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Digital Transformation and Vision 2030: A Pathway to Sustainable Tourism in Saudi Arabia

Ali Raza
Faculty of Business and Management
Universiti Teknologi MARA, Sarawak Branch, Malaysia

ABSTRACT: This study explores the intersection of digital transformation and sustainable tourism within the framework of Saudi Arabia's Vision 2030. As the Kingdom diversifies its economy and reduces its dependence on oil, tourism has emerged as a key sector for growth and development. Using a qualitative approach, this research examines how digital technologies, including innovative tourism platforms, data analytics, and digital infrastructure, are being leveraged to support sustainable tourism practices across the nation. Through semi-structured interviews, the study identifies critical drivers, opportunities, and challenges in the digitalisation of the tourism sector. Findings suggest that digital transformation is not only enhancing operational efficiency and visitor experiences but also contributing to environmental conservation, cultural preservation, and inclusive economic development. The paper concludes by emphasizing the strategic role of digital innovation in achieving the sustainability goals of Vision 2030. It offers policy recommendations for fostering a resilient and future-ready tourism industry in Saudi Arabia..

Corresponding Author:
Ali Raza
Email: alliraaza@gmail.com

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1. INTRODUCTION

In recent years, Saudi Arabia has embarked on one of the most ambitious digital and economic transformations in the modern world, placing tourism at the forefront of its national development agenda. The Kingdom's Vision 2030, a strategic framework introduced to reduce reliance on oil revenues and diversify the economy, identifies tourism as a key growth sector (Al-Thoblany & Alyuosef, 2023). As part of this vision, Saudi Arabia has invested extensively in technological infrastructure and digital transformation across industries, with tourism emerging as one of the primary beneficiaries (Asem et al., 2024). The integration of digital tools and systems into the tourism value chain is reshaping the way destinations are developed, marketed, and experienced. It is also redefining the roles of businesses, government agencies, and consumers within the tourism ecosystem (Gómez-Ceballos et al., 2023).

Digital transformation in the Saudi tourism sector refers to the comprehensive integration of advanced technologies, such as artificial intelligence (AI), big data analytics, the Internet of Things (IoT), blockchain, augmented reality (AR), and virtual reality (VR), into the planning, development, and management of tourism products and services (Hammami, 2025). It encompasses a wide range of initiatives, including the development of smart destinations, intelligent transportation systems, personalized marketing strategies, contactless services, and virtual cultural experiences. These technological innovations aim to enhance the tourist experience, optimize resource utilization, increase operational efficiency, and support evidence-based decision-making across the sector (Mir & Kulibi, 2023). Moreover, they contribute to the Kingdom's broader goals of increasing international tourist arrivals, generating employment, promoting cultural exchange, and fostering sustainable development (Ali & Salameh, 2021).

One of the most visible outcomes of digital transformation in Saudi Arabia's tourism sector is the proliferation of smart tourism applications and platforms. The launch of digital portals for visa processing, trip planning, hotel reservations, event booking, and local navigation has simplified access to the country for both regional and international tourists (Nabila, 2023). Through mobile apps and AI-powered platforms, travelers can receive personalized recommendations, real-time updates, and multilingual support. These systems rely on sophisticated data analytics that collect, process, and interpret visitor behavior to provide targeted services and improve overall satisfaction. The deployment of such technology also enables service providers to anticipate demand trends, manage tourist flows, and deliver customized experiences, which is particularly important in the context of cultural and religious tourism (Abed, 2024).

Smart tourism in Saudi Arabia also involves the digital enhancement of physical tourism assets, including heritage sites, museums, and urban landmarks. Through the use of AR and VR, visitors can engage with historical narratives, architectural reconstructions, and cultural storytelling in immersive and interactive ways. This is especially relevant in destinations such as Al-Ula, Diriyah, and Jeddah's Al-Balad, where preservation and promotion of heritage are essential to national identity and global image (Alsahafi et al., 2023). These digital technologies not only enrich the visitor experience but also contribute to the protection and documentation of fragile cultural resources. Furthermore, virtual tours and digital exhibitions offer new opportunities for global outreach, allowing audiences from around the world to explore Saudi heritage remotely (Al-Kasasbeh et al., 2023).

At the institutional level, the Saudi government has established several initiatives and partnerships to promote digital transformation in tourism. Various ministries and public authorities have worked together with international consultants, academic institutions, and technology firms to design and implement a national digital tourism strategy (Alotaibi et al., 2022). This includes the development of digital infrastructure, such as high-speed internet, open data platforms, and smart city services, which support tourism activities in both urban and remote areas. The integration of technology into tourism governance also enables more accurate monitoring of industry performance, stakeholder collaboration, and transparent communication with the public. Through centralized digital dashboards and key performance indicators (KPIs), policymakers can track visitor statistics, investment flows, and consumer satisfaction in real time (Alamoudi et al., 2023).

Tourism businesses in Saudi Arabia, particularly small and medium-sized enterprises (SMEs), are increasingly adopting digital tools to improve their competitiveness and reach. These include cloud-based reservation systems, e-commerce platforms, digital marketing techniques, and online reputation management (Alnajim & Fakieh, 2023). By leveraging social media and content marketing strategies, businesses are able to target niche segments, showcase their offerings, and engage directly with prospective travelers. Many firms also rely on customer relationship management (CRM) systems and analytics tools to monitor client preferences and behavior(G. Alghamdi & Wahid, 2024). These developments have been accelerated by growing digital literacy among consumers and the widespread adoption of smartphones and digital payment systems. In parallel, the government has launched training and capacity-building programs to help tourism professionals and entrepreneurs develop the digital skills necessary for success in the evolving marketplace (Aarabe et al., 2025).

One of the most transformative aspects of digitalization in Saudi tourism is the role of big data and artificial intelligence in shaping strategic decisions. By collecting vast amounts of information from online searches, booking platforms, mobile devices, and user-generated content, stakeholders can identify emerging trends, optimize marketing strategies, and allocate resources more effectively. Predictive analytics models allow for the anticipation of visitor flows, enabling more efficient crowd management and infrastructure planning (Sun et al., 2025). AI algorithms are also used to power chatbots, virtual assistants, and personalized itineraries, enhancing convenience and engagement for travelers. These technologies are increasingly integrated into airline operations, hotel management systems, tour operations, and government platforms, creating a more cohesive and responsive tourism environment (Alhajri & Al-suwaigh, 2024).

Despite these advances, the digital transformation of tourism in Saudi Arabia also presents several challenges. One key issue is the digital divide between regions, with rural and peripheral areas lacking the infrastructure and human capital needed to fully benefit from technological innovation. Addressing this gap requires targeted investment in connectivity, digital literacy, and capacity development. In addition, the rapid pace of digitalization raises questions about cybersecurity, data privacy, and ethical use of AI in tourism (Nabila, 2023). Ensuring that personal data is protected and used responsibly is essential to maintaining trust and long-term engagement with digital services. Furthermore, there is a risk that over-reliance on technology could undermine the authenticity of cultural experiences or alienate certain segments of travelers who prefer traditional modes of interaction (Aina et al., 2023).

Another challenge lies in the integration of digital strategies across different stakeholders, including government agencies, private firms, non-profit organizations, and local communities. Effective digital transformation requires alignment of objectives, interoperability of systems, and shared standards for data collection and analysis (Anwar & Oakil, 2023). Collaboration among actors is particularly important in the context of mega-tourism projects and heritage conservation, where multiple interests and sensitivities must be balanced. Inclusive governance mechanisms and participatory planning processes can help ensure that technological innovation serves the broader goals of sustainability, inclusivity, and cultural preservation (Alsaawi, 2024).

Moreover, the success of digital transformation in tourism depends on the adaptability and resilience of institutions and individuals. In a rapidly changing technological landscape, the ability to learn, innovate, and respond to disruptions is critical. The COVID-19 pandemic has demonstrated the importance of digital readiness in ensuring business continuity and consumer engagement (Khalid et al., 2023). During the crisis, many tourism providers in Saudi Arabia turned to virtual events, online marketing, and contactless services to maintain operations. These experiences have reinforced the value of digital tools in crisis management and long-term strategic planning (Aljuwaiber & Elnagar, 2022).

In the coming years, the intersection of digital transformation and tourism in Saudi Arabia is expected to grow even more complex and dynamic. Emerging technologies such as the metaverse, blockchain-based travel credentials, autonomous transportation, and intelligent travel companions will continue to reshape the industry (Alsharif et al., 2024). At the same time, evolving consumer expectations, environmental concerns, and geopolitical developments will influence the trajectory of tourism development. The

Kingdom's ability to harness digital innovation while preserving its cultural heritage, social values, and environmental integrity will be key to achieving its tourism goals under Vision 2030 (AlNemer, 2024).

This research paper explores the multifaceted relationship between digital transformation and tourism in Saudi Arabia. It examines the drivers, mechanisms, and outcomes of digital innovation in the tourism sector, with a focus on technology adoption, organizational change, policy frameworks, and visitor experience. Through an analysis of firm behavior, destination management, government strategy, and consumer trends, the paper seeks to provide a comprehensive understanding of how digital transformation is shaping the present and future of tourism in the Kingdom. The aim is not only to highlight best practices and emerging opportunities but also to identify the limitations and risks that must be addressed to ensure an inclusive, sustainable, and resilient tourism system in the digital age.

2. LITERATURE REVIEW

2.1 Digital Transformation in Tourism

Digital transformation has become a cornerstone of development across numerous industries, with tourism being one of the most significantly impacted sectors. The increasing reliance on technology to support, enhance, and innovate tourism activities has reshaped global tourism landscapes (Gretzel, 2022). In the context of Saudi Arabia, digital transformation is closely linked to national strategies that aim to diversify the economy and position the Kingdom as a competitive global tourist destination. Tourism in Saudi Arabia is transitioning from a historically limited and religiously focused sector to a vibrant, multi-faceted industry supported by smart technologies. This transformation is largely driven by the necessity to attract international tourists, improve infrastructure, modernize services, and ensure sustainability, all while preserving the cultural and religious values central to Saudi society (Ajlan & Al Abed, 2023).

2.2 The Role of National Vision in Driving Change

A key driver of digital innovation in Saudi tourism is the national policy framework embedded in Vision 2030. This strategic blueprint sets clear goals for digital infrastructure, innovation, and economic diversification, with tourism playing a central role in achieving non-oil revenue growth. Vision 2030 outlines the importance of using digital tools to modernize government services, increase private-sector participation, and enhance visitor experiences (Alamoudi et al., 2023). The transformation is not solely about adopting technology but creating an ecosystem where public institutions, private enterprises, and international investors collaborate to create a digitally enabled tourism sector. Consequently, tourism development in Saudi Arabia is not occurring in isolation but as part of a broader national digital economy strategy that encompasses education, transportation, heritage preservation, and urban development (AlNemer, 2024).

2.3 Evolution of Smart Tourism Concepts

Smart tourism represents the convergence of tourism services and smart technologies. In Saudi Arabia, this concept is emerging as a critical component of tourism planning and execution. Smart tourism involves the use of digital technologies to provide intelligent services that are responsive to tourist needs, real-time information flows, and personalized experiences. The development of mobile applications, digital kiosks, e-payment systems, and virtual tours are examples of how smart tourism is materializing across major Saudi cities and heritage sites (Bastidas-Manzano et al., 2021). These technologies not only streamline the visitor journey but also improve management systems by providing data that can be used to monitor crowd movements, resource consumption, and service quality. Smart tourism is especially important in a country where religious tourism attracts millions annually, creating significant pressure on infrastructure and logistics systems (Talukder et al., 2024).

2.4 Integration of Artificial Intelligence and Big Data

Artificial intelligence (AI) and big data analytics are central to the modernization of the tourism sector. AI is being deployed in various capacities, including personalized recommendations for travelers, customer service chatbots, automated translations, and predictive analytics for demand forecasting. In Saudi Arabia, big data is increasingly used to assess traveler behavior, understand market trends, and develop targeted marketing strategies (Pei & Zhang, 2021). The integration of AI and big data allows for improved operational efficiency and enhanced customer experiences. For example, using AI-driven systems in hotel booking platforms or tourism portals helps create personalized itineraries based on user preferences, past behavior, and real-time location data. These systems not only enhance the tourist experience but also support businesses in optimizing their offerings and reducing operational costs (Koswara, 2025).

2.5 Tourism Infrastructure and Digital Modernization

Saudi Arabia's tourism infrastructure is undergoing rapid digitalization, particularly in major cities such as Riyadh, Jeddah, and Makkah. Airports, public transportation, hospitality venues, and cultural sites are being upgraded with smart technologies. Contactless check-in systems, smart parking solutions, and intelligent signage are becoming common. The development of high-speed internet networks, widespread mobile connectivity, and digital payment systems are foundational to this transformation (Almakaty, 2025). The introduction of e-visa services has significantly improved access to the Kingdom, allowing tourists to plan

and enter the country with minimal bureaucratic friction. Digital transformation has also extended to heritage preservation, where technologies such as 3D scanning and augmented reality are used to reconstruct and digitally present historical sites, making them accessible to broader audiences both physically and virtually (Al Qurtuby, 2024).

2.6 Digital Transformation in Religious Tourism

Religious tourism, particularly for Hajj and Umrah, plays a pivotal role in Saudi Arabia's tourism strategy. Managing the massive influx of pilgrims requires a sophisticated logistical and operational system, much of which is now digitally enabled. Technologies such as GPS-enabled wristbands, real-time crowd control systems, AI-assisted health monitoring, and digital identity verification are used to ensure the safety and efficiency of pilgrim experiences (Dehghani Firoozabadi et al., 2024). The use of mobile applications to guide pilgrims through rituals, provide multilingual support, and access emergency services has become increasingly prevalent. These innovations are not only enhancing the safety and convenience of religious tourism but also demonstrating the Kingdom's commitment to blending tradition with modernity (Alammash et al., 2021).

2.7 Emergence of Smart Cities and Tourism Ecosystems

Smart cities are fundamental to Saudi Arabia's vision of a digitally driven future, and they directly influence the development of tourism. Projects like NEOM, Qiddiya, and The Red Sea Project are being designed as fully integrated smart cities where tourism is a key component. These cities incorporate advanced technologies such as IoT, AI, renewable energy systems, and autonomous transportation to provide a futuristic and sustainable environment for both residents and tourists (Alqahtany, 2025). These urban developments are built from the ground up with tourism as a core function, ensuring that every aspect of city planning supports seamless visitor experiences. Smart cities also facilitate more accurate data collection, allowing for real-time responses to tourist behavior, needs, and satisfaction levels (Andejany et al., 2023).

2.8 Role of Digital Marketing and Social Media

Digital marketing has become a cornerstone for promoting tourism in Saudi Arabia. With the rise of social media platforms, digital influencers, and user-generated content, the tourism industry has adopted new strategies to reach global audiences. Marketing campaigns are increasingly focused on digital storytelling, immersive video experiences, and interactive content (Alnajim & Fakieh, 2023). Platforms such as Instagram, YouTube, and TikTok have become essential tools for destination branding. Social media not only enables real-time engagement with potential tourists but also provides analytics that help in refining marketing strategies. Tourism businesses and government entities alike are investing in digital advertising, search engine optimization, and content marketing to increase visibility and attract visitors. Digital technologies are also being used to promote sustainability in tourism. Smart systems are capable of monitoring environmental indicators such as air quality, waste generation, energy consumption, and visitor impact on heritage sites (Azzam & Darraz, 2025). These insights allow for the development of environmentally responsible tourism policies. Digital ticketing and visitor flow management help prevent overcrowding at sensitive locations, while green certifications and online sustainability reporting improve transparency. The use of renewable energy and water-efficient technologies in smart tourism facilities reflects a commitment to reducing the environmental footprint of tourism. The integration of digital sustainability practices aligns with global trends and enhances the appeal of Saudi Arabia as a responsible tourism destination (Iqbal & Aftab, 2025).

2.9 E-Commerce and Skills Development

The integration of e-commerce platforms with tourism services has enhanced convenience and accessibility for tourists. Online booking systems, mobile apps for accommodation and transportation, digital ticketing for attractions, and QR code-based transactions are increasingly common. These tools enable tourists to plan their journeys, make reservations, and access services with minimal human intervention. The growing acceptance of digital payments in Saudi Arabia supports the expansion of e-commerce in tourism (Abuali et al., 2024). Furthermore, customer feedback systems and online review platforms are shaping service quality, as businesses are now more accountable to public opinion and online ratings. This ecosystem not only benefits consumers but also provides businesses with data that can be analyzed to improve service delivery (Alateeg & Alhammadi, 2023).

The success of digital transformation in tourism also hinges on the development of human capital. Training and upskilling programs are being implemented to prepare the workforce for digitally enabled tourism roles. Educational institutions are offering courses in hospitality management, tourism technology, digital marketing, and data analytics. Government-sponsored initiatives and partnerships with international organizations are helping bridge the skills gap by offering professional development opportunities (D AL-TAYYAR et al., 2021). As digital tools become more sophisticated, there is a growing demand for specialists who can manage AI systems, interpret big data, and ensure cybersecurity in tourism operations. The development of digital literacy among tourism workers is essential for ensuring the long-term sustainability of digital initiatives. Despite significant progress, several challenges hinder the full realization of digital transformation in Saudi tourism. One major issue is the digital divide, particularly between urban centers and rural or underdeveloped regions. Infrastructure gaps, limited internet access, and lower digital literacy in some areas restrict the scalability of digital tourism initiatives (F. S. Alghamdi & Nor, 2023). Additionally, the rapid pace of technological change presents adaptation challenges for small and medium-sized tourism enterprises. Cybersecurity concerns, data privacy

regulations, and the ethical use of AI are also emerging issues that must be addressed. Furthermore, the integration of digital systems across various stakeholders—government bodies, private companies, service providers—requires strong coordination and standardization to ensure interoperability (Al-Khalidi Al-Maliki, 2021).

3. METHODOLOGY

This study adopts a qualitative research design to investigate the influence of digital transformation on tourist experiences in Saudi Arabia. The qualitative approach is chosen to enable a rich, contextual exploration of individual perceptions and behaviors, particularly in how tourists engage with digital tools throughout their journey. Unlike quantitative research that emphasizes measurement and generalization, the qualitative approach focuses on in-depth understanding, making it highly suitable for capturing the complexity of tourists' lived experiences within a rapidly evolving digital tourism ecosystem (Muzari et al., 2022).

The central objective of this methodological framework is to examine how tourists in Saudi Arabia perceive and interact with digital services such as e-visas, mobile applications, digital guides, payment systems, and location-based services. The study aims to uncover how these technologies affect the ease, efficiency, and satisfaction of their travel experiences. Additionally, it seeks to understand the challenges that tourists may face when navigating digital tools in a new cultural and technological context, and to gather their recommendations for improvement.

To capture a diverse range of perspectives, the research employed a purposive sampling strategy. A total of fourteen participants were selected based on their relevance to the study and their ability to offer meaningful insights into the use of digital tourism services in Saudi Arabia. All selected participants were either currently visiting or had recently visited the Kingdom and had used at least one form of digital technology related to their travel. The sample included both domestic and international tourists, with variation in age, gender, and purpose of travel to ensure a comprehensive representation of viewpoints. Tourist locations such as Riyadh, Jeddah, Al-Ula, and Makkah served as primary sites for recruitment. Participants were approached in public areas including museums, hotels, and tourist attractions, where flyers and direct outreach were used to inform them about the study and request their participation. Individuals who expressed interest were asked for their consent to take part in a 30–45 minute interview.

Data collection was carried out through semi-structured, one-on-one interviews. These interviews provided a flexible yet focused framework for discussion, allowing for consistency across participants while also giving space for unique experiences and reflections to emerge (Bathran & Samuel, 2024). Interviews were conducted either in person or via video conferencing platforms, depending on the participants' preference and availability. Each session was guided by a set of open-ended questions that explored various aspects of the digital tourism experience. Participants were invited to describe how they accessed digital services before arriving in Saudi Arabia, such as e-visa platforms and online booking sites. During the interviews, attention was also given to their use of digital navigation tools, transportation apps, mobile-based cultural guides, digital payment systems, and language translation tools. In addition to discussing the benefits of these technologies, participants were asked to share any frustrations, barriers, or technical difficulties they encountered. The final segment of each interview focused on gathering their suggestions for improving the digital tourism infrastructure in the Kingdom.

All interviews were conducted in either English or Arabic, based on the participant's language preference, and lasted between 30 and 45 minutes. With informed consent, interviews were audio-recorded and later transcribed verbatim to ensure the accuracy of data interpretation. Transcripts were translated into English where necessary to facilitate analysis. The method of analysis chosen for this research was thematic analysis, which is widely recognized for its flexibility and depth in qualitative studies (Ahmed et al., 2025). The process of analysis began with multiple readings of the transcripts to achieve a deep familiarity with the content. The researcher then performed open coding to identify significant ideas, phrases, and patterns across the data. These initial codes were subsequently organized into broader thematic categories that captured recurring concepts such as satisfaction with mobile applications, ease of accessing digital services, barriers caused by language or connectivity issues, and perceptions of overall digital readiness.

As patterns began to emerge, themes were refined through an iterative process that involved examining relationships between concepts and ensuring thematic consistency across participant responses. Coding was initially done manually to maintain close engagement with the data, and NVivo software was later used to facilitate categorization and thematic visualization. The final analysis produced a set of cohesive themes that represented the collective experiences and insights of the participants. These themes were interpreted in light of the research objectives and are used to inform the findings and discussion sections of this paper.

The research maintained high ethical standards throughout the study. Participants were fully informed of the purpose and scope of the research, and their participation was entirely voluntary. They were also assured of their right to withdraw at any point without consequence. Before beginning each interview, informed consent was obtained, and participants were assured that all responses would remain confidential and used solely for academic purposes. Identifying details were anonymized in all transcripts and reports, and the collected data was securely stored in password-protected digital files accessible only to the research team (Knight et al., 2024).

While this methodology provides valuable insight into the digital experiences of tourists in Saudi Arabia, certain limitations should be acknowledged. The relatively small sample size, while appropriate for qualitative research, limits the generalizability of findings

to the broader tourist population. Additionally, interviews conducted in public spaces may have influenced participants' comfort levels and willingness to disclose negative experiences. Language and cultural barriers could also have shaped the depth or clarity of some responses, particularly for non-native English or Arabic speakers. Despite these limitations, the chosen methodology offers a robust and context-rich understanding of the opportunities and challenges associated with digital transformation in Saudi Arabia's tourism sector.

4. QUALITATIVE ANALYSIS

The qualitative data collected through interviews with 14 tourists visiting Saudi Arabia revealed several key themes that reflect how digital transformation is shaping their travel experiences. Thematic analysis was employed to interpret the data, allowing the researcher to identify patterns, recurring ideas, and shared perceptions among participants. These themes provide insight into the role of digital tools in facilitating tourism and highlight areas where further development is needed to enhance the digital tourism experience.

One of the most prominent themes to emerge was the convenience of digital tools in pre-arrival planning and entry procedures. Many participants expressed appreciation for the streamlined e-visa system and online booking platforms that enabled them to prepare for their trip with relative ease. The availability of digital information on official portals and mobile apps was seen as a significant improvement compared to traditional paper-based processes. Tourists reported that digital access to visa services, accommodation options, flight bookings, and itinerary planning allowed for greater control and flexibility in organizing their travel. Several participants also noted that they were more inclined to visit Saudi Arabia because of the efficiency of its digital entry systems, indicating a positive correlation between digital transformation and destination appeal.

Another central theme identified was the integration of mobile applications during the trip itself, particularly for navigation, transportation, and payment. Tourists widely used ride-hailing apps, digital maps, and translation tools to move around unfamiliar cities and communicate more effectively. Mobile payment platforms were commonly praised for enabling cashless transactions in restaurants, hotels, and shopping centers, which many tourists found to be secure and convenient. This level of digital infrastructure was frequently compared favorably with that of other destinations in the region, reinforcing Saudi Arabia's emerging status as a technologically advanced tourist hub. However, some participants noted variability in service quality across cities, with urban areas like Riyadh and Jeddah offering more consistent digital experiences than smaller towns or heritage sites.

The use of digital guides, museum applications, and augmented reality experiences was also noted by several participants as enhancing their understanding and appreciation of cultural and historical sites. Many tourists mentioned that these digital tools offered information in multiple languages, helping to bridge linguistic gaps and making it easier for non-Arabic speakers to navigate and engage with local attractions. In particular, mobile apps that offered audio tours or interactive maps at major cultural landmarks were seen as valuable resources that enriched the visitor experience. This integration of technology into cultural tourism demonstrates how digital transformation can support both education and entertainment while maintaining respect for the authenticity of Saudi heritage (Akram et al., 2022).

Despite the generally positive feedback, several challenges and limitations were identified by participants. A recurring concern was the inconsistent availability of high-speed internet and mobile connectivity, especially in rural or remote areas. Some tourists reported difficulties accessing digital services in regions that lacked sufficient network infrastructure, which affected their ability to use navigation apps, make digital payments, or access online support. Another commonly mentioned issue was the language barrier within some digital platforms, where English translations were either unavailable or poorly executed. This occasionally resulted in confusion during transactions or interactions with services. Additionally, while many services were digitized, participants noted that some service providers still relied on traditional or semi-digital methods, creating a disconnect that sometimes led to delays or misunderstandings.

Another significant theme was the tourists' perception of digital security and privacy. While most participants were comfortable using mobile apps and digital platforms, a few expressed concern about the collection and storage of personal data. These concerns were more prominent among tourists from regions with strict data protection laws, who expected a higher degree of transparency and control over their digital footprint. Nevertheless, no participants reported direct incidents of security breaches or misuse, and overall trust in official apps and platforms remained high, particularly those endorsed or managed by government agencies.

A more subtle but important theme that emerged was the influence of digital transformation on the perception of Saudi Arabia as a modern destination. Several tourists described being pleasantly surprised by the extent of digital development and smart city initiatives, which contrasted with their previous assumptions or expectations. The ability to use familiar global apps, access digital information with ease, and interact with technologically enabled environments contributed to a more progressive image of the country. For some, these digital features reduced anxiety about cultural differences and made the destination feel more accessible and user-friendly.

Participants also provided valuable suggestions for improvement. Many advocated for greater integration of digital services under unified platforms, where all travel-related needs—from booking to transportation to guided experiences—could be accessed in one place. Others recommended enhancing offline functionality within travel apps, which would be especially helpful in low-

connectivity areas. Increasing language support, offering live chat or AI-driven support agents, and improving consistency in digital offerings across regions were additional recommendations provided by participants (Salem et al., 2023).

In summary, the qualitative analysis revealed that digital transformation has played a critical role in enhancing tourist experiences in Saudi Arabia. The integration of e-services, mobile apps, and digital infrastructure has facilitated smoother travel, better engagement with cultural sites, and greater overall satisfaction. However, challenges such as connectivity gaps, inconsistent digital service delivery, and language barriers continue to affect the uniformity of the digital tourism experience. These findings underscore the importance of continuous innovation and infrastructure development to ensure that the benefits of digital transformation are accessible to all tourists, regardless of location or background.

5. IMPLICATIONS OF THE STUDY

The findings of this study have several important implications for stakeholders in Saudi Arabia's tourism and digital development sectors. First and foremost, the positive experiences reported by tourists in relation to digital tools such as mobile applications, e-visa systems, cashless payment services, and smart navigation underscore the effectiveness of Saudi Arabia's digital transformation strategies. These digital assets not only improve operational efficiency but also contribute significantly to visitor satisfaction, potentially enhancing the country's reputation as a modern and accessible destination. For policymakers, this affirms the value of continued investment in digital infrastructure, especially in areas such as mobile connectivity, app integration, and multilingual accessibility (Asif & Fazel, 2024).

Furthermore, the study highlights the critical role that user-centered design plays in digital tourism services. Tourists responded positively to applications and platforms that were intuitive, responsive, and aligned with their expectations. Conversely, inconsistent translation quality, service fragmentation, or digital exclusion in remote areas negatively affected experiences. This suggests that tourism authorities and service providers should prioritize designing inclusive and adaptive digital tools that accommodate diverse cultural and linguistic backgrounds. Smart design, combined with human-centered service principles, can create a seamless and engaging travel experience that supports national goals under Vision 2030 (AlNemer, 2024).

From a strategic perspective, the insights derived from tourists also indicate a growing expectation for integrated digital ecosystems. Tourists prefer comprehensive platforms that allow for centralized planning, booking, navigation, and cultural engagement. This implies a need for greater collaboration between public agencies and private tech developers to create interoperable systems that span across regions and services. Doing so could enhance operational cohesion and offer tourists a more fluid digital journey, regardless of the city or region they are visiting (Raza et al., 2023).

The implications also extend to capacity building within the tourism workforce. As digital services become more embedded in the visitor experience, there is an increasing need for frontline tourism employees to be digitally literate and capable of assisting tourists in navigating apps, platforms, and e-services. This highlights the importance of training programs that not only focus on technical skills but also on customer engagement in a digital context (Qasim et al., 2025). Addressing this human aspect of digital transformation will ensure that technology complements, rather than replaces, the human touch in tourism.

In addition, the study offers valuable lessons for marketing and destination branding. Tourists' impressions of Saudi Arabia as a technologically advanced and forward-thinking country were reinforced by their digital experiences. This demonstrates that digital transformation can serve as a strategic tool in repositioning the nation's image globally, particularly for audiences who may be hesitant or unfamiliar with the region. Digital storytelling, virtual tours, social media interaction, and influencer partnerships can be leveraged further to enhance visibility and attract tech-savvy travelers seeking modern and immersive experiences (Alnajim & Fakieh, 2023).

Finally, the findings offer actionable direction for sustainable tourism development. By using data generated from digital interactions—such as app usage, mobility patterns, and service feedback—authorities can develop smarter management strategies for tourism sites, distribute visitor flows more evenly, and minimize environmental impacts. This data-driven approach is key to balancing growth in tourism with long-term conservation goals, and digital transformation provides the necessary tools to support this equilibrium.

5.1 Limitations and Future Research

While the study contributes meaningful insights into the impact of digital transformation on tourism in Saudi Arabia, it is not without limitations. The most significant constraint lies in the relatively small and specific sample size of 14 tourists. Although appropriate for qualitative research, this limited pool may not fully capture the diversity of tourist experiences across different regions, cultural backgrounds, and travel purposes. The participants were also concentrated in a few key urban and heritage destinations, which may not represent the broader spectrum of digital experiences available throughout the Kingdom. As such, findings may be more reflective of high-visibility areas with stronger infrastructure rather than rural or underdeveloped regions.

Another limitation concerns the reliance on self-reported data collected through interviews. While this method offers rich narrative detail, it is also subject to biases such as selective memory, social desirability, or personal expectations. Some participants may have exaggerated positive or negative experiences, while others might have lacked the technical vocabulary to fully articulate their interactions with digital tools. Additionally, language differences could have influenced the clarity and depth of the responses,

particularly when translations were involved. The absence of longitudinal data also limits the ability to assess how tourist perceptions evolve over time or how digital services respond to emerging trends.

Technical constraints also affected the scope of analysis. The research did not incorporate observational methods, app usage statistics, or system performance data, which could have strengthened the assessment of actual digital service effectiveness. Furthermore, while the study focused on tourists' perspectives, it did not include input from service providers, government officials, or digital platform developers, whose perspectives would provide a more holistic understanding of the challenges and strategies involved in digital transformation.

Future research should aim to address these limitations by expanding the sample size and incorporating a more diverse demographic profile, including tourists from various regions, age groups, and digital literacy levels. Comparative studies across different cities or between religious and leisure tourism contexts could uncover location-specific insights that inform more targeted digital strategies. A mixed-methods approach combining qualitative interviews with quantitative surveys, app analytics, and system performance metrics would yield a more comprehensive and balanced picture of the digital tourism experience.

Additionally, future studies could explore the long-term impact of digital tools on tourist loyalty, repeat visitation, and satisfaction with broader cultural engagement. As Saudi Arabia continues to invest in smart cities and large-scale tourism projects, there is a growing opportunity to investigate how emerging technologies such as artificial intelligence, augmented reality, blockchain, and digital twins reshape the tourist experience in both visible and subtle ways. Exploring these themes could provide critical insights for designing adaptive, inclusive, and resilient digital tourism ecosystems that are aligned with global standards and local values.

In conclusion, while this study offers a valuable foundation for understanding how digital transformation affects tourism in Saudi Arabia, it opens the door to further exploration. By addressing the current limitations and embracing more comprehensive research methods, future investigations can deepen our understanding of the digital-tourism interface and support the Kingdom’s vision of becoming a world-class, digitally enabled destination.

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