatawan Muda ke Kawasan Desa Sawarna, Kabupaten Lebak, Banten. *Jurnal Manajemen Pariwisata dan Perhotelan,* 3(1), 39-49. https://doi.org/10.59581/jmpp-widyakarya.v2i4.4542
21. Kumar, A., & Barua, C. S. (2024). Leveraging digital innovations in tourism marketing: A study of destination promotion strategies. *International Journal of Business and Management Research, 12*(1), 08-12. https://doi.org/10.37391/ijbmr.120102
22. Lu, Y., Lai, I. K. W., Liu, X. Y., & Wang, X. (2022). Influence of memorability on revisit intention in welcome back tourism: The mediating role of nostalgia and destination attachment. *Frontiers in Psychology*, 13, 1020467.
23. Lukita, C., Lutfiani, N., Salam, R., Pangilinan, G. A., Rafika, A. S., & Ahsanitaqwim, R. (2024). Technology integration in cultural heritage preservation enhancing community engagement and

effectiveness. In 2024 3rd International Conference on Creative Communication and Innovative Technology (ICCIT) (pp. 1-5). IEEE. https://doi.org/10.1109/ICCIT62134.2024.10701088
24. Meenu, Dua, K., & Yadav, Y. (2025). Digital Literacy for Rural Women: Pathways to Empowerment and Socioeconomic Inclusion. *Journal of Scientific Research and Reports, 31*(1), 37–47. https://doi.org/10.9734/jsrr/2025/v31i12743
25. Mohd, D.Y. (2025). Offline Augmented Reality for Rural Tourism Development: Empowering Cultural Preservation and Community Sustainability through ID-QUBE and ID-MAP Design. *Journal of Information Systems Engineering and Management*. https://doi.org/10.52783/jisem.v10i28s.4368
26. Muntean, M. C., Capatina, A., Micu, A., Micu, A. E., Sorcaru, I. A., & Lupoae, O. D. (2024). Unlocking The Digital Gateway: Artificial Intelligence Impact In Transforming Tourism Marketing. In Proceedings of the International Management Conference (Vol. 18, No. 1, pp. 472-481). Faculty of Management, Academy of Economic Studies, Bucharest, Romania. https://doi.org/10.24818/imc%2F2024%2F05.02
27. Nannelli, M., Capone, F., & Lazzeretti, L. (2023). Artificial intelligence in hospitality and tourism. State of the art and future research avenues. European Planning Studies, 31(7), 1325–1344. https://doi.org/10.1080/09654313.2023.2180321
28. Ozdemir, M. A. (2021). Virtual Reality (VR) and Augmented Reality (AR) Technologies for Accessibility and Marketing in the Tourism Industry. In C. Eusébio, L. Teixeira, & M. Carneiro (Eds.), ICT Tools and Applications for Accessible Tourism (pp. 277-301). IGI Global Scientific Publishing. https://doi.org/10.4018/978-1-7998-6428-8.ch013
29. Rina, D. K., Yohanes, A. P. T., Art, D. P., & Kadek, W. (2024). Strategi Pemasaran Digital untuk Menarik Minat Wisatawan Muda ke Kawasan Desa Sawarna, Kabupaten Lebak, Banten. *Journal Management*, *3*(1), 39-49. https://doi.org/10.59581/jmpp-widyakarya.v3i1.4542
30. Saura, J. R., Reyes-Menendez, A., & Palos-Sanchez, P. R. (2020). The digital tourism business: A systematic review of essential digital marketing strategies and trends. Digital marketing strategies for tourism, hospitality, and airline industries, 1-22. https://doi.org/10.4018/978-1-5225-9783-4.ch001
31. Setiawan, B. (2024). The Augmented Reality (AR) Based on Artificial Intellegence (AI) in Integrated Marketing Communication (IMC) in Tourism Villages. *Media Wisata*, *22*(2), 341-352. https://doi.org/10.36276/mws.v22i2.695
32. Vu, T.T.H., Hoang, H.H., Hoang, T.N.N., & Nguyen, X.L. (2025). Bibliometric and content analysis of global trends in digital transformation and rural tourism. Geojournal of Tourism and Geosites, 58(1), 161–175. https://doi.org/10.30892/gtg.58114-1399
33. Wang, X., Yao, J., Zhang, C., & Yan, X. (2023). Research on immersive experience of rural tourism marketing in the Internet Era. *Journal of Social Science Humanities and Literature*, *6*(5), 124-127. https://doi.org/10.53469/jsshl.2023.06%2805%29.18
34. Xie, D. & He, Y. (2022). Marketing Strategy of Rural Tourism Based on Big Data and Artificial Intelligence, Mobile Information Systems, 2022, 9154351, 7 pages, 2022. https://doi.org/10.1155/2022/9154351
35. Yang, L. & Dong, X, (2022). Research on the Development Model of Rural Tourism Based on Multiobjective Planning and Intelligent Optimization Algorithm, Journal of Advanced Transportation, 2022, 6219438, 12 pages. https://doi.org/10.1155/2022/6219438
36. Ying, T. W., Alias, N., & DeWitt, D. (2024). Technology readiness and perception among secondary school students in the Klang valley. JuKu: Jurnal Kurikulum & Pengajaran Asia Pasifik, 12(3), 38-47. https://doi.org/10.22452/juku.vol12no3.5
37. Zaifri, M., Khalloufi, H., Kaghat, F. Z., Benlahbib, A., Azough, A., & Zidani, K. A. (2023). Enhancing Tourist Experiences in Crowded Destinations through Mobile Augmented Reality: A Comparative Field Study. International Journal of Interactive Mobile Technologies (iJIM), 17(20), pp. 92–113. https://doi.org/10.3991/ijim.v17i20.42273
38. Zuhroh, N. F., Suwitho, S., Mildawati, T., Pahlawan, M. R., & Baihaqy, A. (2024, November). Augmented and virtual reality in tourism marketing: a systematic literature review of adoption factors and visitor engagement. In International Conference of Business and Social Sciences (pp. 887-904). https://doi.org/10.24034/icobuss.v4i1.574

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Original Article

استراتژی‌های نوآورانه بازاریابی دیجیتال در گردشگری روستایی: بهره‌گیری از واقعیت افزوده و الگوریتم‌های هوشمند در اکوسیستم‌های فناوری

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چکیده مبسوط

۱. مقدمه

گردشگری روستایی به‌عنوان یکی از ارکان توسعه پایدار، نقش مهمی در تقویت اقتصاد محلی، حفظ فرهنگ بومی و حفاظت از محیط‌زیست ایفا می‌کند. در عصر تحولات سریع تکنولوژیکی، استفاده از استراتژی‌های بازاریابی دیجیتال نوین، به‌ویژه با بهره‌گیری از فناوری‌های پیشرفته مانند واقعیت افزوده (AR) و الگوریتم‌های هوشمند، به ابزاری کلیدی برای جذب گردشگران و افزایش جذابیت مقاصد روستایی تبدیل شده است. این مطالعه با هدف پاسخ به سؤال اصلی تحقیق طراحی شده است: چگونه می‌توان از واقعیت افزوده و الگوریتم‌های هوشمند برای ارتقای بازاریابی دیجیتال در گردشگری روستایی استفاده کرد تا گردشگران را به‌طور مؤثر جذب کرده و توسعه محلی پایدار را ترویج دهد؟ این پژوهش به بررسی خلأ موجود در ادغام AR و هوش مصنوعی (AI) در زمینه‌های روستایی می‌پردازد، جایی که مطالعات پیشین اغلب این فناوری‌ها را به‌صورت جداگانه یا با تمرکز بر مقاصد شهری بررسی کرده‌اند. اهداف تحقیق شامل شناسایی استراتژی‌های نوین بازاریابی دیجیتال، تحلیل تأثیرات AR و AI بر رفتار گردشگران و مشارکت جوامع محلی، و ارائه راه‌حل‌هایی برای غلبه بر موانع پیاده‌سازی در زمینه‌های روستایی، به‌ویژه در مناطق در حال توسعه مانند ایران است. این مطالعه با تمرکز بر مقاصد فرهنگی و طبیعی روستایی، به بررسی ابزارهای خاص AR (مانند برنامه‌های مبتنی بر QR و تورهای مجازی) و ابزارهای AI (مانند سیستم‌های توصیه‌گر و تحلیل داده‌ها) می‌پردازد و از تمرکز بر زمینه‌های شهری اجتناب می‌کند.

۲. مبانی نظری تحقیق

ادغام فناوری‌های دیجیتال مانند AR، AI و داده‌های بزرگ (Big Data) در بازاریابی گردشگری روستایی، در سال‌های اخیر توجه زیادی را به خود جلب کرده است. این فناوری‌ها نحوه تعامل مقاصد روستایی با گردشگران را متحول کرده‌اند و اثربخشی بازاریابی را به‌طور قابل‌توجهی افزایش داده‌اند. واقعیت افزوده با ارائه محتوای تعاملی و غوطه‌ور، تجربه گردشگران را از طریق تورهای مجازی و بازسازی‌های دیجیتال غنی‌تر می‌کند و به حفظ میراث فرهنگی کمک می‌کند. هوش مصنوعی، از طریق الگوریتم‌های پیش‌بینی‌کننده و سیستم‌های توصیه‌گر، امکان شخصی‌سازی بازاریابی را فراهم می‌کند و با تحلیل داده‌های بزرگ، رفتار گردشگران را شناسایی کرده و محتوای هدفمندی ارائه می‌دهد. داده‌های بزرگ نقش محوری در درک رفتار مصرف‌کننده ایفا می‌کنند و بازاریابی هدفمند را با شیوه‌های پایدار هم‌راستا می‌سازند. چارچوب نظری این مطالعه بر پارادایم گردشگری هوشمند استوار است که بر ادغام فناوری‌های پیشرفته برای ارتقای تجربه گردشگران و رقابت‌پذیری مقاصد تأکید دارد. مدل پذیرش فناوری (TAM) و نظریه یکپارچه پذیرش و استفاده از فناوری (UTAUT) به تحلیل پذیرش این فناوری‌ها توسط کاربران کمک می‌کنند و نشان می‌دهند که انتظار عملکرد، سهولت استفاده، تأثیر اجتماعی و شرایط تسهیل‌کننده بر پذیرش فناوری تأثیر دارند. با این حال، چالش‌هایی مانند زیرساخت‌های ضعیف، هزینه‌های بالای پیاده‌سازی، و مقاومت فرهنگی در مناطق روستایی مانع از پذیرش گسترده این فناوری‌ها می‌شوند.

۳. روش تحقیق

این پژوهش از رویکرد کیفی اکتشافی و روش تحلیل تماتیک استفاده کرده است. جامعه آماری شامل متخصصان بازاریابی دیجیتال، فناوری اطلاعات و اساتید مدیریت از دانشگاه‌های تهران، اصفهان و سمنان بود که با معیارهایی مانند داشتن حداقل سه سال تجربه مدیریتی در پروژه‌های مرتبط و تخصص آکادمیک یا عملی در حوزه‌های بازاریابی

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دیجیتال یا هوش مصنوعی انتخاب شدند. نمونه‌گیری گلوله‌برفی برای انتخاب ۲۵ شرکت‌کننده به کار رفت و اشباع نظری پس از مصاحبه شانزدهم حاصل شد، اما برای اطمینان از اعتبار، مصاحبه‌ها تا نفر هجدهم ادامه یافت. سؤالات مصاحبه بر نقش فناوری‌های AR و AI در بازاریابی، عوامل تسهیل‌کننده و موانع پیاده‌سازی، تأثیر بر تجربه گردشگران، مشارکت جوامع محلی، و دستیابی به اهداف توسعه پایدار متمرکز بود. ملاحظات اخلاقی مانند رضایت آگاهانه، محرمانگی داده‌ها و حق انصراف رعایت شد. تحلیل داده‌ها بر اساس چارچوب شش‌مرحله‌ای تحلیل تماتیک شامل آشنایی با داده‌ها، تولید کدها، جستجوی تم‌ها، بازبینی تم‌ها، تعریف و نام‌گذاری تم‌ها، و تهیه گزارش انجام شد. کدگذاری اولیه به‌صورت استقرایی و کدگذاری تم‌ها به‌صورت قیاسی با استفاده از چارچوب‌های نظری مانند TAM و UTAUT صورت گرفت. برای بررسی پایایی، چهار مصاحبه به‌صورت مستقل توسط دو کدگذار تحلیل شد و ضریب کاپای کوهن (میانگین ۰.۷۰) نشان‌دهنده پایایی مناسب بود. اعتبار یافته‌ها از طریق مثلث‌سازی داده‌ها و بازبینی توسط پنج مصاحبه‌شونده تأیید شد.

۴. یافته‌های تحقیق

تحلیل داده‌های مصاحبه‌ها منجر به شناسایی ۱۹۸ کد اولیه شد که در ۲۲ تم سازمان‌دهنده و نهایتاً ۷ تم اصلی دسته‌بندی شدند:

الف- تحول تکنولوژیکی تجربه گردشگری: استفاده از AR برای نمایش تعاملی جاذبه‌ها (مانند تورهای مجازی و بازسازی‌های دیجیتال) و AI برای تحلیل ترجیحات و ارائه توصیه‌های شخصی‌سازی‌شده، تجربه گردشگران را غنی‌تر کرده و تعامل ذهنی آن‌ها را افزایش می‌دهد.

ب- توانمندسازی جوامع محلی از طریق فناوری: تولید محتوای محلی توسط ساکنان، آموزش سواد دیجیتال، و بازتوزیع مزایای اقتصادی (مانند فروش آنلاین صنایع‌دستی) مشارکت و ظرفیت جوامع را تقویت می‌کند.

ج- بازتعریف استراتژی‌های بازاریابی: بازاریابی مبتنی بر مکان، بهینه‌سازی تبلیغات با الگوریتم‌های هوشمند، و داده‌کاوی برای جذب گردشگران، کارایی کمپین‌های بازاریابی را افزایش می‌دهد.

د- پایداری فرهنگی و محیطی: ایجاد موزه‌های مجازی، مستندسازی دیجیتال میراث، و کاهش آسیب‌های زیست‌محیطی از طریق توزیع گردشگران در زمان و مکان، پایداری را ترویج می‌دهد.

ه- موانع و چالش‌های پیاده‌سازی: زیرساخت‌های ضعیف (مانند اینترنت ضعیف)، شکاف مهارت‌های دیجیتال، و نگرانی‌های اخلاقی (مانند نقض حریم خصوصی) از موانع اصلی هستند.

و- افق‌های نوآوری و تحقیق: گیمیفیکیشن، متاورس، و تحلیل پذیرش فناوری، مسیرهای نوآورانه‌ای برای آینده بازاریابی گردشگری روستایی ارائه می‌دهند.

ز- بازسازی هویت دیجیتال: برندینگ فرهنگی با استفاده از AR، داستان‌سرایی دیجیتال، و مشارکت نمادین جامعه، هویت دیجیتال مقاصد را تقویت می‌کند.

۵. بحث و نتیجه‌گیری

یافته‌های این مطالعه با تحقیقات پیشین هم‌راستا است. به‌عنوان مثال، AR تجربه‌های عمیق‌تر و جذاب‌تری ایجاد می‌کند و AI اثربخشی بازاریابی را از طریق شخصی‌سازی افزایش می‌دهد. توانمندسازی جوامع محلی از طریق آموزش سواد دیجیتال و تولید محتوای محلی با یافته‌های تحقیقات گذشته هم‌خوانی دارد که بر نقش آموزش در توانمندسازی اقتصادی و اجتماعی تأکید دارند. پایداری فرهنگی و محیطی با مستندسازی دیجیتال و مدیریت جریان گردشگران، با مطالعات پژوهش‌های پیشین سازگار است که بر اهمیت حفظ میراث ناملموس تأکید دارند. موانع پیاده‌سازی مانند زیرساخت‌های ضعیف و مقاومت فرهنگی نیز با نتایج تحقیقات قبلی تأیید می‌شود. افق‌های نوآوری مانند گیمیفیکیشن و متاورس با مطالعات قبلی هم‌راستا است که پتانسیل این فناوری‌ها در تعاملات نوآورانه را نشان می‌دهند. بازسازی هویت دیجیتال از طریق برندینگ فرهنگی و داستان‌سرایی دیجیتال نیز با یافته‌های گذشته هم‌خوانی دارد که بر تقویت هویت مقصد تأکید دارند.

کلیدواژه‌ها: بازاریابی دیجیتال، گردشگری روستایی، واقعیت افزوده، الگوریتم‌های هوشمند، توسعه پایدار.

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