

Strategic Management and Market Feasibility of Tegal Tourism: A Digital Transformation Perspective

Dwi Novita Cahyaningtyas Permatasari ^{1*}, Deddy Kurniawan Halim ², Dinar Sukma Pramesti ³, Vivi ⁴

^{1*} Department of Digital Business, Politeknik Internasional Bali, Tabanan Regency, Bali Province, Indonesia

² Department of Tourism and Education, Faculty of Business, Tourism and Education, Universitas Triatma Mulya, Badung Regency, Bali Province, Indonesia

³ Department of Tourism Planning and Development, Politeknik Internasional Bali, Tabanan Regency, Bali Province, Indonesia

⁴ Department of Hospitality Management, Politeknik Internasional Bali, Tabanan Regency, Bali Province, Indonesia

Email: dwinovita.permatasari@gmail.com ^{1*}, deddy.halim@triatmamulya.ac.id ², dinar.pramesti@pib.ac.id ³, viaraya82@gmail.com ⁴

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Abstract

Digital transformation in the tourism sector has accelerated the emergence of technology-driven platforms that enable the end-to-end integration of tourism experiences. This study examines the market feasibility and strategic management implications of the Tegal Tourism platform, which comprises four main subsystems: Virtual Tour, Tourism Marketplace, Mitra Jelajah (partner ecosystem), and an AI-based chatbot. Adopting a mixed-methods approach, the study combines survey data from 116 respondents with in-depth interviews, FGDs, and prototype testing. Market feasibility is evaluated across five key dimensions, namely market demand and trends, consumer segmentation and user profiles, competitor and substitute product analysis, go-to-market and distribution strategies, and quantitative demand estimation. The findings reveal that 56.9% of respondents are familiar with virtual tours, 70% are interested in exploring tourism through such technology, and more than 77% indicate a likelihood of making transactions after a virtual experience, demonstrating strong online-to-offline (O2O) conversion potential. Additionally, 94% of respondents primarily use smartphones, highlighting the importance of a mobile-first strategy. Overall, the platform demonstrates high market feasibility, supported by strong user interest, digital readiness, and significant transaction potential. Four of the five dimensions meet the feasibility criteria, while consumer segmentation and user profiles remain at a medium-to-high risk level and require targeted mitigation. This study contributes to strategic management and digital tourism literature by offering an integrated feasibility framework and practical insights for strengthening digital tourism ecosystems and MSME participation.

Keywords:

Digital Transformation; Tourism Platform; Market Feasibility; Strategic Management; O2O Conversion.

1. INTRODUCTION

Digital transformation has become a key driver of structural change in the global tourism industry, including in Indonesia. The rapid advancement of information technology, high internet penetration, and shifting consumer behavior toward digital-based services have created a new ecosystem within the tourism value chain. In this context, digital tourism is no longer limited to the use of technology as a supporting tool, but represents the integration of digital technologies across promotion, distribution, and consumption processes (Buhalis & Leung, 2018). Digital platforms have evolved into strategic infrastructures that connect tourists, businesses, and government actors within an integrated ecosystem, enabling real-time data exchange, service personalization, and operational efficiency (Gretzel et al., 2020; Verhoef et al., 2021). This

transformation also enables the creation of data-driven decision-making processes and fosters greater collaboration among stakeholders within the tourism ecosystem.

From a theoretical perspective, digital platforms in tourism function as multi-sided platforms that facilitate interactions between demand and supply while generating value through network effects (Nambisan et al., 2020). Furthermore, digital transformation enables the integration of advanced technologies such as artificial intelligence, big data analytics, and the Internet of Things (IoT), which enhance decision-making processes and enable more adaptive and data-driven tourism services (Verhoef et al., 2021). In addition, digital tourism ecosystems play a crucial role in improving destination visibility and integrating local micro, small, and medium enterprises (MSMEs) into broader value chains, thereby supporting inclusive and sustainable tourism development (Sigala, 2021). This integration enhances local economic participation and strengthens the competitiveness of tourism destinations in the digital economy.

Empirically, Indonesia represents one of the most dynamic digital tourism markets in Southeast Asia. The number of domestic tourist trips exceeded 700 million in 2024, with the tourism sector contributing approximately 5.2% to the national GDP (Kemenparekraf, 2024). Meanwhile, the online travel market reached approximately US\$8 billion and is projected to grow significantly by 2030 (Google, Temasek, & Bain & Company, 2024). This growth is further supported by internet penetration exceeding 79% of the population and rapid adoption of digital payment systems such as QRIS, reflecting a strong shift toward digital-first consumer behavior (APJII, 2024; Bank Indonesia, 2024). This trend creates a favorable environment for the development of integrated digital tourism platforms that can effectively capture and convert user engagement into economic value. Consumer behavior in tourism has also undergone a significant transformation. Modern tourists increasingly rely on digital platforms throughout the travel journey, from information search and destination evaluation to transaction decisions (Xiang et al., 2015; Mariani et al., 2023). Factors such as ease of access, visual experience, and trust in digital platforms play a crucial role in influencing decision-making (Filiari et al., 2021). Moreover, technologies such as artificial intelligence enable personalized services that enhance user experience and engagement (Dwivedi et al., 2021). Tourists are also becoming active co-creators of value through digital content, reinforcing the importance of interactive and experience-driven platforms (Harrigan et al., 2021). This behavior emphasizes the importance of designing platforms that support participatory engagement and user-generated content within the tourism ecosystem.

One of the key innovations supporting digital tourism is the use of virtual tours, which serve as pre-experience tools that shape tourists' perceptions and intentions to visit destinations. Virtual tours provide immersive visual experiences that enhance destination image, emotional engagement, and visit intention (Tussyadiah et al., 2018; Huang et al., 2022). Furthermore, they act as a bridge between digital exploration and physical visits through online-to-offline (O2O) conversion mechanisms (Yung et al., 2021). When integrated with interactive features, multimedia content, and user analytics, virtual tours become a strategic component of digital tourism ecosystems (Flavián et al., 2021; Lou & Li, 2022). Despite these developments, many regional tourism destinations still face challenges related to fragmented information management, limited digital integration, and suboptimal market visibility. This gap is particularly evident in Kabupaten Tegal, which possesses diverse tourism potential, including natural attractions, cultural heritage, and local MSME products. However, the lack of an integrated digital platform limits the effectiveness of promotion and reduces the potential for tourism conversion.

To address this gap, the Tegal Tourism platform is developed as an integrated digital solution consisting of four main subsystems: Virtual Tour (Jelajah 360), Tourism Marketplace, Mitra Jelajah (partner ecosystem), and an AI-based chatbot. By integrating virtual tours, e-ticketing, and MSME marketplace features into a single platform, the system aims to enhance information accessibility, improve user engagement, and create new monetization opportunities through digital experiences and online-to-offline (O2O) conversion. From a strategic management perspective, this development presents significant market opportunities and potential competitive advantages, particularly through differentiation strategies and first-mover advantage in regional digital tourism platforms. However, the success of such platforms depends heavily on market feasibility, including consumer readiness, digital adoption, monetization potential, and sustainable ecosystem participation (David, 2017; Kotler et al., 2021). Although previous studies have extensively examined digital tourism adoption, smart tourism ecosystems, and technology integration (Buhalis & Leung, 2018; Gretzel et al., 2020; Verhoef et al., 2021), limited empirical research has specifically addressed the market feasibility and strategic management implications of integrated regional tourism platforms that combine virtual tours, digital marketplaces, partner ecosystems, and AI-driven services within a single ecosystem. Moreover, prior studies rarely evaluate the O2O conversion potential and the role of such platforms in strengthening MSME participation and regional tourism competitiveness.

Therefore, this study seeks to fill this gap by providing an empirical market survey-based analysis of the Tegal Tourism platform, integrating market readiness assessment with strategic management evaluation. Specifically, this study aims to analyze the market survey results of the platform, assess market readiness and consumer interest in digital tourism, and evaluate the strategic implications for integrated digital tourism platform development. It addresses three research questions: (1) how ready is the market to adopt an integrated digital tourism platform; (2) what is the potential for O2O conversion and digital monetization;

and (3) what strategic implications arise for the development and commercialization of regional digital tourism platforms. The remainder of this paper is organized as follows: the next section presents the literature review, followed by the methodology, results and discussion, and finally the conclusion with key findings and recommendations.

2. RESEARCH METHOD

This study employs a mixed-methods approach, integrating quantitative and qualitative data to provide a comprehensive analysis of market feasibility and managerial implications for the development of the Tegal Tourism platform. This design combines data-driven user behavior analysis with contextual insights from key stakeholders and aligns with the study's research objectives.

For the quantitative component, the study population consists of potential users of digital tourism platforms, including tourists, students, and digital communities. A total of 116 respondents participated in the survey using a simple random sampling technique, ensuring that each member of the target population had an equal probability of being selected. The questionnaire consisted of structured indicators measuring digital readiness, interest in virtual tours, platform usage intention, and the likelihood of engaging in digital transactions, using a Likert-scale format. Prior to distribution, the questionnaire was reviewed by experts and pilot-tested to ensure content validity and clarity. Reliability was assessed using internal consistency measures.

For the qualitative component, in-depth interviews were conducted with 10 key informants, including representatives from local government, destination managers, and MSME actors. In addition, two Focus Group Discussions (FGDs) involving approximately 8–10 participants each were organized to capture broader perspectives on market needs, implementation challenges, and commercialization opportunities. The qualitative data were analyzed using thematic analysis, involving data transcription, coding, categorization, and interpretation to identify recurring themes and strategic issues.

Data collection was conducted through multiple techniques, including literature review, field observation, interviews, FGDs, and questionnaire-based surveys. The literature review involved analysis of secondary data and official documents, such as the Regional Tourism Development Master Plan (RIPPARKAB) of Tegal Regency (2018–2025), Regional Spatial Plans (RTRW) of Tegal (2023–2043), reports from Statistics Indonesia (BPS), and national policies on digital tourism transformation, complemented by prior academic studies on digital tourism and 360° technologies. Field observations were conducted at four pilot destinations, namely Guci, Pantai Alam Indah, Museum Semedo, and Rodjo Tater, to assess digital infrastructure readiness, accessibility, and local socio-economic conditions. Prototype testing of the Tegal Tourism platform was also carried out to evaluate system functionality and user experience.

The survey instrument was designed to measure users' digital readiness, interest in virtual tours, potential platform usage, and likelihood of engaging in digital transactions. Quantitative data were analyzed using descriptive statistics to identify patterns and trends in user behavior, while qualitative data from interviews and FGDs were analyzed using thematic analysis to explore strategic issues and development opportunities. Data integration was conducted through triangulation to ensure the validity and reliability of findings. Ethical considerations were addressed by ensuring informed consent from all participants, maintaining confidentiality, and using the collected data solely for research purposes. Despite its comprehensive design, this study is subject to limitations, including the relatively small sample size and geographic focus, which may affect the generalizability of the findings. However, these limitations were mitigated through the use of multiple data sources and methodological triangulation to enhance the robustness of the analysis.

3. RESULTS AND DISCUSSION

3.1. Product and Technology Overview

The Tegal Tourism platform is developed as an integrated digital tourism solution designed to address fragmented destination information, limited digital promotion, and low transaction conversion in regional tourism ecosystems. In line with the study's objective of assessing market feasibility and strategic implications, the platform's technological design is structured to respond to identified market needs, user behavior patterns, and opportunities for strategic differentiation. The product has secured Intellectual Property Rights (IPR) protection in the form of a registered copyright (EC00202497534) and a pending utility patent (S00202409339), indicating its innovation readiness for downstream commercialization.

The technology has been independently developed by the research team without reliance on proprietary third-party licenses, utilizing open-source components such as TensorFlow, Flutter, and Three.js, which require license auditing prior to commercialization. The platform consists of four main innovations, each designed to support an integrated digital tourism ecosystem by improving user engagement, facilitating

online-to-offline (O2O) conversion, and strengthening the participation of local MSMEs and tourism stakeholders. Figure 1 illustrates the four main innovations of the Tegal Tourism platform.



Figure 1. The Four Main Innovations of the Tegal Tourism Platform

3.1.1. Tegal Tourism Virtual Tour

The Virtual Tour subsystem addresses the growing demand for immersive and experience-driven tourism exploration identified in the market survey. Existing features include 360° panoramic destination exploration, hotspot navigation, comprehensive destination profiles, photo galleries, and visitor reviews. These features function as pre-experience tools that enhance destination image and visit intention. Development features such as immersive storytelling, marketplace integration through deep-link ticket booking, analytics dashboards, and multilingual support are intended to improve user engagement and increase O2O conversion potential.

3.1.2. Digital Marketing Platform

The Digital Marketing Platform is designed to address the need for integrated transactions and MSME commercialization within the tourism ecosystem. Existing features include basic displays of tourism products and services, manual booking, and centralized data management. Development features such as integrated payment gateways (QRIS, virtual accounts, e-wallets), transaction history, dynamic catalogs with smart filtering, automated commission systems, and NIB/OSS integration are expected to strengthen monetization opportunities and improve operational efficiency for tourism businesses and MSMEs.

3.1.3. Jelajah Tegal

The Jelajah Tegal subsystem is developed to enhance user convenience and destination interaction through mobile-based services. Existing features include destination navigation, QR-based check-in, event and promotion listings, and visitor reviews. Planned enhancements such as interactive self-tour guides, integration with Mitra Jelajah for attractions and facilities, real-time reporting systems, and gamification features (points, badges, rewards) are intended to improve user retention, increase platform stickiness, and encourage repeat visits.

3.1.4. Chatbot

The Chatbot subsystem addresses users' need for instant information access and personalized recommendations. Existing features include a website-based chat widget for answering basic inquiries and providing general destination information. Future development includes AI-powered local FAQ retrieval, automated recommendations using generative AI, voice interaction, WhatsApp Business API integration, and multi-channel analytics. These features are expected to improve service responsiveness, reduce information barriers, and enhance personalized user experiences.

3.2. Market Survey Results

Based on the survey results of 116 respondents regarding tourist behavior and preferences in the Tegal region and its surroundings, several key findings were identified that reinforce the feasibility of developing the Tegal Tourism digital tourism platform. The majority of respondents have an educational background of senior high school or equivalent (42.2%) and undergraduate level (S1/D4) (30.2%), followed by postgraduate (S2/S3) (8.6%) and junior high school (17.2%). This composition indicates that most tourists possess sufficient digital literacy and a strong potential to adopt web- or application-based technologies in planning their travel. This supports the assumption that Tegal Tourism will be well accepted by both local and domestic tourists.

4. Pendidikan Terakhir

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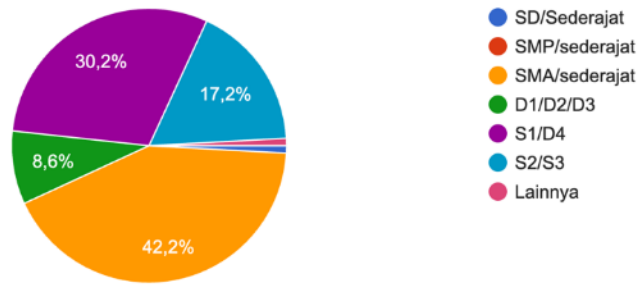


Figure 2. Educational Background of Respondent

From an economic perspective, 30.2% of respondents spend between IDR 250,000 and IDR 500,000 per visit, while 28.4% report expenditures exceeding IDR 1,000,000. Only 19.8% of respondents travel with a budget below IDR 250,000. These findings indicate that the tourism market in Tegal demonstrates relatively strong purchasing power, particularly for destinations offering unique and value-added experiences such as interactive virtual tours, cultural storytelling, and digital access to MSME products. This strengthens the economic feasibility and revenue projections of the project.

8. Rata-rata Anda mengeluarkan biaya untuk satu kali wisata

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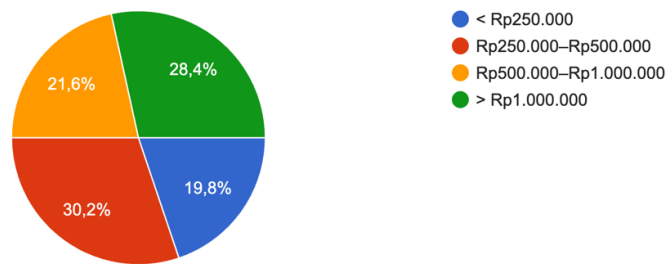


Figure 3. Travel Spending of Respondent

The most dominant factor influencing tourist decisions is destination attractiveness (69.8%), followed by ticket price (17.2%), and accessibility and facilities (6%). These findings emphasize that visual appeal and destination aesthetics are key elements in regional tourism promotion strategies. Therefore, the 360° Virtual Tour feature in the Tegal Tourism platform is highly relevant, as it enables immersive visualization of destinations, thereby enhancing visit intention and destination image.

3. Faktor utama yang mempengaruhi Anda dalam memilih destinasi wisata:

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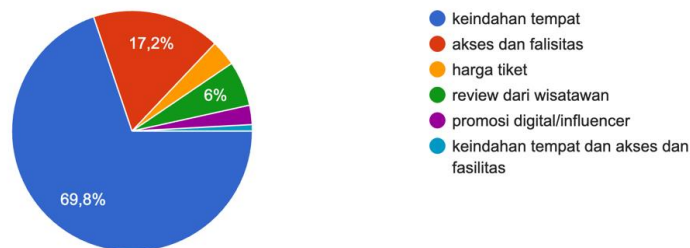


Figure 4. Dominant Factor Influencing Tourist Decisions

A total of 46.6% of respondents frequently search for tourism information through digital media, while an additional 26.7% always do so. This means that more than 70% of tourists actively rely on digital platforms such as Google, YouTube, and Instagram before visiting a destination. This finding highlights the need for an integrated digital tourism platform like Tegal Tourism, which provides comprehensive information and interactive visual experiences within a single system.

4. Seberapa sering Anda mencari informasi destinasi wisata melalui media digital (Google, YouTube, Instagram, dll)?

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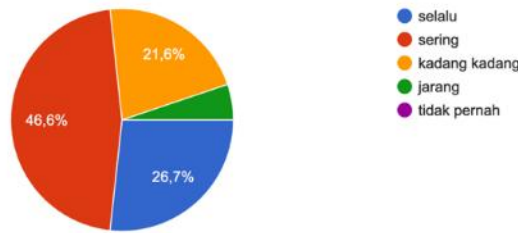


Figure 5. Frequently Search for Tourism Information

Most respondents use TikTok (39.7%), followed by Google (29.3%), and social media platforms such as Instagram and Facebook (20.7%). This pattern indicates a shift toward visual and interactive media, where short-form video content, 360° images, and virtual experiences have strong appeal. Therefore, integration of the Tegal Tourism platform with social media and content-sharing systems (e.g., deep links to TikTok or Instagram Reels) will significantly enhance promotional effectiveness and content distribution.

5. Platform digital apa yang paling sering Anda gunakan untuk mencari referensi wisata?

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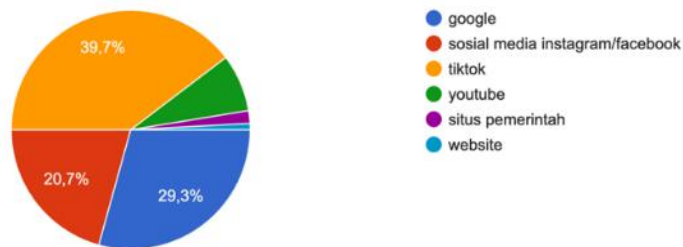


Figure 6. Frequently Used Digital Platform

Approximately 94% of respondents use smartphones as their primary device for accessing tourism information. This serves as a strong indicator that mobile accessibility and responsiveness are critical requirements for the Tegal Tourism platform. A mobile-first interface design will be a key factor in successful implementation and user adoption.

6. Perangkat yang paling sering digunakan untuk mencari informasi wisata:

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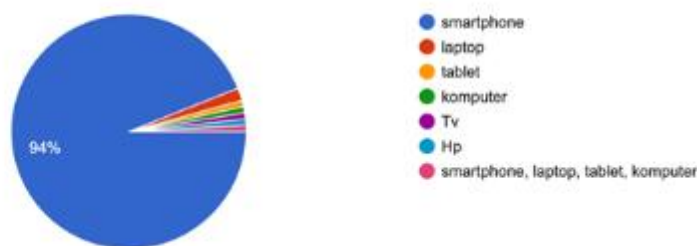


Figure 7. Frequently Primary Device Used

The survey results show that 56.9% of respondents have previously used virtual tour services, while 43.1% have not. This indicates that more than half of the market is already familiar with digital tourism concepts, suggesting strong acceptance potential. At the same time, the relatively high proportion of users who have not yet experienced virtual tours presents an opportunity for market education, where Tegal Tourism can introduce more engaging and accessible 360° virtual experiences.

7. Apakah Anda pernah menggunakan layanan virtual tour untuk melihat destinasi wisata secara online?

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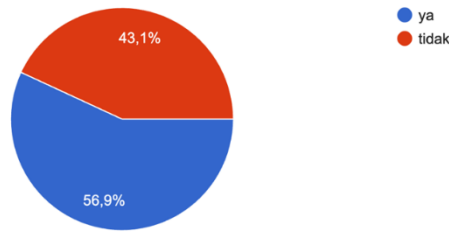


Figure 8. Virtual Tour Experience

Furthermore, 70% of respondents (33.6% very interested and 36.4% interested) expressed interest in exploring Tegal tourism through interactive virtual tours. This demonstrates that the product concept aligns well with current user preferences and trends. By emphasizing destination aesthetics, cultural content, and digital storytelling, the Tegal Tourism feature can serve as a key innovation to enhance the competitiveness of regional tourism.

9. Seberapa menarik ide menjelajahi wisata Tegal melalui Virtual Tour 360° interaktif?

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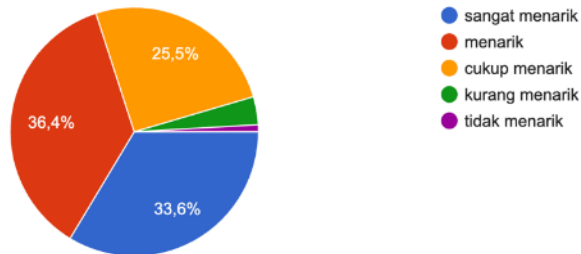


Figure 9. Exploration Interest

In addition, 47.4% of respondents are interested and 32.8% are highly interested in trying the Tegal Tourism platform, while only 19.8% remain neutral and no significant rejection was observed. This indicates strong early user conversion potential, particularly if promotional efforts are conducted through familiar channels such as social media, universities, and local communities.

11. Apakah Anda tertarik untuk mencoba Tegal Tourism sebagai platform wisata digital?

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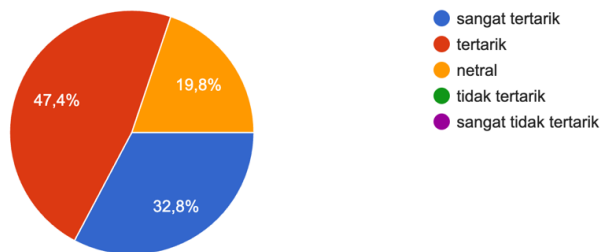


Figure 10. Tegal Tourism Interest

More than 77% of respondents (17.4% very likely and 54.8% quite likely) indicated that they would purchase products or services after experiencing a virtual tour. This finding supports the feasibility of a “tour-to-transaction” business model, where users who engage with virtual experiences are likely to proceed with purchasing local products, tickets, or tour packages through the platform’s integrated marketplace.

15. Seberapa besar kemungkinan Anda membeli produk setelah melihat Virtual Tour?

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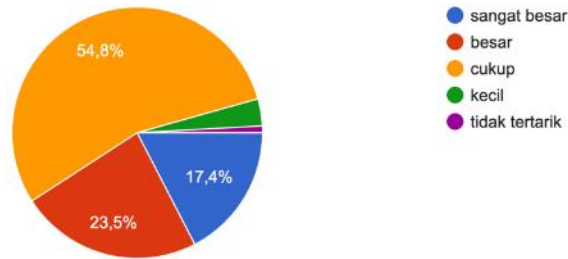


Figure 11. Purchase Intention

Overall, these survey findings indicate that the Tegal Tourism platform has strong preliminary market potential and is suitable for further development and gradual commercialization. The results demonstrate high levels of user interest, digital readiness, and behavioral intention to engage with virtual tours and digital transactions; however, these indicators should be interpreted cautiously, as they do not necessarily reflect actual adoption or sustained purchasing behavior in real-market conditions. Therefore, the platform's feasibility should be viewed as an initial market indication that requires further validation through pilot implementation, transaction monitoring, and user retention analysis. To strengthen analytical clarity, the discussion distinguishes between general market survey findings and consumer segmentation insights, allowing for a more focused understanding of adoption patterns across different user groups. Future FGDs will focus on formulating strategies for market education, digital promotion, and payment system integration, while also identifying effective mechanisms to convert initial user interest into active and recurring customers.

3.3. Market Analysis

The market analysis is conducted based on five main sub-aspects: Market Demand and Trends, Consumer Segmentation and User Profiles, Competitor and Substitute Product Analysis, Go-to-Market and Distribution Strategy, and Quantitative Demand Estimation. These are systematically interpreted through the lens of strategic management and digital tourism theories, while being compared with prior empirical studies to provide deeper analytical insights beyond practical feasibility assessment.

3.3.1. Market Demand and Trends

In the national context, Indonesia's tourism industry has demonstrated significant recovery and growth in the post-pandemic period, driven by the rapid digitalization of tourism services. Data from the Ministry of Tourism and Creative Economy indicate that in 2024, domestic tourist trips exceeded 700 million, representing an increase of nearly 20% compared to 2023, while the sector contributed approximately 5.2% to the national Gross Domestic Product (GDP). This recovery trend is supported by increasing interest in experience-based travel, improved transportation accessibility, and new consumer habits in searching for information and conducting tourism transactions online. The e-Conomy SEA 2024 report notes that Indonesia's online travel market reached approximately US\$8 billion in 2024, with projections to nearly double by 2030, making Indonesia the largest online travel market in Southeast Asia. This growth is further reinforced by internet penetration exceeding 79% of the population, widespread smartphone usage across regions, and rapid growth in digital payments such as QRIS, which increased by over 180% according to Bank Indonesia.

Tourism demand in Indonesia is also shifting toward cultural, nature-based, and sustainable tourism, where destinations with strong local narratives and educational value are increasingly preferred. Tourist consumption patterns now emphasize three main aspects: ease of access to information through digital platforms, immersive pre-visit experiences (such as virtual tours and video previews), and the integration of cashless transactions at destinations. The market survey conducted with 116 respondents in Tegal Regency supports these trends: most respondents are of productive age (average 30 years), travel 3–5 times per year, and spend IDR 250,000–500,000 per visit. Approximately 72% expressed interest in using a local digital tourism platform, 58% showed willingness to purchase local products after experiencing virtual tours, and 41% were willing to pay for premium features if they offer convenience and enhanced experiences. The average user perception score of Tegal Tourism as a sustainable digital tourism model is also high (4.01 out of 5).

These findings indicate that domestic demand for digital tourism in Indonesia is growing not only in terms of travel volume but also in terms of user readiness for technological innovation. The combination of digital penetration, cashless payment behavior, and preferences for local and cultural content positions

Indonesia as a highly promising ecosystem for platforms such as Jelajah 360/Tegal Tourism, which integrates virtual tours, e-ticketing, and MSME marketplaces into a seamless end-to-end digital tourism experience.

3.3.2. Consumer Segmentation and User Profile

Based on the survey of 116 respondents, the findings indicate a high level of market feasibility for the development of the Tegal Tourism digital platform. The majority of respondents have a senior high school to university-level education, reflecting sufficient digital literacy and readiness to adopt web- and application-based platforms. From an economic perspective, most tourists demonstrate moderate to high purchasing power, with dominant travel expenditures exceeding IDR 250,000 per visit, supporting revenue potential from value-added digital tourism services.

Tourist decisions are primarily influenced by destination attractiveness, followed by price and accessibility, indicating that the 360° Virtual Tour feature is highly relevant as an immersive promotional tool. More than 70% of respondents actively search for tourism information digitally, mainly through visual-based platforms such as TikTok and Instagram, and nearly all respondents use smartphones, emphasizing the importance of a mobile-first approach and social media integration.

Furthermore, 56.9% of respondents are already familiar with virtual tours, and 70% expressed interest in exploring Tegal tourism through interactive virtual experiences. In addition, more than 77% indicated a likelihood of purchasing products or services after viewing a virtual tour, supporting the feasibility of a tour-to-transaction business model. The high level of interest and minimal user resistance indicate strong early adoption potential. Overall, the survey confirms that Tegal Tourism is market feasible and suitable for further development, with future focus on user education, digital promotion, and payment system integration to maximize conversion and retention.

3.3.3. Competitor and Substitute Product Analysis

At the national level, the digital tourism landscape in Indonesia is dominated by major platforms such as Traveloka, Tiket.com, and Pegipegi, which primarily focus on transportation ticketing, accommodation booking, and travel packages. While these platforms have strong market reach and technological infrastructure, their business orientation is largely national and transaction-focused, with limited engagement in local cultural tourism and MSME empowerment. Global aggregators such as Google Travel and TripAdvisor function mainly as review directories and navigation tools rather than systems that directly connect tourists with local economic actors. At the regional level, local competitors such as the official Keposate Tegal, provide tourism information and cultural event listings but remain limited to static information and lack transactional features such as virtual tours, e-ticketing, or MSME marketplaces.

Tegal Tourism occupies a unique position by offering an end-to-end, locally driven, culture-based platform that connects tourists with creative economy actors through an integrated digital ecosystem. The platform not only promotes destinations but also generates direct economic value for local communities. Technologically, the system is independently developed by the Teaching Factory of Politeknik Harapan Bersama, enabling scalability through a white-label SaaS model for other regions without reliance on commercial vendors.

Compared to competitors, Traveloka and Tiket.com excel in brand awareness and transaction volume, while Keposate Tegal serves as a strong official information channel. However, Tegal Tourism stands out through its digital integration, thematic differentiation, and socio-economic impact, including support for low-carbon tourism and MSME empowerment. Substitute products such as social media, travel vlogs, and general marketplaces (for instance: Tokopedia, Shopee, Instagram Shop) only address partial functions (promotion or sales) without integrating virtual experiences with real-world visits (O2O). Thus, Tegal Tourism can be strategically positioned as a local digital tourism platform oriented toward culture and sustainability, bridging the gap between government portals and national online travel agencies, with key competitive advantages in system integration, multi-source revenue streams, and scalability, as well as opportunities for national replication through a white-label model.

3.3.4. Go-to-Market and Distribution Strategy

The Go-To-Market (GTM) and distribution strategy of Tegal Tourism adopts a multi-channel, data-driven, and collaborative (Pentahelix) approach to effectively acquire users, drive transactions, and sustain long-term engagement. The primary target segment consists of digitally active users aged 18–35, supported by B2B and B2G partnerships with MSMEs, educational institutions, and tourism stakeholders. User acquisition is driven through digital campaigns, cultural storytelling, SEO, and gamification, while partnerships leverage institutional collaboration and API integration within the hospitality sector. Retention is strengthened through eco-membership systems, personalized notifications, and continuous content updates. Distribution is enabled via mobile applications, websites, tourism kiosks, and government platform integration. The strategy is implemented in phases, starting with pilot deployment, followed by regional expansion through a white-label model, and culminating in national commercialization via a scalable SaaS framework.



Figure 12. Go-To-Market and Distribution Strategy

3.3.5. Quantitative Demand Estimation

The quantitative demand estimation for the Tegal Tourism platform was developed using a combination of primary survey data, field testing results, and secondary market statistics to assess the commercial feasibility of the proposed digital tourism ecosystem. To improve methodological rigor, the estimation adopts a simplified market potential model:

$$MP = N \times P \times Q$$

Where MP represents market potential, N is the estimated number of target users, P is the average transaction value per user, and Q is the estimated transaction frequency per year. Primary data were collected through a market survey of 116 respondents, in-depth interviews with tourism actors and MSMEs in Tegal Regency, and pilot testing of the Tegal Tourism platform prototype across five key destinations: Guci, Slawi, Cacaban Reservoir, Pantai Alam Indah, and Agro Edu Tourism Lebaksiu. These data were used to validate user behavior, purchasing intentions, and readiness to adopt digital tourism services.

3.3.5.1. Demand Estimation Based on Primary and Secondary Data

Actual demand for digital tourism is already strong, survey results indicate that more than 70% of respondents rated ≥ 4 on variables related to MSME promotion potential and pentahelix collaboration, while more than 60% expressed interest in purchasing local products after experiencing a virtual tour, indicating relatively high demand elasticity. In addition, the productive-age segment (18–35 years) demonstrated the highest digital readiness and reliance on digital media for travel planning. Demand elasticity in digital tourism is also significant, as more than 60% of respondents expressed interest in purchasing local products after experiencing a virtual tour. From an economic perspective, with average expenditures ranging from IDR 250,000 to IDR 500,000 and travel frequency of at least three times per year, the local market value is estimated to exceed IDR 40 billion annually if 20% of users transact through digital platforms. Field testing results indicate that approximately 60% of virtual visitors expressed interest in physically visiting the destinations after experiencing the digital tour, while 41% were willing to pay for premium features priced between IDR 10,000 and IDR 25,000 per virtual visit. Interviews with destination managers suggest a potential increase in visitation by 10–15% if digital promotion and online ticketing systems are optimized. For MSMEs, marketplace integration is expected to increase revenue by 20–25% through exposure to digital tourists. The combined results of surveys, interviews, and pilot testing indicate that bottom-up demand for a digital tourism ecosystem in Tegal has already been established, with strong readiness among users and partners for an integrated system combining virtual tours, e-ticketing, and MSME marketplaces.

3.3.5.2. Demand Growth Projection (5–10 Years)

Demand projections were developed under three scenarios, conservative, baseline, and optimistic, by combining the market potential formula with industry growth assumptions derived from secondary data sources. The key assumptions are as follows:

- a. Tourism growth in Central Java: 8–10% annually (BPS/Regional Tourism Office).
- b. National digital tourism adoption growth: 15–20% annually (Google–Temasek e-Conomy SEA).

- c. Growth of active Tegal Tourism users: 35–40% annually in the first three years, slowing to 25% thereafter.
- d. Average commission margin: 15–20% from digital transactions (tickets, MSMEs, and affiliations).

Interpretation:

- a. Demand is projected to grow by 200–250% over the next 10 years, aligned with trends in digital tourism and the regional creative economy.
- b. The virtual-to-real (O2O) conversion rate is expected to increase from 8% to 20% as user experience and digital promotion improve.
- c. Total Gross Merchandise Value (GMV) is projected to reach IDR 35 billion by year 10, with the largest contributions from MSME marketplaces (±45%), destination ticketing (35%), and hospitality affiliations (20%).
- d. The Break-Even Point (BEP) is estimated to occur in the third year, with a Lifetime Value to Customer Acquisition Cost (LTV/CAC) ratio ≥ 3 and user retention exceeding 60%.

With these growth trends, Tegal Tourism is projected to become a viable regional digital tourism ecosystem model, both commercially and socially, with strong potential for replication through a white-label SaaS model in other districts across Central Java.

3.4. Feasibility Analysis and Strategic Recommendations

3.4.1. Market Opportunity Strengths

The market opportunity for Tegal Tourism is supported by a combination of reinforcing macro and micro factors. At the national level, the growth of domestic tourism, increasing online travel transactions, and the adoption of digital payments create a favorable environment for the development of digital tourism platforms. At the local level, survey results indicate strong user readiness for virtual tours, e-ticketing, and MSME marketplaces, with significant potential for virtual-to-real (O2O) conversion. Furthermore, the absence of an integrated end-to-end regional tourism platform positions Tegal Tourism with a first-mover advantage in the digital tourism segment focused on cultural experiences and local economic empowerment. The integration of promotion, immersive experiences, and transactions within a single ecosystem enhances both monetization potential and socio-economic impact.

3.4.2. Areas for Improvement

Despite strong market potential, several strategic areas require further development. First, the quality and consistency of digital content need to be enhanced, particularly in expanding 360° virtual tours, cultural narratives, and destination visuals to compete with larger platforms and social media content. Second, the digital capabilities of MSMEs and destination managers remain uneven, necessitating continuous capacity-building programs in product management, pricing, logistics, and digital customer service. Third, technical integration aspects, such as system stability, mobile-first user experience (UX), data security, and interoperability with government systems and hospitality partners must be continuously improved. In addition, branding and platform awareness strategies need to be strengthened to build user trust and accelerate market adoption.

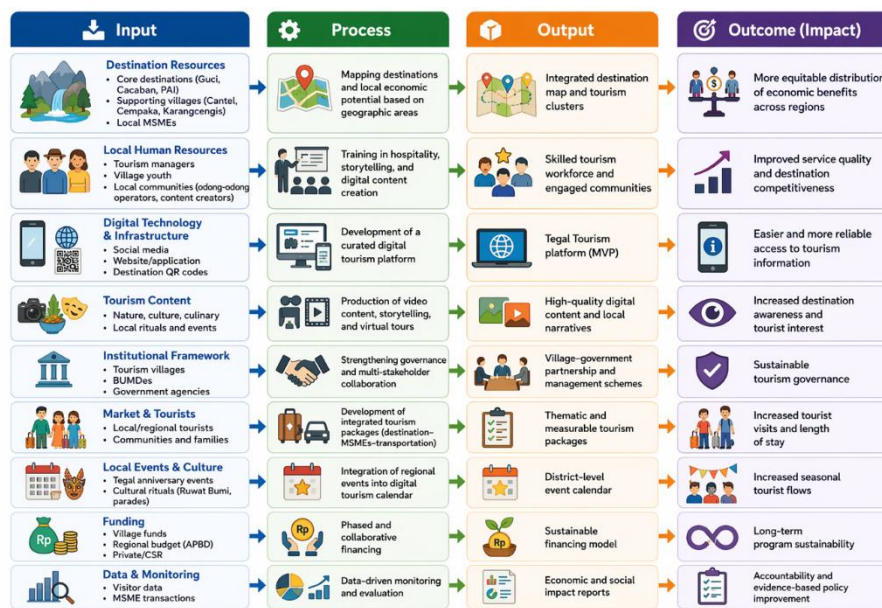


Figure 13. Input–Process–Output–Outcome (Impact) Framework of Tegal Tourism Development

3.4.3. Risk Identification

The purpose of this risk assessment is to evaluate the level of market feasibility and business model viability of the Tegal Tourism platforms. The assessment is conducted based on five main sub-aspects: Market Demand and Trends, Consumer Segmentation and User Profiles, Competitor and Substitute Product Analysis, Go-to-Market and Distribution Strategy, and Quantitative Demand Estimation. The risk assessment of the Tegal Tourism platform is conducted by integrating inherent risk identification with mitigation strategies and residual risk measurement across five key aspects: market demand and trends, consumer segmentation and user profiles, competitor and substitute products, go-to-market and distribution strategy, and quantitative demand estimation.

In terms of market demand and trends, the primary risk stems from the highly dynamic nature of the tourism industry, which is strongly influenced by external factors such as economic fluctuations, government policies, and seasonality, including holidays and natural disruptions. Additionally, shifts in consumer preferences toward nature and culture-based experiences may affect demand for platform content and services. To mitigate these risks, Tegal Tourism adopts a diversification strategy across tourism segments including cultural, educational, culinary, and ecotourism offerings, to stabilize demand throughout the year. This is complemented by continuous content updates aligned with thematic trends and seasonal patterns to maintain platform relevance. Residual risk is measured through the stability of digital visits, user engagement rates, and consistent growth across periods, resulting in a low-risk classification with full feasibility (score 4).

For consumer segmentation and user profiles, risks are associated with unclear market segmentation, varying levels of digital literacy, and heterogeneous user behavior. While younger, digitally active users show high readiness, older populations and those in areas with limited connectivity face adoption barriers. Mitigation strategies include resegmenting the target market, implementing inclusive digital literacy programs for MSMEs and local communities, and designing a user-friendly, lightweight interface to enhance accessibility. Residual risk is evaluated through user retention rates, increased participation of local actors, and reduced user complaints. This aspect remains at a medium-high risk level with moderate feasibility requiring improvement (score 2).

In the competitor and substitute product analysis, risks arise from the growing number of digital tourism platforms and substitute channels such as social media, travel vlogs, and general marketplaces. These may fragment users and reduce platform traffic. However, this challenge also presents strategic opportunities. Mitigation focuses on strengthening local differentiation through unique cultural narratives, immersive 360° virtual tours, and integrated MSME marketplaces. Institutional collaboration with government portals and tourism authorities further enhances legitimacy and trust. Residual risk is measured through user switching behavior, partnership sustainability, and ecosystem positioning, resulting in a medium risk level with feasible status (score 3).

Regarding the go-to-market and distribution strategy, risks relate to ineffective digital campaigns and inefficient user acquisition costs. Over-reliance on single distribution channels may also limit market reach. To address this, Tegal Tourism implements data-driven marketing strategies utilizing user analytics, A/B testing, and precise segmentation, alongside a multichannel approach that integrates online campaigns with offline engagement such as cultural events and educational programs. Residual risk is assessed through campaign conversion rates, cost per acquisition (CPA), and channel effectiveness. This aspect is categorized as low risk with full feasibility (score 4).

Finally, in quantitative demand estimation, risks are linked to uncertainties in projecting user growth, digital adoption, and transaction value due to external economic and regulatory factors, as well as data limitations. Mitigation strategies include implementing rolling forecasts with periodic updates using both external (BPS, tourism authorities) and internal platform data, as well as continuous monitoring of key performance indicators such as monthly active users, O2O conversion rates, and MSME transaction growth. Residual risk is evaluated based on deviations between projections and actual performance, trend stability, and responsiveness to market changes, resulting in a medium risk level with feasible status (score 3). The risk mapping can be seen figure 14.

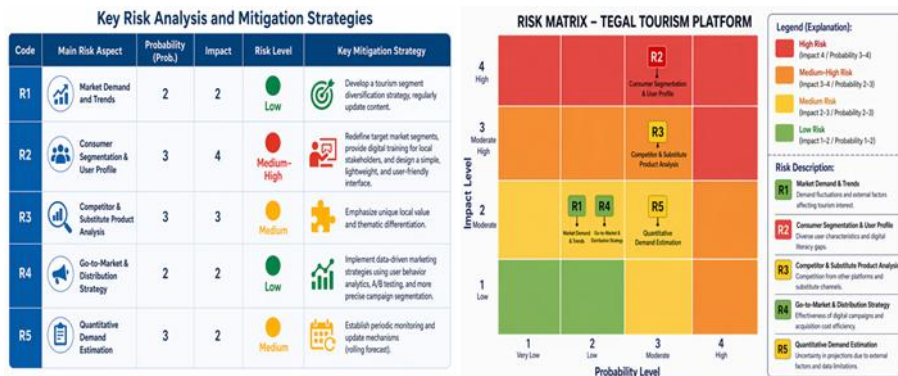


Figure 14. Risk Mapping Based on Probability and Impact Analysis (Inherent Risk Assessment)

Market and business model risks can be mapped into the five main sub-aspects, as illustrated in the risk mapping matrix below. This mapping follows standardized risk assessment criteria within the Research Downstreaming Program and serves as a basis for feasibility evaluation, mitigation prioritization, and decision-making in product development and implementation. Overall, the risk profile indicates that two aspects fall under low risk, two under medium risk, and one under medium–high risk.

- a. R1. Market Demand and Trends. Low probability and impact, indicating strong market interest. Risks arise if the platform fails to adapt to evolving trends.
- b. R2. Consumer Segmentation and User Profiles. Medium–high risk due to segmentation gaps and digital literacy disparities. Requires training and user-centered design.
- c. R3. Competitor and Substitute Products. Medium risk due to strong competition from OTAs and social media, but also presents differentiation opportunities.
- d. R4. Go-to-Market and Distribution Strategy. Low risk, with strong availability of digital channels. Risks relate to lack of data-driven marketing integration.
- e. R5. Quantitative Demand Estimation. Medium risk due to uncertainty in projections and limited historical data. Requires adaptive forecasting models.

Risk Synthesis: Overall, the risk assessment indicates that the most critical risk lies in consumer segmentation and user profiles (R2), while other risks remain at low to medium levels and can be effectively mitigated through appropriate strategies. Therefore, the downstream development of the Tegal Tourism platform is considered feasible, with a primary focus on strengthening human resource capacity, digital literacy, and ecosystem integration.

3.5. Pilot Testing Validation

Based on the development results and field implementation testing, the Tegal Tourism application has undergone validation at Technology Readiness Level (TRL) 7, which refers to the demonstration of a system prototype in a limited operational environment. The pilot validation was conducted through direct implementation across several tourism destinations in Tegal Regency and City, including Guci, Pantai Alam Indah, and Museum Semedo, involving real users such as tourists, destination managers, and local tourism stakeholders on a limited scale.

The pilot testing focused on several key evaluation indicators, including system functionality, platform accessibility, content usability, user experience, and operational stability. Specifically, the system was tested for its ability to operate end-to-end in delivering 360° virtual panorama content, hotspot-based navigation, destination information, multimedia galleries, and culturally based digital storytelling. Performance outcomes showed that the platform was accessible and operated stably across both mobile and web-based devices, with minimal technical interruptions during the testing period. The navigation system functioned effectively across multiple locations, and content loading performance was considered satisfactory under standard internet conditions.

Evaluation criteria were based on user interaction and feedback during the pilot phase. The majority of users reported positive responses regarding ease of access, clarity of information, visual attractiveness, and relevance of platform features. In particular, tourists highlighted the immersive experience of virtual tours and the usefulness of destination previews in influencing visit intentions, while destination managers emphasized the platform’s effectiveness in supporting digital promotion and improving destination visibility.

The validation process also included qualitative feedback collection through short interviews and observation during platform use. This feedback was used to identify areas for improvement, particularly in content personalization, multilingual support, and integration with online transactions and booking systems. Although several advanced features are still under development, the pilot testing results demonstrate that the Tegal Tourism technology architecture is both functionally and operationally feasible. Therefore, the platform is considered sufficiently mature to proceed to broader implementation, further refinement, and eventual commercial deployment.

4. CONCLUSION

Based on the results of the feasibility analysis, risk mapping, and pilot testing validation derived from market surveys, socialization activities, symposiums, Focus Group Discussions (FGDs), and limited operational implementation, this study indicates that the Tegal Tourism platform has high market feasibility potential, as reflected by strong user interest in virtual tours, digital readiness, and significant online-to-offline (O2O) transaction conversion potential. In addition, pilot testing at Technology Readiness Level (TRL) 7 suggests that the platform is functionally and operationally viable in a limited real-world environment, based on positive performance outcomes related to system functionality, accessibility, content usability, and user experience. Overall, the platform development appears feasible from both market and business model perspectives, with a moderate compliance feasibility risk level. Of the five aspects analyzed, four meet the

feasibility criteria, while one remains at a medium–high risk level and requires further mitigation prior to downstreaming and commercialization.

The development of Tegal Tourism should therefore be implemented in a phased and focused manner, prioritizing key destinations through integrated tourism packages, high-quality virtual content, and strong local storytelling as strategic differentiators. The platform should function as a driver of online-to-offline (O2O) conversion, supported by e-ticketing integration and the onboarding of priority MSMEs. To enhance adoption, the platform must emphasize a simple, mobile-friendly design, while strengthening digital literacy and institutional capacity through tourism village.

In response to competition, particularly from social media and existing digital tourism channels, the platform should emphasize localized content and ecosystem integration, positioning itself as a bridge between government portals and Online Travel Agencies (OTAs), with government support as an ecosystem enabler. The go-to-market strategy should leverage short-form digital campaigns and multichannel distribution, supported by destination-level digital infrastructure such as QR codes and integrated information systems. From a business perspective, development should focus on increasing physical visits and MSME transactions, with gradual monetization based on demonstrated value creation. Finally, long-term sustainability will require the development of a tourism village masterplan, integration of regional events, and stronger cross-sector collaboration to ensure both commercial viability and broader socio-economic impact.

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