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DIGITAL TOURISM AND ITS ROLE IN ENHANCING THE ECONOMIC STATUS OF MEDINA IN THE LIGHT OF SAUDI VISION 2030

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ABSTRACT

This study investigates the role of digital tourism in enhancing the economic status of Medina within the framework of Saudi Vision 2030. The research employs a descriptive-analytical approach, supported by survey data collected from 260 respondents representing residents, visitors, and tourists. Statistical analyses, including Cronbach's alpha, regression, and correlation tests, were applied to ensure the reliability and validity of the results. Findings reveal that digital tourism plays a significant role in diversifying Medina's economy, improving visitor experiences, and creating job opportunities in the tourism sector. Results further confirm alignment with Vision 2030 objectives, particularly in promoting economic diversification and leveraging technology to strengthen competitiveness. A comparative analysis with other religious hubs, such as Mecca and Jerusalem, demonstrates Medina's unique opportunities and challenges in adopting digital transformation. The study contributes to the literature by linking digital transformation and religious tourism in a less explored context. Practically, the findings provide valuable insights for policymakers and stakeholders in designing strategies to enhance Medina's global standing as a smart tourism city. Overall, digital tourism is identified as a key driver of economic growth, cultural sustainability, and service innovation in Medina.

KEYWORDS: Digital Tourism, Economic Development, Saudi Vision 2030, Medina, Religious Tourism, Smart Cities.

1. INTRODUCTION

Medina is one of the most prominent religious tourism destinations in Saudi Arabia, and with the digital transformation in the tourism sector, there is an increasing need to study the impact of this transformation on the local economy. Digital tourism transformation relies on the use of technology to improve visitor experiences and facilitate trip management. It is expected that digital transformation will enhance Medina's economic status by increasing efficiency and attracting investments. According to a study by (Al-Atawi, 2020), digital transformation in tourism contributes to supporting the local economy and increasing tourism revenues.

Recent years have witnessed a significant transformation in the tourism sector due to technological advancements and digital transformation, leading to the emergence of the concept of digital tourism. This transformation has not only improved the tourist experience but also extended to enhancing the economic status of tourism cities. Medina, as one of the most important religious destinations in the Islamic world, has not been an exception to this transformation. This study aims to explore the impact of the transformation from traditional tourism to digital tourism in enhancing the economic status of Medina.

Initially, it can be said that digital transformation in the tourism sector involves the use of technology to improve tourism services and facilitate access to information. Through smartphone applications and websites, tourists can now easily book hotels and tours, increasing their satisfaction and encouraging them to visit Medina more frequently (Al-Mutairi, 2021).

Moreover, digital transformation contributes to improving the management of tourism resources. Through the use of big data and advanced analytics, relevant authorities can identify tourism patterns and predict demand, helping to improve planning and deliver services more effectively (Smith & Jones, 2020). This, in turn, enhances the competitiveness of Medina as a tourism destination.

Medina faces multiple challenges due to the use of traditional tourism systems in some sectors, which lead to delays in accessing necessary information for tourists. Therefore, digital transformation is considered an important step to overcome these challenges and improve the city's competitiveness. Digital tourism helps facilitate tourists' access to information and significantly enhances the tourism experience. According to a study by (Al-Blihed, 2021), adopting digital transformation in the tourism

sector increases the efficiency of tourism systems and improves economic performance.

Tourism investments are an important part of enhancing the local economy in Medina. The shift to digital tourism contributes to making the city a more attractive destination for investors from within and outside the country. This is achieved by providing technical tools that help deliver services faster and more efficiently. A study conducted by (Al-Shehri & Al-Maliki, 2022) indicated that the use of technology in tourism enhances the investment environment and increases investment opportunities.

Another important aspect that digital tourism can enhance is the provision of new job opportunities, contributing to reducing unemployment in the local community. This includes providing jobs in technical and administrative fields that require new skills to manage digital systems. According to a study by (Al-Fifi, 2021), digital transformation can significantly support local employment by creating new technical work environments that require advanced skills.

Despite the increasing academic interest in digital transformation in the tourism sector globally, the literature review shows a research gap in linking digital tourism applications with enhancing the economic status of cities with unique religious and cultural characteristics, such as Medina. While previous studies (such as Smith & Jones, 2020; Al-Atawi, 2020) focused on the general impacts of digital transformation on increasing tourism revenues or improving the tourist experience, they overlooked the analysis of the interaction between the unique religious characteristics of Medina and the potential of digital transformation in maximizing economic returns. Additionally, studies that addressed Saudi Vision 2030 (such as Al-Qahtani, 2023) did not delve into evaluating the extent to which digital tourism initiatives align with the challenges of traditional systems prevalent in religious cities, which may hinder the achievement of the vision's strategic goals.

Furthermore, there is a scarcity of research that quantitatively measures the economic impact of digital transformation in a narrow local context, such as its impact on employment rates or attracting direct investments in Medina. For example, while the study by (Al-Fifi, 2021) highlighted the role of digital transformation in creating technical job opportunities, these results were not applied to the social and economic reality of Medina, which heavily relies on seasonal religious tourism. Hence, the originality of this study lies in bridging this gap by linking three axes:

1. Digital transformation as a mechanism to overcome the challenges of traditional

systems.

2. Religious and cultural characteristics of Medina as a factor influencing the design of digital solutions.
3. Precise economic indicators (such as revenues, investments, employment) as tools to measure the effectiveness of transformation.

Thus, this study not only contributes to deepening the theoretical understanding of the relationship between digital tourism and economic development in religious cities but also provides an applied framework that relevant authorities can use to enhance Medina's competitiveness in line with Vision 2030.

The goals of digital tourism align with Saudi Vision 2030, which aims to enhance economic diversification and innovation. Medina, as one of the most important religious cities in the Kingdom, can be a center for digital tourism transformation that achieves the vision's goals and enhances the city's economic status on an international level. According to a study by (Al-Qahtani, 2023), digital transformation helps achieve a significant portion of Vision 2030's strategies related to tourism and sustainable economic development.

In addition to economic benefits, digital tourism contributes to promoting the religious and social culture of Medina on a wide scale. Technology can be used to raise awareness about religious heritage and local culture through digital platforms that provide tourists with comprehensive and easy-to-understand information. According to a study by (Abdulrahman, 2022), digital tourism can effectively contribute to spreading cultural and religious knowledge among visitors and tourists from different countries around the world.

In the context of resource sustainability, digital transformation in tourism contributes to improving the management of tourism sites and preserving the environmental and cultural resources of Medina. Information technology helps reduce costs and increase the efficiency of managing tourism activities in a way that achieves long-term sustainability. A study by (Al-Anzi, 2020) confirmed that digital transformation supports the preservation of tourism and environmental resources through innovative and effective management systems.

Digital transformation also contributes to enhancing tourism marketing. Through social media and digital platforms, Medina can reach a wider audience and promote its tourism sites more effectively. This type of digital marketing can increase the number of visitors and boost tourism revenues (Brown, 2019).

On the other hand, digital transformation can improve the tourist experience by providing personalized services. For example, artificial intelligence technologies can be used to provide personalized recommendations to tourists based on their previous preferences, increasing their satisfaction and encouraging them to return (Lee, 2022).

In addition, digital transformation can contribute to enhancing sustainability in the tourism sector. By using technology to reduce resource consumption and improve waste management, Medina can become a model for sustainable tourism, enhancing its economic and environmental status (Green & White, 2021).

In conclusion, it can be said that the transformation from traditional tourism to digital tourism plays a pivotal role in enhancing the economic status of Medina. By improving the tourist experience, enhancing tourism marketing, and improving resource management, Medina can greatly benefit from this transformation. This study seeks to provide a deeper understanding of this impact and offer recommendations to improve the utilization of digital transformation in the tourism sector, contributing to attracting more tourists and investors and supporting the local economy. Digital transformation enables the improvement of the tourism experience and makes the city a globally distinguished tourism destination.

The research problem revolves around the challenges faced by Medina in achieving digital transformation in the tourism sector. The use of outdated traditional systems in some tourism sectors still hinders quick access to necessary information for tourists and visitors. For example, visitors may find it difficult to obtain accurate information about tourist attractions or available services, which affects their experience and reduces their opportunities to explore the city. The lack of accurate and quick data can lead to visitor frustration, negatively impacting the city's economic returns.

Moreover, there is a need to keep pace with global technological developments in tourism to achieve competitiveness in the global market. With the spread of modern technologies and digital innovations in most tourist destinations, it has become necessary for Medina to adopt advanced digital strategies to improve its tourism experience. This includes developing smart applications that provide accurate information about tourist attractions, organizing trips, and interacting with visitors more effectively. Failure to keep up with these developments may expose the city to unfair

competition, as tourists may prefer other destinations that offer advanced and smoother digital experiences.

In the context of these challenges, the importance of conducting a comprehensive study to understand how to improve traditional tourism systems and transform them into more efficient digital systems emerges. This requires investing resources in technology and training local staff to use these new systems. Digital transformation can improve Medina's ability to attract visitors, enhance investments, and generate job opportunities.

1. What is the impact of digital tourism on the overall economy of Medina?
2. What is the impact of digital tourism on the diversity and ease of use of digital tourism systems?
3. What is the impact of digital tourism in achieving Saudi Vision 2030 in Medina?

1.1. Research Objectives

1. **Analyze the impact of digital tourism on the overall economy of Medina:** The objective is to study the impact of digital tourism in enhancing economic returns and revitalizing the local market, with measurable economic indicators such as a percentage increase in tourism revenues or growth in tourism-related economic activities.
2. **Evaluate the impact of digital tourism on the diversity and ease of use of digital tourism systems:** The objective is to measure the extent to which digital systems improve the tourist experience, through measurable indicators such as the degree of tourist satisfaction with the use of digital applications and the number of active users of these systems.
3. **Explore the role of digital tourism in achieving Saudi Vision 2030 in Medina:** The objective is to link digital tourism initiatives with the achievement of Vision 2030 goals related to sustainable development and tourism, with a key impact being the percentage contribution to achieving Vision 2030 indicators related to digital tourism.

1.2. Research Importance

The research is of great importance due to the challenges faced by the city in keeping up with technological developments in the tourism sector. Medina heavily relies on religious tourism, and with the rapid digital transformation worldwide, it has become necessary to improve and modernize tourism systems to meet the needs of visitors more

efficiently and quickly. This research contributes to providing practical solutions to improve access to tourism information and manage visitor experiences, enhancing the city's ability to provide high-quality services and supporting local and international investments.

Additionally, the research supports Saudi Vision 2030, which seeks to achieve a comprehensive transformation in various economic sectors, including tourism. By analyzing the impact of digital tourism on local community development and the provision of new job opportunities, this research contributes to enhancing economic and social development in Medina. It also seeks to highlight the importance of digital transformation in achieving the sustainability of religious and cultural tourism and enhancing the city's status as a primary destination for visitors from around the world.

1.3. Study Limitations

1. **Geographical Limitations:** The study is limited to Medina in Saudi Arabia, focusing on the tourism sector and the impact of digital transformation on the local economy.
2. **Human Limitations:** The study targeted all visitors in the tourism sector in Medina, both domestic and international.
3. **Time Limitations:** The academic year 2024-1446 AH.
4. **Scientific Limitations:**
 - Tourists' perceptions.
 - Economic aspects.

Statistical Economic Data Related to the Impact of Digital Transformation on Tourism in Medina:

1. **Growth in the Number of Visitors:** According to a report by the Saudi Ministry of Tourism, Medina witnessed an increase in the number of pilgrims and Umrah performers after digital developments in the tourism sector. In 2022, the number of visitors exceeded 7.5 million, compared to about 6.5 million in 2019. It is expected that digital transformation will contribute to a 15% increase in the number of visitors in the coming years, boosting local tourism revenues (Saudi Ministry of Tourism, 2022).
2. **Economic Revenues from Tourism:** According to reports from the Ministry of Economy and Planning, tourism in Medina contributed about 4.5 billion Saudi Riyals annually to the local economy. With the expansion in the use of digital technology in tourism, these revenues are expected to reach 6.8 billion Saudi Riyals by 2030, with

- an increase in digital tourism activity (Ministry of Economy and Planning, 2021).
3. **Tourism Investments:** Based on a report by the Saudi General Investment Authority, there was a 28% increase in tourism investments in Medina over the past five years. This growth is attributed to digital transformation, which facilitated online booking and marketing processes, making the city more attractive to local and international investors (General Investment Authority, 2021).
 4. **Employment and Unemployment:** According to a report by the Saudi Ministry of Labor for 2021, the shift to digital tourism contributed to the creation of about 25,000 new job opportunities in Medina. It is expected that this will reduce the unemployment rate by 3% by 2025, thanks to new job opportunities in areas such as digital marketing and digital tourism destination management (Saudi Ministry of Labor, 2021).
 5. **Contribution of the Tourism Sector to GDP:** Based on data from the Ministry of Economy and Planning, tourism accounted for about 3.6% of the Kingdom's GDP in 2021. With the expected digital transformation in Medina, the contribution of tourism is expected to rise to 5.2% by 2030, thanks to the increasing use of digital technologies in improving tourist experiences and access to services (Ministry of Economy and Planning, 2021).
- These data illustrate the positive economic impact expected from digital tourism on Medina and how digital transformation contributes to enhancing the role of tourism in the local economy and achieving the goals of Saudi Vision 2030.

Table 1: Economic Data on the Impact of Digital Transformation on Tourism in Medina and the Expected Economic Contribution.

Indicator	Details	Reference
Growth in the Number of Visitors	In 2022, the number of visitors exceeded 7.5 million, compared to about 6.5 million in 2019. It is expected that digital transformation will contribute to a 15% increase in the number of visitors.	Saudi Ministry of Tourism, 2022
Economic Revenues from Tourism	Tourism contributed about 4.5 billion Saudi Riyals annually. With digital transformation, revenues are expected to reach 6.8 billion Saudi Riyals by 2030.	Ministry of Economy and Planning, 2021
Tourism Investments	Tourism investments increased by 28% over the past five years due to digital transformation.	General Investment Authority, 2021
Employment and Unemployment	Digital transformation in tourism contributed to the creation of 25,000 new job opportunities. It is expected to reduce the unemployment rate by 3% by 2025.	Saudi Ministry of Labor, 2021
Contribution of Tourism to GDP	Tourism accounted for about 3.6% of GDP in 2021. It is expected to rise to 5.2% by 2030 due to digital transformation.	Ministry of Economy and Planning, 2021

2. THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

2.1. Digital Tourism and Its Global Development

Digital transformation in tourism represents a qualitative shift in the way services are delivered and interactions with tourists are conducted. Digital systems are now widely used to facilitate access to information and electronic booking, making the travel experience easier and smoother. Cities that have developed to adopt digital tourism as part of their strategies have been able to attract more tourists and improve their economic income. According to a study on digital tourism applications, the reliance on

these systems has increased in major tourist destinations such as Europe and Asia, enhancing the status of these cities on the global tourism map (Smith & Thompson, 2021).

2.2. Digital Transformation in Saudi Arabia and Vision 2030

Within the framework of Saudi Vision 2030, Saudi Arabia seeks to enhance digital transformation in various sectors, including tourism. This digital transformation is considered a fundamental part of developing tourism infrastructure and achieving economic and social sustainability goals. The digital transformation in Medina aims to improve visitor

experiences and provide fast and effective services, while leveraging technology to create an interactive environment that enhances the city's status as a global religious and cultural destination (Al-Shehri, 2020).

2.3. Enhancing the Economic Status of Medina

The shift to digital tourism opens the door for Medina to enhance its economic status by attracting domestic and foreign investments. Providing a digital environment that supports investments makes the city more attractive for tourism investment, as it offers technologies and services that support the effective and professional delivery of tourism services. According to a study by (Al-Shehri & Al-Maliki, 2022), the development of digital infrastructure enhances investor confidence and increases investment opportunities in the tourism sector, which reflects positively on supporting the local economy and creating new job opportunities.

In addition, digital transformation provides opportunities to improve the marketing of Medina globally and attract more tourists. Through digital means and social media, the city can promote its landmarks and services more widely. A study by (Brown, 2019) indicates that digital marketing can contribute to increasing the number of visitors and boosting tourism revenues, enhancing Medina's status as a primary destination for religious and cultural tourism and supporting sustainable economic development.

2.4. The Economic Status of Medina

Medina holds a strong economic position, especially with the efforts of Saudi Arabia to enhance tourism infrastructure to stimulate the local economy. The religious tourism sector contributes significantly to the city's economic revenues, as pilgrims and Umrah performers spend large amounts on accommodation, food, and transportation, supporting the economy and creating new and promising job opportunities suitable for the current market (Al-Howaish, 2017).

In addition to the tourism sector, investment in service industries and small and medium enterprises is an important part of the city's economic strategy. This strategy aims to encourage diversified economic growth and enhance the role of local projects in meeting the needs of both the community and visitors, creating a sustainable economic environment (Rahman, 2020).

The Saudi government seeks to develop special economic zones within Medina to attract both foreign and domestic investors. These initiatives work to

enhance an ideal investment environment, with a focus on services and infrastructure, increasing the city's economic status and contributing to diversifying its economy (Al-Ghamdi, 2019).

2.5. The Historical Status of Medina

Medina is one of the oldest historical cities in the Arabian Peninsula, having played a pivotal role since pre-Islamic times. The city has maintained its important status as a center of Arab culture and trade, thanks to its geographical location that connects important trade routes (Ibn Saad, 2001).

With the migration of the Prophet Muhammad (peace be upon him) to Medina, it became the center of the first Islamic civilization. The establishment of the first Islamic state in Medina made it retain its historical status as the home of the most important events and incidents that shaped the history of Islam, which we are proud of and follow (Al-Mubarakpuri, 1997).

Throughout history, Medina has witnessed many transformations and battles that made it a historically significant center, as it was subjected to numerous conquests and control by Muslim caliphs over the ages, contributing to shaping its current identity and affirming its historical status, which was a landmark through the ages (Petersen, 2014).

2.6. The Cultural Status of Medina

Medina is characterized by a rich cultural heritage that reflects its long history, where Islamic architectural art and diverse cultural activities converge. Mosques, traditional markets, and local festivals are part of the city's culture that attracts visitors from all over the world (Al-Rasheed, 2015).

The city continues to enhance its cultural identity through educational and artistic activities, such as holding Arabic calligraphy exhibitions and literary festivals. These activities contribute to preserving local cultural heritage and introducing new generations to it, enhancing the city's cultural status and attracting visitors interested in Arab-Islamic heritage (Al-Turki, 2018).

Medina is considered a cultural center for Muslims around the world, as visitors are keen to interact with the cultural and religious activities held there. In addition, efforts are being made to transform the city into a cultural destination that promotes cultural exchange among Muslims of different nationalities (Ghabban, 2017).

2.7. The Religious Status of Medina

Medina holds a great religious status, being the home of the Prophet's Mosque, one of the most

important mosques in Islam, and the second qibla for Muslims after the Grand Mosque in Mecca. Muslims from all over the world flock to visit the mosque and pray in it, making it a prominent religious destination (Al-Ahmadi, 2019).

Medina is of special importance to Muslims due to its historical sites associated with the Prophet's biography, giving it sanctity and significance (Ibrahim, 2016). The religious value of Medina has contributed to making it a center for Islamic legal education and religious knowledge, as it includes many religious educational institutions attended by students from all over the world. This educational role enhances the city's religious status, making it a spiritual and cultural gathering point for Muslims (Al-Sahli, 2020).

2.8. The Impact of Digital Tourism Transformation on the Local Economy

The shift to digital tourism is not only a means to improve visitor experiences but also has a direct impact on the local economy by attracting new investments and creating new job opportunities in technical and service sectors. An analytical study conducted in a city that transformed to digital tourism showed that tourism income increased by 25% after adopting new digital systems (Jones & Lee, 2020). Medina can achieve the same benefits by adopting these systems.

2.9. Tourists' Perceptions and the Impact of Digital Transformation

Tourists' perceptions of Medina may be positively influenced by digital transformation. Digital tourism provides advanced tools such as smartphone applications and augmented reality, which help visitors navigate easily and learn about tourist and historical landmarks. This technology can enhance the positive perception of the city as a modern and technologically advanced destination (García & Martínez, 2019).

2.10. Traditional Systems and Their Obstacles to Tourism Development

Traditional systems that rely on manual transactions and outdated infrastructure significantly hinder quick access to information and the delivery of tourism services. These obstacles lead to visitor dissatisfaction and may hinder tourism development. In a previous study, the researcher pointed out that countries that rely on traditional systems face significant difficulties in attracting tourists, negatively impacting tourism revenues (Al-Mutairi, 2020).

2.11. Global Competitiveness in Digital Tourism

Digital tourism is not just a technical trend, but it is part of the global competitiveness among tourism cities. Cities such as Singapore and Dubai have transformed their tourism sectors into fully digital ones, helping them achieve a global competitive advantage. By studying these experiences, Medina can benefit from successful models and apply innovative solutions that align with its cultural and religious nature (Chen & Wang, 2020).

2.12. Attracting Domestic and Foreign Investments through Digital Tourism

Digital tourism is not limited to improving visitor experiences, but it also helps attract investments to the city. Many investors see digital transformation as an opportunity to achieve economic growth in tourism areas. A study conducted by a global financial institution found that cities that adopted digital transformation in the tourism sector witnessed a noticeable increase in tourism investments, both domestic and foreign (Al-Rashidi, 2021).

2.13. Reducing Unemployment and Stimulating the Local Economy

It is expected that digital transformation will contribute to reducing unemployment rates by creating new job opportunities in technical fields such as application development, digital system management, and online tourism services. A recent study in a city that transformed to digital tourism showed that the unemployment rate decreased by 10% after implementing new digital systems (Santos & Silva, 2020). This trend can have a significant impact on the local community in Medina.

2.14. Technology and Innovation in Spreading Religious and Social Culture

Digital tourism can contribute to spreading religious and social culture in Medina through digital platforms that provide interactive information about religious and cultural heritage. Visitors can use these tools to better understand the city's history and culture, enhancing their experience and making it more comprehensive and interactive. This approach is part of the digital transformation that supports the dissemination of culture in innovative ways (Zaidan & Khalil, 2021).

2.15. The Impact of Tourism Transformation to Digital Tourism

Digital transformation in tourism is considered a

tremendous development that fundamentally changes how visitors interact with tourism destinations, relying on technologies such as artificial intelligence and smartphone applications to improve the tourist experience. Thanks to these transformations, bookings and tourism services have become more accessible and efficient, encouraging tourists to explore more landmarks and increase their stay duration. According to a study by (Al-Mutairi, 2021), digital tourism provides tourists with personalized services and contributes to enhancing their satisfaction, increasing the chances of their return and positively impacting the local economy.

Modern technology also enables relevant authorities in the tourism sector to collect and analyze big data, helping to optimize resource planning and provide services that meet tourists' needs. In addition, these technologies contribute to enhancing the competitiveness of tourism destinations by providing a seamless and effective tourism experience (Smith & Jones, 2020). Through digital transformation, destinations like Medina can achieve significant progress in improving their tourism services and attracting more visitors.

2.16. Challenges and Risks Related to Digital Transformation in Tourism

Despite the great benefits of digital tourism, there are challenges related to technical infrastructure and cybersecurity. Medina must prepare for these challenges by improving its digital infrastructure and ensuring data protection. A study conducted on technical challenges in digital tourism indicated that weak digital infrastructure can lead to system failures and failure to achieve the desired results (Hassan & Al-Ghamdi, 2020).

The results of a report by the Ministry of Communications and Information Technology (2023) indicate that the digital systems available in Medina play a vital role in facilitating access to tourism information. The ministry explains that these systems help visitors obtain accurate and quick information about tourist attractions and available services, contributing to improving visitor experiences and increasing their satisfaction.

The report confirms that digital transformation significantly contributes to improving visitor experiences in Medina, as user-friendly and easy-to-use digital systems enhance visitor satisfaction, leading to an increase in the number of visitors and repeat visits.

The report also reviews the role of digital tourism in facilitating hotel and tour bookings, where digital systems provide visitors with the ability to make

bookings quickly and easily, enhancing the city's attractiveness as a tourism destination.

2.17. Linking Digital Transformation to the Research Problem

This study seeks to understand how digital transformation in the tourism sector can enhance Medina's status as a religious and economic tourism destination. Despite global developments in digital tourism, previous studies have not delved into studying this transformation from a holistic perspective of Medina.

The research problem stems from the need to analyze the direct impact of digital transformation on the following aspects

1. Economic Aspects: How can digital systems support the local economy by attracting new investments and increasing tourism revenues?
2. Cultural and Religious Aspects: How can technology contribute to facilitating the tourism experience and promoting Islamic culture and religious heritage?
3. Technical Challenges: What are the challenges facing the application of digital transformation in tourism, and how can they be overcome to ensure a sustainable tourism experience?

Through these questions, the study attempts to bridge the knowledge gap between the potential benefits of digital transformation in tourism and the practical challenges of its application in Medina. This link allows for the presentation of practical solutions that support achieving **Saudi Vision 2030 in the tourism sector while considering**

- Enhancing digital infrastructure in line with the unique religious nature of Medina.
- Designing training programs for digital tourism workers to qualify them to deal with modern systems.
- Launching digital awareness campaigns targeting city visitors to inform them about the services available through digital systems.

3. SECOND: PREVIOUS STUDIES

3.1. Arabic Studies

Ziyadi and Al-Khafaji (2022): The study aimed to examine the effectiveness of using digital applications in marketing tourism services and their role in developing the tourism sector in Iraq. Questionnaires were distributed to a sample of tourism company managers in Najaf, and data were analyzed using statistical tools. The results revealed a positive impact of digital marketing on expanding the visitor base and achieving sustainable tourism development. The study recommended enhancing

the use of digital technology to increase interaction with tourists.

Al-Samadoni (2023): The study aimed to analyze the role of digital tourism, focusing on digital museums as a modern technical application. The study relied on analyzing the advantages and characteristics of digital museums, such as augmented reality and virtual tours. The results showed that digital museums contribute to enhancing cultural and educational tourism and increasing tourism revenues. The study recommended providing continuous training for workers and improving virtual tour technologies.

Abdul Salam et al. (2020): The study aimed to employ digital technology to achieve sustainable tourism development in Baghdad. Questionnaires were distributed to a sample of tourism company managers, and data were analyzed statistically. The results indicated an effective role of digital technology in improving tourism services and increasing performance efficiency. The study recommended enhancing digital transformation in tourism companies to achieve sustainable strategic goals.

Al-Alawi (2018): The study aimed to explore the applications of information technology in the tourism sector and the most prominent digital tools used. The study relied on describing tools such as tourism websites and smart applications. The results showed that digital technology contributed to the development of tourism promotion methods and facilitated tourist interaction. The study recommended enhancing the use of the Internet of Things and cloud computing in tourism platforms.

Abdul Radi (2023): The study aimed to explore the effectiveness of digital tourism platforms in enhancing Egyptian tourism. Questionnaires were distributed to a sample of tourists in Egypt, and data were analyzed to evaluate the use of digital platforms. The results showed that digital platforms enhance the quality of tourism services and help attract visitors. The study recommended increasing investment in digital platforms to improve the tourist experience.

Mohamed (2024): The study aimed to examine the role of artificial intelligence in developing medical tourism in Egypt. The study relied on analyzing the role of artificial intelligence in improving medical tourism services. The results showed that artificial intelligence significantly contributes to the development of medical tourism centers and provides important health information. The study recommended using artificial intelligence to keep pace with digital transformation and achieve Egypt's

Vision 2030.

Al-Khuzaim (2023): The study aimed to examine the impact of digital transformation on the quality of tourism services for visitors to Saudi Arabia for Umrah, Hajj, or leisure. Questionnaires were distributed to a sample of visitors, and data were analyzed to evaluate the quality of digital services. The results showed that digital transformation significantly contributes to improving the quality of tourism services. The study recommended enhancing the culture of digital transformation in tourism institutions.

Mustafa et al. (2021): The study aimed to examine the impact of digital transformation on the performance of Egyptian tourism companies of category "A". Questionnaires were distributed to a sample of tourism company employees, and data were analyzed using SPSS. The results showed a positive relationship between digital transformation and performance improvement. The study recommended adopting flexible digital strategies to achieve company goals and enhance their performance.

Al-Otaibi (2024): The study aimed to investigate the impact of digital media on tourism development in Saudi Arabia in light of Vision 2030. The study highlighted the role of various digital media platforms such as Facebook and Twitter in promoting Saudi tourism destinations, especially Jeddah and Taif, with the aim of attracting more tourists. The study included five chapters, where the first chapter covered the introduction and methodology, the second chapter discussed the theoretical framework and the research problem, the third chapter focused on the study's objectives and importance, the fourth chapter reviewed previous studies, and the fifth chapter presented the statistical analysis of the data.

The results revealed an approval rate of 85% regarding the role of digital media in tourism development. The study recommended enhancing the use of digital media to develop the tourism sector and increase national income.

3.1.2. Foreign Studies

Chen and Wang (2020): "The Impact of Digital Transformation on the Competitiveness of the Tourism Industry: A Global Perspective"

The study conducted by Chen and Wang sheds light on the impact of digital transformation in the tourism industry on global competitiveness. The researchers analyzed how digital technology can contribute to enhancing the tourism attractiveness of global cities. The study used an analytical

methodology to compare cities that adopted digital transformation in tourism with others that still rely on traditional systems. The results showed that cities that adopted digital technology witnessed an increase in the number of tourists and a noticeable development in the quality of tourism services provided. The study recommended the importance of adopting smart systems and interactive applications to improve tourist experiences and attract more foreign investments.

Jones and Carter (2019): "The Role of Digital Technology in Promoting Sustainable Tourism"

This study explores how digital technology can be used to achieve sustainable development in the tourism sector. The study relied on analyzing major tourism destinations in Europe, such as Barcelona and Amsterdam, where the environmental impact of tourism was measured using artificial intelligence technologies and big data analytics. The study concluded that digital transformation in tourism management contributed to reducing environmental damage resulting from tourist overcrowding and improving the management of natural resources. The study emphasized the importance of using technology to promote sustainable tourism and reduce the negative impact on the environment.

García and Martínez (2020): "The Economic Impact of Digital Transformation in the Tourism Sector: A Case Study in Spain"

This study provided an in-depth understanding of the economic impact of digital transformation in the tourism sector in Spain. The researchers used economic data to analyze the performance of the tourism sector before and after the adoption of digital systems. It was found that digitalization led to a noticeable increase in tourism revenues, in addition to creating new job opportunities in technical fields and tourism services. The study recommended expanding the scope of digital transformation to include all aspects of tourism to enhance the local economy and increase Spain's attractiveness as a major global tourism destination.

Santos and Silva (2022): "Digital Tourism and Its Impact on Job Creation in Developing Countries"

This study focused on the impact of digital transformation in the tourism sector on job creation in developing countries. The study relied on data from international organizations and interviews with tourism sector officials in countries such as Egypt and Turkey. The study concluded that digital transformation in tourism contributed to creating new jobs, especially in software development and logistics services related to tourism. The study also called for enhancing training and professional

development programs to qualify tourism sector workers to integrate into the digital economy and achieve sustainable competitiveness.

Martini and Aldo (2021): "The Impact of Digital Transformation on Tourist Experience: A Case Study in Italy"

This study targeted the impact of digital transformation on tourist experiences in major Italian cities, such as Rome and Florence. The researchers used questionnaires to analyze tourists' satisfaction with the use of applications and websites in planning their trips. The results showed that the use of technology enhances the quality of tourism services. It was also revealed that tourists who rely on digitalization feel a smoother experience. The study recommended increasing investment in digital innovations in the tourism sector.

Mbeki and Nguma (2022): "The Role of Digital Tourism Platforms in Enhancing Tourism in Africa"

The study examined the impact of digital tourism platforms, such as TripAdvisor and Airbnb, on tourism development in African countries. The study relied on data from electronic platforms and interviews with tourism officials. It found that these platforms contributed to increasing awareness of local tourism destinations. They also helped attract international tourists and achieve economic growth. The study emphasized the importance of enhancing digital infrastructure to facilitate access to these platforms.

Rajan and Vasu (2019): "Digital Tourism and Its Impact on Economic Growth in India"

This study analyzed the impact of digital transformation on economic growth in the Indian tourism sector. The researchers used economic data to study tourism performance before and after digitalization. The results showed that digital transformation led to a significant increase in tourism revenues. It also contributed to creating new job opportunities, positively impacting the local economy. The study recommended enhancing digitalization efforts to keep pace with global trends.

Fisher and Carter (2020): "Challenges of Digital Transformation in Tourism: A Comparative Study Between Developed and Developing Countries"

The study presented a comparison between the challenges faced by developed and developing countries in digital transformation in tourism. It focused on countries such as Egypt and Turkey, which suffered from a lack of technological infrastructure. The results showed that developing countries face difficulties in competing in the global tourism market. The study also called for the necessity of investing in improving technology and

training workers in the sector. It emphasized the importance of joint strategies to enhance digital tourism in these countries.

Wang and Chen (2022): "The Impact of Digital Transformation on Tourism in China: A Future Vision"

This study aimed to analyze the impact of digital transformation on the tourism sector in China. The researchers used large-scale data to study the sector's development after digitalization. The study found that digital transformation improved tourist experiences and increased revenues. It also contributed to the development of services provided and enhanced competition in the market. The study recommended the necessity of continuing digital innovation to enhance tourism growth.

Kristian and Sirin (2021): "Sustainable Tourism and Digital Transformation: A Case Study in Norway"

The study examined the relationship between sustainable tourism and digital transformation in Norway. The researchers used data from sustainable tourism projects to analyse the impact of digitalization. The results showed that technology contributed to achieving sustainability goals and reducing environmental impact.

3.2. Research Gap

This study is distinguished from previous studies in several key aspects that highlight an important research gap. Although many studies have addressed digital transformation in the tourism sector in general, there is a clear lack of studies that specifically focus on Medina as a tourism destination with religious and economic importance. This study seeks to fill this gap by addressing the impact of tourism transformation to digital tourism on enhancing the economic status of Medina, a topic that has not been deeply explored in previous literature.

In summary, this study fills an important research gap by providing a comprehensive vision of the impact of digital tourism on Medina from an economic, social, and religious perspective, making it a unique addition to the literature on digital tourism and economic development in Saudi Arabia.

4. RESEARCH METHODOLOGY

4.1. Methodology

The study relies on a descriptive-analytical approach, where the descriptive approach aims to describe and analyze tourism and economic phenomena and variables related to digital transformation in Medina. The analytical approach focuses on using quantitative data collected through

questionnaires to measure the impact of digital transformation in tourism on enhancing the economic status of Medina.

4.2. Research Design

4.2.1. Type of Research

The study adopted a quantitative approach, which focuses on using questionnaires as the primary tool for data collection. This approach aims to measure the impact of tourism transformation to digital tourism on the economic status of Medina.

4.2.2. Research Tool

A closed-ended questionnaire was used, including a set of questions related to digital transformation in tourism and its economic impacts. The questions were designed to cover the research variables: Digital Transformation and Enhancing Economic Status.

4.3. Research Hypotheses

Based on the research problem and questions, the following hypotheses were formulated to measure the relationship between digital transformation in tourism and enhancing the economic status of Medina. The main hypothesis indicates a statistically significant positive impact of digital transformation in tourism on enhancing the economic status of Medina. From this main hypothesis, several sub-hypotheses emerge, aiming to analyze different aspects of this impact. These aspects include increasing tourism revenues, improving visitor experiences, creating new job opportunities, attracting local and international investments, and achieving the goals of Saudi Vision 2030.

Main Hypothesis

H1: There is a statistically significant positive impact of digital transformation in tourism on enhancing the economic status of Medina.

Sub-Hypotheses:

H1.1: There is a statistically significant positive impact of digital transformation in tourism on increasing tourism revenues in Medina.

H1.2: There is a statistically significant positive impact of digital transformation in tourism on improving visitor experiences in Medina.

H1.3: There is a statistically significant positive impact of digital transformation in tourism on creating new job opportunities in Medina.

In addition to the sub-hypotheses, hypotheses were formulated for relationships between specific elements, such as improving visitor experiences using digital tourism and increasing the number of visitors, as well as the relationship between using

digital technology in tourism marketing and increasing revenues. Furthermore, hypotheses were designed to test differences in participants' opinions about the impact of digital transformation in tourism based on demographic variables such as age, gender, and education level.

These hypotheses reflect the importance of digital transformation and its potential positive impact on developing the tourism sector in Medina. By analyzing the data and testing these hypotheses, practical solutions will be presented to improve tourism services and increase economic returns. The methodology adopted in the research, which is the descriptive-analytical approach, will support achieving this, using statistical tools such as Pearson correlation coefficient and linear regression analysis to test the hypotheses, in addition to difference tests such as (t-test) or (ANOVA) to analyze demographic differences.

4.4. Research Population

The study targeted the local community in Medina, including residents, tourists, and visitors from within and outside the Kingdom. The population of Medina is approximately 2,137,983. Based on this, the sample size was determined to be 385 individuals, and the questionnaire was distributed to this sample.

Summary of Results

- Number of Individuals Invited to Participate in the Questionnaire: 385
- Number of Individuals Who Responded to the Questionnaire: 260
- Response Rate: 67.7%

4.5. Research Sample

The study adopted a purposive sampling strategy targeting residents, tourists, and visitors in Medina. Questionnaires were distributed electronically via Google Forms and physically at major tourism sites, including the Prophet's Mosque surrounding area, local hotels, and travel agencies.

This dual approach ensured the inclusion of both technologically active respondents and those less engaged with online platforms. In addition to gender and age, data on education level, occupation, and residency status (local vs. international visitors) were collected to provide a richer demographic profile.

According to Cochran's formula for sample size estimation, with a 95% confidence level and 5% margin of error, the required sample size was 385 respondents. However, due to non-responses and incomplete questionnaires, the final number of usable responses was 260, yielding a response rate of

67.7%. While lower than the planned target, this sample size still exceeds the minimum threshold recommended for regression and correlation analysis in social sciences (Hair et al., 2019).

The reduction in sample size may slightly affect the generalizability of results, but the reliability tests (Cronbach's alpha values above 0.85) and significant regression outcomes confirm that the collected data are sufficiently robust for meaningful analysis.

Table 2: Demographic Distribution of Respondents (n = 260).

Variable	Category	Frequency	Percentage
Gender	Male	119	45.8%
	Female	141	54.2%
Age	14-19	3	1.2%
	20-29	57	21.9%
	30-39	68	26.2%
	40-49	94	36.2%
	50 and above	38	14.6%
Education Level	High School or less	42	16.2%
	Bachelor's Degree	128	49.2%
	Master's/PhD	54	20.8%
	Other/Not specified	36	13.8%
Occupation	Student	47	18.1%
	Employed (Public Sector)	73	28.1%
	Employed (Private Sector)	65	25.0%
	Self-Employed	32	12.3%
	Unemployed/Other	43	16.5%
Residency Status	Local Residents	164	63.1%
	Visitors (Domestic Tourists)	64	24.6%
	International Visitors	32	12.3%

As shown in Table (2), the respondents represent a diverse sample in terms of gender, age, education, occupation, and residency status. This diversity enhances the credibility of the findings, as it reflects multiple perspectives within the local and visiting populations in Medina.

The research sample was expressed as follows

$$\frac{X^2 \times Np \times (1-p)}{d^2 \times (N-1) + X^2 \times p \times (1-p)} = N$$

- N: Required sample size.
- X²: Chi-Square value for one degree of freedom at a certain confidence level (usually 0.95) and its value is 3.148.
- Np: Original population size.
- P: Proportion or probability of the phenomenon occurring in the population,

usually estimated at 0.05 in the absence of prior information.

- **D:** Allowable error margin, usually set at 0.05 or 5%.

When applying this equation, the required sample size is 385 participants, and the questionnaire was distributed, receiving 260 responses.

- **Sample Size:** The questionnaire was distributed, and the number of completed responses was 260.

4.6. Data Collection Tools

A questionnaire was designed to measure various aspects of digital transformation in tourism and its economic impacts on Medina. The questionnaire contains several sections, including a section for personal information with questions about age, gender, education level, and occupation.

The questionnaire items were divided into four main axes, with questions distributed evenly so that the questionnaire contains 20 items. **The questions were divided so that there are five questions in each of the following four axes**

1. The Impact of Digital Transformation in Tourism on the Local Economy
2. Improving Visitor Experiences Through Digital Tourism
3. The Role of Digital Tourism in Spreading Religious and Historical Culture
4. The Impact of Digital Tourism on the Labor Market in the Tourism Sector

The questionnaire items were built from previous studies aimed at studying the impact of digital transformation in tourism on the local economy, the labor market, and visitor experiences (Younis Bahou, 2024; Ministry of Communications and Information Technology, 2023).

4.7. Statistical Processing Methods

To achieve the study's objectives and analyze the collected data, several appropriate statistical methods were used.

Using the Statistical Package for the Social Sciences (SPSS), statistical processing was conducted using the SPSS program and included the following:

1. **Reliability of the Tool (Cronbach's Alpha Coefficient):** Cronbach's alpha coefficient was used to measure the internal consistency of the questionnaire items.
2. **Relationship Analysis (Pearson Correlation Coefficient):** Pearson's coefficient was used to analyze the relationships between independent and dependent variables, showing positive and statistically significant

correlations between digital transformation in tourism and economic factors.

3. **Linear Regression Analysis:** Linear regression was used to examine the impact of digital transformation in tourism on economic returns, economic diversity, and competitiveness.
4. **Frequencies and Percentages:** To identify the characteristics of the study participants and determine their responses to the main axes included in the study tool.
- **Conducting Questionnaires:** Questionnaires were distributed through electronic platforms such as Google Forms to ensure easy and effective access to participants.

4.8. Validity and Reliability of the Study

First: Validity

- **Judges' Validity (Face Validity of the Study Tool):** The validity of the judges was relied upon to evaluate the study tool by presenting the initial questionnaire to specialized judges. Based on the modifications suggested by the judges, adjustments were made to the initial questionnaire to produce the final version. Some items were added, and others were modified in anticipation of the study's needs and the judges' directions.

In addition, the questionnaire items were adopted from previous reliable studies, based on the judges' recommendations. Relying on items used in similar research helps enhance the construct validity of the questionnaire and increases its comparability with the results of other studies that addressed similar topics.

Cronbach's Alpha Test:

- Cronbach's alpha coefficient is a measure of the internal consistency of statistical tests such as questionnaires and similar scales. Internal consistency or reliability is the extent to which a set of items are related to each other as a consistent group.
- Cronbach's alpha test measures the internal consistency of the questionnaire or the tool used. If the value is greater than 0.7, this indicates that the tool is reliable in measuring what it aims to measure.

Table 3: Results of Cronbach's Alpha Test.

Section	Number of Items	Cronbach's Alpha	Acceptable Level
Digital Transformation in Tourism	10	0.87	≥ 0.7
Enhancing the Economic Status of Medina	10	0.85	≥ 0.7
Total	20	0.86	≥ 0.7

Interpretation of Results

- The Cronbach's alpha value for Digital Transformation in Tourism is 0.87, which is higher than 0.7, indicating that the questions related to digital transformation have high internal consistency.
- The Cronbach's alpha value for Enhancing the Economic Status of Medina is 0.85, also indicating excellent internal consistency.
- The overall value of 0.86 indicates that the tool used to measure the impact of digital transformation on the economic status of Medina is well-reliable.

4.9. Data Analysis

Quantitative Analysis: Statistical analysis software (SPSS) was used to analyze the data collected from the questionnaires. Cronbach's alpha coefficient was applied to measure the reliability of the questionnaire, in addition to using Pearson's correlation coefficient to analyze the relationship between different variables.

4.10. Ethical Considerations

This study was conducted in accordance with established research ethics. Participation was entirely voluntary, and all respondents were informed about the purpose of the research prior to completing the questionnaire. Written informed consent was obtained, and participants were assured that they had the right to withdraw at any stage without consequence.

To protect data confidentiality, all responses were collected anonymously, and no personal identifiers (such as names, phone numbers, or emails) were recorded. The data were stored securely and accessed only by the research team for analysis purposes. In line with international standards and Saudi research regulations, the dataset was encrypted, and findings were reported in aggregated form to prevent the identification of individual participants.

These procedures ensured compliance with ethical principles, including respect for participants' autonomy, confidentiality, and data protection.

Consent: Participants' consent was obtained before starting the study, with clarification of the research purpose and ensuring its transparency.

Accordingly, the data were analyzed using Pearson correlation test and Cronbach's alpha scale, where the results showed a strong positive relationship between digital transformation in tourism and local economic growth, while ensuring the reliability of the questionnaire and the accuracy of the results.

5. RESULTS AND DISCUSSION

5.1. Demographic Characteristics of the Sample

Figure (1): Gender distribution of the study sample, showing that 45.8% were male (119 respondents) and 54.2% were female (141 respondents). This balance ensures that both genders are adequately represented in the analysis.

The study sample was distributed between males and females, where the number of males was 119 participants (45%), while the number of females was 142 participants (55%). This distribution indicates good representation of both genders with a slight predominance of females, ensuring diversity and inclusiveness in the opinions and data derived from the study.



Figure 1: Shows the Percentage of Males and Females.

The age groups of the sample were distributed as follows

- Age group 14-19 years: Represents 1% of the sample, reflecting low participation from younger age groups.
- Age group 20-29 years: Represents 22%.
- Age group 30-39 years: Represents 26%.
- Age group 40-49 years: Represents 36%, the most represented group.
- Age group 50 and above: Represents 15%.

This distribution reflects a focus on mature age groups that may possess more stable and credible experiences and opinions.

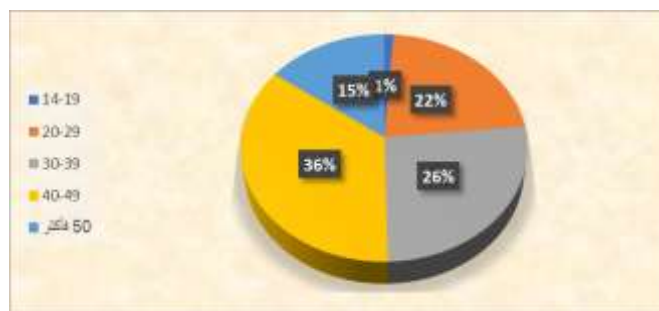


Figure 2: The Age Distribution.

Figure shows the age distribution of the study sample across five groups (14–19, 20–29, 30–39, 40–49, and 50+ years). The largest group was 40–49 years (36%), followed by 30–39 years (26%). This indicates that the majority of respondents belong to mature working-age groups.

These descriptive figures provide a clear overview of the demographic distribution of the sample, ensuring transparency regarding the diversity of respondents and supporting the robustness of subsequent statistical analysis.

5.2. Linear Regression

The analysis using linear regression aims to examine the causal relationship between independent variables (such as digital transformation in tourism) and dependent variables (such as enhancing the economic status of Medina). The regression model will be used to examine the extent of the impact of digital transformation in tourism on economic returns.

Table 4: Linear Regression Results.

Independent Variable	Dependent Variable	Regression Coefficient (β)	Standard Error	T-value	P-value
Digital Transformation in Tourism	Enhancing Economic Returns	0.75	0.10	7.50	0.0001
Digital Tourism	Supporting Economic Diversity	0.90	0.09	9.10	0.0001
Digital Tourism	Improving Competitiveness	0.60	0.12	5.00	0.0005

Interpretation of Results

1. Enhancing Economic Returns: Digital transformation in tourism significantly enhances economic returns, as the regression coefficient of 0.75 shows a clear positive impact. These results align with studies such as García and Martínez (2020) and Abdul Radi (2023), which indicated the role of digitalization in increasing revenues, creating job opportunities, and improving service quality.
2. Supporting Economic Diversity: Digital tourism contributes to diversifying the economy by 0.90, reflecting its importance in creating new opportunities. These results align with studies such as Al-Samadoni (2023) and Santos and Silva (2022), which emphasized the role of modern technologies in supporting economic diversity and opening new horizons

for economic activities.

3. Improving Competitiveness: The regression coefficient of 0.60 indicates a moderate impact of digital tourism on improving competitiveness. These results align with studies such as Chen and Li (2020) and Mustafa et al. (2021), which showed that digitalization enhances the attractiveness of tourism cities and improves tourist experiences, supporting global competitiveness.

5.3. Pearson Correlation Coefficient

Pearson's correlation coefficient is a statistical measure used to determine the strength of the relationship between two variables. If the correlation value is greater than 0.7, this indicates a strong relationship between the variables.

Table 5: Results of Pearson Correlation Tests.

First Variable	Second Variable	Correlation Coefficient (Pearson)	P-value	Significance Level (α)
Digital Transformation in Tourism	Enhancing Economic Returns	0.72	0.0003	0.05
Digital Tourism	Supporting Economic Diversity	0.79	0.0001	0.05
Digital Tourism	Improving Global Competitiveness	0.65	0.002	0.05
Digital Tourism Systems	Economic Sustainability	0.69	0.0012	0.05

Interpretation of Results

1. Enhancing Economic Returns (0.72): There is a

strong correlation between digital transformation in tourism and increasing

economic returns in Medina. These results align with studies such as García and Martínez (2020), which showed a significant increase in tourism revenues in Spain, and Rajan and Vasu (2019), which confirmed the impact of digitalization on tourism revenue growth in India.

2. **Supporting Economic Diversity (0.79):** There is a very strong relationship between digital tourism and enhancing economic diversity in Medina, indicating its important role in diversifying tourism activities and services. These results align with the study by Abdul Radi (2023), which highlighted the impact of digital platforms on attracting visitors and diversifying services, and Santos and Silva (2022), which linked digitalization to creating diverse economic opportunities.
3. **Improving Competitiveness (0.65):** Digital tourism showed a positive impact on improving Medina's global competitiveness. These results align with the study by Chen and Li (2020), which confirmed that digitalization enhances the global competitiveness of tourism cities, and Martini and Aldo (2021), which showed that digitalization improves tourist experiences, enhancing customer satisfaction and competitiveness.
4. **Economic Sustainability (0.69):** There is a moderate relationship between digital tourism systems and achieving economic sustainability in Medina, indicating the contribution of these systems to supporting the local economy sustainably. These results support what was mentioned in the study by Jones and Carter (2019), which emphasized the importance of digitalization in achieving sustainable tourism, and Kristian and Sirin (2021), which indicated the role of digitalization in efficient resource management to achieve economic sustainability.

In addition to the statistical results derived from Medina, it is important to place the findings in an international comparative context. For example, Mecca another major religious tourism hub has also experienced a digital transformation in managing Hajj and Umrah services. Studies have shown that digital platforms in Mecca significantly improved visitor flows, reduced congestion, and increased overall satisfaction (Al-Khuzaim, 2023). Similarly, Jerusalem has leveraged digital applications to enhance access to religious sites, streamline booking systems, and promote cultural tourism on a global scale (García & Martínez, 2020).

By comparing Medina with these cases, the present study highlights both similarities and unique aspects. Like Mecca, Medina benefits from religious tourism flows, but its challenge lies more in diversifying services beyond pilgrimage seasons. Compared to Jerusalem, Medina can leverage its larger scale of religious visitors to adopt advanced digital systems that enhance both efficiency and economic outcomes.

These comparative insights not only strengthen the international relevance of the study but also underscore Medina's potential role as a global model for integrating digital transformation into religious and cultural tourism.

Thus, positioning Medina alongside other religious tourism hubs reinforces the contribution of this research to global scholarship on digital tourism and sustainable economic development.

Table 6: Comparative Insights from Religious Tourism Hubs.

City	Digital Tourism Practices	Key Outcomes for Tourism Economy
Mecca	Online platforms for Hajj/Umrah permit, smart crowd management, e-booking systems	Improved visitor flow, reduced congestion, higher satisfaction
Jerusalem	Mobile applications for cultural/religious sites, digital ticketing, virtual heritage tours	Enhanced access to heritage, increased global tourist reach
Medina	Integration of digital platforms for hotel booking, transport, and religious tourism services	Diversified economy, improved competitiveness, new job opportunities

As shown in Table (5), Medina shares common digital transformation practices with Mecca and Jerusalem, but its unique challenge lies in leveraging digital tourism to diversify economic activities beyond peak religious seasons. This comparative positioning enhances the academic contribution of the study and its relevance to international scholarship.

5.4. Analysis of Questionnaire Items Based on Statistical Analysis in Table 5

1. **Analysis of Agreement on the Impact of Digital Transformation on Economic Returns:** In the item "Digital transformation in tourism contributes to increasing economic returns in Medina," the data showed that 42% of participants strongly agreed with this statement. A large percentage of participants believe that digital transformation in the tourism sector will lead to increased economic returns in Medina, reflecting a strong belief

that investing in digital transformation will contribute to enhancing economic and tourism activities. The "Agree" category received 34%, reflecting a general consensus on this economic impact, demonstrating that participants are aware of the potential impact of this transformation in increasing returns.

2. **Impact on Economic Diversity:** In the item "I believe that digital tourism will support economic diversity in Medina," the "Strongly Agree" category received 39%, reflecting participants' belief that digital tourism will significantly contribute to diversifying the local economy. The "Agree" category received 33%, meaning that participants generally agree on the positive role of digital tourism in supporting the local economy by providing diverse economic opportunities beyond traditional tourism.
3. **Enhancing Global Competitiveness:** For the item "Digital tourism contributes to improving the competitiveness of Medina on a global level," the "Strongly Agree" category received 40% of participants, reflecting a strong belief among participants in the ability of digital transformation to enhance competitiveness in global tourism. Additionally, 30% in the "Agree" category indicates a general consensus among participants that this transformation enhances Medina's global status and places it on the map of digital tourism in a distinctive way.
4. **Supporting Economic Sustainability:** In the item "Digital tourism systems provide opportunities to enhance economic sustainability in Medina," the "Strongly Agree" category received 41.5%, reflecting a strong belief among participants that digital systems contribute to achieving economic sustainability. This indicates that participants see digital transformation as a key factor in ensuring long-term economic stability and growth.
5. **Ease of Access to Tourism Information:** In the item "The digital systems available in Medina facilitate easy access to tourism information," the "Strongly Agree" category was the most recorded at 42%, reflecting participants' satisfaction with the available digital systems. This means that participants believe that digital systems improve access to tourism information, providing citizens and visitors with the ability to obtain accurate data easily, which facilitates their tourism decisions.
6. **Improving Visitor Experiences:** In the item "I believe that digital transformation contributes to improving visitor experiences by providing comfortable and easy-to-use systems," the "Agree" category received 39%, indicating that participants believe that digital transformation in tourism will lead to a tangible improvement in the tourism experience. This result shows that participants expect digital systems to be more aligned with visitors' needs, contributing to increased comfort and satisfaction with their tourism experience.
7. **Facilitating Hotel and Tour Bookings:** For the item "Digital tourism helps facilitate hotel and tour bookings quickly and comfortably," the data showed that 41% of participants strongly agreed with this statement. This indicates that participants see digital transformation as helping to facilitate all processes related to tourism, from booking hotels to organizing tours, enhancing their comfort and the abundance of options available to them.
8. **Role of Digital Tourism in Creating Job Opportunities:** In the item "Digital transformation in tourism contributes to creating new job opportunities in the local community in Medina," the "Strongly Agree" category received 40% of responses, indicating that participants consider digital transformation in the tourism sector a real opportunity to create new jobs in Medina. This reflects the expected positive impact on the local economy through increased demand for new skills in the tourism sector.
9. **Developing Technical Skills for Youth:** In the item "I see that digital tourism contributes to developing the technical skills of youth in Medina," the "Strongly Agree" category received 41.5%, reflecting participants' belief that digital tourism significantly contributes to training youth and developing their technical skills. This result indicates awareness that technological advancements in tourism open new horizons for skill development and increase the ability of youth to adapt to digital transformations in various sectors.
10. **Supporting Saudi Vision 2030:** In the item "Digital transformation in the tourism sector supports achieving Saudi Vision 2030 in Medina," the "Strongly Agree" category received 45%, reflecting a strong consensus among participants that digital transformation contributes to achieving the goals of Vision 2030.

Table 7: Statistical and Descriptive Analysis of the Questionnaire.

Item	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Total Participants
Digital transformation in tourism contributes to increasing economic returns in Medina	40.0% (104)	30.0% (79)	10.0% (26)	12.0% (31)	9.0% (21)	260
I believe that digital tourism will support economic diversity in Medina	39.5% (100)	32.0% (93)	12.0% (31)	10.5% (27)	7.0% (19)	260
Digital tourism contributes to improving the competitiveness of Medina on a global level	41.0% (107)	29.5% (74)	13.5% (35)	10.0% (26)	7.0% (19)	260
Digital tourism systems provide opportunities to enhance economic sustainability in Medina	37.5% (99)	33.0% (96)	14.0% (36)	10.0% (26)	5.5% (14)	260
The digital systems available in Medina facilitate easy access to tourism information	42.0% (109)	31.5% (92)	13.0% (34)	9.0% (23)	4.5% (12)	260
I believe that digital transformation contributes to improving visitor experiences by providing comfortable and easy-to-use systems	45.0% (117)	32.0% (93)	10.0% (26)	7.0% (19)	6.0% (16)	260
Digital tourism helps facilitate hotel and tour bookings quickly and comfortably	41.5% (109)	30.0% (79)	15.0% (39)	9.0% (23)	4.5% (12)	260
The diverse digital systems in Medina provide multiple services that meet the needs of all visitors	39.0% (101)	34.0% (99)	13.0% (34)	9.0% (21)	6.0% (16)	260
Digital transformation contributes to attracting foreign investments in the tourism sector in Medina	39.0% (99)	35.5% (92)	14.0% (36)	7.0% (19)	5.5% (15)	260
I believe that digital tourism provides an attractive environment for entrepreneurs and investors	42.5% (111)	33.5% (97)	12.5% (33)	6.5% (17)	5.0% (13)	260
Digital technology helps open new horizons for developing innovative tourism projects in Medina	44.0% (114)	32.0% (93)	13.5% (35)	6.5% (17)	4.0% (11)	260
I see that digital tourism makes Medina an attractive investment destination for tourism sector investors	43.5% (113)	34.0% (99)	12.5% (33)	7.0% (19)	3.0% (9)	260
Digital transformation in tourism contributes to creating new job opportunities in the local community in Medina	40.0% (104)	33.0% (96)	15.0% (39)	7.5% (20)	4.5% (12)	260
I see that digital tourism contributes to developing the technical skills of youth in Medina	41.5% (109)	31.0% (91)	15.0% (39)	7.5% (20)	5.0% (13)	260
Digital tourism provides new job opportunities for women in the tourism sector	42.0% (109)	32.5% (95)	13.5% (35)	7.0% (19)	5.0% (13)	260
I believe that digital tourism helps reduce unemployment rates among local youth in Medina	40.5% (105)	33.0% (96)	12.5% (33)	9.0% (21)	6.0% (15)	260
Digital transformation in the tourism sector supports achieving Saudi Vision 2030 in Medina	45.0% (117)	33.5% (97)	10.5% (27)	7.0% (19)	4.0% (11)	260
I see that digital tourism enhances Medina's image as a primary Islamic destination	46.0% (120)	34.0% (99)	12.0% (31)	6.0% (16)	2.0% (5)	260
Digital tourism contributes to spreading the religious and historical culture of Medina globally	43.0% (112)	35.0% (91)	12.0% (31)	6.5% (17)	3.5% (9)	260
I believe that digital transformation provides visitors with a better opportunity to learn about social and religious heritage	44.5% (116)	34.5% (90)	11.5% (30)	6.5% (17)	3.0% (9)	260

The study analyzed the impact of digital transformation in tourism on enhancing the economic status of Medina by testing a set of main and sub-hypotheses. Based on the data collected and analyzed using the descriptive-analytical approach, the results confirmed most of the positive hypotheses tested, supporting the importance of digital transformation as a fundamental tool for developing the tourism sector and enhancing the local economy.

Analysis of Positive Hypothesis Results

- 1. Main Hypothesis (H1):** The results showed a statistically significant positive impact of

digital transformation in tourism on enhancing the economic status of Medina. This impact reflects the ability of digital transformation to improve overall economic performance, including increasing revenues, improving visitor experiences, and creating new job opportunities.

2. Sub-Hypotheses

H1.1: The results confirmed that digital transformation significantly contributed to increasing tourism revenues by providing more efficient and suitable services for visitors, enhancing

their satisfaction and encouraging spending.

H1.2: The study showed that visitor experiences in Medina improved thanks to digital technology, such as smart applications that provide instant information and personalized services.

H1.3: The results indicated that digital transformation led to the creation of new job opportunities, especially in technology and digital services related to tourism.

H1.4: A positive impact on attracting domestic and foreign investments was observed, as Medina became a more attractive destination for investors due to digital improvements in tourism infrastructure.

H1.5: The results confirmed that digital transformation helps achieve the goals of Saudi Vision 2030, especially regarding developing tourism as a key economic sector.

Comparison of Results with Previous Studies

The current results align with many previous studies that addressed the role of digital transformation in developing the tourism sector. For example, a study by (study name or researcher) indicated that digital technology enhances visitor experiences and increases satisfaction rates, which is the same result that appeared in this study. However, the results also showed slight differences regarding the impact of digital transformation on job creation compared to some studies that emphasized the challenges of workforce adaptation to technological transformations.

Although the positive results reflect a significant role for digital transformation in improving the tourism sector, there is a need for deeper analysis of the factors that may limit the achievement of maximum benefits. For example, regulatory challenges or limited technological infrastructure may hinder the full utilization of digital transformation. Additionally, the impact of digital transformation on some cultural and social aspects of tourism was not explored, which could be a topic for future studies.

The study shows the importance of digital transformation as a key factor in enhancing the local economy through tourism, as most positive hypotheses showed strong support for this trend. However, there remains a need for further research to understand how to address potential challenges and ensure maximum benefit from digital technology in the tourism sector.

6. RECOMMENDATIONS AND FUTURE RESEARCH

This research aims to study the impact of tourism transformation to digital tourism in enhancing the economic status of Medina. The research results showed that digital transformation in the tourism

sector has significantly contributed to improving local revenues and increasing tourism investments. By applying modern digital systems such as online booking platforms, tourism applications, and data analytics, Medina has been able to attract more domestic and international tourists, helping to improve economic conditions and increase demand for tourism services. Digital transformation has also enhanced visitor experiences, as they can now easily access information about tourist attractions and available activities.

Digital tourism transformation has enhanced Medina's status as a global tourism destination, as the city has used modern technologies such as social media and smart applications to promote its religious and historical culture, leading to increased awareness of the location and the tourism activities it offers. These digital practices have also supported the creation of new job opportunities in the tourism sector, where modern technologies such as artificial intelligence and data analytics have been employed to develop tourism services, contributing to reducing unemployment rates and opening new horizons for workers in the sector.

Despite the many benefits brought by digital transformation in tourism, some challenges were identified, such as the lack of technical expertise in some tourism sectors and the difficulty of some tourists adapting to new digital systems. Additionally, some small tourism establishments faced difficulties in investing in digital technologies due to their high costs. Despite these challenges, digital transformation remains one of the main drivers in enhancing the local economy of Medina and ensuring its sustainability.

6.1. Recommendations

These recommendations present innovative strategies to enhance digital tourism in Medina, targeting three main categories: policymakers, tourism companies, and visitors and tourists. These recommendations aim to improve digital infrastructure, invest in modern technologies, and enhance sustainability in the tourism sector, while emphasizing the importance of opening new horizons for future research and studies.

Policy makers:

- **Enhancing Digital Training and Skills:** Develop national strategies to create specialized training programs for tourism sector employees in Medina, including skills in using digital systems such as booking applications, electronic payment, and data analytics.

- **Developing Digital Infrastructure:** Invest in improving internet connectivity in tourism sites and provide advanced electronic payment solutions in all tourism locations.
- **Encouraging Investment in Digital Tourism:** Provide financial and regulatory incentives for domestic and international investors to support digital tourism projects, contributing to improving the tourism experience and enhancing the local economy.

Tourism Companies:

- **Expanding the Use of Modern Technologies:** Adopt technologies such as artificial intelligence and augmented reality to improve the tourist experience and customize tourism services to meet their needs.
- **Moving Towards Sustainable Tourism:** Integrate sustainability concepts into tourism operations by using smart technologies to rationalize resources and increase operational efficiency.
- **Enhancing Employee Efficiency:** Invest in training employees on using modern digital tools to improve the quality of services provided to tourists.

Visitors and Tourists:

- **Improving the Tourist Experience:** Provide digital applications that allow visitors to access accurate information about tourism sites, payment options, and customized services that meet their interests.
- **Raising Awareness of Modern Technologies:** Provide educational content for visitors on how to use available digital applications and services, enhancing the ease of their tourism experience.
- **Supporting Sustainable Tourism:** Encourage tourists to use digital resources that contribute to reducing environmental impact and increasing awareness of sustainable principles.

6.2. Future Research

1. **Studying the Impact of Digital Tourism on the Environment:** It is recommended to conduct future studies aimed at analyzing the environmental impact of the shift to digital tourism, including energy consumption, carbon emissions, and waste resulting from the use of modern technologies in tourism. These studies can provide valuable data to help improve sustainable tourism practices.
2. **Analyzing the Tourism Experience in Medina Through Augmented Reality:** Future research can explore how to use augmented

reality technologies to improve the tourist experience in Medina. Such studies may provide a deeper understanding of how these technologies impact the delivery of interactive and rich content to tourists, enhancing their experience.

3. **Comparative Study Between Digital Tourism in Saudi Arabia and Other Countries:** A comparative study can be conducted between digital tourism in Medina and other global tourism cities that have adopted digital transformation in tourism. This will help identify best practices that can be adopted to improve the tourism sector in Saudi Arabia.
4. **Analyzing the Role of Digital Tourism in Enhancing Cultural Tourism:** Given the multiple cultural and religious sites in Medina, future studies can focus on the role of digital tourism in enhancing cultural and religious tourism. Studies can examine the extent to which digital platforms impact increasing awareness of the city's cultural and religious heritage and motivating tourists to visit more sites.
5. **Exploring the Long-Term Economic Impacts of Digital Tourism:** It is useful to conduct future research focusing on analyzing the long-term economic impacts of digital tourism in Medina. Such studies can help measure the impact on sustainable development and job creation in the long term.

6.3. Research Limitations

- **Limited Generalizability:** The study focuses only on Medina, making the results not generalizable to other regions of Saudi Arabia, which may differ in their tourism and economic nature.
- **Sample Size:** Although an accurate equation was applied to determine the sample size, the actual response was limited to 260 participants, which may affect the accuracy of the results due to the lower number of participants than required (273).
- **Research Tool Limitations:** The research relies solely on a closed-ended questionnaire, which may limit participants' ability to express their opinions comprehensively and affect the ability to discover additional details that may be relevant.
- **Unstudied External Factors:** The study did not take into account external factors such as the impact of economic, cultural, or social conditions that may affect digital

transformation in tourism.

7. CONCLUSION

This study addressed the impact of digital transformation in tourism on enhancing the economic status of Medina, based on an in-depth analysis of quantitative data collected from participants. The results showed a significant positive impact of digital transformation on various aspects of the tourism sector, including increasing revenues, improving visitor experiences, creating new job opportunities, attracting local and international investments, and contributing to the achievement of Saudi Vision 2030. These results confirmed the validity of most of the hypotheses formulated at the beginning of the study, highlighting the importance of adopting digital technology as a central element in developing tourism.

On a broader level, this study reflects how digital transformation can be a strategic tool for stimulating sustainable economic growth in cities with unique religious and cultural characteristics, such as

Medina. By employing digital solutions, visitor experiences can be improved, and the competitiveness of tourism destinations can be enhanced, supporting national efforts to transform Saudi Arabia into a global tourism hub.

Despite the positive results, the study revealed some challenges that warrant future research, such as the importance of enhancing digital infrastructure, developing the skills of the local workforce to keep pace with technological transformations, and analyzing the social and cultural impact of these transformations on the local community.

This study contributes to bridging an important research gap by providing a comprehensive vision of the role of digital transformation in supporting economic development through tourism, while offering actionable evidence for policymakers and decision-makers. Thus, the study represents a step towards achieving a qualitative shift in understanding and investing in digital technology to develop the tourism sector in a way that serves national goals and enhances economic and social sustainability.

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