IMPROVING THE DIGITALIZED SYSTEM FOR MANAGING INNOVATIONS IN THE HOSPITALITY INDUSTRY: PERSPECTIVES ON EFFICIENCY AND STRATEGIC DECISION-MAKING

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Abstract*.This study examines how digitalized systems for managing innovation in the hospitality industry can be improved to strengthen operational efficiency and strategic decision-making. Contemporary hospitality research shows that digital transformation increasingly depends on integrated information systems, analytics, artificial intelligence, and platform-based service models rather than isolated technology adoption (Buhalis & Law, 2008; Cheng et al., 2023; Song et al., 2024). Using a qualitative conceptual design based on systematic review and thematic synthesis, this paper analyzes reliable academic and institutional sources on hospitality digitalization, innovation capability, and data-driven management. The findings indicate that digitalized innovation systems are more effective when firms align technological infrastructure with absorptive capacity, organizational learning, data governance, and strategic leadership (Cohen & Levinthal, 1990; Jaakkola, 2020; Wynn & Lam, 2023). The paper argues that efficiency and decision quality improve when digital systems operate as integrated managerial infrastructures for knowledge sharing, service redesign, and innovation coordination. The study contributes a conceptual thesis and proposes practical implications for hospitality managers, researchers, and educators.*

Keywords: *digital transformation, hospitality industry, innovation management, operational efficiency, strategic decision-making, digital systems*

Introduction

The hospitality industry has undergone substantial digital transformation in recent decades as hotels and related service organizations have adopted reservation systems, revenue management platforms, customer relationship technologies, automation tools, and analytics dashboards to improve service delivery and competitiveness (Buhalis & Law, 2008; Ivanov & Webster, 2019; Song et al., 2024). These developments have changed innovation management from a periodic and largely operational activity into a continuous, system-supported process involving real-time information, cross-functional coordination, and strategic adaptation (Cheng et al., 2023; Wynn & Lam, 2023).

Existing literature demonstrates that digital transformation can improve guest experience, operational speed, personalization, and financial performance in hospitality firms (Xiang et al., 2015; Song et al., 2024; Anwar et al., 2024). At the same time, hospitality organizations frequently encounter barriers such as fragmented legacy systems, skill shortages, implementation costs, cybersecurity risks, and weak strategic alignment between technology and innovation goals (Sanli, 2024; Wynn & Lam, 2023; Yang et al., 2024). These barriers raise an important research question:

how can digitalized systems for managing innovations in hospitality be improved so that they support both efficiency and higher-quality strategic decision-making?

Although many studies address digital tools in tourism and hospitality, fewer studies explain how digitalized innovation management systems function as integrated organizational capabilities. Much of the existing research emphasizes individual technologies such as online booking systems, AI applications, robotics, or analytics, while less attention has been paid to the broader managerial system that connects these tools to learning, knowledge integration, and innovation governance (Buhalis & Law, 2008; Cheng et al., 2023; Song et al., 2024). This gap is significant because hospitality firms increasingly compete on their ability to sense market changes, absorb new knowledge, and turn digital information into strategic action (Cohen & Levinthal, 1990; Teece, 2007; Mariani et al., 2018).

The purpose of this study is to examine how digitalized systems for managing innovation in the hospitality industry can be improved from the perspectives of efficiency and strategic decision-making. Specifically, the study aims to: (1) identify the key components of an effective digitalized innovation management system; (2) explain how such systems improve operational efficiency; and (3) analyze how they support strategic decision-making in hospitality organizations.

Methods

This study uses a qualitative conceptual methodology based on systematic review and thematic synthesis of existing literature. A conceptual review is appropriate because the aim is to integrate prior scholarship, identify explanatory patterns, and construct a coherent analytical framework rather than test a single empirical dataset (Jaakkola, 2020). The approach is also consistent with prior hospitality and tourism review work that synthesizes digital transformation research to identify mechanisms, gaps, and future directions (Cheng et al., 2023; Song et al., 2024).

The literature base was developed from peer-reviewed journal articles, books by recognized academic publishers, doctoral research from accredited universities, and reputable institutional reports relevant to hospitality digitalization and innovation. Priority was given to sources that addressed one or more of the following: digital transformation in hotels or hospitality services, innovation capability, strategic management, data-driven decision-making, service automation, and organizational learning (Buhalis & Law, 2008; Ivanov & Webster, 2019; UNWTO, 2021). Additional foundational studies on absorptive capacity, dynamic capabilities, and international business communication were included to strengthen the conceptual explanation of innovation management processes (Cohen & Levinthal, 1990; Teece, 2007; Tenzer et al., 2017).

The analysis proceeded in three stages. First, studies were screened for relevance to hospitality digitalization, innovation systems, and strategic decision-making. Second, selected works were coded into four thematic categories: digital integration and process efficiency, knowledge access and absorptive capacity, data-driven strategic decision-making, and implementation barriers.

Results

Digital integration and process efficiency. The reviewed literature shows that digitalized systems improve efficiency in hospitality when technologies are integrated into a coordinated managerial architecture rather than adopted as separate tools (Buhalis & Law, 2008; Cheng et al., 2023; Wynn & Lam, 2023). Integration among property management systems, central reservation systems, customer relationship platforms, revenue management tools, and analytics dashboards allows faster information sharing, reduced duplication, and stronger coordination across

departments (Anwar et al., 2024; Sanli, 2024). In practical terms, this improves workflow visibility and helps managers respond more rapidly to operational bottlenecks, customer needs, and market fluctuations.

Research also indicates that the efficiency value of digitalization is strongest when it supports both front-stage and back-stage hospitality processes. Front-stage improvements include better personalization, faster guest communication, and smoother service encounters, while back-stage improvements include better forecasting, staffing decisions, inventory planning, and performance monitoring (Xiang et al., 2015; Ivanov & Webster, 2019; Yang et al., 2024). This suggests that digitalized innovation management systems should be understood as enterprise-wide systems that shape organizational effectiveness rather than as isolated customer-service applications.

Knowledge access and innovation capability. A second major finding is that digitalized systems improve innovation management by expanding access to knowledge and strengthening absorptive capacity. Hospitality innovation depends not only on technology itself but also on the ability of managers and employees to recognize, assimilate, and apply external knowledge to service development and strategic change (Cohen & Levinthal, 1990). Digital systems support this process by connecting firms to market data, online reviews, benchmarking information, professional platforms, research outputs, and partner networks (Mariani et al., 2018; UNWTO, 2021).

The literature further suggests that digital systems enable more effective knowledge recombination, which is essential for service innovation in hospitality. Firms can combine customer feedback, operational data, and external market intelligence to redesign services, improve guest experiences, and identify innovation opportunities (Sigala, 2018; Xiang et al., 2015). In this sense, digitalized innovation systems act as knowledge infrastructures that support learning and continuous improvement rather than merely automating routine tasks.

Strategic decision-making and data use. The third major result concerns strategic decision-making. The reviewed studies indicate that digitalized systems create value when they help managers transform raw data into actionable knowledge for pricing, segmentation, service design, and long-term planning (Cheng et al., 2023; Song et al., 2024). Hospitality firms increasingly rely on data from bookings, guest feedback, demand patterns, loyalty systems, and competitor intelligence to guide decisions, but the quality of those decisions depends on system design, analytical capability, and managerial interpretation (Xiang et al., 2015; Gultom et al., 2026).

Several studies emphasize that data-driven decision-making improves both tactical and strategic outcomes in hospitality, especially in demand forecasting, revenue management, resource allocation, and service quality improvement (Ivanov & Webster, 2019; Gultom et al., 2026). When digital systems are organized as decision-support infrastructures, they enhance strategic responsiveness and reduce uncertainty in complex service environments. This supports the argument that digital transformation should be viewed not only as operational modernization but also as a mechanism for strengthening managerial judgment.

Barriers to system improvement. The literature also identifies persistent barriers that weaken the effectiveness of digitalized innovation systems in hospitality. These include implementation costs, lack of interoperability, cyber-risk, staff resistance, insufficient digital literacy, and weak leadership commitment (Sanli, 2024; Wynn & Lam, 2023; Yang et al., 2024). Small and medium-sized hospitality firms may be especially vulnerable because they often lack the financial and organizational resources needed for large-scale digital integration (UNWTO, 2021).

An important pattern across the literature is that these barriers interact with one another. For example, fragmented systems can reduce data quality, which then limits trust in analytics, which in turn reduces strategic reliance on the system. This chain effect shows that improving digitalized innovation management requires coordinated action in technology design, governance, employee capability development, and organizational culture (Cheng et al., 2023; Song et al., 2024).

Discussion

The findings suggest that improving digitalized innovation systems in hospitality requires a socio-technical and strategic perspective. Technology adoption alone does not guarantee better innovation outcomes. Instead, value emerges when digital tools are integrated with organizational learning, managerial capability, and decision processes (Cohen & Levinthal, 1990; Teece, 2007; Wynn & Lam, 2023). This interpretation helps explain why some hospitality firms achieve substantial innovation and efficiency gains while others experience only limited benefits from similar technologies.

From an efficiency perspective, the strongest improvements occur when digital systems reduce information silos and provide enterprise-wide visibility across operations. Interoperability supports faster coordination, stronger resource utilization, and more disciplined implementation of innovation initiatives (Anwar et al., 2024; Sanli, 2024). From a strategic perspective, digitalized systems improve decision quality when they provide timely, relevant, and interpretable information that managers can use to evaluate alternatives and align innovation investments with business goals (Gultom et al., 2026; Song et al., 2024).

The findings also reinforce the importance of communication and knowledge accessibility in internationally oriented hospitality settings. Because much professional knowledge, technical documentation, and global benchmarking information remains available in English, language capability can indirectly shape the effectiveness of digitalized innovation systems by influencing access to external knowledge and stakeholder communication (Crystal, 2003; Tenzer et al., 2017). This insight is especially relevant for non-English-speaking hospitality contexts that are integrating global digital platforms and managerial practices.

Based on the synthesis, the study proposes a conceptual understanding in which digital integration improves information quality and workflow coordination; these factors strengthen efficiency and data-driven decision-making; and both outcomes are amplified by absorptive capacity, organizational agility, and leadership support (Cohen & Levinthal, 1990; Teece, 2007; Wynn & Lam, 2023). This model positions digitalized innovation management as a strategic infrastructure for competitiveness in hospitality.

Conclusion

This study examined how the digitalized system for managing innovations in the hospitality industry can be improved from the perspectives of efficiency and strategic decision-making. The analysis shows that the most effective systems are integrated, knowledge-based, and strategically governed rather than fragmented or purely technical in orientation (Cheng et al., 2023; Song et al., 2024; Wynn & Lam, 2023).

The findings indicate that digitalized systems improve efficiency by enhancing coordination, reducing duplication, improving process visibility, and supporting both guest-facing and internal operational activities (Anwar et al., 2024; Sanli, 2024). They also strengthen strategic decision-making by enabling managers to use data more effectively in innovation planning, market adaptation, and service redesign (Gultom et al., 2026; Xiang et al., 2015). Future empirical research

can test this conceptual framework across different hospitality settings and compare its relevance in both developed and emerging markets.

References

1. Anwar, F. A., Deliana, D., & Suyamto. (2024). Digital transformation in the hospitality industry: Improving efficiency and guest experience. International Journal of Management Science and Information Technology. https://doi.org/10.35870/ijmsit.v4i2.3201
2. Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. Tourism Management, 29(4), 609–623. https://doi.org/10.1016/j.tourman.2008.01.005
3. Cheng, X., Xue, T., Yang, B., & Ma, B. (2023). A digital transformation approach in hospitality and tourism research. International Journal of Contemporary Hospitality Management. https://doi.org/10.1108/IJCHM-06-2022-0679
4. Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35(1), 128–152. https://doi.org/10.2307/2393553
5. Crystal, D. (2003). English as a global language (2nd ed.). Cambridge University Press.
6. Gultom, R. A., Mustofa, F. J., & Tanaga, S. M. (2026). The role of artificial intelligence–based decision support systems in managerial decision-making in the hospitality industry: A systematic literature review. Costing: Journal of Economic, Business and Accounting.
7. Ivanov, S., & Webster, C. (2019). Robots, artificial intelligence, and service automation in travel, tourism and hospitality. Emerald Publishing.
8. Jaakkola, E. (2020). Designing conceptual articles: Four approaches. AMS Review, 10, 18–26. https://doi.org/10.1007/s13162-020-00161-0
9. Mariani, M. M., Baggio, R., Fuchs, M., & Höepken, W. (2018). Business intelligence and big data in hospitality and tourism: A systematic literature review. International Journal of Contemporary Hospitality Management, 30(12), 3514–3554. https://doi.org/10.1108/IJCHM-07-2017-0461
10. Rogerson-Revell, P. (2007). Using English for international business: A European case study. English for Specific Purposes, 26(1), 103–120. https://doi.org/10.1016/j.esp.2006.04.004
11. Sanli, M. (2024). Digital transformations in the hotel industry [Doctoral dissertation, Long Island University]. Long Island University Digital Commons. https://digitalcommons.liu.edu/post_fultext_dis/92/
12. Sigala, M. (2018). New technologies in tourism: From multi-disciplinary to anti-disciplinary advances and trajectories. Tourism Management Perspectives, 25, 151–155. https://doi.org/10.1016/j.tmp.2017.12.003
13. Song, W., Ying, T., Lee, S., Zhou, D., Zhu, J., & Peng, X. (2024). Digital transformation in the hospitality industry: A bibliometric review from 2000 to 2023. International Journal of Hospitality Management. https://doi.org/10.1016/j.ijhm.2024.103761
14. Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640
15. Tenzer, H., Terjesen, S., & Harzing, A. W. (2017). Language in international business: A review and agenda for future research. Management International Review, 57, 815–854. https://doi.org/10.1007/s11575-017-0319-x

16. UNWTO. (2021). International tourism highlights, 2020 edition. World Tourism Organization. https://doi.org/10.18111/9789284422456
17. Warschauer, M. (2003). Technology and social inclusion: Rethinking the digital divide. MIT Press.
18. Wynn, M. G., & Lam, C. (2023). Digitalisation and IT strategy in the hospitality industry. Systems, 11(10), 501. https://doi.org/10.3390/systems11100501
19. Xiang, Z., Schwartz, Z., Gerdes, J. H., & Uysal, M. (2015). What can big data and text analytics tell us about hotel guest experience and satisfaction? International Journal of Hospitality Management, 44, 120–130. https://doi.org/10.1016/j.ijhm.2014.10.013
20. Yang, Y., Xiang, K., Zeng, J., Au, N., Han, B., & Li, J. (2024). Digital transformation paradigm involved in high-star hotels and budget hotels: Sensory and innovation diffusion perspective. Tourism Management Perspectives, 52, 101274. https://doi.org/10.1016/j.tmp.2024.101274