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Artificial Intelligence and Digital Innovation in Smart Tourism Destination Management: An Integrative Review and the AI-SDM Framework

Ibnu Rokhman
Institut Teknologi Sepuluh Nopember,
Indonesia

***Corresponding author:**
Ibnu Rokhman,
Institut Teknologi Sepuluh Nopember,
Indonesia.
✉ibnurokhman@yahoo.com

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Abstract

Background: Artificial intelligence (AI) is transforming tourism destinations through personalized services, conversational and generative interfaces, predictive analytics, and data-driven decision-making. Yet technology adoption alone does not explain how destinations convert AI-generated information into coordinated managerial action.
Objective: This study addresses that organizational problem through a conceptual integrative review of research on AI-enabled tourism services, smart destination management, destination governance, visitor experience, organizational capabilities, workforce readiness, and responsible data practices.
Methods: The synthesis identifies four interconnected application domains: AI-driven personalization, conversational and generative visitor interaction, predictive visitor-flow analytics, and data-driven destination governance. These domains are abstracted into the AI-Enabled Smart Destination Management (AI-SDM) framework, which connects AI-Enabled Service Capability, Smart Destination Governance Capability, and Visitor Experience Outcomes.
Results: Visitor and operational intelligence functions as the principal conversion input, while visitor-generated behavioral and experiential feedback supports subsequent organizational learning and AI adaptation. Workforce AI Readiness and Responsible Data Governance are positioned as enabling conditions. The framework contributes to destination-management theory by shifting attention from AI adoption toward the organizational capability required to sense relevant visitor information, interpret and coordinate responses, and responsibly convert intelligence into destination action and visitor value. It complements broad smart-tourism and emerging cognitive-destination architectures by specifying the organizational intelligence-to-action mechanism that links AI-enabled interactions with destination governance and learning.
Conclusion: The paper concludes with propositions and an empirical research agenda for measurement development and validation.

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INTRODUCTION

Digital technologies have progressively reshaped tourism information search, distribution, mobility, service delivery, and destination interaction. Early eTourism research established information technology as a structural force in tourism operations and distribution (Buhalis & Law, 2008; Law & Chen, 2025). Smart-tourism scholarship subsequently reframed digitalization as an ecosystem phenomenon in which technologies, data, organizations, residents, and travelers interact to create value (Gretzel, Sigala, et al., 2015; Gretzel, Werthner, et al., 2015).

Artificial intelligence (AI) intensifies this transformation by enabling tourism organizations and destinations to personalize recommendations, automate visitor interaction, interpret large volumes of behavioral information, forecast demand, and increasingly generate content and decision support.

The literature has now moved well beyond establishing that AI matters. Systematic and integrative reviews document a rapidly expanding research base across AI methods and applications in hospitality and tourism, generative AI, conversational AI, and AI-mediated visitor experience (Doborjeh et al., 2022; Li et al., 2025; Prasanna et al., 2025). Generative AI in particular is changing the nature of tourism interaction by moving digital systems from information retrieval toward content generation, conversational assistance, itinerary design, and more context-sensitive forms of service co-creation (Li et al., 2025; Nicolau, 2025). This maturation makes a simple catalogue of AI applications progressively less distinctive as a theoretical contribution. JDMM itself has also examined AI as a destination-experience resource, showing that AI-enabled value formation can have both positive and negative consequences for tourist experiences (Grundner & Neuhofer, 2021; Hamarat et al., 2024). Earlier automation research had already called for beneficial AI design, adoption research, impact assessment, and sustainable AI development in tourism (Knani et al., 2022; Tussyadiah, 2020). However, prior work remains concentrated on technology adoption, user acceptance, and visitor-level outcomes; it provides comparatively less explanation of the organizational mechanism through which AI-generated information is interpreted, coordinated, and converted into destination-level action.

At destination level, a more consequential problem remains insufficiently explained: how does AI-generated intelligence become coordinated destination action? A recommendation engine, chatbot, generative assistant, predictive model, or mobility platform may improve an isolated visitor interaction. Destination-level value, however, requires information generated through those systems to be interpreted, prioritized, shared, and translated into interventions across interdependent public and private actors. Smart destinations therefore face an intelligence-to-action problem: technological systems may generate increasingly sophisticated information without guaranteeing the organizational and governance capability required to act upon it.

This issue is especially salient for destination management organizations (DMOs). The Smart DMO perspective identifies a transformation from conventional destination promotion toward sensing, mobilizing, managing, match-making, shapeshifting, and stewardship functions that support smart governance (Gretzel, 2022). In this view, smartness is not merely a technological characteristic. It also requires organizational competencies capable of coordinating collective action in complex destination ecosystems.

Recent destination frameworks make the intelligence-to-action problem even more important. AI-powered Smart Tourism 2.0 explicitly integrates AI, data, business, governance, and experience into a broad socio-technical architecture (Koo et al., 2025). Bingöl and Yang (2025) empirically demonstrate how smart technologies and AI are embedded in destination ecosystems involving DMOs, transportation departments, technology offices, and other actors. Emerging research on cognitive tourism destinations extends this trajectory toward adaptive, context-aware, and increasingly self-learning destination systems (Aguiar Castillo et al., 2026). Consequently, the contemporary research gap cannot be framed simply as an absence of integration among AI, governance, and visitor experience.

Instead, this paper advances a narrower organizational question: how can visitor-facing AI-generated intelligence be converted into coordinated destination-governance action, and what organizational conditions sustain that conversion and subsequent learning? This question shifts the unit of explanation from technology adoption to organizational capability. It also provides a way to differentiate a destination-management capability model from broader domain-level architectures of smart or cognitive tourism.

Dynamic-capability reasoning provides a useful theoretical bridge. Dynamic capabilities distinguish resource possession from the organizational capacity to sense change, seize opportunities, and transform or reconfigure resources in response to changing environments (Bhardwaj et al., 2022; Teece, 2007; Teece et al., 1997). Tourism research similarly shows that dynamic capabilities are associated with organizational learning, human capital, digital activity, and competitive outcomes (Nguyen et al., 2023). AI-SDM uses this capability reasoning cautiously:

it does not claim that every component in the framework is a dynamic capability in the strict theoretical sense. Rather, capability reasoning provides a bridge for distinguishing the possession of AI technologies from the destination's ability to generate intelligence, coordinate actors, mobilize responses, and adapt action.

The need for this organizational perspective is reinforced by the latest GenAI review evidence. Li et al. (2025) synthesize 170 empirical studies and conclude that tourism GenAI research remains concentrated around adoption antecedents, applications and impacts, and technical characteristics. Prasanna et al. (2025), reviewing 77 conversational-AI studies, similarly show a literature dominated by adoption and user-engagement questions. These streams are essential, but they leave comparatively less attention to the meso-level question of how intelligence generated at visitor touchpoints becomes a coordinated destination-management resource. AI-SDM is positioned precisely at this meso level. Accordingly, the research gap is not whether AI can support tourism services, but how destination organizations transform AI-enabled service interactions into collective sensing, governance responses, and learning. This study addresses that gap by shifting the analytical focus from adoption to organizational conversion capability.

This positioning also helps avoid technological determinism. Recent Information Technology & Tourism studies demonstrate that large language models can extract sentiment and themes from tourism reviews and can support destination-specific conversational services, but these technological achievements do not by themselves specify how destination organizations should interpret, govern, share, and act on the resulting intelligence (Cruz et al., 2025; Guidotti et al., 2025). The theoretical opportunity is therefore to connect increasingly capable AI interfaces with the organizational routines through which destinations create collective action.

Three research questions guide the study. RQ1 asks: What principal AI-enabled service and analytical capabilities are reshaping smart tourism destination management? RQ2 asks: Through what organizational mechanisms can AI-generated visitor and operational intelligence contribute to destination governance and visitor experience outcomes? RQ3 asks: What workforce and data-governance conditions enable sustainable AI-enabled destination learning?

To address these questions, the paper develops the AI-Enabled Smart Destination Management (AI-SDM) framework. AI-SDM does not seek to replace existing smart-tourism or cognitive-destination models. Its contribution is focused on the organizational conversion mechanism through which AI-enabled visitor interaction generates intelligence, governance capability converts that intelligence into coordinated action, visitor experience produces subsequent feedback, and organizational learning supports further adaptation.

The study makes four contributions. First, it distinguishes AI adoption from AI-enabled destination capability. Second, it positions Smart Destination Governance Capability as an intelligence-to-action conversion capability. Third, it conceptualizes visitor experience as both an outcome and a feedback resource for subsequent organizational learning. Fourth, it distinguishes Workforce AI Readiness and Responsible Data Governance as enabling conditions that affect the effectiveness and sustainability of AI-enabled destination management. The central novelty is therefore the explicit specification of an intelligence-to-action mechanism: AI-enabled service capability generates visitor and operational intelligence, smart destination governance capability converts that intelligence into coordinated action, and visitor experience functions both as an outcome and as feedback for subsequent learning. In the AI-SDM mechanism, governance capability is expected to mediate the translation of predictive or service intelligence into destination outcomes by validating information, prioritizing issues, coordinating actors, allocating resources, and initiating collective responses rather than allowing analytical outputs to remain isolated within individual systems.

METHOD

This study employed a conceptual integrative literature review designed for theory development rather than exhaustive bibliometric mapping or meta-analysis. An integrative approach was appropriate because the focal problem spanned several partially overlapping research streams: AI-enabled tourism services, smart destination management, destination governance, visitor experience, organizational capabilities, workforce transformation, and responsible data practices.

Literature identification centered on peer-reviewed research accessible through Scopus, Google Scholar, and publisher databases. The primary temporal focus was 2015–2026, corresponding to the consolidation of smart tourism research and the rapid expansion of AI in tourism, while earlier seminal works were retained where theoretically necessary. Recent literature from 2025–2026 received particular attention because generative AI, Smart Tourism 2.0, and cognitive destination research were evolving rapidly. The identification process followed a transparent sequence of database searching, duplicate removal, title-and-abstract relevance screening, full-text assessment, and theoretical selection. Inclusion required direct relevance to at least one AI-SDM construct or mechanism. Sources were excluded if they were purely technical, fell outside tourism or destination management, lacked scholarly provenance, or did not contribute to construct definition, mechanism development, or proposition building. Because the review was integrative rather than systematic, the synthesis emphasized conceptual relevance rather than exhaustive article counts.

Search concepts included combinations of artificial intelligence, generative AI, conversational AI, smart tourism, smart tourism destinations, destination management, destination governance, destination management organizations (DMOs), visitor experience, predictive analytics, visitor flow, organizational capability, dynamic capability, AI readiness, privacy, responsible AI, and data governance. Sources were retained when they contributed directly to construct definition, mechanism development, theoretical positioning, or proposition derivation. The review did not claim exhaustive coverage and was not presented as a protocol-driven systematic review.

The synthesis followed three analytical stages. Stage I, application-domain identification, organized recurring applications and management issues into four domains: AI-driven personalization; conversational and generative visitor interaction; predictive visitor-flow analytics; and data-driven destination governance. Stage II, capability abstraction, interpreted these domains at a higher theoretical level to distinguish AI-Enabled Service Capability, Smart Destination Governance Capability, and Visitor Experience Outcomes, while Workforce AI Readiness and Responsible Data Governance emerged as cross-cutting enabling conditions. Stage III, relational theorization, examined how AI-supported interactions generated visitor and operational intelligence, how governance converted intelligence into coordinated responses, and how visitor feedback could support adaptation. For example, personalization and conversational AI studies were coded under AI-Enabled Service Capability when they explained service adaptation or intelligence generation. Studies of DMO coordination, governance, and resource mobilization were coded under Smart Destination Governance Capability, while studies of satisfaction, experience quality, engagement, or behavioral responses informed Visitor Experience Outcomes. These examples made the abstraction logic traceable across the reviewed research streams.

The analytical logic was iterative rather than purely deductive. Candidate themes were compared across application-oriented AI studies, smart tourism and DMO research, and organizational capability literature. Concepts were retained as core constructs only when they represented theoretically distinct roles in the proposed mechanism. Accordingly, personalization, conversational AI, and predictive support were not modeled as separate higher-order outcomes; instead, they were consolidated under AI-Enabled Service Capability because each could generate both service value and intelligence. Governance was retained as a separate construct because interpretation, coordination, prioritization, and resource mobilization represented organizational functions that were not reducible to AI performance. Visitor experience was retained as an outcome domain with a feedback role, while workforce readiness and data governance were treated as enabling conditions because they shaped whether the conversion process could function effectively.

The review also employed a negative-comparison logic when positioning AI-SDM. Adjacent frameworks were examined not only for conceptual support but also to identify claims that AI-SDM should not make. Smart Tourism 2.0 already provided a broad architecture connecting AI, data, governance, business, and experience (Koo et al., 2025), the smart-destination ecosystem model demonstrated multi-actor technological adoption (Bingöl & Yang, 2025), and the Cognitive Destination Model articulated a future of context-aware, adaptive destination intelligence (Aguiar Castillo et al., 2026). AI-SDM therefore narrowed its contribution to the

organizational conversion mechanism linking AI-generated intelligence with coordinated destination action and learning.

This design intentionally avoided fabricated precision. No PRISMA flow diagram, article-count claims, inter-rater statistics, or claims of exhaustive screening were introduced because the review objective was conceptual integration rather than systematic evidence aggregation. The resulting propositions were theoretical statements intended for subsequent empirical testing rather than findings derived from primary data. Future empirical work could operationalize AI-Enabled Service Capability through the breadth and maturity of AI-supported service functions; Smart Destination Governance Capability through sensing, coordination, prioritization, and response routines; Workforce AI Readiness through employee skills and interpretive capacity; Responsible Data Governance through privacy, accountability, and data-quality practices; and Visitor Experience Outcomes through validated measures of experience, satisfaction, engagement, and behavioral responses.

RESULTS AND DISCUSSION

Results

AI-Driven Personalization: From Customization to Destination Sensing

AI-enabled personalization uses contextual, behavioral, and preference information to tailor recommendations and services. Personalization can reduce information overload, increase relevance, and support more adaptive visitor journeys. Within AI-SDM, however, the theoretical significance extends beyond individualized service. Aggregated recommendation requests, searches, responses, and preference patterns can reveal changing visitor interests, emerging demand, and unmet needs.

Personalization therefore has a dual function. At the visitor level it creates service value; at the destination level it can contribute to sensing. This distinction is consistent with capability reasoning: information has strategic value when it can help an organization or destination recognize relevant change and connect that recognition to subsequent action (Bhardwaj et al., 2022; Teece, 2007; Teece et al., 1997). This proposed sensing function remains a conceptual inference from the reviewed literature and should be tested empirically with destination-level data that link aggregated visitor signals to subsequent managerial decisions.

Conversational and Generative AI: From Automated Interaction to Destination Listening

Conversational AI increasingly supports destination information, multilingual assistance, itinerary development, service recovery, and routine visitor interaction. Generative AI expands this role by enabling more flexible dialogue and content creation (Li et al., 2025; Nicolau, 2025; Prasanna et al., 2025). These systems can therefore reduce transaction friction while increasing the volume of digitally mediated visitor interaction.

For destination management, conversational interaction can also become a listening infrastructure. Repeated questions may expose information deficiencies; complaints may reveal service failures; requests may indicate accessibility needs; and changing prompts may signal emerging interests. When responsibly aggregated and interpreted, these interactions can provide a richer view of visitor needs than conventional periodic surveys alone. The challenge is to convert unstructured interaction into interpretable intelligence without compromising privacy, information quality, or accountability.

Predictive Analytics: From Observation to Anticipatory Management

Tourism destinations experience substantial temporal and spatial variation in demand, congestion, mobility, and resource use. AI-supported analytics can help destinations identify patterns and anticipate changes. This creates the possibility of anticipatory rather than purely reactive management, in which emerging congestion, demand, or service pressure can trigger adjustments to communication, transport, staffing, capacity, or visitor distribution.

Prediction, however, is not equivalent to governance. Forecast accuracy does not determine whether a destination can mobilize an effective response. Anticipatory management requires interpretation of uncertainty, prioritization, coordination, and resource allocation. This distinction is central to AI-SDM: AI can strengthen sensing and prediction, while governance capability determines whether intelligence is converted into coordinated action.

At destination level, anticipatory capability can be conceptualized as a sequence: detection, interpretation, decision, intervention, and evaluation. AI may improve detection and probabilistic forecasting, but organizational actors remain responsible for interpreting the consequences of false positives, false negatives, and uncertain predictions. This is especially relevant when interventions redistribute visitors across neighborhoods, alter access, or affect resident quality of life. Predictive analytics therefore becomes strategically valuable only when embedded in governance routines that connect model outputs with proportionate and accountable action.

Data-Driven Governance: From Information to Coordinated Action

Smart destination management requires more than collecting increasing quantities of data. It requires the capacity to interpret, prioritize, share, and act on information across organizational boundaries. The Smart DMO literature already identifies sensing, mobilization, management, and stewardship as important governance functions (Gretzel, 2022). AI-SDM extends this logic by treating AI-generated visitor and operational intelligence as a specific input to these governance functions.

The capability is inherently socio-technical. Algorithms can identify patterns, but destination decisions often involve trade-offs among visitor convenience, resident interests, accessibility, infrastructure, sustainability, public accountability, and commercial priorities. Smart governance therefore combines technological intelligence with institutional arrangements, stakeholder coordination, and human judgment. Recent AI-expert policy research also illustrates the continuing need for expert validation and contextual interpretation when generative AI is used to support tourism-policy analysis (Carić et al., 2026).

Adaptive Learning and the Cognitive-Destination Frontier

The emerging cognitive-destination literature envisions destinations that learn, interpret context, and adapt in real time (Aguiar Castillo et al., 2026). This frontier strengthens the importance of feedback and learning but also raises questions about the locus of decision authority. Increasing technical autonomy does not remove the need to determine which decisions can be delegated, how accountability is assigned, and where human judgment remains necessary.

AI-SDM therefore treats organizational learning and AI adaptation as an iterative process rather than as full destination autonomy. Visitor-generated feedback can inform changes to AI-enabled services and governance routines, but those changes remain embedded in organizational and institutional contexts. This makes the framework applicable to destinations at different levels of technological maturity rather than only to highly advanced cognitive destinations.

The AI-Enabled Smart Destination Management (AI-SDM) Framework

AI-SDM contains three core theoretical constructs: AI-Enabled Service Capability, Smart Destination Governance Capability, and Visitor Experience Outcomes. Visitor and operational intelligence is modeled as the principal informational mechanism linking AI-supported interaction with governance. Visitor-generated behavioral and experiential feedback supports subsequent organizational learning and adaptation. Workforce AI Readiness and Responsible Data Governance operate as enabling conditions. The architecture is capability-based because it explains why similar technological resources may produce different destination outcomes depending on whether information can be sensed, interpreted, coordinated, and transformed into action.

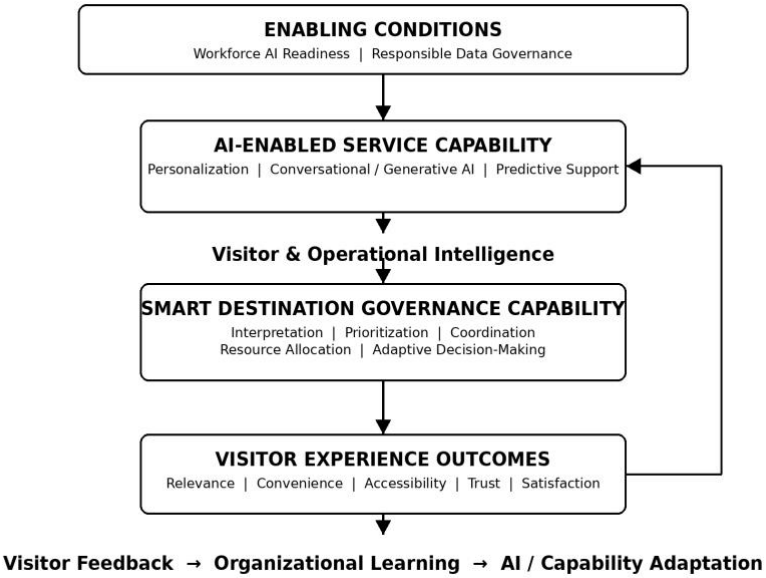


Figure 1. The AI-Enabled Smart Destination Management (AI-SDM) framework. Source: Author's conceptualization.

AI-Enabled Service Capability and the Generation of Intelligence

AI-Enabled Service Capability refers to the capacity to deploy and integrate AI-supported visitor services in ways that create immediate service value and generate usable information. The construct therefore differs from simple technology ownership. A destination may deploy multiple AI applications while lacking the routines required to integrate interaction data, interpret patterns, or make those patterns available to decision makers.

Conversational systems, personalization engines, recommendation tools, and predictive applications can expose different forms of visitor and operational information. The relevance of that information depends on availability, interpretability, timeliness, and connection to destination-management processes. Capability reasoning suggests that resources become strategically meaningful when they can be mobilized through organizational routines rather than merely acquired (Bhardwaj et al., 2022; Teece, 2007; Teece et al., 1997).

AI-SDM therefore expects AI-enabled service capability to strengthen governance not because technology automatically produces better decisions, but because it can improve the destination's capacity to sense visitor needs and operational conditions. This sensing function provides the informational foundation on which governance can act.

P1. AI-Enabled Service Capability positively contributes to Smart Destination Governance Capability by strengthening the generation, availability, and interpretability of visitor and operational intelligence.

Smart Destination Governance Capability as the Intelligence-to-Action Mechanism

The second relationship concerns conversion. Smart Destination Governance Capability refers to the ability to interpret intelligence, prioritize issues, coordinate stakeholders, mobilize resources, and translate information into destination-level interventions. This construct builds on Smart DMO functions and multi-actor smart-destination research (Bingöl & Yang, 2025; Gretzel, 2022).

The distinction between intelligence and action is theoretically important. A destination may know that congestion is emerging, that visitors repeatedly misunderstand transport information, or that accessibility complaints are increasing. Yet such knowledge produces value only when relevant actors can agree on significance, responsibility, response, timing, and resource allocation. Governance capability is therefore the organizational mechanism that converts sensing into coordinated response.

Where governance capability is stronger, AI-derived intelligence should be more likely to influence visitor-facing conditions such as service responsiveness, mobility, information quality, accessibility, and coordination. Visitor outcomes are consequently theorized as downstream

effects of governance conversion rather than direct and automatic consequences of AI adoption.

P2. Smart Destination Governance Capability positively contributes to Visitor Experience Outcomes through more responsive coordination, resource allocation, visitor-flow management, and destination-level decision-making.

Visitor Feedback and Organizational Learning

Visitor outcomes are not the terminal point of AI-SDM. AI-mediated interactions and destination interventions generate subsequent behavioral and experiential information. Reviews, complaints, conversations, mobility behavior, service use, and responses to destination interventions can reveal whether previous actions were effective.

Organizational learning occurs when such feedback is not merely collected but interpreted and used to modify routines, services, or governance responses. In a tourism context, this learning may involve revising conversational content, adjusting recommendation logic, changing visitor communication, modifying resource allocation, or redesigning coordination processes. The framework therefore incorporates a recursive learning process while avoiding the claim that feedback automatically produces adaptation.

This distinction also differentiates AI-SDM from purely linear adoption models. Visitor experience is simultaneously an outcome of previous capability deployment and a potential information resource for subsequent capability development.

P3. Visitor-generated behavioral and experiential feedback positively contributes to the continued adaptation of AI-Enabled Service Capability and Smart Destination Governance Capability.

Workforce AI Readiness as an Enabling Condition

The intelligence-to-action process remains partly human. Managers and employees must understand AI outputs, identify limitations, supervise automated processes, manage exceptions, apply contextual judgment, and coordinate responses. Where these competencies are weak, technically sophisticated systems may remain disconnected from operational or governance decisions.

Workforce AI Readiness therefore concerns the human and organizational competence required to use AI responsibly and contextually. It is conceptually distinct from technology acceptance: a workforce may be willing to use AI while lacking the analytical or managerial competence to interpret its outputs. It is also distinct from governance capability, because readiness concerns the human capacity that enables governance processes to function effectively.

AI-SDM consequently treats workforce readiness as a condition affecting the quality of intelligence conversion. Stronger readiness should increase the likelihood that AI-generated information is interpreted appropriately, challenged when necessary, and integrated into service and governance action.

P4a. Workforce AI Readiness positively conditions the translation of AI-generated intelligence into effective service and governance action.

Responsible Data Governance as an Enabling Condition

AI-enabled learning depends on continued access to credible and legitimate visitor and operational information. Yet smart-tourism privacy research shows that privacy concerns can influence actual disclosure behavior (Femenia-Serra et al., 2022). As destinations adopt increasingly generative, predictive, and context-aware systems, risks also extend to security, data quality, opacity, bias, accountability, and inappropriate delegation.

Responsible Data Governance is therefore defined as the set of principles, rules, and organizational practices that support legitimate data collection and use, appropriate access, information quality, security, transparency, accountability, and human oversight. These practices affect not only ethical acceptability but also the sustainability of destination learning.

A destination that cannot preserve visitor trust or establish credible arrangements for data use may experience degraded information flows, fragmented data sharing, or resistance from stakeholders. Responsible Data Governance consequently acts as an enabling condition for the feedback and learning cycle.

P4b. Responsible Data Governance positively conditions the sustainability of AI-enabled

destination learning by supporting legitimate data use, accountability, information quality, security, and visitor trust.

Boundary Conditions

AI-SDM does not imply that more AI necessarily improves destination outcomes. The proposed relationships may weaken where data are fragmented, interoperability is low, governance authority is diffuse, stakeholder incentives conflict, digital infrastructure is immature, or visitors resist data-intensive services. Destination scale and institutional context may also matter because coordination problems differ between metropolitan destinations, mature resort systems, smaller regional destinations, and emerging tourism areas.

Technological maturity is another boundary condition. Cognitive-destination research envisions highly adaptive systems capable of real-time learning and increasingly autonomous response (Aguiar Castillo et al., 2026). Many destinations remain far from that level of maturity. AI-SDM is therefore intentionally formulated around organizational conversion capability rather than technological sophistication, allowing future empirical work to compare destinations at different stages of digital development.

Theoretical Contributions of AI-SDM

The first contribution is a shift from AI adoption to AI-enabled destination capability. Much AI-tourism research understandably focuses on applications, adoption antecedents, or visitor responses. AI-SDM changes the focal question from whether AI is used to whether a destination can organize AI-supported interactions and information into a repeatable capability.

The second contribution is the conceptualization of Smart Destination Governance Capability as an intelligence-to-action conversion mechanism. Existing smart-tourism frameworks recognize governance and data, but AI-SDM specifies the organizational process connecting visitor-facing intelligence with coordinated destination response. This provides a mechanism that can be operationalized and tested rather than treating governance only as a contextual layer.

The third contribution is the dual conceptualization of visitor experience as outcome and feedback resource. The framework preserves the importance of visitor value while recognizing that visitor-generated behavioral and experiential information can support subsequent learning. This produces an adaptive rather than purely linear model.

The fourth contribution is the separation of Workforce AI Readiness and Responsible Data Governance as enabling conditions. These constructs capture different constraints: one concerns human and organizational competence; the other concerns the legitimacy, quality, security, and accountability of data use. Their separation creates a more precise empirical agenda than treating organizational readiness as a single undifferentiated construct.

Taken together, these contributions differentiate AI-SDM from broader smart-tourism architectures. Smart Tourism 2.0 provides a holistic domain-level architecture (Koo et al., 2025), smart-destination ecosystem research demonstrates the multi-actor setting in which technology and AI are adopted (Bingöl & Yang, 2025), cognitive-destination research extends the adaptive technological frontier (Aguiar Castillo et al., 2026). AI-SDM contributes a focused organizational mechanism: AI-supported interaction → visitor and operational intelligence → governance conversion capability → coordinated action → visitor experience → feedback → organizational learning and adaptation.

A fifth, methodological contribution follows from this positioning. AI-SDM offers a parsimonious structure that can be translated into empirical measurement without requiring researchers to operationalize an entire smart-destination ecosystem. This creates a feasible path for survey, multi-source, and longitudinal research. AI-Enabled Service Capability and Smart Destination Governance Capability can be modeled as organizational-level constructs; visitor outcomes can be measured through traveler data; and readiness and data governance can be examined as antecedents, moderators, or boundary conditions. The framework therefore serves not only as a conceptual synthesis but also as a bridge toward cumulative empirical testing.

Implications

Managerial Implications

For DMOs and destination leaders, AI strategy should begin with management problems and required capabilities rather than with individual technologies. Before adopting an AI application, managers should ask what visitor or operational intelligence the application can generate, who can interpret that information, which decisions it can improve, which actors must respond, and how the effect of the response will be evaluated.

This perspective changes technology procurement. A chatbot should not be evaluated only by response speed or cost reduction; managers should also consider whether its interaction data can reveal recurring visitor needs. A predictive system should not be evaluated only by forecast accuracy; managers should assess whether governance arrangements allow forecasts to influence transportation, communication, staffing, or visitor-flow decisions. AI value therefore depends on complementary investment in analytical routines, stakeholder coordination, workforce development, and data governance.

The framework also implies that DMOs may need to strengthen their role as orchestrators of intelligence rather than owners of all relevant data or technology. Because destination information is distributed across businesses, transport systems, digital platforms, public agencies, and visitors, governance capability may depend on protocols for collaboration, data sharing, escalation, and joint response.

Workforce Implications

AI-SDM does not assume that AI simply replaces tourism labor. Instead, the framework suggests a changing division of work. Routine information provision may become increasingly automated, while human roles may shift toward supervision, exception handling, interpretation, empathy, contextual judgment, stakeholder coordination, and accountability.

Workforce development should therefore extend beyond basic digital literacy. Destination actors require AI literacy, understanding of model limitations, analytical interpretation, responsible use practices, and the ability to collaborate with both technical systems and other organizations. These competencies are particularly important when AI outputs influence decisions with consequences for visitors, residents, or public resources.

Policy and Data-Governance Implications

The movement toward increasingly adaptive destinations raises policy questions concerning privacy, security, inclusion, bias, transparency, delegation, and human oversight. Responsible Data Governance should therefore evolve alongside technological capability. Policies should clarify legitimate data use, accountability for automated or AI-supported decisions, access rights, security responsibilities, and conditions under which human review is required.

The framework also highlights the importance of inclusion. AI-enabled services may improve accessibility and multilingual support, but data-driven personalization can also exclude visitors whose needs are poorly represented in training or behavioral data. Destination governance should therefore evaluate not only efficiency and personalization but also distributional effects across visitor and resident groups.

Limitations and Future Research

This study has several limitations. First, it uses a conceptual integrative review rather than a protocol-driven systematic review and therefore does not claim exhaustive coverage of AI-tourism scholarship. Second, the field is evolving rapidly, particularly around generative and agentic AI, which means that specific applications and governance challenges will continue to change. Third, AI-SDM connects phenomena operating at different analytical levels, from individual visitor interaction to destination-level governance. Empirical research will need to specify appropriate levels of measurement and aggregation.

The propositions are theoretically derived and require empirical validation. Future research should develop and validate measurement scales for AI-Enabled Service Capability and Smart Destination Governance Capability. Governance capability could be tested as a mediator between AI-enabled service capability and visitor outcomes. Workforce AI Readiness and Responsible Data Governance could be examined as moderators, antecedents, or boundary

conditions.

Longitudinal designs would be particularly valuable because the framework includes learning and adaptation. Cross-sectional studies can test associations among capabilities and outcomes, but they cannot demonstrate whether visitor-generated feedback actually leads to subsequent changes in AI services or governance routines. Process studies, digital trace analysis, and repeated-measure designs could help examine this recursive mechanism.

Comparative destination research is also needed. AI-SDM relationships may vary with institutional coordination, technological maturity, tourism intensity, destination scale, regulatory environment, and data-sharing infrastructure. Comparative studies across mature smart destinations and emerging digital destinations could clarify where governance capability matters most.

Finally, future research should examine how agentic and increasingly autonomous AI changes the boundary between technological and organizational action. If AI systems begin to recommend, coordinate, or execute destination responses, questions of delegation and accountability will become central. AI-SDM provides a useful baseline because it makes the conversion mechanism explicit; future work can investigate how much of that mechanism can or should be delegated to intelligent systems.

A particularly important empirical issue is level of analysis. AI-enabled service capability may be located within a DMO, a destination platform, or a network of tourism organizations, whereas visitor outcomes occur at the individual level. Future studies should therefore consider multilevel designs and avoid aggregating individual perceptions into destination capabilities without justification. Key informant surveys could be combined with visitor surveys, operational data, or digital trace measures to reduce common-method bias.

Measurement development should also distinguish capability from technology intensity. The number of AI tools deployed is not equivalent to AI-Enabled Service Capability, just as the existence of dashboards is not equivalent to Smart Destination Governance Capability. Scale items should capture repeatable organizational routines such as integration, interpretation, coordination, response speed, learning, and reconfiguration. This distinction is essential if empirical tests are to evaluate the central theoretical claim of AI-SDM rather than merely reproduce technology-adoption models.

Finally, future studies can test competing models. For example, governance capability may mediate the relationship between AI-enabled service capability and visitor outcomes, while workforce readiness may operate as an antecedent rather than a moderator in some contexts. Responsible Data Governance may simultaneously enable data sharing and constrain certain forms of personalization. Testing alternative specifications would strengthen rather than weaken the framework by clarifying which relationships are robust across destination contexts.

Table 1

Empirical research agenda derived from AI-SDM

Research priority	Illustrative question	Suggested design	AI-SDM construct
Measurement	Can AI-enabled service and governance capabilities be distinguished empirically from technology adoption?	Scale development; CFA; multi-informant survey	AI-Enabled Service Capability; Governance Capability
Mechanism	Does governance capability mediate the effect of AI-enabled service capability on visitor outcomes?	SEM; multi-source design	P1-P2
Learning	Does visitor feedback predict subsequent changes in service and governance routines?	Longitudinal panel; process study; digital traces	P3

Research priority	Illustrative question	Suggested design	AI-SDM construct
Human capability	When does workforce AI readiness strengthen intelligence-to-action conversion?	Moderated SEM; comparative case study	P4a
Responsible AI	How do privacy, accountability and data quality affect sustainable destination learning?	Survey + governance audit; comparative policy study	P4b
Context	How do institutional maturity, destination scale and digital infrastructure alter AI-SDM relationships?	Cross-destination multilevel study	Boundary conditions
Agentic AI	Which governance decisions can be delegated to AI while preserving accountability and human oversight?	Experiments; scenario studies; longitudinal field research	Future extension

CONCLUSION

Artificial intelligence expands what tourism destinations can sense, personalize, predict, generate, and automate, but destination-level value does not follow automatically from technological adoption. The central problem is organizational: whether destinations can convert AI-generated visitor and operational intelligence into coordinated action.

The AI-SDM framework explains that process through three core constructs and two enabling conditions. AI-Enabled Service Capability generates service value and potential intelligence. Smart Destination Governance Capability interprets and converts intelligence into coordinated response. Visitor Experience Outcomes capture the downstream consequences of those responses while also generating feedback for subsequent learning. Workforce AI Readiness and Responsible Data Governance condition whether the process can function effectively and sustainably. The strategic value of AI in smart tourism destinations therefore lies not in intelligence alone, but in the destination's organizational capability to convert intelligence into responsible, coordinated action and learning.

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AUTHOR CONTRIBUTION STATEMENT

Ibnu Rokhman was responsible for the conceptualization, literature review, theoretical framework development, analysis, manuscript drafting, critical revision, and final approval of the manuscript. The author has read and approved the final version of the manuscript and is accountable for all aspects of the research.

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