MANAGING IT PROJECTS FOR AI-DRIVEN PERSONALIZED AND ADAPTIVE HOTEL INFORMATION SYSTEMS

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ABSTRACT
The rapid adoption of artificial intelligence (AI) in the hospitality industry has intensified expectations for service efficiency, personalization, and operational performance; however, empirical evidence indicates that implementation outcomes remain inconsistent across hotel contexts, suggesting that technological capability alone does not ensure success. This study examines AI adoption from an information technology (IT) project management perspective, focusing on how AI-driven IT projects enhance operational efficiency and what factors differentiate successful implementations from those that underperform. A structured literature review (SLR) was conducted to synthesize recent empirical and conceptual research on AI implementation in hotel operations. The findings show that AI-driven IT projects improve service responsiveness, personalization accuracy, workflow efficiency, and resource utilization, with the most sustainable gains observed in projects that achieve balanced improvements across both guest-facing services and internal organizational processes. Furthermore, leadership commitment, stakeholder engagement, effective change management, and system integration are identified as key determinants of project success. Overall, this study positions AI adoption as a socio-technical IT project rather than a purely technological initiative, offering practical insights for aligning AI strategies with organizational and service objectives.

***Keywords**:* Artificial Intelligence Implementation, IT Project Management, Hospitality Industry, Operational Efficiency, Socio-Technical Systems

I. INTRODUCTION

The hospitality industry has increasingly embraced artificial intelligence (AI) as a strategic instrument to enhance service efficiency, personalization, and operational responsiveness. AI-enabled systems are now widely deployed in hotel environments to support reservation management, customer interaction, pricing optimization, and internal workflow coordination. Prior studies consistently report that AI adoption has the potential to improve guest satisfaction while simultaneously reducing operational inefficiencies, particularly in labor-intensive and service-intensive hotel operations[1], [2]. However, despite these promising prospects, empirical evidence suggests that AI-driven initiatives in hospitality settings frequently produce uneven outcomes, with a significant proportion of projects failing to deliver their anticipated benefits[3], [4]. In the hotel context, this inconsistency is often linked to the unique characteristics of hospitality services, including high variability in guest expectations, the need for real-time service delivery, and the continued reliance on human–AI interaction in frontline services.

Additional challenges such as misalignment between AI applications and service design, limited availability of high-quality guest data, insufficient staff readiness, resistance to technology adoption among employees, and difficulties in integrating AI systems with legacy property management systems further contribute to inconsistent implementation outcomes. This discrepancy highlights a critical issue that extends beyond technological capability. While existing research has extensively examined AI algorithms, system architectures, and data analytics applications in hospitality contexts[5], [6], considerably less attention has been paid to managing AI implementation as an information technology (IT) project. This imbalance reveals a clear research gap, as the project management dimension remains underexplored despite its central role in determining implementation outcomes. In practice, AI adoption in hotels is not a purely technical undertaking but a complex organizational initiative involving multiple stakeholders, legacy systems, frontline service

personnel, and managerial decision-making processes. As a result, the success or failure of AI initiatives is often shaped less by technological sophistication and more by how effectively these projects are planned, coordinated, governed, and integrated into existing operational structures [7].

Within the broader information systems (IS) and project management literature, scholars have long emphasized that IT project outcomes are strongly influenced by factors such as leadership commitment, stakeholder alignment, change management practices, and organizational readiness [8], [9]. However, these insights remain insufficiently contextualized within the hospitality sector, where service delivery is highly interactive, time-sensitive, and experience-driven. Unlike manufacturing or back-office environments, hotels operate in settings characterized by direct guest contact, real-time service expectations, and a strong reliance on frontline employees to mediate technology use. Consequently, AI and IT project implementation in hospitality must account for the integration of human–technology interactions, variability in guest preferences, and the need to maintain service quality and emotional engagement. These sector-specific conditions make the translation of general IT project management principles more complex, thereby necessitating a more context-sensitive understanding of how such factors influence project outcomes in hospitality environments.[8],[9]. Studies in enterprise systems, digital transformation, and service innovation consistently demonstrate that inadequate project governance and misalignment between technology and organizational strategy are among the leading causes of IT project underperformance [10], [11]. Nevertheless, these insights have not been sufficiently contextualized within the hospitality sector, where service delivery dynamics, customer experience expectations, and human–technology interactions differ markedly from those of manufacturing or back-office enterprise environments.

Existing hospitality-focused research tends to approach AI adoption from a functional or outcome-oriented perspective, emphasizing performance indicators such as response time, personalization accuracy, and service quality improvements [12], [13]. While such metrics are valuable, they offer limited explanatory power regarding *why* similar AI technologies yield divergent results across comparable hotel contexts. As a result, the literature remains fragmented, with performance outcomes often reported without a systematic examination of the project management conditions under which those outcomes emerge. This gap constrains both theoretical development and practical guidance for hotel managers tasked with overseeing AI-driven IT initiatives.

Moreover, the service-intensive nature of hospitality operations introduces additional layers of complexity to AI project implementation. Frontline employees, who play a central role in shaping guest experiences, are frequently required to adapt to new AI-supported workflows, decision-support tools, and automated service interfaces. Research indicates that resistance to change, insufficient training, and ambiguity in role redefinition can significantly undermine the effectiveness of digital transformation projects in service organizations [14], [15]. These challenges underscore the necessity of examining AI adoption not merely as a technological upgrade, but as a socio-technical project embedded within organizational routines, cultures, and power structures.

Against this backdrop, there is a clear need for a more integrated analytical perspective that bridges AI adoption in hospitality with established principles of IT project management. Such an approach enables a deeper understanding of how operational efficiencies are generated, sustained, or constrained by managerial and organizational factors throughout the project lifecycle. By synthesizing insights from prior studies on AI-enabled hospitality systems and IT project success frameworks, this study seeks to move beyond descriptive accounts of performance outcomes toward a more explanatory and interpretive analysis.

Accordingly, the present study aims to systematically examine AI-driven IT project implementation in the hospitality sector through the lens of project management. Drawing on a structured literature review (SLR) of recent empirical and conceptual studies, this research investigates two central questions: (1) what operational efficiency outcomes are commonly associated with AI-enabled IT projects in hotel contexts, and (2) what managerial and organizational factors distinguish successful implementations from those that underperform or fail. By addressing these questions, the study contributes to the hospitality and information systems literature in three key ways. First, it

consolidates fragmented findings on AI-related performance outcomes into a coherent operational efficiency framework. Second, it identifies recurring project management determinants that shape implementation success and failure in service-oriented environments. Third, it provides actionable insights for practitioners seeking to align AI initiatives with organizational strategy and service delivery objectives.

Through this integrative perspective, the study positions AI not as an isolated technological solution, but as a strategic IT project whose outcomes depend fundamentally on how technology, people, and organizational processes are managed in concert. This framing establishes a foundation for the subsequent methodological approach, results synthesis, and discussion of managerial and theoretical implications presented in the following sections.

To clarify the analytical perspective adopted in this study, Figure 1 presents a conceptual framework illustrating AI-driven IT project implementation in hospitality settings, highlighting the interrelationships between technological components, organizational processes, and operational outcomes.

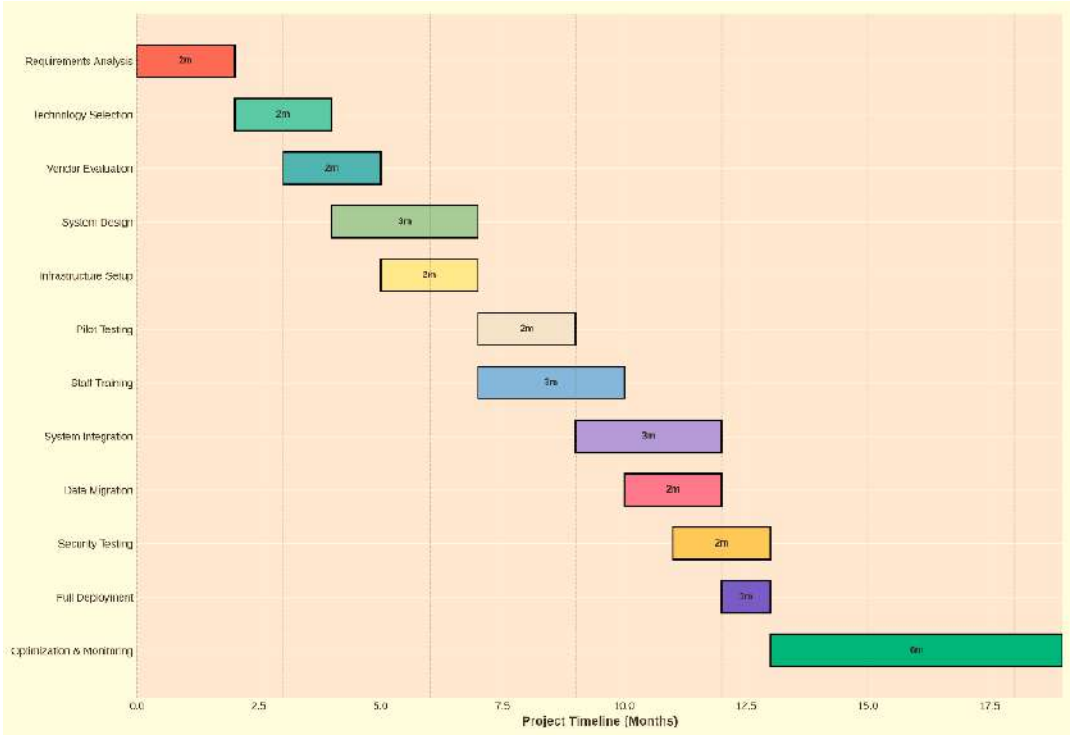

Figure 1. Phased Implementation Framework For AI-Based Hotel Information Systems

II. LITERATURE REVIEWS

The evolution of Artificial Intelligence (AI) has shifted the hospitality industry's focus from standardized service delivery toward a paradigm of hyper-personalization. AI-driven personalized and adaptive hotel information systems represent an integration of machine learning algorithms that tailor guest experiences by analyzing behavioral data and preferences in real time. Within the literature, these systems are defined by their capacity to dynamically adjust service touchpoints —such as mobile applications, recommendation engines, and in-room automation (e.g., lighting or temperature control)—based on individual guest profiles. Their effectiveness depends on big data analytics, which refers to the large-scale processing of structured and unstructured data to generate predictive insights, enabling hotels to anticipate guest needs with greater accuracy.

Managing the implementation of such systems requires a shift from traditional linear project management approaches (e.g., Waterfall) toward iterative and flexible methodologies. Agile

and Scrum frameworks, characterized by incremental development, continuous feedback, and adaptive planning, are widely recognized as more suitable for AI-driven projects due to the experimental and evolving nature of machine learning models. Compared to traditional approaches, Agile enables faster response to changing guest requirements and data-driven insights, although it may introduce challenges in scope control and coordination across departments. In hospitality contexts, these challenges are intensified by the need to maintain uninterrupted 24/7 operations, requiring project managers to carefully balance flexibility with operational stability.

A critical issue highlighted in recent studies is the tension between deep personalization and data privacy governance. Personalized AI systems rely heavily on sensitive guest data, including behavioral patterns and preferences, which raises concerns regarding data security and ethical use. Regulatory frameworks such as the General Data Protection Regulation (GDPR) emphasize strict data protection standards, requiring organizations to adopt privacy-by-design principles—defined as the integration of data protection mechanisms into system development from the outset. Compared to traditional customer data management, AI-driven systems pose higher risks due to their scale and predictive capabilities, making transparency and user consent critical to sustaining guest trust.

From a technical perspective, interoperability remains a major challenge in hospitality environments. AI applications must integrate with legacy Property Management Systems (PMS), which are often not designed for real-time data exchange. This creates fragmentation across platforms and limits the development of unified guest profiles. Compared to other sectors with more standardized IT infrastructures, hotels face greater complexity due to heterogeneous systems and reliance on third-party vendors. As a result, effective stakeholder management and system integration—through application programming interfaces (APIs), which enable communication between software systems, and data pipelines, which facilitate continuous data flow—become essential components of project success.

Despite these advances, existing literature predominantly focuses on technological capabilities and system design, with comparatively limited attention to how these AI initiatives are managed as IT projects within the hospitality context. This reveals a critical research gap, as the success of AI-driven personalized systems is not determined solely by technical sophistication but by how effectively project management practices —such as governance, stakeholder coordination, and integration strategies—are adapted to the unique operational and service characteristics of the hospitality industry.

III. RESEARCH METHOD

This study employs a qualitative research design based on a Structured Literature Review (SLR) to examine the implementation of AI-driven information technology (IT) projects in the hospitality sector and their contribution to operational efficiency. The review follows the Prisma principles to ensure transparency, systematic selection, and analytical rigor. This approach enables the synthesis of empirical and conceptual studies while identifying recurring patterns in operational outcomes and project management determinants. By integrating insights from hospitality management, information systems, and IT project management literature, the method supports an explanatory analysis beyond descriptive reporting.

Review was guided by two research questions: (1) what operational efficiency outcomes are associated with AI-driven IT projects in hotel contexts, and (2) what project management and organizational factors differentiate successful implementations from underperforming initiatives. These questions informed the search strategy, keyword selection, and inclusion criteria. A systematic search was conducted across major academic databases—Scopus, Web of Science, and Google Scholar—selected for their broad coverage of high-quality research in information systems and hospitality. The search strings combined three clusters: (“artificial intelligence” OR “AI-enabled systems” OR “machine learning”) AND (“hospitality industry” OR “hotel operations” OR “service management”) AND (“IT project management” OR “digital transformation” OR “technology adoption”).

Inclusion criteria required studies to be peer-reviewed, published in English within a recent time frame (approximately the last decade), and explicitly focused on AI implementation in hospitality settings with reported operational, managerial, or project-related outcomes. Studies

limited to technical algorithm development without organizational relevance were excluded. A multi-stage screening process—covering title, abstract, and full-text review—was applied to ensure relevance and quality.

Data analysis was conducted using thematic synthesis. Each study was coded based on AI application type, operational domain, efficiency outcomes, and project management factors. Recurring themes were then aggregated into higher-level categories. A socio-technical perspective guided interpretation, emphasizing the interaction between technological systems and organizational conditions such as leadership, stakeholder engagement, change management, and system integration. This approach ensures that findings are grounded in systematically reviewed literature while providing meaningful theoretical and managerial insights into AI-driven IT project implementation in hospitality contexts.

IV. RESULTS AND ANALYSIS

A. Operational Performance Outcomes of AI-Driven IT Projects

The synthesis of the reviewed studies indicates that AI-driven IT project implementation in the hospitality sector is consistently associated with measurable operational performance improvements across multiple service dimensions. From a guest-facing perspective, the most frequently reported outcomes include faster service response times, improved personalization accuracy, and enhanced service consistency across customer touchpoints[16],[17]. For instance, AI-enabled reservation systems and conversational interfaces reduce booking friction and enable real-time interaction, thereby improving perceived service quality and responsiveness[18].

At the organizational level, parallel efficiency gains are observed in internal process optimization. These include improved task allocation, reduced manual workload for frontline staff, and enhanced coordination across operational units such as front desk services, housekeeping, and revenue management[19], [20]. Importantly, these improvements are more pronounced when AI systems are integrated with existing property management systems rather than deployed as standalone solutions, as integration supports data continuity and minimizes operational disruption during implementation [21]. Crucially, the literature emphasizes that guest-facing and organizational outcomes are not independent but mutually reinforcing.

B. Variability of Outcomes Across Implementation Contexts

Despite consistently positive findings, the literature reveals substantial variability in both the magnitude and sustainability of AI-driven performance outcomes across hotel contexts. While some implementations achieve rapid and significant efficiency gains, others report modest or inconsistent improvements despite similar technological investments [22], [23]. This divergence suggests that outcome variability cannot be explained by AI functionality alone but is strongly influenced by contextual and organizational conditions.

A cross-study comparison indicates that this variability can be systematically grouped into three key dimensions: (1) organizational readiness, including digital maturity, employee competencies, and data infrastructure; (2) project governance, encompassing leadership support, stakeholder alignment, and change management practices; and (3) system integration capability, particularly the extent to which AI solutions are embedded within existing IT ecosystems. Hotels with higher digital maturity and stronger managerial coordination tend to achieve more stable and scalable efficiency gains, whereas those with fragmented governance structures or insufficient staff readiness often experience delayed benefits or underperformance[24].[25].

Temporal factors further shape these outcomes. Short-term efficiency gains are commonly observed following initial deployment, especially in automation-related functions; however, sustaining these gains depends on continuous system refinement, user adaptation, and organizational learning processes [26]. In contrast, projects lacking post-implementation support frequently experience performance stagnation or decline. This pattern suggests a clear causal relationship: long-term operational efficiency is contingent not only on initial implementation but also on the ongoing management and adaptation of AI systems within the organization.

C. Aggregate Operational Efficiency Impact

While individual performance indicators provide valuable insights, assessing AI implementation solely through disaggregated outcomes risks underestimating its cumulative

operational impact. To address this limitation, the reviewed studies increasingly adopt an aggregated perspective that synthesizes efficiency gains across core service and organizational functions [27].

Figure 2. synthesizes these operational indicators, illustrating the aggregate efficiency gains achieved through AI implementation across core hotel service functions.

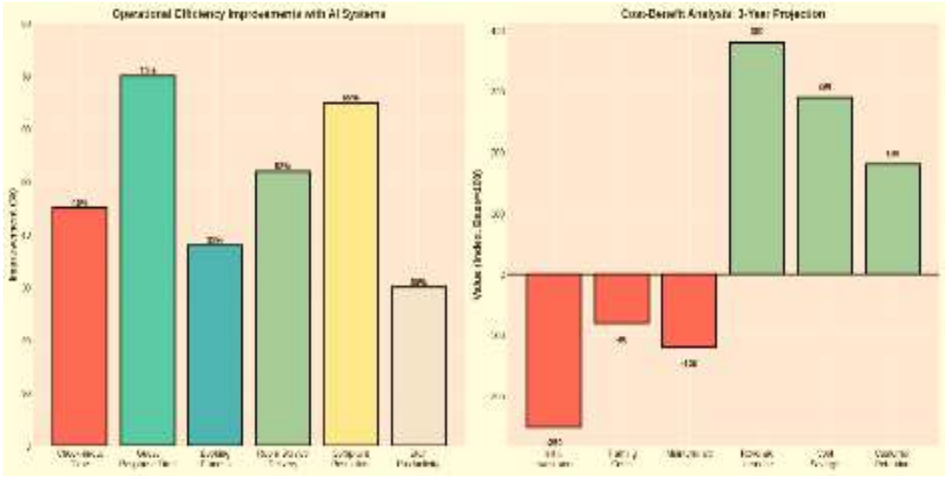

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Figure 2 presents a synthesized overview of operational efficiency improvements reported across the literature, capturing the combined effects of AI-driven enhancements in service responsiveness, internal process optimization, and resource utilization. The aggregated results indicate that AI-enabled IT projects can generate substantial overall efficiency gains when implemented in a coordinated and strategically aligned manner. Notably, the magnitude of these gains varies across cases, reflecting differences in project governance, organizational readiness, and integration depth.

The aggregated perspective further reveals that projects achieving balanced improvements across both guest-facing and organizational dimensions tend to report more sustainable outcomes over time [28]. In contrast, initiatives that prioritize isolated automation benefits without corresponding organizational adjustments often exhibit uneven performance profiles. This finding reinforces the value of evaluating AI implementation outcomes through an integrative lens that accounts for multiple operational dimensions simultaneously.

D. Summary of Key Results

Taken together, the results demonstrate that AI-driven IT projects in the hospitality sector are capable of delivering meaningful operational efficiency improvements, but that these outcomes are neither uniform nor guaranteed. Performance gains are most pronounced when AI systems are embedded within integrated operational workflows and supported by organizational processes that facilitate adaptation and learning. The observed variability across implementation contexts underscores the importance of examining not only what outcomes are achieved, but also the conditions under which they emerge.

These findings provide a structured empirical foundation for the subsequent discussion, which explores the managerial and organizational factors that differentiate successful AI implementation projects from those that underperform or fail.

DISCUSSION

A. Interpreting Success and Failure in AI-Driven Hotel IT Projects

The results demonstrate that AI-driven IT projects in the hospitality sector can yield substantial operational efficiency gains; however, these gains are neither uniform nor automatic. This finding aligns with prior research in information systems and digital transformation, which emphasizes that technology-enabled performance improvements are contingent upon how projects are managed rather than on technological capability alone [29], [30]. In the context of hospitality, where service quality is co-produced through human–technology interaction, this dependency becomes particularly pronounced.

Figure 3. Interpreting Success and Failure in AI-Driven Hotel IT Projects

Figure 3 synthesizes recurring determinants that distinguish successful from unsuccessful AI implementation initiatives. Across the reviewed studies, leadership commitment emerges as a foundational factor. Projects characterized by visible executive sponsorship and clear strategic intent consistently report more stable and scalable efficiency outcomes [31]. Such leadership engagement facilitates resource allocation, accelerates decision-making, and signals organizational legitimacy for change initiatives. In contrast, projects lacking sustained leadership involvement often encounter delays, scope ambiguity, and diminished stakeholder buy-in, undermining potential performance gains [31].

Stakeholder engagement constitutes a second critical differentiator. Successful projects tend to involve frontline employees, IT personnel, and service managers early in the project lifecycle, fostering shared ownership and practical alignment between system design and operational realities [32]. This finding corroborates socio-technical systems theory, which posits that technological effectiveness depends on congruence between technical solutions and social structures [33]. In hospitality settings, where frontline staff mediate guest experiences, insufficient engagement frequently translates into resistance, workarounds, or superficial system use, thereby limiting realized benefits [34].

Change management practices further explain observed outcome variability. The results indicate that AI projects supported by structured training programs, iterative implementation phases, and feedback mechanisms are more likely to achieve sustained efficiency improvements [35]. Conversely, initiatives framed primarily as technology rollouts—without adequate attention to behavioral adaptation—often deliver short-term automation gains that dissipate over time. This pattern echoes established findings in IT project management literature, which identify change management as a decisive factor in translating technological potential into organizational performance [36].

B. Organizational Readiness and Integration Depth

Beyond managerial actions, organizational readiness plays a central role in shaping AI project outcomes. The reviewed studies suggest that hotels with higher levels of digital maturity—manifested in standardized processes, interoperable systems, and data governance capabilities—are better positioned to absorb AI-driven innovations [37]. In such environments, AI systems can be integrated more seamlessly into existing workflows, enabling cumulative efficiency gains rather than isolated improvements.

Integration depth emerges as a particularly salient dimension of readiness. Projects that embed AI functionalities within core property management and service delivery systems

consistently outperform those relying on fragmented or standalone applications [38]. Deep integration facilitates real-time data sharing, reduces manual reconciliation tasks, and supports coordinated decision-making across departments. By contrast, shallow integration often results in parallel processes that increase complexity rather than reduce it, offsetting potential efficiency gains [39].

These findings reinforce the notion that AI implementation should be conceptualized as an organizational transformation project rather than a discrete technological enhancement. Consistent with prior research on enterprise systems and digital platforms, the value of AI appears to materialize most fully when technological capabilities are aligned with organizational structures and routines [40]. For hospitality managers, this implies that investments in AI must be accompanied by parallel investments in process redesign and capability development.

C. Implications for IT Project Management in Service Contexts

The findings carry important implications for IT project management theory and practice, particularly within service-intensive industries. Traditional project management approaches often prioritize scope, time, and cost control, assuming relatively stable operational environments [41]. However, the variability observed in AI-driven hospitality projects suggests that such approaches may be insufficient when managing technologies that actively reshape service interactions and work practices.

Instead, the results support a more adaptive and governance-oriented project management perspective. Successful AI initiatives exhibit characteristics associated with agile and hybrid project management models, including iterative deployment, cross-functional collaboration, and continuous stakeholder feedback [42]. These characteristics enable organizations to respond to emergent challenges and recalibrate project objectives in line with evolving service demands.

From a practical standpoint, the discussion underscores the need for hotel organizations to broaden their conception of project success. Efficiency gains should not be evaluated solely in terms of immediate cost reductions or automation metrics, but also in relation to longer-term organizational learning and service capability enhancement [43]. Projects that prioritize short-term efficiency at the expense of staff engagement or system integration may achieve initial gains but struggle to sustain them.

D. Theoretical Contributions

The study contributes to the hospitality and information systems literature in several ways. First, by synthesizing operational outcomes across multiple studies, it advances a more holistic understanding of AI-enabled efficiency in service contexts. Rather than treating guest-facing and organizational outcomes as separate domains, the discussion highlights their interdependence and cumulative impact.

Second, the findings extend IT project management theory by contextualizing established success factors within the hospitality sector. While leadership commitment, stakeholder engagement, and change management are well-documented determinants of IT project success [44]. their specific manifestations in service-intensive environments have received limited empirical attention. This study demonstrates how these factors operate in settings characterized by high customer interaction and labor intensity.

Third, the integrative framework implied by Figure 6 offers a basis for future research that bridges technological, managerial, and organizational perspectives. By positioning AI as a socio-technical project rather than a standalone innovation, the study aligns with and extends contemporary debates on digital transformation and service innovation [45].

E. Managerial Implications

For practitioners, the discussion yields several actionable insights. Hotel managers overseeing AI-driven IT projects should prioritize governance structures that ensure sustained leadership involvement throughout the project lifecycle. Early and continuous engagement with frontline staff can mitigate resistance and enhance system usability, increasing the likelihood that efficiency gains will be realized in practice.

Additionally, managers should assess organizational readiness prior to large-scale AI deployment. Investments in data integration, process standardization, and staff capability development may be necessary prerequisites for achieving meaningful returns on AI initiatives. Finally, adopting adaptive project management approaches can help organizations navigate the inherent uncertainty associated with AI-enabled transformation.

6 Limitations and Directions for Future Research

While the discussion provides a comprehensive synthesis of existing evidence, it is subject to several limitations. The reliance on secondary studies may obscure contextual nuances present in individual implementations. Moreover, variations in measurement approaches across studies limit the precision with which efficiency gains can be compared.

Future research could address these limitations through longitudinal case studies or mixed-method designs that capture both quantitative performance metrics and qualitative implementation dynamics. Comparative studies across different service industries may further illuminate the boundary conditions under which AI-driven IT projects succeed or fail.

V. CONCLUSION

A central contribution of this study is the explicit identification and contextualization of project management determinants as primary drivers of AI implementation success in hospitality settings. While prior research has acknowledged factors such as leadership commitment, stakeholder engagement, change management, and system integration, this study demonstrates how these elements operate interdependently within service-intensive hotel environments, where real-time guest interaction and service quality amplify their impact. Specifically, the findings show that leadership commitment enables strategic alignment of AI initiatives, stakeholder engagement facilitates smoother adoption among frontline staff, structured change management reduces resistance, and deep system integration ensures operational continuity. By embedding these factors within the hospitality context, this study moves beyond generic IT project frameworks[48] and highlights their sector-specific manifestation and combined effect on operational outcomes, thereby addressing a critical gap in existing literature.

From a practical perspective, the findings translate into several actionable recommendations. First, hotel managers should treat AI initiatives as long-term organizational transformation projects, rather than isolated technological upgrades, by establishing dedicated governance structures such as cross-functional project teams involving IT, operations, and service staff. Second, continuous staff training programs should be implemented to enhance digital competencies and reduce resistance to AI-supported workflows. For example, hotels deploying AI-based chatbots or automated check-in systems should simultaneously train frontline employees to manage exceptions and maintain service quality. Third, managers should prioritize incremental system integration, ensuring that AI applications are interoperable with existing property management systems to avoid operational fragmentation. Finally, adopting adaptive project management approaches—such as iterative implementation cycles combined with continuous performance monitoring—can help organizations respond effectively to evolving service demands and technological uncertainties[49].

Despite these contributions, the study has several limitations. Its reliance on secondary literature limits the ability to capture context-specific dynamics of individual hotel implementations, while variations in measurement approaches across studies constrain direct comparability of results. Future research should address these limitations through longitudinal case studies or mixed-method designs that integrate quantitative performance metrics with qualitative insights into project execution processes. Additionally, comparative studies across different service industries would help clarify the boundary conditions under which AI-driven IT project management practices produce consistent outcomes.

In conclusion, by framing AI adoption as a socio-technical IT project, this study advances both theoretical understanding and managerial practice in hospitality digital transformation. It demonstrates that the value of AI does not reside solely in technological sophistication, but in the extent to which technological capabilities are effectively aligned with organizational processes, human resources, and project management practices. Consequently, sustainable operational performance improvements are achieved through the coordinated management of technology, people, and processes over time, rather than through isolated technological implementation alone.

REFERENCES

[1] E. Cherenkov *et al.*, “From Machine Learning Algorithms to Superior Customer Experience: Business Implications of Machine Learning-Driven Data Analytics in the Hospitality Industry,” *J. Smart Tour.*, vol. 4, no. 2, pp. 5–14, Jun. 2024, doi: 10.52255/smarttourism.2024.4.2.2.

[2] S. A. Diwan, “Optimizing guest experience in smart hospitality: Integrated fuzzy-AHP and machine learning

for centralized hotel operations with IoT," *Alex. Eng. J.*, vol. 116, pp. 535–547, Mar. 2025, doi: 10.1016/j.aej.2024.11.051.

[3] M. U. Tariq, "The Role of AI in Transforming Hospitality Operations-Enhancing Efficiency and Guest Experience:," in *Smart Operations and Enhancing Guest Experience in the Hospitality Industry*, M. B. Talukder and H. H. K. Chowdhury, Eds., IGI Global, 2025, pp. 415–446. doi: 10.4018/979-8-3373-2145-5.ch016.

[4] M. B. Talukder, "Implementing Artificial Intelligence and Virtual Experiences in Hospitality:," in *Advances in Hospitality, Tourism, and the Services Industry*, S. Manohar, A. Mittal, S. Raju, and A. J. Nair, Eds., IGI Global, 2024, pp. 145–160. doi: 10.4018/979-8-3693-2019-8.ch009.

[5] Rangsit University, Thailand and P. Limna, "Artificial Intelligence (AI) in the Hospitality Industry: A Review Article," *Int. J. Comput. Sci. Res.*, vol. 7, pp. 1306–1317, Jan. 2023, doi: 10.25147/ijcsr.2017.001.1.103.

[6] V. S, R. A. Canessane, and V. K K, "Implementation of Hotel Recommendation System with Integrated Machine Learning Models," in *2025 11th International Conference on Communication and Signal Processing (ICCSP)*, Melmaruvathur, India: IEEE, Jun. 2025, pp. 919–924. doi: 10.1109/ICCSP64183.2025.11088426.

[7] M. Remountakis, K. Kotis, B. Kourtzis, and G. E. Tsekouras, "ChatGPT and Persuasive Technologies for the Management and Delivery of Personalized Recommendations in Hotel Hospitality," 2023, *arXiv*. doi: 10.48550/ARXIV.2307.14298.

[8] L. Sapir, "INTEGRATION OF ARTIFICIAL INTELLIGENCE IN HOTEL SERVICES:TRENDS AND DEVELOPMENTS (THE ISRAELI CASE)," *Ann. Univ. Oradea Econ. Sci.*, vol. 33, no. 1, pp. 177–183, Jul. 2024, doi: 10.47535/1991AUOES33(1)020.

[9] P. Balamurugan, M. Govindaraj, Y. Kharde, M. C, and S. P, "Enhancing Hotel Competitiveness through a Machine Learning Based CRM Management System for Improved Customer Relationships and Satisfaction," *SSRN Electron. J.*, 2025, doi: 10.2139/ssrn.5079750.

[10] Y. K. Dwivedi *et al.*, "Artificial intelligence agents and agentic systems in hospitality and tourism: challenges, opportunities and research agenda," *Int. J. Contemp. Hosp. Manag.*, Sep. 2025, doi: 10.1108/IJCHM-02-2025-0287.

[11] F. Amirulloh Anwar, D. Deliana, and S. Suyamto, "Digital Transformation in the Hospitality Industry: Improving Efficiency and Guest Experience," *Int. J. Manag. Sci. Inf. Technol.*, vol. 4, no. 2, pp. 428–437, Sep. 2024, doi: 10.35870/ijmsit.v4i2.3201.

[12] B. T. Mohammad and R. D. Iva, "The technology impacts and AI solutions in hospitality," *-Manag. J. Artif. Intell. Mach. Learn.*, vol. 2, no. 1, p. 56, 2024, doi: 10.26634/jaim.2.1.20291.

[13] Aphisavadh Sirivadhanawaravachara, "The impact of artificial intelligence in the global hospitality industry by 2030," *World J. Adv. Res. Rev.*, vol. 25, no. 1, pp. 1691–1701, Jan. 2025, doi: 10.30574/wjarr.2025.25.1.0205.

[14] K. Saini and Renu, "The AI Revolution Is Reshaping the Hospitality Industry:," in *Advances in Hospitality, Tourism, and the Services Industry*, M. B. Talukder, S. Kumar, and P. K. Tyagi, Eds., IGI Global, 2024, pp. 509–524. doi: 10.4018/979-8-3693-7898-4.ch024.

[15] J. Xiaoyu, "A Personalized Recommendation Method for Hotel Room Management Based on Behavioral Preference Model," *Int. J. High Speed Electron. Syst.*, p. 2540496, Apr. 2025, doi: 10.1142/S0129156425404966.

[16] Z. Jamaluddin and A. K. Rahmat, "Artificial Intelligence Technology in Travel, Tourism and Hospitality: Current and Future Developments," in *Technology Application in Aviation, Tourism and Hospitality*, A. Hassan and N. A. A. Rahman, Eds., Singapore: Springer Nature Singapore, 2023, pp. 169–177. doi: 10.1007/978-981-19-6619-4_12.

[17] Dr. S. K. Sukhmani Sandhu, "EMBEDDING ARTIFICIAL INTELLIGENCE IN HOSPITALITY & TOURISM," *Psychol. Educ. J.*, vol. 58, no. 2, pp. 5384–5389, Feb. 2021, doi: 10.17762/pae.v58i2.2950.

[18] A. I. -, "Artificial Intelligence (AI) in the Hospitality Industry: A Review Article," *Int. J. Multidiscip. Res.*, vol. 6, no. 3, p. 19393, May 2024, doi: 10.36948/ijfmr.2024.v06i03.19393.

[19] Dr. Mahendra Singh, Dr Mukesh Shekhar and Dr. Sujay Vikram Singh, "Impact of Emerging Technologies on Hotel Information Systems: A Systematic Review of Adoption, Challenges, and Outcomes in the Indian Hospitality Sector," *J. Inform. Educ. Res.*, vol. 5, no. 3, Aug. 2025, doi: 10.52783/jier.v5i3.3476.

[20] M. Badouch and M. Boutaounte, "Design and Implementation of a Hotel Recommendation System Using Deep Learning:," in *Advances in Marketing, Customer Relationship Management, and E-Services*, L. Alla, A. Hmioui, and B. Bentalha, Eds., IGI Global, 2024, pp. 388–408. doi: 10.4018/979-8-3693-3172-9.ch019.

[21] A. Jasrotia, S. Banerjee, and R. Shukla, "AI-Powered Customer Engagement: Changing Marketing Strategies in the Hotel Industry," in *Advances in Marketing, Customer Relationship Management, and E-Services*, V. Nadda, P. K. Tyagi, A. Singh, and V. Singh, Eds., IGI Global, 2024, pp. 105–114. doi: 10.4018/979-8-3693-7122-0.ch006.

[22] Mr. Bhupender, Ms. Sapna, and Mr. Hitesh, "HARNESSING TECHNOLOGY AND ARTIFICIAL INTELLIGENCE FOR ENHANCING GUEST EXPERIENCES IN THE HOSPITALITY AND TOURISM INDUSTRY," in *Futuristic Trends in Management Volume 3 Book 10*, First., Dr. S. Sarkar, Dr. K. Singh, Mr. C B Gopinath, Mr. Koushik, Mr. C. K. Sahoo, Dr. T. Chauhan, Dr. C. G. Byahatti, Dr. K. N. Kumar, and Mr. P. Subakaran, Eds., Iterative International Publisher, Selfypage Developers Pvt Ltd, 2024, pp. 72–84. doi: 10.58532/V3BHMA10P1CH4.

[23] E. Astuti, I. Harsono, S. Uhai, H. N. Muthmainah, and A. Y. Vandika, "Application of Artificial Intelligence Technology in Customer Service in the Hospitality Industry in Indonesia: A Literature Review on Improving Efficiency and User Experience," *Sci. Nord Nat. Sci. Technol.*, vol. 1, no. 01, pp. 28–36, Feb. 2024, doi: 10.71238/snst.v1i1.15.

[24] J. Abd El Kafy, T. Eissawy, and A. Hasanein, "Tourists' Perceptions Toward Using Artificial Intelligence Services in Tourism and Hospitality," *J. Tour. Hotels*

Herit., vol. 5, no. 1, pp. 1–20, Dec. 2022, doi: 10.21608/sis.2022.145976.1064.

[25] J. Guerra-Montenegro, J. Sanchez-Medina, I. Laña, D. Sanchez-Rodriguez, I. Alonso-Gonzalez, and J. Del Ser, "Computational Intelligence in the hospitality industry: A systematic literature review and a prospect of challenges," *Appl. Soft Comput.*, vol. 102, p. 107082, Apr. 2021, doi: 10.1016/j.asoc.2021.107082.

[26] P. Awasthi, "Revolutionizing the Hospitality and Tourism Industry through AI-Powered personalization: A Comprehensive Review of AI Integration, Impact on Customer Experience," *Int. J. Lead. Res. Publ.*, vol. 3, no. 1, p. 1448, Jan. 2022, doi: 10.70528/IJLRP.v3.i1.1448.

[27] M. B. Talukder, F. Kabir, and F. A. Jibon, "AI-Driven Personalized Room Management in the Modern Hotel Industry:," in *Advances in Hospitality, Tourism, and the Services Industry*, O. T. Chiwaridzo and R. Masengu, Eds., IGI Global, 2024, pp. 59–82. doi: 10.4018/979-8-3693-5678-4.ch003.

[28] P. Banerjee and A. Bhat, "Transforming Smart Hospitality: Leveraging AI and IoT for Sustainable Tourism, Enhanced Guest Experience, and Cybersecurity Resilience," *Eco-Tour. Sustain. Dev.*, vol. 1, no. 1, pp. 14–26, Mar. 2025, doi: 10.63385/etsd.v1i1.87.

[29] M. Chen, T. S. Martins, L. Zhang, and H. Dong, "Digital Transformation in Project Management: A Systematic Review and Research Agenda," *Systems*, vol. 13, no. 8, p. 625, Jul. 2025, doi: 10.3390/systems13080625.

[30] J. Wang, T. J. Khoo, and M. Esa, "The Impact of Digital Technology Applications on Construction Industry Project Performance," *J. Adv. Res. Appl. Sci. Eng. Technol.*, vol. 53, no. 1, pp. 311–322, Dec. 2024, doi: 10.37934/araset.53.1.311322.

[31] N. Tasleem and S. Gangadharan, "Navigating stakeholder dynamics in large-scale transformations," *J. Adv. Multidiscip. Res.*, vol. 1, no. 2, pp. 48–56, 2022, doi: 10.54660/.JAMR.2022.1.2.48-56.

[32] L. Kozamernik, "Effective Implementation of Digital Transformation and Change Management," in *Digital Factory*, in Synthesis Lectures on Mechanical Engineering. , Cham: Springer Nature Switzerland, 2024, pp. 43–49. doi: 10.1007/978-3-031-51071-7_9.

[33] R. Spies, S. Grobbelaar, and A. Botha, "A Scoping Review of the Application of the Task-Technology Fit Theory," in *Responsible Design, Implementation and Use of Information and Communication Technology*, vol. 12066, M. Hattingh, M. Matthee, H. Smuts, I. Pappas, Y. K. Dwivedi, and M. Mäntymäki, Eds., in Lecture Notes in Computer Science, vol. 12066. , Cham: Springer International Publishing, 2020, pp. 397–408. doi: 10.1007/978-3-030-44999-5_33.

[34] F. A. R. Somera and K. Petrova, "A Change Management View on Technology Adoption in Hotel Organizations: A Review and a Conceptual Framework," *Businesses*, vol. 4, no. 4, pp. 791–811, Nov. 2024, doi: 10.3390/businesses4040043.

[35] L. Gumbo and N. J. Booyse, "ARTIFICIAL INTELLIGENCE IMPLEMENTATION STRATEGIES IN BUSINESS: A SYSTEMATIC REVIEW," *Bus. Excell. Manag.*, vol. 15, no. S.I.5, pp. 92–110, Dec. 2025, doi: 10.24818/beman/2025.S.I.5-09.

[36] S. Gomathi, "Change Management and User Adoption," in *Mastering Microsoft Dynamics 365 Business Central*, Berkeley, CA: Apress, 2024, pp. 171–194. doi: 10.1007/979-8-8688-0230-0_7.

[37] M. Godolja, T. Tavanxhiu, and K. Sevrani, "Strategic Readiness for AI and Smart Technology Adoption in Emerging Hospitality Markets: A Tri-Lens Assessment of Barriers, Benefits, and Segments in Albania," *Tour. Hosp.*, vol. 6, no. 4, p. 187, Sep. 2025, doi: 10.3390/tourhosp6040187.

[38] X. Guo, "Application of Artificial Intelligence in the Property Management Industry: A Case Study of Poly Property," *Adv. Econ. Manag. Polit. Sci.*, vol. 208, no. 1, pp. 60–69, Aug. 2025, doi: 10.54254/2754-1169/2025.GL26318.

[39] S. Palanikumar, N. Kanimozhi, T. Thilagam, and R. Siva Subramanian, "Transforming Hospitality Management Through Intelligent Systems and Immersive Technologies:," in *Advances in Computational Intelligence and Robotics*, K. Birdir and S. Birdir, Eds., IGI Global Scientific Publishing, 2025, pp. 293–316. doi: 10.4018/979-8-3693-8769-6.ch011.

[40] N. Haefner, V. Parida, O. Gassmann, and J. Wincent, "Implementing and scaling artificial intelligence: A review, framework, and research agenda," *Technol. Forecast. Soc. Change*, vol. 197, p. 122878, Dec. 2023, doi: 10.1016/j.techfore.2023.122878.

[41] D. M. Haddab, "Evaluating the Impact of Project Management Approaches on Project Success: A Comprehensive Analysis of Traditional, Agile, and Hybrid Models," *Bus. IT*, vol. XIV, no. 2, pp. 50–60, 2024, doi: 10.14311/bit.2024.02.06.

[42] M. Ahmad, "Accelerating AI-Driven Innovation: Effective Information Systems Project Management:," in *Cases on Information Systems Service Management*, R. K. Patel, Ed., IGI Global Scientific Publishing, 2025, pp. 237–264. doi: 10.4018/979-8-3373-2352-7.ch009.

[43] T. Oberdieck and E. Moch, "Automation as an Answer to the Shortage of Skilled Labour and Cost Pressure," *Int. J. Res. Rev.*, vol. 12, no. 8, pp. 418–426, Aug. 2025, doi: 10.52403/ijrr.20250849.

[44] H. Allam and V. Akre, "A Proposed Model for IT Project Success Factors," in *2021 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)*, Dubai, United Arab Emirates: IEEE, Mar. 2021, pp. 132–136. doi: 10.1109/ICCIKE51210.2021.9410710.

[45] B. V. Babu, "Education 5.0," in *Advances in Technological Innovations in Higher Education*, 1st ed., Boca Raton: CRC Press, 2024, pp. 168–243. doi: 10.1201/9781003376699-13.

[46] F. N. Musahid *et al.*, "Digital Transformation: A Strategic Imperative for Modern Enterprises," *J. Econ. Assets Eval.*, vol. 2, no. 1, Aug. 2024, doi: 10.47134/jeae.v2i1.456.

[47] D. Schilirò, "Digital Transformation and its Impact on Organizations," *Int. J. Bus. Manag.*, vol. 19, no. 6, p. 71, Sep. 2024, doi: 10.5539/ijbm.v19n6p71.

[48] A. Radhakrishnan, J. S. Davis, and D. David, "Examining the Critical Success Factors in IT Projects: A Two-Panel Delphi Study," *Int. J. Inf. Technol. Proj.*

Manag., vol. 13, no. 1, pp. 1–38, Jan. 2022, doi: 10.4018/IJITPM.290423.

[49] W. Singh, "Enhancing Service Quality In Tourism Through Artificial Intelligence: A Study Of Private Hospitality Services In Uttar Pradesh," *Int. J. Environ. Sci.*, pp. 2969–2974, Aug. 2025, doi: 10.64252/9s2hr087.