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Optimizing Smart Tourism in Central Java's Tourism Ecosystem: The Role of AI and Big Data

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Abstract

This study aims to analyse the influence of perceptions of the potential of Artificial Intelligence (AI) and the benefits of Big Data on tourists' revisit intention through digital tourism experience in Central Java Province. Within the framework of smart tourism development, digital technology plays a crucial role in shaping tourist loyalty by providing accurate, personalized, and adaptive information. A quantitative approach was employed by distributing questionnaires to 153 respondents who are active users of the Visit Jawa Tengah website. The sampling technique used was purposive sampling, with the criteria being users who accessed the website within the past six months to plan their travel. Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS 3. The results show that perceptions of the benefits of Big Data have a positive and significant influence on revisit intention, both directly and indirectly through digital tourism experience as a mediating variable. In contrast, perceptions of AI potential significantly influence the digital tourism experience but do not directly affect revisit intention. These findings highlight that strengthening the quality of Big Data-based information serves as a fundamental pillar in building tourist trust, while AI integration requires further optimization to enhance user engagement. Policy recommendations include the development of AI-based personalized recommendation features, Big Data analytic dashboards, digital literacy training for tourism industry stakeholders, and interactive digital campaigns. The results of this study are expected to provide a strategic foundation for reinforcing a sustainable smart tourism ecosystem at the regional level.

Keywords: *Smart Tourism, Artificial Intelligence, Big Data, Revisit Intention, and Tourism Experience*

JEL Classification*: D83, Z32, and Z33*

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Introduction

The advancement of digital technology has brought significant transformation across various sectors, including the tourism industry. The concept of smart tourism emerges as an integration of Information and Communication Technology (ICT), big data, the Internet of Things (IoT), and Artificial Intelligence (AI) to create a more efficient, personalized, and interactive travel experience. Smart tourism not only offers benefits to tourists in terms of convenience and access to information but also provides advantages to destination managers through data collection, decision-making support, and service quality improvement (Y. Li et al., 2017) . A recent report by (KBV Research, 2025) indicates that the global smart tourism market is projected to reach USD 1.90 billion by 2032, growing at a CAGR of 15.1% over the 2024–2032 period. This growth is primarily driven by the increasing adoption of digital technologies by industry stakeholders and the rising expectations of travellers for fast, secure, and tech-based services. The Asia-Pacific region, in particular, is experiencing significant growth, with its market value expected to reach USD 514.59 million by 2032, highlighting the immense potential in this region, including Indonesia.

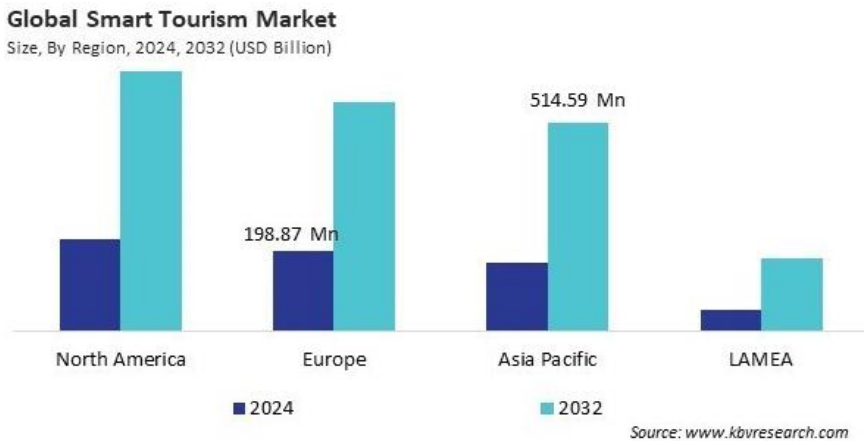

Figure 1. Global Smart Tourism Market
Source: KBV Research (2025)

Furthermore, the corporate or business user segment represents the largest revenue contributor in the smart tourism market in 2024, with its market value projected to reach USD 1.0 billion by 2032. This reflects the increasing integration of digital solutions in business travel, ranging from automated booking systems to smart accommodations that support professional needs. In addition, the adoption of smart ticketing systems is also growing rapidly (with a CAGR of 13.9%), enabling travellers to conduct transactions digitally without physical contact, an essential innovation in the post-pandemic era. Given such vast potential and growth, a comprehensive understanding of smart tourism is becoming increasingly crucial, particularly at the regional level, such as in Central Java.

Central Java Province, rich in cultural, historical, and natural heritage, holds immense potential to become a top-tier tourism destination. Cities like Yogyakarta, Surakarta (Solo), Semarang, Magelang, and the Dieng Plateau have long been favoured by both domestic and international tourists. Despite its potential, the sector continues to face several challenges. Some destinations suffer from over-tourism,

while others remain underexplored. Information disparities between destinations, inconsistent service quality, and underutilization of technology to enhance tourist experiences are persistent issues. One clear indication is the relatively low visitor retention rate and the lack of consistent digital exposure for many destinations.

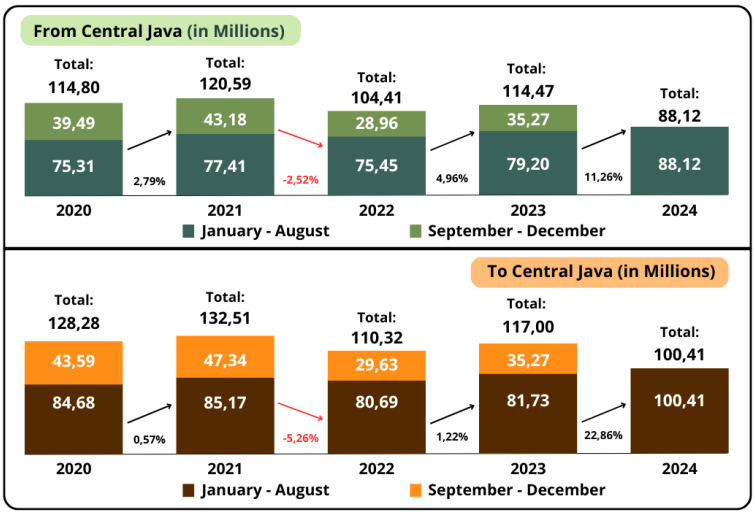

Figure 2. The Number of Domestic Tourists Since 2020-2024
Source: Badan Pusat Statistik (2024)

According to the official press release from the Central Java Statistics Office (BPS) on October 1, 2024, the number of domestic tourist (wisnus) trips has continued to rise since the pandemic. From January to August 2024, 88.12 million trips originated from Central Java, marking an 11.26% increase compared to the same period in 2023. Meanwhile, the number of domestic trips to Central Java reached 100.41 million, a rise of 22.86% from the previous year. These statistics indicate that Central Java functions not only as a major origin but also as a prime destination for domestic tourism, reflecting a significant recovery and growth momentum. In this context, the implementation of smart tourism becomes highly relevant and strategic. Smart tourism emphasizes the use of digital technologies, particularly Artificial Intelligence (AI) and Big Data, to improve destination management efficiency, enhance service quality, and create more personalized and enjoyable tourist experiences (Aliyah et al., 2023). Technologies such as chatbots, destination recommendation systems, voice assistants, and real-time visitor analytics have been widely adopted in countries with advanced tourism ecosystems (Ahmad et al., 2024).

One of the manifestations of digital technology adoption in Indonesia's tourism sector is the existence of the Visit Central Java website (https://visitjawatengah.jatengprov.go.id). This website serves as the official portal managed by the Youth, Sports, and Tourism Office of Central Java Province (Disporapar Jateng), aimed at promoting the region's destinations, culture, events, and leading tourism products to the public. As the digital face of regional tourism, the website not only provides basic information but also plays a vital role in shaping tourists' perceptions and initial experiences before visiting. The quality of the data and information presented—such as accuracy, completeness, and content relevance—is

believed to influence users' trust in the destination, which ultimately may impact their intention to revisit.

However, a pressing question remains: how effective are these technologies in generating real value for tourists? Many digital initiatives fail to focus on end-user experiences, resulting in suboptimal outcomes despite the availability of technology. In this regard, tourist experience becomes a critical mediating variable that connects AI and Big Data applications to behavioural outcomes such as revisit intention. Tourist experience includes several key aspects such as comfort during travel, ease of access to information, personalization of services, and perceived safety (Jeong & Shin, 2020). When tourists have a positive experience, they are more likely to revisit the destination and recommend it to others. Unfortunately, empirical studies that quantitatively explore the relationship between digital technology, tourist experience, and revisit intention remain scarce, especially within the local context of Central Java.

This model aims to provide empirical evidence and practical insights into how technology can be optimized to support a smarter, more sustainable, and tourist-centered tourism ecosystem in Central Java. Ultimately, the research findings are expected to inform policy decisions, technological strategies, and innovation efforts among local governments, tourism stakeholders, and industry practitioners to build a tourism ecosystem that is adaptive, inclusive, and highly competitive in the digital era.

Literature Review

Smart Tourism and Digital Transformation

Smart tourism is an evolution of e-tourism characterized by the integration of digital technologies to enhance efficiency, convenience, and personalized travel experiences. Technologies such as the Internet of Things (IoT), Big Data, and Artificial Intelligence (AI) are employed to connect tourists, destinations, and service providers in real time and in a more responsive manner (Gretzel et al., 2015). This digital transformation is not merely technical; it also reshapes tourism management practices through data-driven approaches and user-centered service.

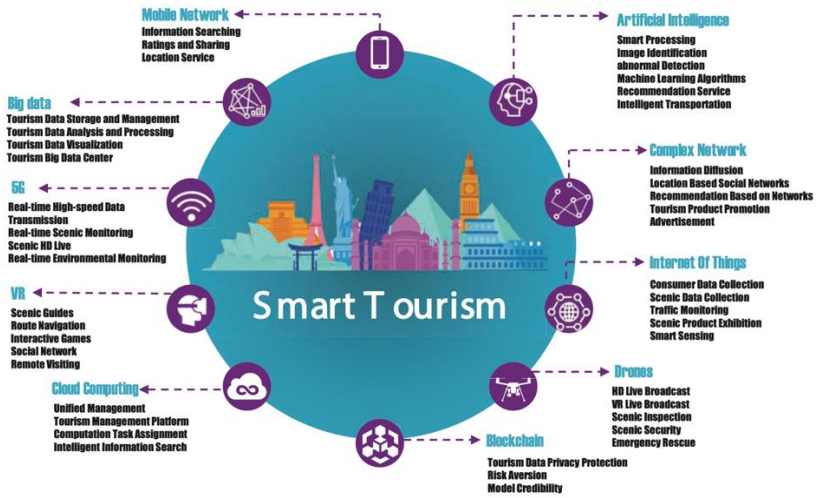

Figure 3. Key Technologies of Smart Tourism
Source: Wang et al. (2020)

Smart tourism is a technology-based approach used to enhance the quality of tourism services, strengthen destination management, and enrich tourist experiences through the integration of data and digital systems. Figure 4 explains the core technologies driving the development of smart tourism (Wang et al., 2020). At the center of the ecosystem lies a digital infrastructure supported by advanced technologies that work together to enhance tourism experiences, improve management efficiency, and ensure responsive services. Big Data plays a foundational role by enabling the storage, analysis, and visualization of vast tourism-related datasets. It helps in understanding tourist behaviour and predicting demand patterns. 5G networks support real-time high-speed data transmission, which facilitates live scenic monitoring, environmental updates, and seamless digital interactions.

In the Asian context, smart tourism development has been extensively implemented in countries such as China, where Big Data and Artificial Intelligence (AI) are integrated into destination management systems to support real-time visitor monitoring, personalized recommendations, and data-driven tourism governance (C. Li & Wen, 2025). These technologies enable destinations to enhance service efficiency, optimize tourist flows, and improve digital tourism experiences through accurate and adaptive information systems (Pencarelli, 2020). In Indonesia, the adoption of smart tourism remains at an early developmental stage and is primarily reflected through the use of official tourism websites and digital platforms that emphasize information accessibility, destination promotion, and content reliability rather than advanced AI-driven or real-time analytics features. This condition indicates that Indonesian smart tourism initiatives are still focused on foundational digitalization, making tourists' perceptions of AI potential and Big Data benefits crucial factors in shaping digital tourism experience and revisit intention at the regional level.

Virtual Reality (VR) offers immersive tourism experiences through scenic guides, route navigation, interactive games, and even remote visits. Cloud Computing enables unified tourism management platforms, intelligent information search, and optimized computational processes. Mobile Networks support tourists by providing access to information search, ratings, and sharing platforms, and location-based services. Artificial Intelligence (AI) enhances decision-making through image recognition, smart processing, and personalized recommendation systems. It also supports intelligent transportation systems and anomaly detection. Complex Networks refer to systems that facilitate information diffusion, personalized promotion, and location-based social networking, increasing user engagement. Internet of Things (IoT) contributes through smart sensing and data collection from consumers, attractions, and traffic systems. Drones are used for live broadcasts, scenic inspections, security monitoring, and emergency rescues. Finally, Blockchain ensures data security and privacy protection, increases model credibility, and minimizes risks. Together, these technologies form an integrated system that transforms traditional tourism into a smart, connected, and data-driven ecosystem aligned with the digital age.

Technology Acceptance Model (TAM) and Revisit Intention

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that the acceptance of technology is influenced by perceived usefulness and ease of use. In tourism contexts, the adoption of digital technologies such as AI and Big Data can

shape tourists' attitudes and behaviours in decision-making processes. Factors such as perceived usefulness, ease of use, and satisfaction significantly influence tourists' intention to revisit a destination (Venkatesh et al., 2003). In the smart tourism context, enriched digital experiences can positively impact loyalty and word-of-mouth recommendations.

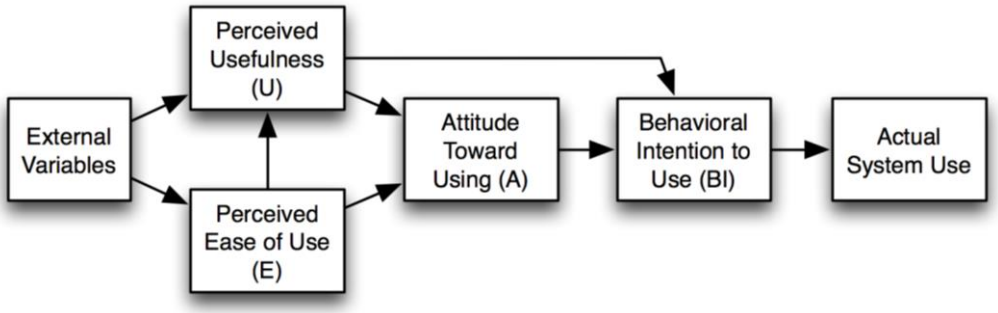

Figure 4. Technology Acceptance Model (TAM)

This study adopts and extends the Technology Acceptance Model (TAM) to explain tourists' behavioural intentions within the context of smart tourism. In the adapted model, perceived AI potential and perceived Big Data benefits are positioned as key external technological factors that shape tourists' perceived usefulness of digital tourism platforms. These constructs represent tourists' evaluations of how artificial intelligence and Big Data enhance the effectiveness, relevance, and reliability of tourism-related information and services.

Furthermore, perceived usefulness is conceptualized as a determinant of post-adoption outcomes, which in this study are reflected through digital tourism experience. Digital tourism experience captures tourists' overall cognitive and affective responses after interacting with digital tourism platforms, including aspects of personalization, information quality, and ease of accessing tourism services. This approach extends the traditional TAM framework by emphasizing experiential outcomes rather than focusing solely on initial technology adoption.

Finally, revisit intention is positioned as a form of behavioural intention, representing tourists' loyalty-oriented responses toward a destination after experiencing digital tourism services. In line with the extended TAM perspective, the model allows both direct and indirect relationships between perceived technological benefits and revisit intention, mediated by digital tourism experience. By integrating experiential and behavioural dimensions, this adapted TAM framework provides a comprehensive explanation of how advanced digital technologies influence tourists' decision-making processes in regional smart tourism development.

Artificial Intelligence in Tourism Services

AI technologies such as chatbots, virtual assistants, and recommendation systems are increasingly applied in tourism to deliver personalized and real-time services. These tools enhance the tourist experience by providing accurate information, reducing waiting times, and offering tailored suggestions based on user profiles (Tussyadiah, 2020). Studies show that AI adoption improves operational efficiency and strengthens tourist engagement and loyalty. With the ability to process user data dynamically, AI

strengthens the connection between tourists and destinations by delivering timely and relevant information.

Big Data for Destination Management

Big Data enables destination managers to make informed decisions by analysing real-time data on tourist behaviours, travel patterns, and preferences (Wu et al., 2025). The use of big data analytics facilitates resource allocation, visitor flow management, and strategic planning. Furthermore, data-driven insights can contribute to sustainable tourism by minimizing environmental and social pressures on destinations.

Tourist Experience and the Experience Economy

In the experience economy, the core value of tourism lies in the emotional engagement and satisfaction perceived by tourists throughout their journey. Tourist experiences are no longer confined to physical presence at a location but also encompass digital interactions before, during, and after travel (Windasari et al., 2022). In smart tourism contexts, digital technologies enhance the experiential value by creating immersive and context-aware services that respond to tourists' real-time needs (Neuhofer et al., 2015).

Research Methods

This study employs a quantitative approach with a survey method to examine the influence of perceived technological utilization on the behaviour of digital tourists in Central Java Province. The main objective of this research is to analyse the relationships among the following variables: perceived potential of Artificial Intelligence (AI) in tourism services (X1), perceived benefits of Big Data in destination management (X2), digital tourism experience as an intervening variable (Z), and revisit intention as the dependent variable (Y). The population of this study consists of users who have accessed the official website of the Central Java Tourism Office within the last six months. The sampling technique used is purposive sampling with specific criteria. The selection criteria include users who have used the website to obtain tourism-related information and have experience using digital services for travel planning, such as destination search, event scheduling, location navigation, or other interactive features. The total number of respondents in this study was 153 individuals.

Primary data were collected through an online questionnaire distributed via social media, tourism communities, and other digital forums. The questionnaire consisted of two sections: respondent demographics and perception-based items for each research variable, which were developed based on theoretical indicators using a 4-point Likert scale. The analytical tool used in this study is SmartPLS 3, applying the Partial Least Squares Structural Equation Modelling (SEM-PLS) approach. This model was chosen for its suitability in testing causal relationships among latent variables, including mediation effects, within complex and predictive models. This technique also allows researchers to analyse data despite non-normal distributions and relatively small sample sizes.

Table 1. Table of Variable Definitions

Variable	Variable Definition	Indicators
Perceived Potential of AI in Tourism (AI)	The use of Artificial Intelligence (AI) technologies in tourism service interactions, such as chatbots, recommendation systems, and voice assistants, to enhance tourist experiences (Doğan & Niyet, 2024).	1. Use of chatbots in tourism apps 2. Destination recommendation system based on preferences 3. Responsiveness of smart tourism systems 4. Accuracy of AI-provided information (Minazzi & Mauri, 2015)
Perceived Benefit of Big Data in Destination Management (BD)	The use of big data technologies to collect, process, and analyse tourist data for better destination management (Mariani et al., 2021).	1. Information on destination crowd levels 2. Transparent capacity and scheduling 3. Digital-based destination governance 4. Safety and comfort based on data insights (Rahmadian et al., 2022)
Tourism Experience (TE)	Tourists' perception of the quality of digital experience when using tourism websites, including ease of use, convenience, relevance, and satisfaction (Windasari et al., 2022).	1. Completeness and relevance of information 2. Ease of navigation 3. Content suitability to personal interest 4. Trust in website security 5. Satisfaction with website usage experience (Jacob et al., 2014)
Revisit Intention (RI)	A tourist's willingness to revisit a destination (Shafiee et al., 2016) and to reuse the website for future travel planning.	1. Intention to revisit 2. Willingness to recommend 3. Loyalty to the destination 4. Intention to reuse the website 5. Confidence in revisiting due to digital experience (Chou et al., 2025)

Based on the variables mentioned, the research model is illustrated in the following diagram:

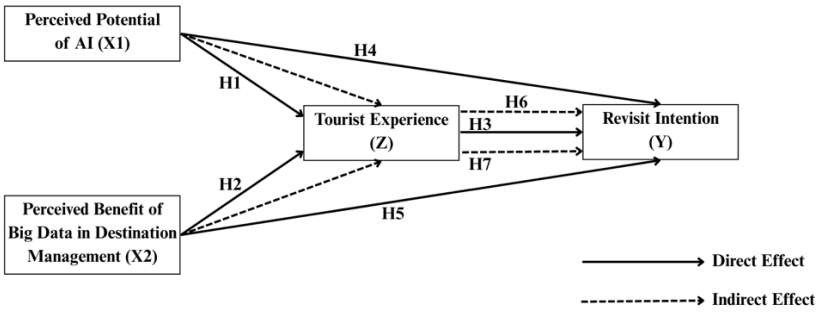

Figure 5. Research Model
Source: Author (2025)

Results and Discussions

Results

Outer Model Analysis

Table 2. Validity Test Results

Variables	Question Items	Loading Factor	Notes
Perceived Potential of AI in Tourism (AI)	AI1	0,852	Valid
	AI2	0,877	
	AI3	0,787	
	AI4	0,857	
Perceived Benefit of Big Data in Destination Management (BD)	BD1	0,724	Valid
	BD2	0,707	
	BD3	0,815	
	BD4	0,822	
Tourism Experience (TE)	TE1	0,810	Valid
	TE2	0,850	
	TE3	0,806	
	TE4	0,805	
	TE5	0,874	
Revisit Intention (RI)	RI1	0,822	Valid
	RI2	0,776	
	RI3	0,833	
	RI4	0,816	
	RI5	0,858	

All indicators in the four constructs have loading values greater than 0.7, ranging from 0.707 to 0.877. This indicates that each indicator is valid in reflecting its respective construct. For example, the indicators for Perceived Potential of Artificial Intelligence (AI1–AI4) showed loading values between 0.787–0.877, indicating a strong correlation between the indicators and the construct.

Table 3. Reliability Test Results

Variables	Cronbach's Alpha	Composite Reliability	AVE	Notes
Perceived Potential of AI (AI)	0,865	0,908	0,712	Reliable
Perceived Benefit of Big Data (BD)	0,775	0,852	0,591	Reliable
Tourism Experience (TE)	0,886	0,917	0,688	Reliable
Revisit Intention (RI)	0,879	0,912	0,675	Reliable

All constructs demonstrated Composite Reliability values above 0.7 and AVE values above 0.5, confirming that the constructs are both reliable and valid. The Artificial Intelligence construct showed a Composite Reliability of 0.908 and an AVE of 0.712.

Inner Model Analysis

Table 4. R-Square Testing Results

Variables	R-Square	R-Square Adjusted
Tourism Experience (TE)	0.402	0.394
Revisit Intention (RI)	0.652	0.645

The Revisit Intention construct has an R^2 value of 0.652 (strong), meaning that 65.2% of the variance in revisit intention is explained by AI, Big Data, and Tourism Experience. The Tourism Experience construct has an R^2 value of 0.402 (moderate), indicating that perceptions of AI and Big Data explain 40.2% of the variance in tourism experience.

Table 5. F-Square Testing Results

Variables	Tourism Experience (TE)	Revisit Intention (RI)
Perceived Potential of AI (AI)	0.072	0.005
Perceived Benefit of Big Data (BD)	0.186	0.071
Tourism Experience (TE)		0.660
Revisit Intention (RI)		

The strongest effect was found in the relationship between Tourism Experience on Revisit Intention, with an f^2 value of 0.660 (large). The effect of Big Data on Tourism Experience is moderate ($f^2 = 0.186$). Meanwhile, the effect of AI on Revisit Intention is very small ($f^2 = 0.005$) and practically insignificant.

Hypothesis Testing

Hypothesis testing was performed using path coefficients and specific indirect effects obtained from SmartPLS 3, as illustrated in the following figure.

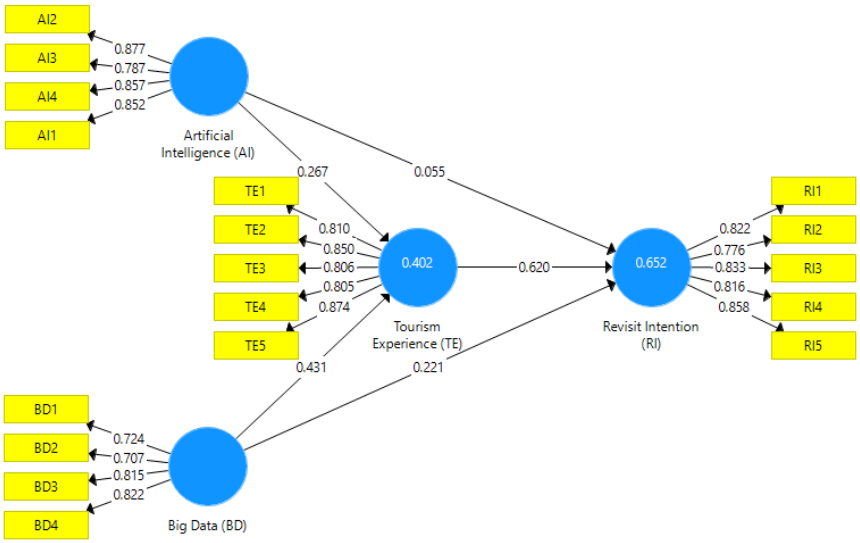

Figure 6. Hypothesis Testing Results
Source: Smart-PLS Output

Table 6. Direct Effect Hypothesis Testing Results

Hypothesis	Effects	Original Sample	T-Statistic	P-Values	Notes
H1	AI → TE	0.267	2.931	0.004	Positive and Significant Effect
H2	BD → TE	0.431	4.461	0.000	Positive and Significant Effect
H3	TE → RI	0.620	9.601	0.000	Positive and Significant Effect
H4	AI → RI	0.055	0.661	0.509	Not Significant Effect
H5	BD → RI	0.221	2.719	0.007	Positive and Significant Effect

The influence of Artificial Intelligence (AI) on Tourism Experience (TE) is supported by a t-statistic of 2.931, an effect size of 0.123, and a p-value of 0.003. Given that the t-statistic exceeds 1.96 and the p-value falls below 0.05, it can be concluded that Artificial Intelligence (AI) exerts a positive and statistically significant influence on Tourism Experience (TE). Therefore, Hypothesis 1 is accepted.

The influence of Big Data (BD) on Tourism Experience (TE) yields a t-statistic of 4.455, an effect size of 0.186, and a p-value of 0.000. As the t-statistic surpasses the critical value and the p-value indicates high significance, Big Data (BD) is found to have a significant and positive effect on Tourism Experience (TE). Consequently, Hypothesis 2 is accepted.

The influence of Tourism Experience (TE) on Revisit Intention (RI) is indicated by a t-statistic of 9.603, an effect size of 0.660, and a p-value of 0.000. These values confirm that Tourism Experience (TE) has a strong, positive, and highly significant effect on RI. Thus, Hypothesis 3 is accepted.

The influence of Big Data (BD) on Revisit Intention (RI) results in a t-statistic of 2.716, an effect size of 0.074, and a p-value of 0.006. Since the statistical criteria are met, Big Data (BD) demonstrates a positive and significant contribution to Revisit Intention (RI). Therefore, Hypothesis 4 is accepted.

The influence of Artificial Intelligence (AI) on Revisit Intention (RI) shows a t-statistic of 0.661, an effect size of 0.005, and a p-value of 0.509. As the t-statistic does not reach the threshold and the p-value exceeds 0.05, there is no significant effect of Artificial Intelligence (AI) on Revisit Intention (RI). As a result, Hypothesis 5 is rejected.

Table 7. Indirect Effect Hypothesis Testing Results

Hypothesis	Effects	Original Sample	T-Statistic	P-Values	Notes
H6	AI → TE → RI	0.166	2.957	0.003	Positive and Significant Indirect Effect
H7	BD → TE → RI	0.267	3.805	0.000	Positive and Significant Indirect Effect

The indirect effect of Artificial Intelligence (AI) on Revisit Intention (RI) through Tourism Experience (TE) has an original sample estimate of 0.166, a t-statistic of 2.957, and a p-value of 0.003. Since the t-statistic exceeds 1.96 and the p-value is below 0.05, this indicates a positive and statistically significant indirect effect. Thus, Hypothesis 6 is accepted.

The mediating role of Tourism Experience (TE) in the relationship between Big Data (BD) and Revisit Intention (RI) is supported by an indirect effect value of 0.267, a t-statistic of 3.805, and a p-value of 0.000. Given that both the t-statistic and p-value meet the significance criteria, it can be concluded that Big Data (BD) has a positive and significant indirect impact on Revisit Intention (RI) via Tourism Experience (TE). Therefore, Hypothesis 7 is accepted.

Discussions

The Effect of Perceived Potential of AI on Tourism Experience

The research findings indicate that users' perceptions of the potential application of Artificial Intelligence (AI) technology have a positive and significant impact on their

digital tourism experience when accessing the Visit Jawa Tengah website. This suggests that, even though AI technologies such as automated chatbots, destination recommendation systems, or voice assistants have not yet been directly implemented on the website, users still construct a positive experience based on their expectations and beliefs about the benefits of AI ("Consumer Evaluation of Hotel Service Robots," 2018). This finding indicates that AI functions not only as a functional technology but also as a symbolic signal of technological sophistication, which positively shapes users' cognitive evaluations of the platform. As explained by the Technology Acceptance Model (TAM), users tend to evaluate a system based on the extent to which the technology is perceived as useful and easy to use (Davis, 1989). In this context, although AI is not yet tangibly present, many users express that the existence of technologies such as chatbots that can answer tourism-related queries or features that suggest destinations based on personal preferences would greatly assist in planning trips more quickly, efficiently, and personally (Gretzel et al., 2015).

These expectations shape users' perceptions of a positive digital experience when accessing the website visitjawatengah.jatengprov.go.id. For instance, although destination information is currently presented through static articles and menus, users imagine a smoother experience if AI features were available; this influences their overall assessment of the site's quality (Koo et al., 2017). This finding also aligns with the Smart Tourism Technology approach, which emphasizes the importance of informativeness, interactivity, and personalization in digital tourism experiences. Therefore, AI enhances the digital tourism experience primarily through cognitive anticipation rather than direct functional interaction. Users tend to respond positively to technologies perceived as capable of delivering relevant and personalized information, something that can be effectively facilitated by AI.

Therefore, it can be concluded that AI is not only valued based on its current functional presence, but also on its perceived potential benefits. This indicates that the Visit Jawa Tengah website has a significant opportunity to enhance tourists' digital experience by integrating AI-based features in the future, such as destination chatbots, automated recommendation systems, or intelligent search functions.

The Effect of Perceived Benefit of Big Data on Tourism Experience

The research findings reveal that users' perceptions of the benefits of Big Data in destination information management have a positive and highly significant impact on their digital tourism experience on the Visit Jawa Tengah website. In other words, the higher the users' trust in data-driven information, the more positive their digital experience becomes. The Visit Jawa Tengah website already presents relatively comprehensive and structured information, including cultural event calendars, detailed destination descriptions, and transportation schedules, which directly support travel planning activities.

Unlike AI, whose benefits are largely perceived as prospective, Big Data is experienced more tangibly through the structured, consistent, and reliable presentation of information. Although advanced Big Data features such as real-time analytics, visitor density maps, or interactive dashboards are not yet available, users still perceive benefits due to the website's consistently structured and reliable content, which aids in trip planning.

The literature on smart destinations emphasizes that Big Data plays a crucial role in delivering transparent and precise information, including crowd levels, weather conditions, and optimal visit recommendations, which directly contributes to visitor comfort and trust (Mariani, 2019). Users' expectations for the integration of such features further strengthen their perception of a positive digital experience, even if the technologies are not yet implemented. These findings are also consistent with the results of a systematic literature review by (Mariani et al., 2022), which states that the use of Big Data and analytics in tourism not only enhances decision-making processes but also improves user experience through the accuracy, relevance, and transparency of the information provided. Consequently, Big Data contributes to the digital tourism experience not through technological novelty, but through its direct impact on perceived information quality and reliability.

Thus, it can be concluded that even though the implementation of Big Data technology is not yet fully developed, the curated and useful presentation of information is already significantly influencing users' positive perceptions of their digital tourism experience. To optimize this experience further, it is recommended that the website integrate features such as real-time crowd mapping, density prediction, and visitor data visualization in the future, making digital interaction more personalized, secure, and informative.

The Effect of Tourism Experience on Revisit Intention

The research findings demonstrate that digital tourism experience has a highly significant influence on tourists' revisit intention. This implies that the more positive a user's experience while using the website visitjawatengah.jatengprov.go.id, the greater their intention to revisit destinations in Central Java—and even to recommend them to others. In this study, digital tourism experience encompasses aspects such as ease of access to information, intuitive site navigation, data security, and overall satisfaction. These dimensions have been proven to be strong drivers of revisit intention in the digital tourism literature (Windasari et al., 2022) in their study on long-term tourism memory, found that memorable digital experiences significantly contribute to revisiting behaviour, reinforcing the idea that memorable tourism experiences enhance revisit intention.

Theoretically, these findings are consistent with the Experience Economy model (Pine & Gilmore, 1999) and the Expectation Confirmation Theory (Bhattacherjee, 2001). Pine & Gilmore (1999) argue that memorable experiences create lasting emotional value, while Bhattacherjee (2001) posits that when an experience meets or exceeds expectations, it leads to repeat behavioural intention. Therefore, it can be concluded that users' digital experiences on tourism platforms are not only informative but also capable of generating strong emotional and cognitive engagement, ultimately leading to revisit intention.

The Effect of Perceived Potential of AI on Revisit Intention

The research findings indicate that perceptions of the potential application of Artificial Intelligence (AI) do not have a statistically significant direct effect on tourists' revisit intention to Central Java destinations through the website visitjawatengah.jatengprov.go.id. Although respondents expressed positive evaluations regarding the possible implementation of AI, such as chatbots, intelligent

recommendations, or automated interactions, these perceptions are not strong enough to directly influence their intention to revisit the destinations. This result suggests that AI is perceived more as a supporting element rather than a primary driver in shaping tourist loyalty. In the context of digital tourism, AI may be considered useful for facilitating access to information or enhancing comfort when navigating the site, but it does not necessarily lead to revisit intention unless it is fully integrated into a more comprehensive and immersive user experience (Tussyadiah, 2020).

This finding suggests that revisit intention, as a loyalty-oriented behavioural outcome, requires experienced functional value and trust rather than anticipated technological potential alone. In the absence of direct interaction with AI-based features, users are unable to fully assess the usefulness of AI in supporting their travel decisions, which limits its impact on behavioural intention. This finding can also be interpreted through the lens of the Technology Acceptance Model (TAM), in which technologies like AI are assessed based on their perceived usefulness. If users have not yet experienced the tangible functional benefits of AI within the platform, it is understandable that its influence on behavioural decisions, such as the intention to revisit, remains limited (Zhang et al., 2023). Furthermore, research by (Orden-Mejía et al., 2023) shows that the use of AI-based chatbots only significantly affects revisit intention when mediated by user satisfaction and experience quality, rather than by the mere presence of AI technology itself.

This indicates that although perceptions of AI's potential in tourism are generally positive, its effect on revisit intention tends to be indirect and more effective when mediated by a positive tourism experience. In other words, AI contributes to shaping perceptions of service quality and user experience but does not serve as a sole determinant in the decision to revisit.

The Effect of Perceived Benefit of Big Data on Revisit Intention

The research findings indicate that users' perceptions of the application of Big Data have a positive and significant effect on their revisit intention to tourism destinations in Central Java through the website visitjawatengah.jatengprov.go.id. This finding suggests that when users believe the information they receive is derived from a well-managed data system (complete, accurate, and relevant), their confidence in the quality of the destination increases, which in turn impacts their willingness to revisit (Chan et al., 2022). The Visit Jawa Tengah website provides a wide range of destination-related information organized by regency/city, cultural event agendas, and references to tourism activities in a structured manner. Although it has not yet implemented real-time analytics features such as crowd maps or recommended visiting times, the region- and theme-based structure of the information reflects systematic data utilization to support user convenience. In this context, perceived information quality becomes key.

Theoretically, this finding can be explained through the concepts of Perceived Information Quality and Destination Trust. Well-managed information fosters tourist trust in the destination, as discussed in the study by Ku and Chen (2015). This relationship can be explained through a causal mechanism linking Big Data utilization, information quality, destination trust, and behavioural intention. When tourists believe that the information presented through the website results from professional data processing, they feel more confident in making travel decisions, including the intention to revisit. Moreover, Big Data should not only be viewed from a technical perspective,

regarding data collection and processing but also in terms of how data is translated into useful information for tourists. (Vecchio et al., 2018) emphasize that the strategic use of Big Data can significantly enhance tourist loyalty when data is used to foster transparency, information reliability, and service personalization.

Thus, it can be concluded that the application of Big Data principles in managing digital tourism content has made a tangible contribution to shaping tourist loyalty. This potential will grow even further if the Visit Jawa Tengah website integrates real-time data-driven tourism analytics in the future, such as destination crowd reports, travel trend predictions, and personalized recommendations based on user behaviour.

The Effect of Perceived Potential of AI on Revisit Intention through Tourism Experience

The research findings show that while users' perceptions of the potential application of AI do not yet have a direct effect on revisit intention, they do have an indirect effect through the mediating variable of tourism experience. This finding reinforces the idea that AI plays an important role in shaping memorable digital tourism experiences, which ultimately encourage users to revisit the destination. When users perceive that AI can personalize their experiences, provide preference-based recommendations, and enhance comfort in accessing tourism information and services, such experiences generate emotional value that contributes to revisit intention. In this context, AI is understood not merely as a technological tool but as a facilitator of more contextual and relevant experiences for tourists. This confirms that AI operates primarily through an experiential mediation mechanism, reinforcing its role as a facilitator of meaningful and personalized tourism experiences.

This finding aligns with the extended Experience Economy model, which highlights AI's role in tourism as a creator of intelligent and adaptive interactive experiences (Chaturvedi et al., 2024). The model emphasizes that technology-driven experiences that are enjoyable, user-friendly, and responsive to users' needs serve as strong drivers of loyalty. Thus, even though AI technology has not yet been fully implemented on the Visit Jawa Tengah website, users' perceptions of its potential benefits have already shaped positive expectations toward their digital tourism experience. This serves as a critical foundation for developing AI-based systems in the tourism sector, particularly if oriented toward enriching user experience, rather than merely improving service efficiency.

The Effect of Perceived Benefit of Big Data on Revisit Intention through Tourism Experience

The research findings indicate that perceptions of the benefits of Big Data not only have a direct impact on revisit intention but also significantly influence it through tourism experience. This suggests that the positive experiences users gain when interacting with Big Data–based information systems strengthen their intention to revisit tourism destinations. In this context, Big Data functions as an enabler of more personalized, efficient, and informative tourism experiences. When users access accurate, real-time, and relevant tourism information, such as destination recommendations, event schedules, or crowd density, they feel supported in planning their trips. This creates an enjoyable digital experience and reinforces the perception that the destination is professionally and user-friendly managed.

These findings are consistent with the study by (Brown et al., 2024), which showed that the strategic use of Big Data in customer contexts can result in personalized experiences that enhance satisfaction and loyalty. In tourism, data-driven experiences are key to shaping a high perceived value of the digital services offered by destinations. Furthermore, research by (Khan, 2025) emphasizes that the integration of Big Data into tourism digital touchpoints not only improves information efficiency but also deepens users' emotional engagement with the destination, ultimately increasing their intention to return. This means that successful management of data-driven tourism experiences strengthens the relationship between users and destinations, not just for a single visit, but over the long term.

Thus, the use of Big Data in tourism affects not only the quality of information systems but also the psychological and emotional aspects of users, all of which contribute to the formation of revisit intention through the mediation of tourism experience.

Conclusion

The findings of this study indicate that digital technologies play a crucial role in shaping tourists' revisit intentions, particularly through the improvement of Big Data–based information quality and digital tourism experiences. The perceived benefits of Big Data positively and significantly influence revisit intention, both directly and indirectly through digital tourism experience as a mediating variable. In contrast, perceptions of Artificial Intelligence (AI) significantly affect digital tourism experience but do not directly influence revisit intention. These results suggest that while AI has strategic potential in smart tourism, its effectiveness depends on meaningful integration into the tourism experience.

Based on these findings, several strategic recommendations are proposed for destination managers and tourism stakeholders at the regional level. Optimizing AI-based personalization features on destination websites can enhance user engagement, while the development of real-time Big Data analytics dashboards can support data-driven decision-making. In addition, improving digital literacy among tourism stakeholders is essential to ensure inclusive digital transformation, and interactive digital campaigns can strengthen emotional connections between tourists and destinations.

From a policy perspective, regional governments play a key role in accelerating AI adoption to support smart tourism policies. Establishing clear governance frameworks for AI utilization, including data integration standards and ethical data use, is essential. Regional authorities should also prioritize investment in AI-enabled tourism platforms and strengthen institutional capacity through dedicated digital transformation units and partnerships with technology providers and universities. Aligning AI adoption with regional smart tourism policies will contribute to a more adaptive, personalized, and sustainable tourism ecosystem.

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