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Toward a Sustainable Digital Tourism Governance Model: Comparative Evidence from Indonesia and Malaysia

Augustin Rina Herawati*, Hardi Warsono, Ida Hayu Dwimawanti, Azaria Eda Pradana

Department of Public Administration, Faculty of Social and Political Sciences, Diponegoro University, Semarang 50275, Indonesia

Corresponding Author Email: augustinrina@lecturer.undip.ac.id

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ABSTRACT

This study examines the development of digital tourism in Indonesia and Malaysia through a comparative qualitative approach and proposes the concept of sustainable digital tourism governance as an analytical framework. The study is based on document analysis of policy materials, academic literature, and comparative evidence related to tourism digitalization in both countries. The findings show that Indonesia and Malaysia follow different yet overlapping pathways of digital tourism development. Indonesia is characterized by a promotion-led and immersion-oriented approach, emphasizing destination branding, online visibility, and digital storytelling. Malaysia, by contrast, demonstrates a smart-integration and service-oriented approach, marked by stronger policy structuring, smart tourism applications, and digitally coordinated services. The comparison further indicates that digital tourism should not be understood solely as technological adoption, but as a governance process shaped by regulatory support, digital infrastructure, service integration, and community participation. This study contributes by integrating digital tourism, smart tourism, policy advocacy, and sustainability into a single comparative framework. It also highlights that the long-term value of tourism digitalization depends on how digital transformation is governed to support inclusion, local value creation, and destination resilience.

1. INTRODUCTION

Tourism has long been recognized as more than a leisure industry. In many countries, it functions as a strategic sector that stimulates foreign exchange earnings, broadens employment opportunities, accelerates infrastructure provision, and generates multiplier effects across related economic activities. Yet the contemporary tourism landscape is no longer shaped by physical mobility alone. It is increasingly mediated by digital platforms, online visibility, data-driven services, and technology-enabled interactions that influence how destinations are discovered, evaluated, booked, experienced, and remembered. In this sense, digitalization has not merely supported tourism; it has redefined the logic through which tourism operates in a connected world [1-3].

This transition matters because tourism is an information-intensive sector by nature. Travelers now rely heavily on online reviews, algorithmic recommendations, digital maps, social media content, and real-time service updates before making travel decisions. At the same time, tourism providers increasingly depend on digital tools to market destinations, coordinate services, personalize experiences, and maintain closer engagement with visitors. Digital transformation therefore reshapes not only the commercial side of tourism but also the relationship between destinations, institutions, businesses, and communities. As digital systems become more deeply embedded in tourism ecosystems, they begin to influence who benefits from tourism growth, whose voices are amplified, and how sustainability is practiced on the ground [2, 4].

For Indonesia, the question of tourism digitalization is especially significant. The country possesses exceptional geographical, ecological, and cultural diversity, making tourism one of its most promising development sectors. The report shows that Indonesia has pursued digital tourism through a range of initiatives, including digital destination promotion, startup incubation, digital payments, platform integration, and training for tourism actors [5, 6]. Its strategy has been particularly visible in digitally driven campaigns such as Wonderful Indonesia and #DiIndonesiaAja, as well as in the use of immersive technologies such as virtual and augmented reality to strengthen destination visibility. At the same time, Indonesia still faces persistent structural constraints, particularly uneven digital infrastructure, fragmented regulatory support, and unequal readiness across destinations [2, 6, 7].

Malaysia offers a compelling comparative case because it has also positioned tourism as a high-value sector while embedding digital transformation within a more explicit policy roadmap. The National Tourism Policy 2020–2030 places emphasis on inclusiveness, sustainability, competitiveness, governance capacity, and the adoption of

smart tourism practices. In particular, the Smart Tourism 4.0 agenda illustrates Malaysia's effort to move beyond digital promotion toward a more integrated service ecosystem that includes e-marketing partnerships, data analytics, digital platforms, and smart visitor services. However, the report also notes that these ambitions are not free from constraints. High implementation costs, uneven digital access, limited awareness among stakeholders, and the absence of a fully operational framework continue to challenge the broader institutionalization of smart tourism in Malaysian destinations [8-10].

A comparison between Indonesia and Malaysia is therefore analytically valuable not simply because both countries are active tourism economies in Southeast Asia, but because they appear to represent different trajectories of digital tourism development. Indonesia tends to emphasize destination branding, immersive promotion, and campaign-based visibility, whereas Malaysia shows a stronger tendency toward smart-service integration and digitally enabled tourism management, especially in urban and well-connected areas. This contrast suggests that digital tourism should not be treated as a uniform process. Rather, it develops through distinct combinations of policy choices, infrastructure conditions, institutional capacity, and stakeholder participation. The report repeatedly points to this divergence, showing that Indonesia's relative strength lies in content-rich promotion and experience-oriented digital engagement, while Malaysia benefits from more mature digital infrastructure and a stronger orientation toward seamless service integration [6, 8, 9].

Even so, much of the existing discussion on tourism digitalization still tends to separate key issues that should in fact be studied together. Research often focuses on digital promotion, smart tourism applications, consumer behavior, or policy support as parallel themes rather than as parts of one governance problem. Yet in practice, successful tourism digitalization depends on more than the existence of platforms or campaigns. It requires regulatory alignment, digital infrastructure, service integration, community participation, and a sustainability orientation that ensures technology serves not only efficiency and competitiveness, but also inclusion and long-term destination resilience. The report provides a strong basis for this integrated reading by linking advocacy, governance, smart tourism, and community-based participation as mutually reinforcing elements rather than isolated variables [5, 11, 12].

This study addresses that gap by examining digital tourism development in Indonesia and Malaysia through the lens of sustainable digital tourism governance. Instead of limiting the analysis to promotional strategies or technological adoption alone, the study considers how digital transformation is shaped by four interrelated dimensions: regulatory support, digital infrastructure, platform and service integration, and community-oriented sustainability. Framed in this way, the comparison contributes more than a country-to-country description. It helps explain why digital tourism in developing contexts may follow different developmental pathways and why technological modernization does not automatically lead to inclusive or sustainable outcomes. By comparing the Indonesian and Malaysian cases, this article seeks to identify the distinctive governance logics underpinning each model and to propose a more integrated framework for understanding digital tourism transformation in Southeast Asia.

More specifically, this article argues that Indonesia and Malaysia illustrate two broad but overlapping pathways. Indonesia reflects a promotion-led and immersion-oriented pathway, where digital tools are used primarily to expand destination visibility and enrich symbolic experience. Malaysia, by contrast, reflects a smart-integration pathway, where digitalization is more closely tied to system interoperability, service efficiency, and institutional coordination. Recognizing these differences is important because the future of tourism in the region will not depend only on how effectively destinations are marketed online, but on how digitalization is governed to support accessibility, local participation, ecological sensitivity, and adaptive policy learning. In that respect, tourism digitalization is best understood not as a technological trend alone, but as a governance challenge with direct implications for sustainability.

2. LITERATURE REVIEW

2.1 Digital tourism as a structural transformation in the tourism sector

Digital tourism has evolved from being a peripheral marketing tool into a structural force that reconfigures how destinations operate, communicate, and compete. Early discussions on tourism digitalization often focused on the role of websites, online booking systems, and electronic information exchange. Over time, however, the conversation expanded to include platform economies, data ecosystems, mobile applications, immersive technologies, and algorithmically mediated visitor engagement. This shift reflects a broader recognition that tourism is deeply dependent on information flows, and therefore especially susceptible to digital transformation [3, 13].

In practical terms, digital tourism changes the entire chain of tourism value creation. Travelers search for destinations through social media and search engines, evaluate alternatives through ratings and reviews, make reservations via digital intermediaries, navigate destinations using location-based services, and often document their experiences online in ways that further shape destination image. For providers and public institutions, this means that digital tools are no longer supplementary. They are increasingly central to branding, transaction management, visitor analytics, and service coordination [14, 15]. Digitalization therefore alters both market access and governance relations within tourism systems.

This development is especially relevant in developing countries, where tourism is frequently expected to support regional growth, create employment, and strengthen local livelihoods. In such contexts, digital transformation carries a dual promise. On the one hand, it can lower barriers to market visibility, enable small tourism enterprises to reach wider audiences, and improve the efficiency of destination management. On the other hand, it can also reproduce structural inequalities when infrastructure, regulatory support, and digital capabilities are unevenly distributed. The literature increasingly suggests that tourism digitalization should be assessed not only by the spread of technology itself, but by the institutional arrangements that determine who is able to use it, benefit from it, and shape its direction [16, 17].

2.2 From digital tourism to smart tourism

A more advanced strand of the literature introduces the concept of smart tourism, which moves beyond basic digitalization toward the intelligent integration of technologies, data, and services across the destination ecosystem. Smart tourism is commonly associated with real-time data exchange, interconnected platforms, responsive public services, mobile-based experiences, and the use of information technologies to improve decision-making for both visitors and destination managers [18, 19]. In this sense, smart tourism is not merely about having digital tools available, but about how those tools are connected, interoperable, and embedded in broader governance systems.

The smart tourism perspective adds an important conceptual layer because it shifts attention from isolated innovation to system coordination. Smart destinations are characterized not only by technological capacity, but also by institutional learning, stakeholder collaboration, and the ability to transform data into adaptive policy and service improvements [16, 20]. This view is especially useful for comparative research because it allows scholars to distinguish between destinations that use digital tools primarily for visibility and those that have begun to integrate digitalization into service design, resource management, and governance practices.

At the same time, the literature warns against treating smart tourism as a neutral or universally successful model. The adoption of smart systems is shaped by local context, including governance maturity, infrastructure readiness, financial capacity, and the digital literacy of tourism actors. In developing-country settings, smart tourism may remain concentrated in urban or flagship destinations while peripheral areas continue to face weak connectivity and limited institutional support. This unevenness is important because it suggests that tourism digitalization may progress through different developmental pathways rather than along a single linear trajectory [21, 22].

2.3 Digital advocacy, destination visibility, and tourism influence

Another relevant body of literature concerns digital advocacy, especially in relation to communication, influence, and trust formation. In tourism settings, advocacy operates through both institutional and networked channels. Public agencies, tourism boards, and destination managers use digital campaigns to shape destination narratives and influence travel behavior, while visitors, influencers, and online communities also participate in constructing reputational value through reviews, visual content, and social recommendation systems [22]. As a result, tourism promotion has become increasingly dialogic and decentralized, even when formal institutions still play a leading role in branding strategy.

In broader policy literature, advocacy is often understood as a deliberate effort to influence public agendas, institutional priorities, and collective action through persuasion, coalition building, and strategic communication [21]. When this perspective is applied to tourism, advocacy can be interpreted more broadly than marketing alone. It includes efforts to mobilize support for tourism development, legitimize digital initiatives, build inter-organizational cooperation, and align stakeholders around a shared development vision. This broader understanding is particularly useful for analyzing tourism digitalization in countries where public institutions remain central actors in the development of destination ecosystems.

The relevance of advocacy becomes even more visible in national tourism campaigns and policy-driven digital initiatives. In Indonesia, for example, digital promotion has played a major role in destination branding and visitor engagement. Yet advocacy in this context is not limited to image production. It also involves policy signaling, institutional coordination, and efforts to encourage tourism actors to adopt digital tools. Similar patterns can be observed in community-level and village-based tourism development, where advocacy is often necessary to connect local governance, digital adaptation, and destination strengthening [11, 14]. This suggests that digital tourism is shaped not only by technological adoption, but also by how public narratives and policy agendas are constructed and sustained.

2.4 Sustainability and community-centered tourism digitalization

While digital tourism and smart tourism are often discussed in terms of innovation and competitiveness, a growing body of scholarship emphasizes the need to link digital transformation with sustainability. This is especially important because tourism development can generate contradictory outcomes. It may create income and improve destination exposure, but it can also intensify environmental pressure, deepen territorial inequality, and marginalize local communities if growth is pursued without adequate governance safeguards. From this perspective, digitalization should not be judged solely by its efficiency or market reach. It should also be evaluated in terms of inclusiveness, resilience, and ecological responsibility.

The sustainability lens is particularly relevant in tourism because destinations are not abstract marketplaces; they are lived environments shaped by ecological conditions, social relations, and local cultural practices. Digital tools may support more sustainable forms of tourism when they improve visitor flow management, strengthen local enterprise visibility, reduce information asymmetry, and enable more participatory destination governance. At the same time, they may reinforce exclusion if small-scale actors lack the capacity to participate in digital ecosystems or if smart infrastructure remains concentrated in better-resourced regions [7, 12].

Community-based tourism scholarship provides an important corrective here. It reminds us that tourism development is more sustainable when local communities are not treated merely as passive beneficiaries, but as active participants in planning, implementation, and benefit-sharing. Digitalization can support this agenda by expanding access to markets and communication channels, but only when accompanied by training, institutional support, and governance arrangements that protect local interests. The value of digital tourism, therefore, lies not simply in its technological sophistication, but in whether it enhances local agency and destination resilience [5, 12].

2.5 Indonesia and Malaysia as contrasting models of tourism digitalization

The literature on Indonesia shows that tourism digitalization has developed strongly through branding, platform expansion, and digitally mediated destination promotion. Several studies highlight the importance of online visibility, digital payments, startup ecosystems, and immersive media in strengthening

tourism competitiveness [2, 15]. This pattern suggests a development model in which digitalization is closely tied to destination communication and market reach. However, the Indonesian case also reveals recurring challenges, particularly related to fragmented digital readiness, infrastructural disparity between regions, and uneven policy implementation [5, 7].

By contrast, the literature on Malaysia tends to frame tourism digitalization more explicitly through the language of smart tourism, policy planning, and service integration. Research on Malaysian tourism highlights the role of smart applications, ecosystem connectivity, and institutional roadmaps in shaping digital tourism development [9, 10]. The National Tourism Policy 2020–2030 reinforces this orientation by linking tourism competitiveness with sustainability, digital transformation, and governance improvement [8]. Even so, Malaysian scholarship also acknowledges implementation barriers, including stakeholder readiness, cost, technological adaptation, and uneven adoption across destinations.

These two national literatures are often treated separately, and relatively few studies attempt to synthesize them within a shared analytical frame. This is a missed opportunity, because the contrast between Indonesia and Malaysia helps reveal that digital tourism does not develop in a uniform way. Instead, it appears to follow different configurations of institutional priorities, technological capacities, and governance arrangements. A comparative perspective is therefore useful not merely for identifying differences between countries, but for conceptualizing broader patterns of digital tourism transformation in Southeast Asia. To clarify the position of this study within the existing body of scholarship, the key strands of literature are summarized in Table 1. Existing scholarship has substantially enriched the understanding of digital tourism, smart destinations, destination competitiveness, and digital advocacy. However, the literature remains fragmented across at least four strands: digital transformation, smart tourism systems, policy advocacy, and community-based sustainability. As shown in Table 1, previous studies provide important insights into specific dimensions of tourism digitalization, yet relatively few studies integrate these dimensions into a comparative governance framework. This gap is particularly visible in the Southeast Asian context, where tourism digitalization develops under different institutional, infrastructural, and policy conditions.

To summarize the key strands of literature discussed above, including digital transformation, smart tourism systems, policy advocacy, and community-based sustainability, Table 1 presents a concise overview of the authors, focus, main findings, and relevance to this study.

Table 1. Literature review summary

Key Strand	Refs.	Focus / Variable	Main Findings	Relevance to This Study
Digital transformation in tourism	[2, 3, 13]	Digitalization, online platforms, information flows	Digital tools reshape destination marketing, visitor decision-making, and tourism competitiveness	Provides conceptual basis for understanding tourism digitalization in Indonesia and Malaysia
Smart tourism systems	[16, 18-20]	Smart tourism adoption, system integration, data-driven services	Smart tourism emphasizes system interoperability, real-time services, and stakeholder collaboration	Helps define smart-integration pathways in Malaysia compared to Indonesia
Policy advocacy & digital governance	[11, 15, 21]	Advocacy strategies, institutional alignment, policy coherence	Policy advocacy shapes adoption, legitimacy, and coordination among tourism stakeholders	Supports analysis of governance processes and regulatory support dimension
Community-based sustainability	[5-7, 12]	Community participation, digital inclusion, eco-tourism	Sustainable tourism outcomes depend on community engagement, local benefit creation, and equitable digital access	Provides framework for evaluating the CPS dimension and inclusion in digital tourism

2.6 Analytical gap and conceptual direction of this study

Despite the growing literature on digital tourism, smart destinations, and sustainability, an important gap remains. Many studies focus on one dimension at a time: destination branding, technology adoption, tourist behavior, smart applications, or policy support. Fewer studies bring these dimensions together in a way that explains how digital tourism is governed as an integrated development process. This fragmentation limits our understanding of why some destinations excel in visibility but struggle with service integration, while others develop digital infrastructure but face challenges in participation, inclusiveness, or sustainability.

This study addresses that limitation by approaching tourism digitalization through the concept of sustainable digital tourism governance. The term is used here to refer to the institutional and socio-technical arrangements through which digital transformation in tourism is directed, coordinated, and evaluated in relation to long-term destination sustainability. Rather than reducing tourism digitalization to promotional success or technological sophistication, this perspective emphasizes four interrelated dimensions: regulatory support, digital infrastructure, platform and service integration, and community-oriented sustainability. These dimensions are especially relevant for comparing Indonesia and Malaysia because they allow the analysis to move from descriptive contrast toward a more explanatory framework.

In this way, the present study is positioned at the intersection of digital tourism, smart tourism, policy advocacy, and sustainable destination governance. Its contribution lies not only in comparing two national cases, but in developing a conceptual basis for understanding why digital tourism follows different pathways and what conditions are necessary for digital transformation to contribute meaningfully to sustainable tourism development. Building on the preceding review, Figure 1 presents the conceptual framework that guides the analysis of sustainable digital tourism governance in Indonesia and Malaysia.

Figure 1 illustrates the conceptual framework of this study. The framework assumes that sustainable digital tourism governance is shaped initially by enabling conditions, namely regulatory support, digital infrastructure, stakeholder collaboration, and digital capability. These enabling conditions influence the governance process through digital advocacy, policy alignment, platform and service integration, smart tourism applications, and community participation. The

process then generates intermediate outcomes in the form of stronger destination visibility, improved visitor experience, easier access to services, and broader local engagement. In the long run, these outcomes contribute to sustainability goals, including inclusive tourism development, destination competitiveness, community-based value creation, and tourism resilience. The framework also recognizes a feedback loop in which data-driven evaluation and policy learning continuously refine governance capacity.

The framework serves as an analytical lens for examining how enabling conditions, governance processes, and sustainability-oriented outcomes interact across the two national contexts.

Figure 1. Conceptual framework of sustainable digital tourism governance

3. METHODOLOGY

3.1 Research design

This study employed a qualitative comparative research design to examine tourism digitalization policy advocacy in Indonesia and Malaysia. The qualitative approach was selected because the study aims to interpret policy orientation, advocacy practices, digital tourism initiatives, institutional arrangements, and sustainability-related challenges rather than to test statistical relationships. A comparative qualitative design is appropriate for examining how similar cases develop different governance trajectories under different institutional and policy conditions [23-25].

A comparative design was used because Indonesia and Malaysia share several regional and sectoral similarities as Southeast Asian tourism economies, but they differ in policy emphasis, infrastructure readiness, digital tourism strategy, and institutional coordination. Indonesia's digital tourism development is strongly associated with destination promotion, digital campaigns, online visibility, and immersive technologies, whereas Malaysia's approach is more explicitly connected to smart tourism, digital infrastructure, service integration, and policy-based transformation. This contrast

makes the two cases suitable for comparative qualitative analysis.

3.2 Case selection

Indonesia and Malaysia were selected through purposive case selection. The selection was based on their relevance to the study of tourism digitalization policy advocacy in Southeast Asia. Both countries have significant tourism potential, rich cultural and natural resources, and increasing reliance on digital technologies to strengthen tourism competitiveness. The research report underlying this article also identifies both countries as relevant cases because they have relatively high tourism activity and digitalization rates compared with several other countries in the region.

The two cases also provide meaningful analytical variation. Indonesia has developed digital tourism through initiatives such as Wonderful Indonesia, #DiIndonesiaAja, digital destination promotion, virtual and augmented reality experiences, digital payment systems, and collaboration with platforms such as Traveloka and Tiket.com. Malaysia, by contrast, has positioned digital tourism within a more explicit policy framework, including the National Tourism Policy 2020–2030, Smart Tourism 4.0, 5G-supported tourism infrastructure, smart tourism applications, digital platforms, and partnerships with global travel platforms. This combination of similarity and variation allows the study to compare how digital tourism advocacy is structured and implemented in two neighboring tourism systems [25].

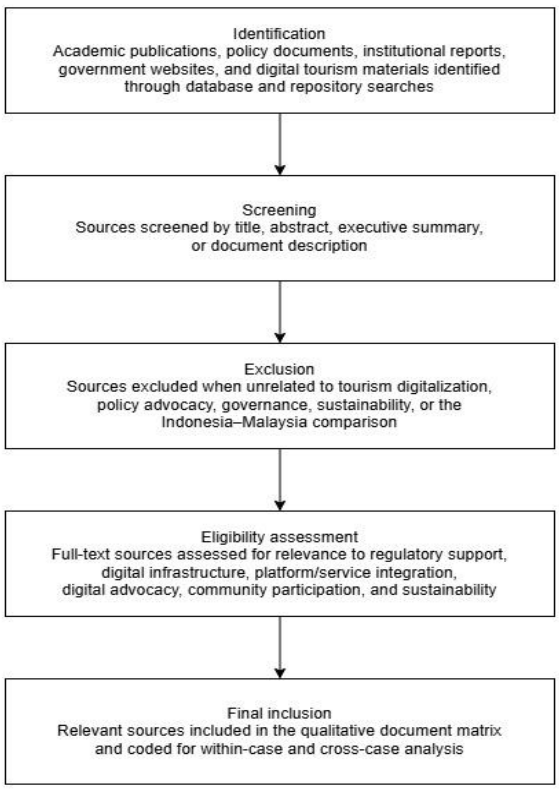

Figure 2. Document selection flowchart for the qualitative comparative analysis

Figure 2 presents the document selection process used in this study. The figure replaces a generic research workflow with a more transparent selection flow, showing how sources were identified, screened, assessed for eligibility, and included in the qualitative comparative analysis. This procedure responds to the need for greater methodological transparency in document-based research.

3.3 Data sources and empirical materials

This study used qualitative secondary data and documentary materials derived from the research report on tourism digitalization policy advocacy in Indonesia and Malaysia. The empirical materials consisted of four main categories. Document analysis was used because it provides a systematic procedure for evaluating and interpreting documents as empirical materials in qualitative research [26]. First, academic literature was used to develop the conceptual foundation on policy advocacy, tourism digitalization, smart tourism, digital transformation, community-based tourism, and sustainable tourism governance. Second, policy and institutional documents were examined to identify how tourism digitalization is formally framed and supported in Indonesia and Malaysia. Third, programmatic and digital campaign materials were reviewed to understand how digital tourism advocacy is translated into practical initiatives, including national campaigns, digital platforms, virtual tourism, smart tourism applications, and social media-based promotion. Fourth, comparative evidence from the research report was used to interpret the similarities and differences between the Indonesian and Malaysian cases [26].

The academic and documentary sources were collected from national and international journal databases, official government websites, and institutional sources. The research report specifically indicates the use of journal sources and academic databases such as SINTA-indexed national journals and international journal platforms, including Taylor & Francis, SAGE Journals, and Wiley Online Library, as well as official websites of Indonesian and Malaysian government institutions. These sources were selected to ensure that the analysis was based on credible academic and policy materials.

The time window of the materials was primarily 2018–2024, reflecting the period in which digital tourism, smart tourism, post-pandemic tourism recovery, and digital policy transformation became increasingly prominent in both countries. Earlier sources were used only when they provided relevant theoretical or methodological foundations for policy advocacy, digital tourism, qualitative research, or document analysis.

The search terms used to identify relevant literature and documents included combinations of the following keywords: **"***tourism digitalization policy Indonesia," "tourism digitalization policy Malaysia," "digital tourism Indonesia," "digital tourism Malaysia," "smart tourism Malaysia," "digital tourism advocacy," "tourism policy advocacy," "Wonderful Indonesia digital tourism," "#DiIndonesiaAja," "Malaysia Truly Asia digital campaign," "Smart Tourism 4.0 Malaysia," "tourism digital infrastructure," "community-based tourism digitalization," and "sustainable tourism digitalization."*

Documents and sources were included when they met at least one of the following criteria:

(1) they discussed tourism digitalization, digital tourism policy, smart tourism, or tourism digital transformation in Indonesia or Malaysia;

(2) they addressed policy advocacy, stakeholder involvement, institutional coordination, or governance in tourism development;

(3) they provided evidence on digital campaigns, digital platforms, VR/AR, digital payment systems, smart tourism applications, or tourism service integration; or

(4) they contributed to the analysis of sustainability, community participation, eco-tourism, or digital inclusion in tourism.

Sources were excluded when they:

(1) discussed tourism without relevance to digitalization, advocacy, governance, or sustainability;

(2) focused on digital transformation outside the tourism sector without conceptual relevance;

(3) consisted only of promotional content without analytical or policy value;

(4) duplicated information already provided by more authoritative academic or institutional sources; or

(5) lacked sufficient relevance to the Indonesia–Malaysia comparison.

3.4 Document identification and selection procedure

The document selection process was conducted in four stages: identification, screening, eligibility assessment, and final inclusion. In the identification stage, relevant academic publications, policy documents, government materials, institutional reports, and digital tourism materials were identified through academic databases and official online repositories. The search focused on materials related to tourism digitalization, policy advocacy, smart tourism, digital infrastructure, and sustainable tourism development in Indonesia and Malaysia.

In the screening stage, titles, abstracts, executive summaries, and document descriptions were reviewed to determine their relevance to the research questions. Materials that did not address tourism digitalization, tourism policy advocacy, digital governance, smart tourism, or the Indonesia–Malaysia comparison were excluded. Duplicate sources and materials with only marginal relevance were also removed.

In the eligibility assessment stage, the remaining materials were read more closely to determine whether they contributed to at least one of the main analytical dimensions of the study: regulatory support, digital infrastructure, platform and service integration, digital advocacy, community participation, and sustainability orientation. Only sources that provided substantive evidence for the comparative interpretation were retained [27].

The final set of materials was organized into a document matrix. The matrix recorded the source type, country focus, year, key issue, analytical dimension, and contribution to the comparative analysis. This procedure strengthened the transparency of the document-based analysis and enabled the findings to be traced back to the selected sources. The document selection process is summarized in Figure 2, and the corpus characteristics are presented in Table A1.

3.5 Analytical framework and coding process

The analysis was guided by a qualitative thematic coding strategy. Thematic analysis was appropriate because it enables researchers to identify, organize, and interpret patterns of meaning across qualitative materials [27]. The coding process combined deductive and inductive approaches. Deductive coding was informed by the conceptual focus of the study, particularly policy advocacy, tourism digitalization, smart tourism, digital infrastructure, service integration, community participation, and sustainability. Inductive coding was used to capture additional themes emerging from the documents, including destination branding, digital campaigns, VR/AR-based promotion, 5G-enabled tourism, smart applications, influencer collaboration, eco-tourism advocacy, domestic tourism activation, and regional infrastructure gaps.

Consistent with the qualitative analysis procedure described in the research report, the coding process involved three main stages: open coding, axial coding, and selective coding. In the open coding stage, relevant textual segments were identified and assigned preliminary codes. These codes captured specific issues such as digital promotion, policy support, digital payment, tourism apps, smart tourism infrastructure, community involvement, and sustainability narratives [27].

In the axial coding stage, related codes were grouped into broader categories. For example, codes related to Wonderful Indonesia, #DiIndonesiaAja, social media promotion, influencer collaboration, and VR/AR experiences were grouped under digital advocacy and destination visibility. Codes related to Smart Tourism 4.0, 5G infrastructure, tourism applications, digital platforms, and cashless systems were grouped under smart tourism integration and service ecosystem development.

In the selective coding stage, the broader categories were synthesized into two comparative governance trajectories. Indonesia was interpreted as following a promotion-led and immersion-oriented pathway, while Malaysia was interpreted as following a smart-integration and service-oriented pathway. These trajectories were not treated as mutually exclusive models, but as dominant tendencies derived from the comparative reading of the documentary evidence.

The coding process was supported by a coding matrix that recorded the source, country focus, evidence excerpt, preliminary code, analytical category, and interpretive memo. This procedure helped ensure that the findings were not based on isolated impressions, but on traceable and systematically organized documentary evidence.

3.6 Trustworthiness and research rigor

To enhance the rigor of the study, the analysis was conducted using the qualitative trustworthiness criteria of credibility, transferability, dependability, and confirmability, as proposed by Lincoln and Guba [28].

Credibility was enhanced through source triangulation. The study compared academic literature, policy documents, official government materials, institutional reports, and programmatic evidence related to tourism digitalization in Indonesia and Malaysia. This triangulation reduced reliance on a single type of source and allowed recurring patterns to be examined across different forms of evidence.

Transferability was addressed by providing contextual descriptions of both country cases. The analysis did not treat Indonesia and Malaysia as generic examples of digital tourism, but described their specific tourism policy orientation, digital infrastructure conditions, campaign strategies, smart tourism initiatives, and sustainability-related challenges.

Dependability was supported through a transparent analytical sequence, beginning with source identification, screening, document selection, coding, categorization, cross-case comparison, and conceptual synthesis. The use of a document matrix and coding matrix helped maintain consistency in how evidence was selected and interpreted.

Confirmability was pursued by grounding the interpretation

in documented evidence rather than unsupported assumptions. Key claims about Indonesia's promotion-led pathway and Malaysia's smart-integration pathway were derived from recurring evidence in the selected materials. The explicit coding procedure also made the analytical process more traceable and less impressionistic.

3.7 Ethical considerations and limitations

This study was based on documentary and secondary materials and did not report individual-level human subject data. Therefore, the ethical concern of the study mainly related to academic integrity, careful source interpretation, and accurate representation of documentary evidence. All materials were used critically and comparatively, and the analysis avoided making causal claims beyond what the available evidence could support.

The study has several limitations. First, as a qualitative comparative study, it is intended to generate interpretive and conceptual insight rather than statistical generalization. Second, the analysis depends on the availability and quality of documented materials. Some aspects of digital tourism policy advocacy, especially internal policymaking processes and informal stakeholder negotiations, may not be fully visible in publicly available documents. Third, digital tourism is a rapidly changing field; therefore, policy initiatives, digital infrastructure, and smart tourism practices may continue to develop beyond the period covered by the reviewed materials.

3.8 Operationalization of interpretive assessment

Because this study uses qualitative comparative analysis, the interpretive ratings used in the comparative tables are based on explicit decision rules rather than statistical measurement. The categories High, Moderate, and Moderate-Low were assigned by considering three criteria: the consistency of documentary evidence, the degree of institutional or policy support, and the extent of implementation described in the selected materials.

A rating of High was assigned when the evidence showed strong and repeated support for a given dimension across multiple sources, including policy documents, academic literature, and implementation examples. A rating of Moderate was assigned when the dimension was present but uneven, partial, or still developing. A rating of Moderate-Low was assigned when the dimension appeared in the evidence but was constrained by weak implementation, limited institutional support, uneven infrastructure, or fragmented practice.

Following the comparative assessment summarized in Table 2, the decision rules guiding qualitative scoring are presented in Table 3. These rules are intended to provide a transparent framework for assessing the relative strength of digital tourism governance dimensions in Indonesia and Malaysia. The analytical dimensions and guiding indicators used to structure the comparative interpretation are summarized in Table A2. The operational rubric for the proposed Digital Tourism Sustainability Index (DTSI) is presented in Table A3.

Table 2. Comparative results matrix of digital tourism development in Indonesia and Malaysia

Analytical Dimension	Indonesia	Malaysia	Comparative Interpretation
Government-led branding	Strong emphasis on Wonderful Indonesia and #DiIndonesiaAja with visually rich destination promotion	Strong emphasis on Malaysia Truly Asia and Cuti-Cuti Malaysia with multicultural and domestic tourism branding	Both rely on state-led branding, but Indonesia is more destination-diversity oriented, while Malaysia is more identity- and culture-led.
Digital technology and innovation	Strong use of VR/AR for heritage and destination immersion	Stronger orientation toward smart tourism, IoT, analytics, real-time updates, and cashless systems	Indonesia is more immersion-led, while Malaysia is more system-integration-led.
Social media and influencer collaboration	Broad influencer use, especially for adventure, eco-tourism, and hidden destinations	Curated digital promotion focused on culture, festivals, cuisine, and community experience	Indonesia's strategy is broader and exploratory; Malaysia's is more curated and thematic.
Sustainable and eco-tourism advocacy	Strong emphasis on eco-tourism areas such as Komodo, Raja Ampat, and Rinjani	Strong sustainability messaging in eco-destinations such as Taman Negara and Borneo rainforests	Both promote sustainability, but through different destination narratives and governance styles.
Domestic tourism promotion	#DiIndonesiaAja encourages internal travel through partnerships and package promotions	Cuti-Cuti Malaysia emphasizes local discovery and quick domestic getaways	Both strengthened domestic tourism, but Malaysia appears more compact and mobility-efficient in execution.
Digital infrastructure	Uneven across regions; stronger in Bali and major destinations, weaker in remote areas	More developed in urban and high-traffic tourism areas	Infrastructure is a major differentiator shaping the depth of digital tourism implementation.
Regional collaboration	Active in ASEAN tourism collaborations and shared destination promotion	Also regionally collaborative, but with stronger positioning of Malaysia as a distinct Asian cultural hub	Both participate regionally, but national branding remains central to digital diplomacy.

Table 3. Decision rules for interpretive assessment

Rating	Operational Meaning	Decision Rule
High	The dimension is strongly present and consistently supported by evidence.	Assigned when multiple sources show clear policy support, repeated implementation examples, and strong relevance to the country's digital tourism pathway.
Moderate	The dimension is present but uneven or partially developed.	Assigned when evidence confirms the dimension but also indicates implementation gaps, partial integration, or uneven institutional support.
Moderate-Low	The dimension is weakly or inconsistently present.	Assigned when evidence shows fragmented implementation, limited reach, weak support, or substantial constraints across destinations.

4. RESULTS AND DISCUSSION

4.1 Indonesia: A promotion-led pathway of digital tourism development

The findings indicate that Indonesia has pursued digital tourism primarily through a promotion-led pathway, in which digitalization is strongly associated with destination branding, online visibility, and visitor engagement. In this model, digital tools are used not only to disseminate tourism information but also to shape destination image, stimulate travel interest, and expand market reach. National campaigns such as Wonderful Indonesia and #DiIndonesiaAja illustrate how digital tourism in Indonesia has been driven by communication intensity, visual storytelling, and the strategic use of online platforms to strengthen destination appeal [2, 5, 6].

This pathway has several advantages. First, it allows destinations to build broader recognition in highly competitive tourism markets. Second, it helps tourism actors, including smaller businesses, gain greater exposure through digital channels. Third, it supports the use of immersive media, such as virtual and augmented reality, to make destinations more engaging even before physical travel takes place. These developments reflect Indonesia's effort to position digital tourism as a vehicle for destination competitiveness and tourism recovery, particularly in a context where digital communication plays an increasingly decisive role in travel decision-making [2, 15].

However, the Indonesian case also reveals important structural limitations. Although digital promotion has expanded rapidly, it has not always been matched by equally strong regulatory consolidation, infrastructural readiness, or integrated service systems. The literature suggests that digital tourism development in Indonesia still faces uneven digital infrastructure across regions, fragmented implementation, and varying levels of digital capability among tourism stakeholders [5, 7]. As a result, the benefits of tourism digitalization tend to be more visible in terms of exposure and symbolic reach than in terms of fully integrated tourism governance.

This pattern suggests that Indonesia's digital tourism transformation has been effective in increasing visibility, but less consistent in translating that visibility into seamless digital ecosystems across destinations. In other words, Indonesia appears relatively strong in the front-end dimension of digital tourism, especially promotion and visitor attraction, yet still faces challenges in the back-end dimension, including coordination, interoperability, and institutional alignment. From a governance perspective, this means that digital tourism in Indonesia remains dynamic but uneven, with innovation moving faster than system integration.

4.2 Malaysia: A smart-integration pathway of digital tourism development

In contrast to Indonesia, Malaysia demonstrates a more smart-integration-oriented pathway, in which tourism digitalization is linked more explicitly to service coordination, policy planning, and smart tourism development. The Malaysian approach is notable for embedding digital transformation within broader tourism governance agendas, particularly through the National Tourism Policy 2020–2030, which emphasizes competitiveness, sustainability, governance improvement, and digital innovation [8].

This model places stronger emphasis on the integration of tourism services, smart applications, and digitally supported visitor management. The literature on Malaysia highlights the relevance of smart tourism apps, ecosystem connectivity, digital platforms, and institutional strategies aimed at improving both tourism experience and destination management [9, 10]. Compared with the Indonesian case, Malaysia appears more oriented toward the operational coordination of tourism systems rather than relying primarily on destination promotion. The strengths of this model are evident in its more structured policy framing and stronger alignment between digital tourism and smart destination management. Digital transformation in Malaysia is not treated solely as a branding instrument, but as part of a broader service ecosystem that can support visitor convenience, information access, and destination competitiveness. This gives Malaysian tourism digitalization a more systemic character, especially in urban and relatively well-connected destinations.

Yet this model is not without weaknesses. Studies on Malaysia also point to several barriers, including implementation costs, uneven digital access, limited awareness among stakeholders, and varying readiness to adopt smart tourism practices at the destination level [9, 10]. Thus, while Malaysia appears more advanced in terms of policy structure and service integration, the practical reach of smart tourism remains uneven. The gap between policy ambition and implementation capacity continues to shape the real performance of digital tourism governance.

4.3 Cross-country comparison across four analytical dimensions

A cross-case reading of the two countries suggests that digital tourism development in Indonesia and Malaysia can be meaningfully compared through the four analytical dimensions proposed in this study: regulatory support, digital infrastructure, platform and service integration, and community-oriented sustainability.

In terms of regulatory support, Malaysia demonstrates a more explicit and policy-anchored approach. The existence of a national tourism policy that formally incorporates digital transformation and smart tourism gives Malaysia a clearer governance direction. Indonesia, by contrast, has pursued digital tourism more dynamically through programs and campaigns, but with a comparatively less consolidated regulatory architecture [8].

To clarify the comparative findings, Table 2 summarizes the main results of the study across key dimensions of digital tourism development in Indonesia and Malaysia. Regarding digital infrastructure, both countries recognize its strategic importance, but the comparative literature suggests that Malaysia has a relative advantage in better-connected tourism environments, especially in urbanized settings. Indonesia, while highly active in digital tourism promotion, continues to face disparities in infrastructure across regions, which affects the consistency of tourism digitalization from one destination to another [5, 9].

As shown in Table 2, the two countries share similar ambitions in tourism digitalization, yet they differ substantially in emphasis. Indonesia demonstrates a stronger promotion-led and immersive approach, while Malaysia exhibits a more integrated and smart-service-oriented model. In the dimension of platform and service integration, the contrast becomes more pronounced. Indonesia's digital

tourism efforts appear to be more promotion-intensive and engagement-driven, while Malaysia's are more integration-oriented, aiming to build a connected service ecosystem through smart applications and more coordinated digital tourism management [6, 10]. This difference is central to understanding why the two countries should not be treated as following the same digital pathway. Finally, in relation to community-oriented sustainability, both countries show important opportunities but also unresolved tensions. Digital tourism can support local participation, improve market access, and enable community-based tourism to reach wider audiences. However, these benefits depend on whether communities have the skills, infrastructure, and institutional support necessary to participate meaningfully in digital systems [11, 12]. In both Indonesia and Malaysia, sustainability cannot be assumed as an automatic outcome of digitalization. It must be actively governed through inclusion, capability development, and long-term policy learning.

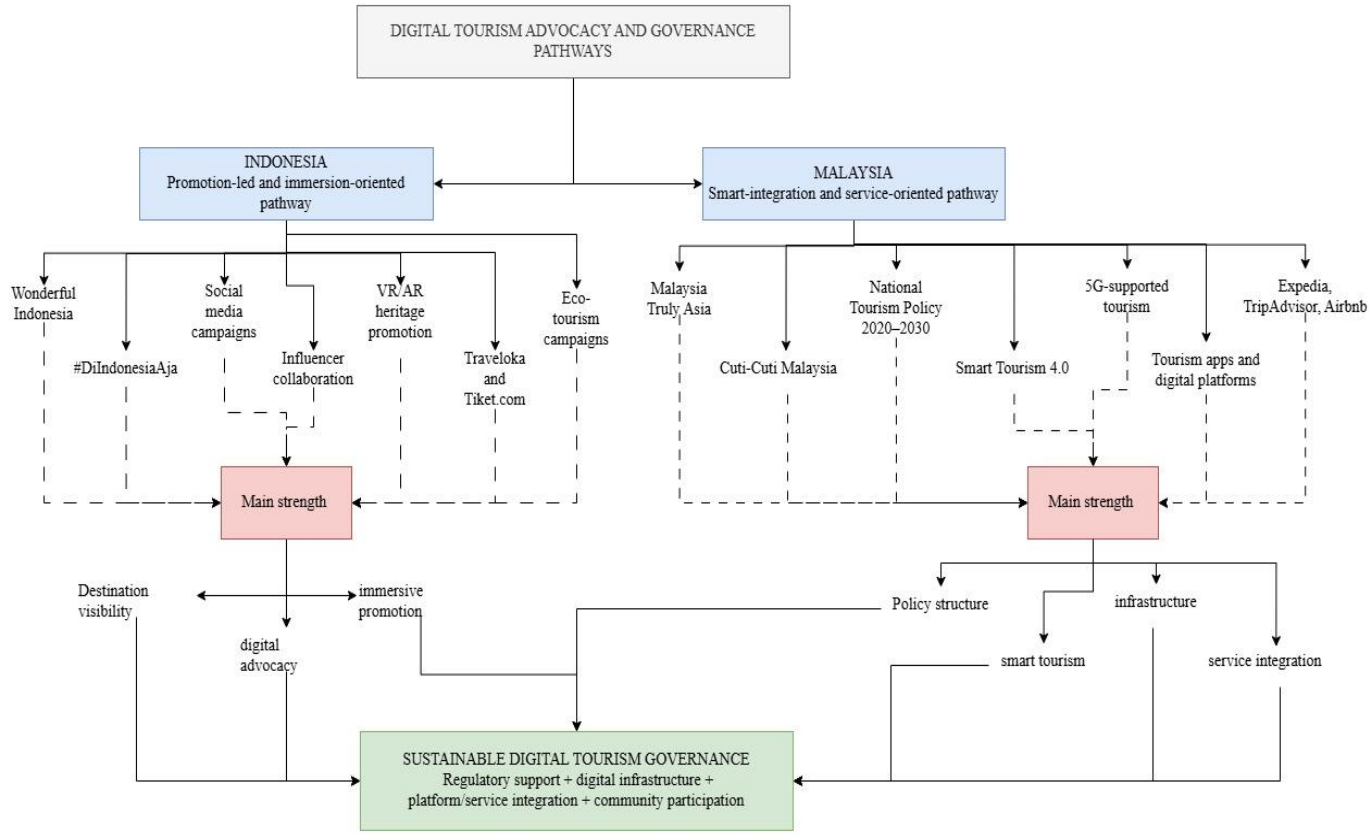

Figure 3. Comparative governance pathways of digital tourism advocacy in Indonesia and Malaysia

Table 4. Interpretive assessment of digital tourism dimensions in Indonesia and Malaysia

Dimension	Indonesia	Malaysia	Basis of Interpretation
Government-led branding	High	High	Indonesia uses Wonderful Indonesia and #DiIndonesiaAja, while Malaysia uses Malaysia Truly Asia and Cuti-Cuti Malaysia as major national tourism brands.
Digital campaigns and social media advocacy	High	High	Both countries rely on social media, digital marketing, and online campaign strategies to promote destinations.
Immersive destination promotion	High	Moderate	Indonesia shows stronger emphasis on VR/AR-based destination promotion, especially for cultural and heritage sites such as Borobudur and Prambanan.
Smart tourism integration	Moderate	High	Malaysia has stronger evidence of Smart Tourism 4.0, smart applications, 5G-supported tourism, and digital service integration.
Digital infrastructure readiness	Moderate-Low	High	Indonesia faces uneven connectivity across remote destinations, while Malaysia has more developed urban digital infrastructure and stronger 5G orientation.
Platform and service integration	Moderate	High	Indonesia uses platforms such as Traveloka, Tiket.com, Explore Indonesia, and Indonesia Tourism, but Malaysia shows stronger integration through smart tourism, apps, e-wallets, digital maps, and travel platform partnerships.
Eco-tourism and sustainability advocacy	High	High	Both countries promote eco-tourism through digital campaigns, including Komodo, Raja Ampat, and Rinjani in Indonesia, and Taman Negara, Borneo, Sabah, and Sarawak in Malaysia.
Community participation and digital inclusion	Moderate	Moderate	Both countries recognize community involvement, but evidence indicates that local capacity and digital readiness remain uneven.
Policy-structured digital governance	Moderate	High	Malaysia's National Tourism Policy 2020–2030 provides clearer policy structuring, while Indonesia's approach remains more campaign-, program-, and platform-driven.

Figure 3 summarizes the comparative governance pathways of tourism digitalization advocacy in Indonesia and Malaysia. Indonesia follows a more promotion-led and immersion-oriented pathway, where digital tools are used primarily to increase destination visibility, strengthen national branding, promote domestic tourism, and create immersive experiences through social media, influencer collaboration, and VR/AR-based promotion. Malaysia follows a more smart-integration and service-oriented pathway, where digital tourism is more closely connected to policy structuring, Smart Tourism 4.0, 5G infrastructure, digital platforms, smart applications, and service integration. These pathways are not mutually exclusive, but they represent dominant tendencies in each country's digital tourism governance.

Table 4 shows that the main distinction between Indonesia and Malaysia lies not in their commitment to digital tourism, but in the governance pathway through which digitalization is organized. Indonesia demonstrates stronger evidence of promotional intensity, destination visibility, and immersive digital advocacy. Malaysia demonstrates stronger evidence of policy-structured governance, smart tourism integration, digital infrastructure readiness, and service ecosystem development. The ratings should be read as qualitative interpretive assessments based on the decision rules in Table 3, not as statistical measurements.

4.4 Two trajectories of digital tourism transformation

Taken together, the findings suggest that Indonesia and Malaysia reflect two distinct but overlapping trajectories of digital tourism transformation.

The first may be described as a promotion-led and immersion-oriented trajectory, represented more clearly by Indonesia. In this trajectory, digital tourism grows through destination branding, online storytelling, promotional campaigns, and digitally enhanced visitor imagination. The emphasis lies in visibility, attraction, and symbolic engagement. This model is especially effective for destination exposure, but it may remain vulnerable to fragmentation if not supported by robust infrastructure and coordinated service systems.

The second is a smart-integration trajectory, represented more strongly by Malaysia. Here, digital tourism is developed not only to attract visitors but also to connect services, improve destination management, and strengthen institutional coordination through technology. This trajectory is more governance-intensive and potentially more sustainable in the long term, but it also depends heavily on readiness, cost capacity, and policy implementation. This comparative distinction is important because it moves the analysis beyond a simple ranking of which country is "better" at digital tourism. The more relevant point is that digital tourism develops through different governance logics. Some systems prioritize visibility first and integration later, while others pursue system coordination as a more central objective from the beginning. These differences shape not only tourism performance, but also the extent to which digital transformation can support sustainability.

To synthesize the comparative findings, this study proposes the DTSI as a qualitative interpretive rubric rather than a statistical measurement instrument. The DTSI is designed to assess the relative strength of sustainable digital tourism governance across four dimensions: regulatory support, digital infrastructure, platform and service integration, and community participation and sustainability. Each dimension is assessed using a three-point qualitative score: 3 = High, 2 = Moderate, and 1 = Moderate-Low. The score is assigned based on documentary evidence and the decision rules presented in Table 5.

$$DTSI = \frac{RS + DI + PSI + CPS}{4} \quad (1)$$

where,

DTSI = Digital Tourism Sustainability Index
RS = Regulatory Support
DI = Digital Infrastructure
PSI = Platform and Service Integration
CPS = Community Participation and Sustainability

Table 5. Operational rubric for the Digital Tourism Sustainability Index

Dimension	Code	Operational Definition	High = 3	Moderate = 2	Moderate-Low = 1
Regulatory support	RS	Policy coherence, formal support, and institutional coordination for digital tourism.	Clear policy framework, strong institutional alignment, and repeated implementation evidence.	Policy support exists but is partial, fragmented, or unevenly implemented.	Weak or unclear policy support and fragmented implementation.
Digital infrastructure	DI	Availability and consistency of digital infrastructure across destinations.	Strong and relatively consistent infrastructure in major and secondary destinations.	Infrastructure exists but remains uneven across regions or destination types.	Major connectivity and infrastructure gaps constrain digital tourism.
Platform and service integration	PSI	Integration of tourism platforms, booking, payment, information access, smart applications, and visitor services.	Strong evidence of connected platforms and smart service ecosystems.	Platforms and digital services exist but are not fully integrated.	Digital tools are mostly promotional and weakly connected to service delivery.
Community participation and sustainability	CPS	Inclusion of local communities, digital capacity-building, local benefit creation, eco-tourism, and sustainability orientation.	Strong evidence of community inclusion and sustainability-oriented digital tourism.	Some evidence of inclusion and sustainability, but implementation is partial.	Limited community participation or weak sustainability integration.

RS refers to regulatory support, DI refers to digital infrastructure, PSI refers to platform and service integration, and CPS refers to community participation and sustainability. RS evaluates the degree of policy coherence, formal support, and institutional coordination for tourism digitalization. DI evaluates the availability, accessibility, and consistency of digital infrastructure across tourism destinations. PSI evaluates the extent to which digital platforms, payment systems, information services, visitor services, and smart tourism applications are integrated. CPS evaluates the extent to which digital tourism supports local participation, community benefit, digital inclusion, eco-tourism, and long-term destination sustainability.

The scoring procedure involved four steps. First, documentary evidence was coded under the four DTSI dimensions. Second, each dimension was assessed using the rating categories High, Moderate, and Moderate-Low. Third, the rating was converted into a qualitative rubric score, where High = 3, Moderate = 2, and Moderate-Low = 1. Fourth, the average score was calculated to provide an overall indication of sustainable digital tourism governance readiness. The resulting value was interpreted as follows: 2.50–3.00 = strong readiness, 1.75–2.49 = moderate readiness, and 1.00–1.74 = limited readiness.

The DTSI does not claim statistical precision. It is used as a transparent qualitative device to make the basis of comparison more explicit and reproducible. Future research may refine this rubric into a quantitative index by developing standardized indicators, primary data instruments, and weighting procedures.

4.5 Toward a sustainable digital tourism governance model

The findings also support the broader conceptual argument of this study: digital tourism should be understood not merely as technological adoption or digital promotion, but as a question of governance. A sustainable digital tourism system does not emerge automatically from the presence of apps, platforms, or campaigns. It depends on how enabling conditions are translated into coordinated processes and sustainability-oriented outcomes.

Based on the comparison, the proposed model of sustainable digital tourism governance can be understood as a layered relationship between inputs, governance processes, intermediate outcomes, and long-term sustainability outcomes. Regulatory support, infrastructure, stakeholder collaboration, and digital capability form the enabling base. These conditions shape how digital advocacy, service integration, smart applications, and community participation unfold. When these processes are aligned, they generate stronger visibility, better visitor experience, easier access to services, and broader local engagement. Over time, these outcomes may contribute to inclusive tourism development, destination competitiveness, community-based value creation, and long-term resilience.

This interpretation reinforces the importance of the feedback loop presented in the conceptual framework. Digital tourism governance must remain adaptive. Data-driven evaluation, policy learning, and institutional responsiveness are necessary to ensure that digital innovation continues to serve broader social and sustainability goals rather than becoming an end in itself [16, 19].

4.6 Theoretical implications

From a theoretical standpoint, this study contributes to the literature in three ways. First, it shows that digital tourism and smart tourism should not be treated as interchangeable concepts. Digital tourism may develop through promotional expansion without necessarily becoming a fully integrated smart tourism system. Second, it argues that policy advocacy in tourism is more than communication strategy; it is part of governance formation, since it shapes alignment, legitimacy, and stakeholder mobilization. Third, it proposes that sustainability should be treated as an evaluative horizon of tourism digitalization rather than as a separate policy layer added afterward.

These contributions help bridge several strands of scholarship that are often discussed separately, namely digital transformation, smart tourism, advocacy, and community-based sustainability. By bringing them together in a comparative framework, the study offers a more integrated explanation of tourism digitalization in developing-country settings.

4.7 Practical implications

The findings also carry practical implications for tourism policy and destination management. For Indonesia, the priority is not simply to continue expanding digital promotion, but to deepen governance capacity through stronger regulatory coherence, better destination-level interoperability, and more equitable digital infrastructure. Without these improvements, promotional gains may outpace institutional readiness.

For Malaysia, the priority lies in broadening the reach of smart tourism beyond relatively advanced destinations and ensuring that digital integration becomes more inclusive and accessible. This includes supporting stakeholder readiness, reducing implementation barriers, and strengthening community participation so that smart tourism does not remain concentrated in better-resourced locations. More broadly, the comparison suggests that Southeast Asian tourism governance would benefit from moving beyond technology-centered narratives toward more balanced models that integrate promotion, infrastructure, service coordination, local participation, and sustainability.

Overall, the comparative findings show that digital tourism in Indonesia and Malaysia is shaped by different governance pathways, each with its own strengths and constraints. These findings underscore that the long-term value of tourism digitalization depends not only on technological adoption, but on the capacity to govern digital transformation in ways that are inclusive, coordinated, and sustainability-oriented.

5. CONCLUSIONS

This study has shown that digital tourism development in Indonesia and Malaysia follows two distinct yet overlapping pathways. Indonesia is characterized by a more promotion-led and immersion-oriented approach, where digitalization is strongly associated with destination branding, online visibility, and visitor engagement. Malaysia, in contrast, reflects a more smart-integration and service-oriented approach, where digital transformation is more closely linked to policy structure, service coordination, and smart tourism applications. These findings confirm that digital tourism is not

a uniform process, but one that is shaped by different governance priorities, infrastructural conditions, and institutional capacities.

The study also demonstrates that digital tourism should be understood not only as technological adoption, but as a governance issue. Its sustainability depends on how regulatory support, digital infrastructure, service integration, and community participation are aligned. In this regard, the concept of sustainable digital tourism governance offers a useful framework for explaining how digital transformation can move beyond promotion and efficiency toward inclusion, local value creation, and long-term destination resilience.

Theoretically, this article contributes by linking digital tourism, smart tourism, policy advocacy, and sustainability within a single comparative framework. Practically, it suggests that Indonesia needs stronger regulatory coherence and infrastructure consistency, while Malaysia needs to broaden the inclusiveness of its smart tourism agenda. Although this study is limited by its qualitative and document-based design, it provides a grounded conceptual contribution and highlights the importance of governing digital tourism in ways that are adaptive, inclusive, and sustainability-oriented.

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NOMENCLATURE

SDTG	Sustainable Digital Tourism Governance
RS	Regulatory Support
DI	Digital Infrastructure
PSI	Platform and Service Integration
CPS	Community Participation and Sustainability
AG	Adaptive Governance
VR	Virtual Reality
AR	Augmented Reality
ICT	Information and Communication Technology

APPENDIX

The appendix presents the analytical dimensions and guiding indicators used to structure the comparative interpretation of digital tourism governance in Indonesia and Malaysia. These indicators were not applied as a statistical measurement tool, but as an interpretive guide for qualitative comparison.

The DTSI rubric is used as a qualitative interpretive tool. It does not claim statistical precision and should not be interpreted as a quantitative index unless supported by primary data, standardized indicators, and validated scoring procedures.

Table A1. Document corpus and selection procedure

Component	Description
Study type	Qualitative comparative study using document-based analysis
Country focus	Indonesia and Malaysia
Corpus size	The corpus consisted of the academic, policy, institutional, and programmatic sources listed in the reference section and supporting research report materials
Main empirical basis	Research report on tourism digitalization policy advocacy in Indonesia and Malaysia
Source categories	Academic literature, policy documents, institutional reports, official government websites, digital campaign materials, and tourism platform materials
Academic source repositories	SINTA-indexed national journals and international journal platforms such as Taylor & Francis, SAGE Journals, Wiley Online Library, and other academic databases
Institutional and government sources	Indonesian and Malaysian government websites, tourism ministry materials, national tourism policy documents, and tourism promotion platforms
Main search terms	"tourism digitalization policy Indonesia," "tourism digitalization policy Malaysia," "digital tourism Indonesia," "digital tourism Malaysia," "smart tourism Malaysia," "tourism policy advocacy," "Smart Tourism 4.0," "Wonderful Indonesia," "#DiIndonesiaAja," "Malaysia Truly Asia," "Cuti-Cuti Malaysia," "digital tourism infrastructure," and "sustainable tourism digitalization"
Inclusion criteria	Sources discussing digital tourism, tourism digitalization policy, smart tourism, policy advocacy, tourism governance, digital infrastructure, digital platforms, community participation, or sustainability in Indonesia and Malaysia
Exclusion criteria	Sources unrelated to tourism digitalization, lacking governance or advocacy relevance, duplicating stronger sources, or providing only promotional content without analytical value
Screening process	Sources were identified through academic and institutional searches, screened by title and abstract or description, assessed through full-text reading, and included when relevant to at least one analytical dimension
Analytical use	Sources were coded and grouped into analytical categories for within-case analysis and cross-case comparison

Table A2. Analytical dimensions and guiding indicators

Analytical Dimension	Guiding Indicators	Focus of Interpretation in This Study
Regulatory support	Presence of tourism digitalization policies; degree of policy coherence; existence of smart tourism or digital tourism roadmap; institutional coordination	Examines how far digital tourism is formally supported, coordinated, and embedded in tourism governance
Digital infrastructure	Internet connectivity; accessibility of digital systems across destinations; availability of supporting digital facilities; unevenness between central and peripheral areas	Assesses whether infrastructure enables or constrains the implementation of digital tourism across locations
Platform and service integration	Use of digital platforms for booking, payment, information access, and visitor services; interoperability between services; smart tourism applications	Evaluates the extent to which digital tourism moves beyond promotion toward connected and seamless service ecosystems

Digital advocacy and destination communication	National branding campaigns; online promotion strategies; use of social media and influencer collaboration; immersive technologies such as VR/AR	Identifies how digital tools are used to shape destination image, increase visibility, and influence visitor engagement
Community participation	Involvement of local actors in digital tourism initiatives; access of local enterprises to digital platforms; training and digital capability development	Examines whether digital tourism includes local communities as active participants rather than passive beneficiaries
Sustainability orientation	Inclusion of eco-tourism values; attention to long-term destination resilience; inclusiveness of tourism benefits; balance between innovation and social value	Assesses whether digital tourism contributes to broader sustainability goals rather than short-term competitiveness alone
Adaptive governance	Use of feedback, evaluation, policy learning, and institutional adjustment; responsiveness to implementation challenges	Evaluates whether digital tourism governance is able to evolve through reflection, data use, and continuous improvement

Table A3. Digital Tourism Sustainability Index (DTSI) qualitative scoring rubric

Score	Category	General Meaning	Evidence Requirement
3	High	The dimension is strongly present and consistently supported	Multiple sources show clear policy support, repeated implementation examples, and strong relevance to the country's digital tourism pathway
2	Moderate	The dimension is present but partial or uneven	Evidence confirms the dimension, but implementation is inconsistent, fragmented, or limited to certain destinations or programs
1	Moderate-Low	The dimension is weakly present or highly constrained	Evidence shows limited implementation, weak institutional support, infrastructure barriers, or fragmented practice

DTSI Range	Interpretation
2.50–3.00	Strong sustainable digital tourism governance readiness
1.75–2.49	Moderate sustainable digital tourism governance readiness
1.00–1.74	Limited sustainable digital tourism governance readiness