

Identifying Essential Artificial Intelligence (AI) Knowledge and Skills for Hospitality and Tourism Graduates: A Pilot Study of Recruiter Perspectives

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Abstract

As artificial intelligence (AI) becomes increasingly integrated into hospitality operations, hospitality graduates must enter the workforce with relevant AI competencies. This pilot study explores what AI knowledge and skills hospitality employers expect from recent graduates to enhance employability. Through semi-structured interviews and surveys with recruiters at hospitality-focused career fairs, the study gathers insights on desired competencies, including AI literacy, ethical awareness, and familiarity with applications such as predictive analytics and personalization tools. The findings inform curriculum development by identifying gaps between current educational offerings and industry expectations. Thematic analysis of employer responses will provide a foundation for larger-scale studies and guide hospitality educators in aligning instruction with the technological needs of the industry. This research addresses the central question: What should hospitality educators teach students about AI to prepare them for a career in an increasingly AI-driven industry?

Keywords

Artificial Intelligence (AI), Recruiting, hospitality, career development

Track

Special Track 1: The Future of Talent Management

Focus of the Paper

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Introduction

The hospitality industry is experiencing an increasing integration of technology, with Artificial Intelligence (AI) emerging as a significant force driving unprecedented enhancements in service quality, operational efficiency, and personalized guest experiences (Bulchand-Gidumal et al., 2023; Guo et al., 2024). Examples include AI-driven chatbots for customer inquiries and AI-based systems for forecasting trends, personalizing experiences, and streamlining operations. These are just a few that highlight AI's transformative potential (Al-Hyari et al., 2023; Takyar, 2024). As technology becomes a vital strategic asset

for hospitality organizations to improve performance and competitiveness, it is paramount to prepare hospitality students with relevant AI knowledge and skills to ensure their readiness for this evolving landscape and to improve their employability. However, integrating AI demands a delicate balance of technology readiness and continuous adaptation to evolving market demands. These areas are just starting to be explored (Parvez, 2020; Warner & Wäger, 2019). However, there is a lack of clear understanding of the specific AI competencies hospitality recruiters prioritize in entry-level candidates. To address this gap, this paper presents a pilot study to gather preliminary insights from hospitality recruiters regarding the essential AI knowledge and skills they seek in recent graduates. Ultimately, this research aims to answer the central research question: What should hospitality educators teach students about AI so they are prepared for the industry and that will help them get hired?

Background and Relevance

Artificial intelligence (AI) represents a new tool and a transformative technological revolution. Although the hospitality and tourism industry has historically lagged in adopting emerging technologies, AI-driven innovations are gaining rapid traction and increasingly becoming standard practice throughout the sector (Alam et al., 2025; Levie & Roelings, 2025). Technology has long served as a strategic asset across all facets of hospitality operations (Brotherton & Wood, 2008), and AI is now extending that role. Even in its relatively early stages of adoption, AI is already making significant improvements in operational efficiency, revenue generation, and the overall customer experience.

Table 1 highlights specific applications of AI in the hospitality industry. The primary uses of AI, drawn from a comprehensive literature review, offer insights into how integrated this technology has become across various facets of the hospitality industry.

Table 1: Applications of AI in the Hospitality Industry by Major Category

Customer Service	AI-powered chatbots handle customer inquiries, enhancing responsiveness and guest satisfaction. Virtual AI humans fulfill social and respectful needs through interactive experiences, including language translation (Al-Hyari et al., 2023; Alam et al., 2025; Takyar, 2024).
Operational Efficiency	Predictive maintenance reduces operational disruptions and maintenance costs. Robotic Process Automation (RPA) automates check-in, room service, payroll, and HR services. This also includes using data from IofT and other mobile engagement to minimize costs and improve customer satisfaction (Choudhary, 2024; Jiwnani, 2024; Vinnakota et al, 2023).
Personalization	AI predicts guest preferences, enabling personalized marketing, pricing, and loyalty program experiences through data pattern recognition. This includes other aspects of CRM and analysis of marketing databases (Bulchand-Gidumal et al., 2023; Chatterjee et al., 2021; Guo et al., 2024)
Data Management and Analysis	AI and ML support data management, predictive analytics for consumer behavior, and sentiment analysis through review and feedback mining (Bryant, 2024; Jiwnani, 2024; Parva, 2020).

Forecasting and Planning	AI forecasts demand, pricing trends, human resource needs, and many revenue management functions (Alam et al., 2025; Herzfeld, 2024).
Hotel Staff Assistance	Integration with PMS and POS systems helps identify guest service needs and real-time service recommendations (Hollander, 2025; Marcus, 2025)
Booking Processes	Voice search and AI assistants integrated into CRS and intuitive travel planning and booking experiences (Buhalis & Moldavska, 2021; Chatterjee et al., 2021; Marcus, 2025).

However, adopting and implementing these AI technologies in the hospitality industry is a complex and multifaceted process influenced by practical constraints, such as financial costs, IT infrastructure, ethical considerations, and organizational readiness for change (Buhalis, O'Connor & Leung, 2022). This complexity underscores the need for hospitality educators to provide relevant training that equips students with adaptable AI-related competencies, ensuring that graduates can navigate and implement new tools effectively in dynamic operational environments where high-tech and high-touch coexist. Equally important is the ability to leverage data to understand evolving consumer preferences; AI and machine learning tools analyze large datasets to extract insights on guest behavior, enabling more personalized services and informed decision-making (Zahidi, Kaluvilla, & Mulla, 2024). These factors highlight the importance of examining which AI competencies and knowledge areas hospitality students need to develop to be genuinely career-ready in an industry increasingly defined by intelligent, data-driven service innovation.

In addition to the essential AI skills and tools necessary for students to thrive in the evolving hospitality job market, they should graduate with a fundamental understanding of AI concepts and their applications within the industry, which go beyond merely using tools. Awareness of the technological readiness required for effective AI implementation is equally important, both at the organizational level and in their ability to work with such tools (Jiwani, 2024). Ethical considerations, inherent bias, security, and data privacy concerns are crucial areas of understanding, as students must navigate issues related to guest monitoring, data usage, and building trust through responsible AI practices (Alam et al., 2025; Kwong et al., 2024; Vinnakota et al., 2023). Maintaining a high touch and delivering service with empathy is also important while gaining the inherent benefits of enabling AI technology tools (Bryant, 2024). Grasping these multifaceted dynamics will enable graduates to contribute meaningfully to AI-driven transformation in the hospitality industry and enhance their marketability. This pilot study investigates the central question: What do hospitality employers expect students to know about AI upon graduation to improve their employability in the hospitality industry?

Methodology

This study uses a qualitative, exploratory design to examine what hospitality employers expect graduates to know about AI to enhance their employability (Creswell & Poth, 2018). A pilot study approach was chosen to inform future, larger-scale research. Data will be collected through semi-structured interviews or surveys with 10 to 15 hospitality recruiters attending two hospitality-focused career fairs at U.S. universities. Using purposive sampling, and participants will be selected based on their experience hiring recent graduates across sectors such as hotels, restaurants, events, and tourism.

An open-ended questionnaire will guide inquiry into employers' current and anticipated use of AI, expected levels of AI literacy, and the specific skills or knowledge that make candidates more competitive—such as understanding AI applications, ethical considerations, data privacy, and system interaction. Recruiters will also identify key AI tools and assess the value of general versus technical AI knowledge. Thematic analysis will be used to identify patterns and insights from the responses.

Conclusion and Implications for Future Research

This pilot study explores what AI-related knowledge and skills hospitality recruiters expect from recent graduates, offering initial insights that can shape academic and career development strategies. Aligning hospitality education with these evolving industry demands is essential for graduate employability in a technologically advanced service environment. Although the pilot's small sample size and potentially limited geographic scope may restrict generalizability, the findings will provide a valuable foundation for broader future research. These results may prompt larger-scale studies and guide curriculum reform efforts to integrate AI literacy better, ensuring that hospitality programs remain relevant and future-focused. Additionally, future research should survey hospitality educators to explore their current practices, challenges, and strategies for integrating AI-related concepts into their curricula. This dual perspective from employers and educators would offer a more comprehensive understanding of the alignment between industry expectations and academic preparation. Ultimately, these insights could support the development of targeted curriculum recommendations that bridge the gap between hospitality education and the evolving technological demands of the industry.

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