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A Conceptual Examination of Digital Technology Adoption as a Mediator Between Digital Leadership and Innovation in Tourism Services

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Abstract. This conceptual paper examines the mediating role of digital technology adoption in the relationship between digital leadership and tourism service innovation. Drawing on the Dynamic Capabilities Theory (DCT) and Resource-Based View (RBV), the paper proposes that digital leaders who possess competencies in technological vision, data-driven decision-making, and change orchestration enhance tourism enterprises' capability to adopt digital technologies, which subsequently drives service innovation. The proposed conceptual model suggests three direct pathways: (1) digital leadership directly influences tourism service innovation, (2) digital leadership facilitates digital technology adoption, and (3) digital technology adoption mediates the relationship between digital leadership and tourism service innovation. Grounded in empirical evidence from tourism and hospitality sectors, this paper contributes to strategic management and tourism innovation literature by providing a theoretical framework that illuminates how leadership competencies translate into tangible innovation outcomes through technological enablement. The study has implications for tourism destination managers, hospitality leaders, and policymakers seeking to enhance their organizations' capacity to deliver innovative services in an increasingly digital marketplace.

Keywords: digital leadership; digital technology adoption; dynamic capabilities theory; resource-based view; tourism service innovation

RESEARCH BACKGROUND

The global tourism industry faces unprecedented challenges and opportunities in the post-pandemic era. Technological disruptions, evolving consumer expectations, and heightened competition have fundamentally reshaped how tourism enterprises operate, market their services, and deliver customer experiences. The integration of artificial intelligence, big data analytics, virtual reality, and blockchain technologies is no longer optional but essential for survival and competitive positioning (Bondarenko et al., 2025; Ivanov, 2020). Simultaneously, the tourism sector confronts evolving demands from travelers seeking personalized, immersive, and sustainable experiences, requiring fundamental reimagining of service delivery models (Srinivasan et al., 2024).

Despite the recognized importance of technological innovation, empirical evidence suggests that technology adoption alone is insufficient for driving meaningful service improvements. Organizations that merely implement digital tools without strategic leadership vision often experience implementation failures, employee resistance, and suboptimal returns on technology investments (Theenadhayalan, 2025). This paradox highlights the critical importance of effective leadership in directing digital transformation efforts.

Digital leadership emerges as a critical success factor in this context. Defined as the capability to envision and direct organizational transformation through the strategic use of digital technologies, digital leadership encompasses competencies such as technological foresight, data-driven decision-making, change orchestration, and the ability to foster an innovation-enabling organizational culture (Müller et al., 2024). In the tourism context specifically, digital leaders serve as architects of

technological adoption strategies, translating industry disruption into competitive advantage by enabling their organizations to sense emerging opportunities, seize them quickly, and reconfigure resources for service innovation.

Tourism service innovation represents a multidimensional construct encompassing product innovations (new service offerings), process innovations (improved service delivery mechanisms), marketing innovations, and organizational innovations (Srinivasan et al., 2024). Recent empirical evidence from the tourism and hospitality sectors demonstrates that service innovation is increasingly determined by the degree to which organizations effectively integrate digital technologies into their service delivery ecosystems. Smart tourism solutions, personalized service delivery through AI-driven systems, and immersive technologies (VR/AR) exemplify the range of innovations reshaping the sector.

However, the adoption of these innovations is not randomly distributed. Organizations led by digitally-competent leaders who understand technology's strategic potential and can manage organizational change effectively demonstrate significantly higher innovation performance (Suliati et al., 2025). This observation suggests that the relationship between digital leadership and service innovation operates through intermediate mechanisms, specifically, the organizations' capacity and willingness to adopt and integrate digital technologies into their operations.

While individual studies have examined digital leadership's impact on innovation, technology adoption's drivers and outcomes, and tourism service innovation determinants, limited research has comprehensively examined the integrated relationship between these constructs, particularly in the tourism context. Specifically, the mechanisms through which digital leadership translates into service innovation outcomes remain underexplored. This conceptual paper addresses this gap by proposing and theoretically justifying a mediation model in which digital technology adoption serves as the mechanism linking digital leadership competencies to tourism service innovation performance. This paper aims to: (1) Define and conceptualize the three core constructs: digital leadership, digital technology adoption, and tourism service innovation; (2) Present a unified theoretical framework integrating dynamic capabilities theory and the resource-based view to explain the hypothesized relationships; (3) Develop a conceptual model with explicit hypotheses regarding direct and indirect effects; (4) Provide theoretical justification for why and how digital technology adoption mediates the relationship between leadership and innovation; (5) Offer strategic implications for tourism managers and researchers. The paper's theoretical contributions include extending DCT and RBV perspectives to the tourism domain, while practical contributions provide guidance for tourism organizations seeking to enhance their innovation capabilities through strategic leadership and technology initiatives.

REVIEW OF RELATED LITERATURE

Defining Digital Leadership

Digital leadership represents a contemporary evolution of transformational and strategic leadership, infused with technological sophistication and digital-age competencies. Rather than viewing digital leadership as merely the application of digital tools by leaders, contemporary scholarship conceptualizes it as a distinctive leadership capability encompassing the strategic vision, decision-making sophistication, and change management competencies necessary to guide organizations through digital transformation (Müller et al., 2024).

Empirically, digital leadership has been operationalized across multiple dimensions. Research in tourism and hospitality contexts shows that digital leadership directly enhances competitive advantage, with digital skills and strategy acting as mediating mechanisms. In addition, studies focusing specifically on digital leadership in tourism demonstrate a positive and significant influence on both HR innovation and creativity, indicating that digital leaders are capable of creating organizational environments that support creative problem-solving and technology-enabled service delivery (Deyana Cindy & Usman, 2024).

The literature further identifies several critical dimensions of digital leadership competency. First, technological visioning refers to the ability of digital leaders to anticipate how emerging technologies can generate value, differentiate services, and reshape competitive landscapes. This forward-looking capability enables organizations to move from reactive technology adoption toward proactive strategic positioning (Müller et al., 2024). In the tourism sector, this is reflected in recognizing the potential of artificial intelligence for personalization, blockchain for enhancing trust and transparency, and immersive technologies for creating memorable experiences.

Second, data-driven decision-making emphasizes the importance of cultivating an organizational culture that prioritizes evidence-based decisions supported by data analytics rather than relying solely on intuition. This competency is particularly crucial in tourism, where insights into customer behavior, market trends, and operational performance depend on advanced data interpretation. Leaders who exemplify data-driven practices also foster psychological safety, encouraging employees to experiment with analytical approaches (Malathi & Thomas Jeyanth, 2025).

Third, change orchestration highlights the ability of digital leaders to manage the disruptions caused by digital transformation, including shifts in routines, roles, and required competencies. This involves effective communication, active stakeholder engagement, and strategic management of resistance (Siswadhi et al., 2025). In tourism organizations, such challenges are intensified by the large proportion of service-line employees who may have limited technical expertise and concerns regarding the impact of technology on employment.

Fourth, innovation enablement underscores the role of digital leaders in shaping organizational conditions that support innovation. This includes fostering psychological safety, encouraging cross-functional collaboration, allocating resources for experimentation, and viewing failures as opportunities for learning (Gracia Divino et al., 2024). Empirical findings in hospitality contexts further indicate that transformational leadership significantly enhances employees' technology-enabled innovative behavior (Suliati et al., 2025).

Finally, stakeholder engagement involves the ability of digital leaders to manage expectations and secure commitment from a wide range of stakeholders, including employees, external partners, investors, and regulatory bodies. Leaders who demonstrate strength in this dimension are able to build legitimacy for digital initiatives and form coalitions that support successful digital transformation (Sacavém et al., 2025).

The impact of digital leadership on organizational outcomes is grounded in multiple theoretical traditions. Transformational Leadership Theory suggests that leaders who articulate a compelling vision, provide intellectual stimulation, and offer individualized consideration inspire followers to transcend self-interest and commit to organizational objectives (Quang et al., 2024). Digital leaders leverage these transformational mechanisms while infusing them with technological sophistication and forward-looking orientation.

From a contingency perspective, leadership effectiveness depends on alignment between leader competencies and environmental demands. In highly volatile, technology-intensive environments like contemporary tourism, digital leadership competencies become increasingly critical for organizational adaptation and performance (Müller et al., 2024). Dynamic Capabilities Theory provides another theoretical lens. It suggests that digital leaders serve as architects of the organizational processes (sensing, seizing, reconfiguring) through which firms identify technological opportunities, mobilize resources to pursue them, and reconfigure business models accordingly.

Conceptualizing Technology Adoption

Technology adoption refers to the process through which organizations identify, evaluate, and implement technological innovations into their operations. Importantly, adoption is not a dichotomous outcome (adopted vs. not adopted) but rather a multidimensional process involving intensity (the extent of utilization), scope (the breadth of applications), and integration (the degree to which technologies are embedded in core business processes).

In tourism contexts, digital technology adoption involves the implementation of various systems, including online booking platforms, customer relationship management (CRM) systems, property management systems, AI-driven chatbots, virtual reality tour experiences, mobile applications for guest engagement, and analytics platforms (Bondarenko et al., 2025). The adoption process itself spans multiple stages, beginning with basic digitization, which focuses on automating existing processes, progressing to digitalization, where business processes are reconfigured around digital capabilities, and ultimately advancing to digital transformation, which entails fundamental innovation in business models enabled by digital technologies (K. Chen, 2024). Several theoretical frameworks have been developed to explain technology adoption decisions and processes. The Technology Acceptance Model (TAM) posits that perceived usefulness and perceived ease of use shape individuals' intentions to adopt technology and their subsequent behavior, although it has been critiqued for its limited consideration of organizational and contextual factors.

Expanding this perspective, the Technology-Organization-Environment (TOE) framework incorporates technological characteristics, organizational resources and culture, and environmental pressures such as competition and regulation as key determinants of technology adoption (Amin et al., 2024), offering a more comprehensive explanation of why organizations within the same industry exhibit different adoption patterns and outcomes. Additionally, the Diffusion of Innovations Theory emphasizes how innovations spread across populations, identifying attributes such as relative advantage, compatibility, complexity, trialability, and observability as factors influencing adoption rates and trajectories (Mbatha, 2024), thereby explaining why certain technologies, such as mobile booking, diffuse rapidly within tourism organizations while others, such as blockchain applications, experience slower uptake despite their potential benefits (Sánchez et al., 2025). Complementing these perspectives, the dynamic capabilities approach conceptualizes technology adoption as an organizational capability that enables firms to sense emerging technological opportunities, seize them through strategic investments, and reconfigure existing capabilities accordingly, highlighting that successful adoption depends not only on technological attributes but also on the organization's ability to manage complex change processes (Prasetyo et al., 2025).

Empirical research further identifies several barriers to technology adoption within tourism enterprises. Resource constraints remain a major challenge, particularly for micro, small, and medium-sized enterprises (MSMEs), which often face financial and human capital limitations that hinder investment in advanced digital systems (Konyrbekov & Bogomazova, 2025). In addition,

legacy system incompatibility poses difficulties for established organizations whose existing operational infrastructures do not integrate effectively with modern technologies (Neelayapalem, 2026). Workforce resistance also emerges as a significant barrier, as employees and managers accustomed to traditional service models may perceive digital technologies as threats to job security or struggle with unfamiliar systems (Farah, 2025). Organizational culture further influences adoption, as firms with strong traditions of personalized service may find it challenging to transition toward technology-mediated service delivery (Hadjielias et al., 2022). Moreover, regulatory requirements and cybersecurity concerns introduce additional complexities, with data protection obligations and perceived risks discouraging some organizations from adopting digital solutions (Omonov & Ahn, 2025).

Conversely, several factors facilitate successful technology adoption in the tourism sector. Strong leadership commitment and a clear digital vision play a critical role, as leaders who actively promote and demonstrate support for technological initiatives enhance organizational readiness for adoption (Deyana Cindy & Usman, 2024). Competitive pressure also drives adoption, as organizations respond to rivals that have successfully implemented digital innovations (Xicang et al., 2024). Furthermore, increasing customer demand for seamless digital interactions and personalized experiences motivates firms to integrate advanced technologies into their services (Say, 2025). Government support, including policy initiatives, tax incentives, and capacity-building programs, can reduce barriers and encourage adoption (Firdavs, 2025). Finally, participation in industry networks and peer learning enables organizations to observe successful implementations by others, thereby reducing perceived risks and strengthening their intention to adopt digital technologies (Kindzule-Millere & Zeverte-Rivza, 2022).

The relationship between technology adoption and innovation is complex and contingent. Simply adopting technologies does not automatically generate innovation; rather, innovation emerges when organizations deliberately integrate technologies into redesigned business processes and service delivery models. This is the crucial distinction between technology adoption as an operational activity (implementing systems) versus adoption as a strategic innovation capability (leveraging technology to fundamentally enhance service value).

Empirical evidence demonstrates that organizations with higher technology adoption maturity simultaneously demonstrate stronger innovation performance, though this relationship is mediated by organizational capabilities for knowledge management, cross-functional collaboration, and innovation culture. In tourism specifically, technology adoption enables innovations ranging from personalized service recommendations through AI systems to immersive destination experiences through VR/AR applications to dynamic pricing strategies through advanced analytics (K. Chen, 2024).

Defining Tourism Service Innovation

Tourism service innovation refers to the creation and implementation of new or significantly improved services, processes, marketing approaches, or organizational practices within tourism enterprises that generate enhanced value for customers and competitive advantage for providers (Srinivasan et al., 2024). This definition encompasses multiple innovation types: product innovations (new experiences or service offerings), process innovations (improved service delivery mechanisms), marketing innovations (new promotional or positioning approaches), and organizational innovations (new management structures or practices).

The innovation imperative in tourism is particularly pronounced due to the inherent characteristics of tourism services, which are heterogeneous, inseparable (produced and consumed simultaneously), perishable (cannot be stored), and highly labor-intensive. These features make tourism services especially suitable for continuous improvement through innovation (Wu et al., 2024). In addition, the sector operates within an intensely competitive global environment, where destinations and hospitality providers increasingly differentiate themselves based on unique and memorable experiences rather than price alone. Empirical studies identify several key dimensions of tourism service innovation. Experience innovation focuses on creating novel, memorable, and emotionally engaging customer experiences, such as experiential tourism, the digitalization of cultural heritage through immersive technologies, adventure tourism enhanced by technology, and wellness tourism supported by personalized digital platforms (Hosseini et al., 2023). These innovations reshape how tourists interact with destinations and service providers. Technology-enabled service delivery represents another dimension, where digital technologies facilitate new methods of service provision, including AI-driven personalization, mobile-based engagement, blockchain-supported trust mechanisms, and Internet of Things (IoT)-enabled smart hotels, all of which enhance both customer experience and operational efficiency (Say, 2025). Furthermore, sustainable and responsible innovation has gained prominence as growing environmental and social awareness among consumers drives the development of services such as carbon-neutral hospitality operations, community-based tourism with equitable economic benefits, and technology-supported conservation initiatives, addressing both competitiveness and social legitimacy (Han, 2021). Data-driven service customization also plays a critical role, as advanced analytics enable organizations to understand customer preferences at a granular level, allowing for highly personalized services that were previously difficult to achieve at scale (Vemuri, 2025). Additionally, innovation in digital marketing and destination branding has transformed how tourism entities promote themselves, with strategies such as social media engagement, user-generated content, influencer collaborations, and AI-based targeted marketing becoming central to modern tourism marketing practices (Yu, 2025).

The literature further highlights several antecedents of tourism service innovation. Digital technology integration is a primary enabler, as the availability and adoption of digital tools create opportunities for new forms of service innovation, while the absence of such infrastructure limits innovation potential (Jiao et al., 2025). Strategic orientation and leadership vision are also crucial, as organizations with a clear focus on innovation and leaders who actively prioritize it tend to produce more consistent and impactful innovations (Malathi & Thomas Jeyanth, 2025). Organizational learning capacity contributes significantly, as firms that effectively acquire, share, and apply knowledge are better positioned to develop advanced and sustainable innovations, with strong learning cultures correlating with higher innovation performance (Lim et al., 2024). Environmental dynamism and competitive pressure further influence innovation, as rapidly changing technological landscapes, evolving consumer preferences, and intense competition create both challenges and opportunities; however, while moderate levels of environmental turbulence can stimulate innovation, excessive volatility may hinder an organization's ability to innovate effectively (Akgün et al., 2026). Customer co-creation has also emerged as an important driver, as involving tourists in the design and development of services provides valuable insights that enhance innovation outcomes (Z. Chen, 2024). Finally, cross-sector collaboration plays a vital role, as partnerships with technology firms, creative industries, sustainability experts, and other external stakeholders introduce diverse perspectives that accelerate the development of innovative tourism services (Del Vecchio et al., 2025).

The literature review reveals complementary relationships among the three constructs: (1) Digital leadership creates organizational conditions conducive to technology adoption through clear vision, stakeholder engagement, and innovation enablement; (2) Digital technology adoption provides the technical foundation and tools enabling new forms of service innovation previously impossible or inefficient; (3) Tourism service innovation represents the ultimate outcome sought, generating customer value and competitive advantage. These relationships are not linear but rather operate through multiple feedback loops and interactive effects. Moreover, the intensity and nature of these relationships likely depends on contextual factors such as organizational size, tourism market positioning, technological sophistication of target customers, regulatory environment, and competitive intensity.

Resource-Based View (RBV) Foundation

The Resource-Based View posits that sustainable competitive advantage emerges from organizations' possession and deployment of valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities (Iruthayasamy, 2021). From an RBV perspective, digital leadership competencies constitute intangible strategic resources. Unlike physical capital or financial resources that competitors can relatively easily acquire, digital leadership capabilities are often developed through extended experience, organizational learning, and embedded in organizational culture, making them relatively inimitable and difficult to acquire quickly.

Similarly, digital technology adoption capabilities represent organizational resources that, while technologies themselves may be purchasable commodities available to all competitors, the capability to effectively integrate technologies into business processes (Konopik et al., 2022), manage organizational change accompanying technology implementation, and leverage technology for strategic advantage remains heterogeneous across organizations (SIKUBWABO, 2024). Tourism service innovation represents a manifestation of competitive advantage, the ability to create offerings customers value more highly than competitors' offerings. Sustained innovation requires continuous renewal of the resource and capability base, making innovation an outcome dependent on possessing superior resources and capabilities (Moreira et al., 2024).

Dynamic Capabilities Theory (DCT): The Strategic Imperative

While RBV explains sustained competitive advantage through resource possession, it has been criticized for insufficient attention to how organizations in turbulent environments continuously reconfigure their resources and capabilities to maintain advantage. Dynamic Capabilities Theory addresses this gap by emphasizing organizations' abilities to sense environmental opportunities and threats, seize promising opportunities through strategic resource deployment, and reconfigure the organization's resource base to capitalize on opportunities and manage challenges (Liu, 2022).

In rapidly evolving digital and tourism contexts, the development of dynamic capabilities becomes critical for sustaining organizational competitiveness. Within this perspective, digital leadership can be understood as a meta-capability, namely a higher-order capability that enables the development and orchestration of other organizational capabilities. Digitally competent leaders demonstrate effectiveness across three interrelated processes. First, sensing refers to the ability to identify emerging technological opportunities and threats that are relevant to tourism enterprises, including recognizing how innovations such as artificial intelligence (AI), virtual reality (VR), blockchain, and the Internet of Things (IoT) can create value and anticipating evolving customer expectations for technology-enabled experiences (Müller et al., 2024). Second, seizing involves mobilizing

organizational resources and making strategic decisions regarding the adoption and application of technologies, where leaders translate recognized opportunities into concrete implementation actions, secure necessary resources, and ensure stakeholder alignment around technological investments (Martinsuo & Anttila, 2022). Third, reconfiguring entails the transformation of organizational processes, structures, competencies, and practices to align with newly adopted technologies, including phasing out obsolete routines, reskilling employees, and fundamentally redesigning service delivery models to reflect digital capabilities (Milani et al., 2024).

Integration: DCT-RBV Framework for Understanding Leadership, Technology, and Innovation

The integrated Dynamic Capabilities Theory–Resource-Based View (DCT-RBV) framework offers strong explanatory power for understanding the proposed model by linking leadership, technology adoption, and innovation within a coherent theoretical structure. Within this framework, digital leadership is conceptualized as a dynamic capability that enables organizations to continuously sense technological opportunities, seize promising innovations, and reconfigure resources in response to environmental turbulence, thereby sustaining competitive advantage (Müller et al., 2024). Competencies such as technological vision, data-driven decision-making, and change orchestration directly support these sensing, seizing, and reconfiguring processes. In this context, digital technology adoption represents the tangible manifestation of these dynamic capabilities, as it reflects how leaders translate opportunity recognition into concrete implementation through the mobilization of organizational resources and strategic action (Prasetyo et al., 2025). Furthermore, tourism service innovation emerges as the ultimate outcome and source of competitive advantage, as organizations leverage successfully adopted technologies and reconfigured processes to deliver enhanced and value-creating services for customers (Fung So & Li, 2023).

The framework further suggests that digital leadership influences tourism service innovation through two complementary pathways. The direct pathway operates through leadership-driven mechanisms such as vision articulation, strategic orientation, and innovation enablement, which foster employee creativity, encourage experimentation, and cultivate organizational cultures that support innovation. Through these cultural and motivational influences, leadership directly contributes to innovation outcomes. In contrast, the indirect pathway operates through the mediating role of digital technology adoption, whereby digital leaders facilitate the adoption and effective utilization of technologies that expand organizational capabilities and enable new forms of service innovation that would otherwise be difficult or inefficient to achieve. These two pathways function simultaneously and interactively rather than independently; however, the mediation pathway holds particular theoretical and empirical significance, as it underscores the central role of technological enablement in driving innovation within contemporary tourism contexts.

RESEARCH METHOD

This study adopts a conceptual research design grounded in prior scholarly work (Heinonen & Gruen, 2024; Jamalnia et al., 2023; Li et al., 2021; Papadas et al., 2017; Stylos et al., 2022; Tuncer & Korchagina, 2024; Wang et al., 2024; Yang et al., 2022), emphasizing the integration and synthesis of existing literature to construct a novel theoretical framework. In contrast to empirical approaches that rely on primary data collection, this study utilizes an integrative literature review combined with logical deduction to analyze the relationships among Digital Leadership, Digital Technology Adoption, and Tourism Service Innovation. The central objective is to develop a multi-dimensional

understanding of how leadership contributes to innovation outcomes through the mediating role of technology adoption.

The proposed conceptual model incorporates several core relationships, including a direct effect of digital leadership on tourism service innovation (H_1), an effect of digital leadership on digital technology adoption as a mediating variable (H_2), and the influence of digital technology adoption on tourism service innovation (H_3). In addition, the model proposes an indirect effect (H_4), in which digital technology adoption mediates the relationship between digital leadership and tourism service innovation. While potential moderating variables that may strengthen or weaken these relationships are acknowledged, they are positioned as avenues for future research. Accordingly, the study formulates four hypotheses: first, that digital leadership has a direct and positive effect on tourism service innovation (H_1); second, that digital leadership positively influences digital technology adoption ($H2_)$; third, that digital technology adoption positively affects tourism service innovation (H_3); and fourth, that digital technology adoption serves as a significant mediating mechanism in the relationship between digital leadership and tourism service innovation, such that the indirect effect of digital leadership on innovation through technology adoption is positive and statistically meaningful (H_4).

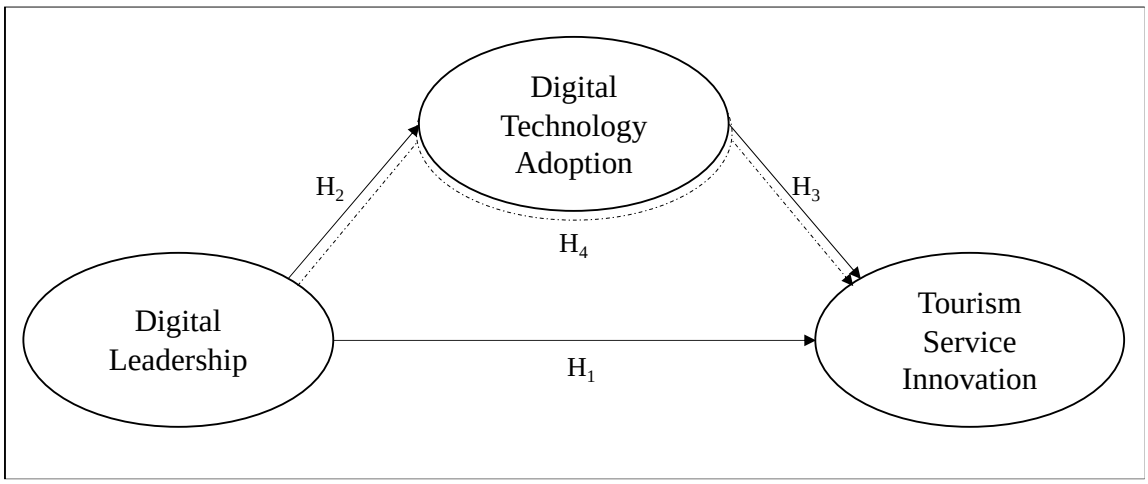

Figure 1. Proposed Research Model

RESULTS AND DISCUSSION

The Dynamic Capabilities Theory–Resource-Based View (DCT-RBV) framework is particularly well suited to the tourism sector due to several contextual characteristics. Tourism operates in highly volatile environments marked by rapid technological advancements, shifting geopolitical dynamics, pandemic-related disruptions, and continuously evolving consumer preferences, making dynamic capabilities a strategic necessity (Boikanyo, 2025). Furthermore, tourism service innovation is inherently dependent on technology integration, as modern services increasingly rely on digital systems ranging from online booking platforms to AI-driven personalization and immersive destination experiences; consequently, organizations' capacity to adopt and utilize technology directly shapes their innovation potential (Bondarenko et al., 2025; Ivanov, 2020). At the same time, digital leadership competencies remain relatively scarce within the tourism sector, particularly among family-owned MSMEs and destination management organizations that were established in pre-digital contexts and are often led by individuals with expertise in hospitality operations rather than digital strategy, thereby rendering such capabilities valuable and difficult to imitate in line with RBV

assumptions (Busulwa et al., 2024). Additionally, competitive positioning in tourism increasingly depends on service innovation, as the proliferation of online comparison platforms intensifies commoditization and compels organizations to differentiate through innovative offerings rather than pricing strategies (Farida & Setiawan, 2022). While potential moderating factors may influence these dynamics, they are considered as extensions for future investigation.

Building on this foundation, the study proposes several hypotheses to explain the relationships among digital leadership, digital technology adoption, and tourism service innovation. First, digital leadership is expected to exert a direct and positive influence on tourism service innovation (H1). This relationship is theoretically grounded in multiple mechanisms, including the ability of leaders to articulate compelling innovation visions that enhance employee motivation and engagement, consistent with transformational leadership theory (Suliati et al., 2025). Moreover, digital leaders shape organizational cultures that support innovation by fostering psychological safety, encouraging experimentation, promoting collaboration, and allocating resources for innovation initiatives (Gracia Divino et al., 2024). Through behavioral modeling, they also demonstrate the importance of continuous learning, technological curiosity, and data-driven decision-making, thereby influencing employee behavior (Malathi & Thomas Jeyanth, 2025). In addition, investments in employee capability development, particularly in digital skills, further strengthen innovation capacity, especially in tourism contexts where service quality is closely linked to employee competencies (Siminto, 2024). Empirical evidence supports a positive and significant relationship between digital leadership and innovation performance in tourism and hospitality settings (Suliati et al., 2025).

Second, digital leadership is hypothesized to directly and positively influence digital technology adoption (H2). This relationship is supported by the role of leaders in articulating clear technological visions, which reduces ambiguity and aligns organizational stakeholders around adoption priorities (Theenadhayalan, 2025). Digital leaders also play a crucial role in securing financial, human, and organizational resources necessary for technology implementation, leveraging their credibility and influence (Siminto, 2024). Additionally, they facilitate organizational change by managing resistance, communicating effectively, and supporting employees throughout the transition process (Federico J. Quijada, 2025). By fostering innovation-supportive cultures and psychological safety, leaders encourage employees to embrace technological change (Chang & Octoyuda, 2024), while also enhancing organizational absorptive capacity, which determines the effectiveness of technology adoption (Neelayapalem, 2026). Empirical studies across sectors confirm the positive impact of digital leadership on technology adoption readiness and implementation success (Deyana Cindy & Usman, 2024).

Third, digital technology adoption is expected to directly and positively influence tourism service innovation (H3). From a resource-based perspective, digital technologies function as valuable and strategic resources that expand the range of feasible service innovations. Technology adoption enables new service formats, such as virtual reality experiences, AI-based customer interactions, and blockchain-enabled transactions, which are not possible without technological infrastructure (Jiao et al., 2025). It also enhances operational efficiency by reducing costs and errors, thereby freeing resources for service improvement and customization (Wu et al., 2024). Furthermore, digital systems provide data analytics capabilities that support personalized services and targeted offerings (Chukwunweike Mokogwu et al., 2024), while simultaneously enhancing employee competencies through embedded training and support mechanisms (Del Vecchio et al., 2025). In addition, digital technologies facilitate access to external knowledge sources, including industry best practices and expert networks, which further stimulate innovation (Cheng et al., 2025). Empirical evidence

consistently demonstrates a positive relationship between technology adoption and innovation performance in tourism and related sectors (Say, 2025; Jamil, 2025).

Fourth, digital technology adoption is proposed to mediate the relationship between digital leadership and tourism service innovation (H4), with a positive and significant indirect effect. This mediation mechanism reflects the understanding that, while digital leadership can directly influence innovation through cultural and motivational pathways, contemporary tourism innovation increasingly depends on technological enablement. Digital technologies provide the tools, infrastructure, and capabilities necessary for implementing innovative services, making technology adoption a critical conduit through which leadership vision is translated into tangible outcomes (Tagscherer & Carbon, 2023). From a dynamic capabilities perspective, the processes of sensing, seizing, and reconfiguring require appropriate technological foundations to generate competitive advantage (Bornay-Barrachina et al., 2025). Accordingly, digital leaders who successfully drive technology adoption establish the organizational conditions necessary for innovation to emerge (Tagscherer & Carbon, 2023), whereas the absence of such technological foundations constrains innovation potential (Yamin & Murwaningsari, 2023). This mediation process can be understood as a sequence involving vision articulation, resource mobilization, technology implementation, capability development, and ultimately innovation manifestation, indicating that technology adoption serves as the mechanism linking leadership to innovation outcomes. The model assumes partial mediation, meaning that the direct effect of digital leadership on innovation remains significant alongside the indirect effect, reflecting the coexistence of cultural and technological pathways (Jamil, 2025).

In addition to these core relationships, several contextual factors are proposed to moderate the strength of the mediation pathway. Organizational size may influence outcomes, as larger firms typically possess greater resources and more advanced technological infrastructures, enabling stronger mediation effects, whereas smaller enterprises may face adoption constraints. The level of technology sophistication also matters, as advanced technologies such as AI, IoT, and blockchain are more likely to generate substantial innovation compared to basic digitization (Çyço & Duçi, 2025). Variations across tourism sub-sectors, including hospitality, tour operations, and destination management, may further shape the mediation mechanism. Environmental dynamism is another critical factor, as highly dynamic environments tend to strengthen the importance of technology adoption for innovation, while more stable environments may emphasize direct leadership effects. Similarly, baseline digital maturity influences the speed and effectiveness of innovation outcomes, with more digitally mature organizations benefiting more rapidly from technological enhancements. Institutional support, including government policies and industry collaboration, can facilitate both adoption and innovation processes (Kindzule-Millere & Zeverte-Rivza, 2022), while organizational culture and norms regarding innovation and risk-taking further condition outcomes. Additional complementary pathways may also exist, including organizational learning, employee empowerment (Siminto, 2024), and strategic agility, which can amplify the effectiveness of both leadership and technology adoption in generating innovation (Jamil, 2025).

From a managerial perspective, several strategic implications emerge. Digital leadership development should be treated as a strategic priority, with organizations investing in executive capabilities related to digital strategy, technology decision-making, and innovation management. At the same time, technology adoption should be guided by strong leadership to ensure alignment with organizational strategy and to maximize value creation (Abonamah & Abdelhamid, 2024). Innovation strategies should integrate leadership and technological dimensions rather than treating them as

separate initiatives. Moreover, tourism organizations must adopt context-specific approaches that reflect the diversity of industry segments and organizational characteristics (Bondarenko et al., 2025; Ivanov, 2020). Finally, technology adoption should be aligned with sustainability and social responsibility objectives, ensuring that innovation contributes not only to competitiveness but also to broader societal and environmental goals.

In terms of future research, several directions are proposed. First, empirical validation of the mediation model is required through quantitative approaches such as structural equation modeling across diverse tourism contexts. Second, future studies should examine boundary conditions by investigating moderating variables such as organizational size, technology sophistication, environmental dynamism, and digital maturity using moderated mediation analysis. Third, further research should differentiate between types of digital technologies, such as AI, VR, blockchain, IoT, and big data analytics, to assess how different technological characteristics influence innovation outcomes and the strength of mediation effects.

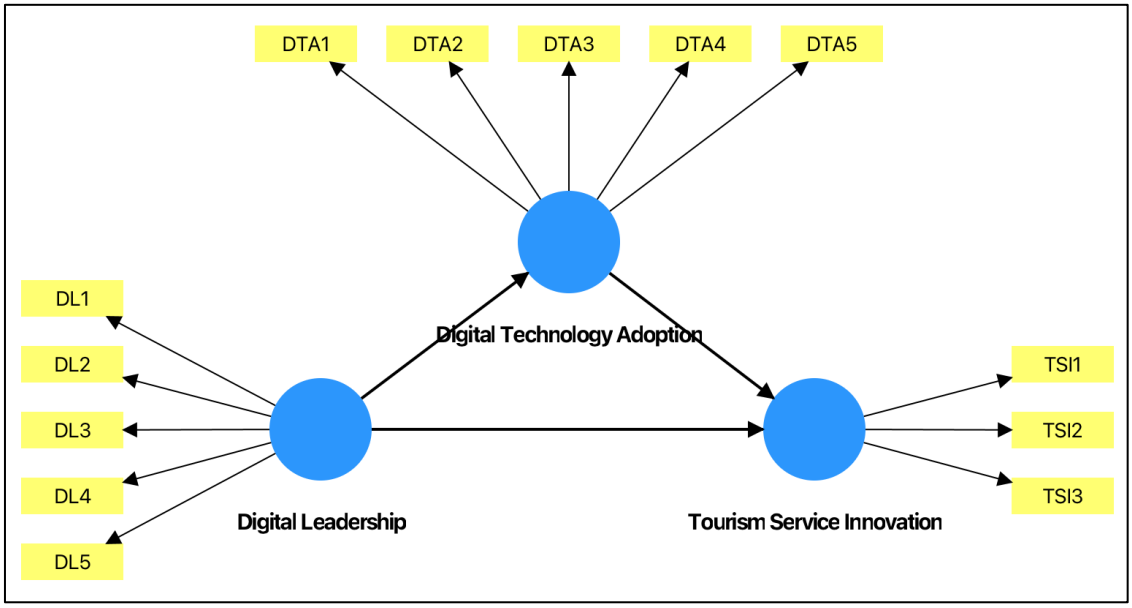

Figure 2. Proposed Model for Further Empirical Test

CONCLUSION

This conceptual paper has proposed and theoretically justified a mediation model illuminating how digital leadership influences tourism service innovation through the mechanism of digital technology adoption. Grounded in Dynamic Capabilities Theory and the Resource-Based View, the model integrates three central constructs, digital leadership, digital technology adoption, and tourism service innovation, into a coherent theoretical framework explaining contemporary tourism competitive dynamics.

The proposed model contributes to tourism management scholarship in multiple ways. First, it elevates digital leadership from operational importance to strategic centrality, arguing that leadership capabilities increasingly determine organizations' competitive positioning in digital-intensive industries. Second, it recognizes that while technology adoption represents a key mechanism through which strategy translates into innovation, leadership remains essential for ensuring technology adoption success. Third, by proposing a mediation pathway, the model illuminates the sequential

processes through which contemporary tourism service innovations emerge, processes requiring both visionary leadership and technological enablement.

For tourism practitioners, the model suggests several critical insights. Digital transformation should not be delegated exclusively to IT functions or assumed to occur through technology implementation alone. Rather, effective digital transformation requires leadership vision, strategic clarity, and active management of the complex organizational changes accompanying technology adoption. Conversely, organizations attempting to drive innovation through visionary leadership alone, without ensuring appropriate technological infrastructure, will encounter fundamental constraints. Competitive tourism service innovation increasingly depends on the integration of strong digital leadership with sophisticated technology adoption.

The theoretical framework also recognizes that tourism service innovation takes multiple forms, process innovations improving operational efficiency, experiential innovations creating memorable customer encounters, sustainable innovations addressing environmental and social concerns, and organizational innovations enabling effective change. Digital technologies enable particular forms of innovation; thoughtful technology adoption strategies should consciously align technology selection with innovation objectives.

Looking forward, as tourism continues its digital transformation, organizations and destinations that develop strong digital leadership capabilities while making strategic technology investments aligned with competitive positioning and customer value creation will create enduring competitive advantages. Conversely, those who either neglect digital leadership development or pursue undirected technology adoption without strategic coherence will face margin compression and competitive obsolescence.

The proposed mediation model offers a conceptual foundation for understanding how these competitive dynamics emerge and how tourism organizations can proactively shape their competitive positioning through integrated digital leadership and technology strategies. Empirical testing of the model across diverse tourism contexts, investigation of boundary conditions, and process-level research examining how leadership and technology combine in practice represent important future research directions that will further illuminate these critical competitive dynamics in contemporary tourism.

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