



The Role of Artificial Intelligence in Improving Customer Experience in The Global Hospitality Industry

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Abstract: *Digital transformation in the hospitality industry has accelerated the adoption of artificial intelligence (AI) as a strategic tool to enhance customer experience and service efficiency. This study examines the implementation of AI technologies, including chatbots, facial recognition, predictive analytics, and innovative room controls, in hotel operations and their impact on guest perceptions and satisfaction. Employing a descriptive qualitative approach, the research integrates in depth interviews, participatory observations, and supporting quantitative data from employee questionnaires collected at leading international hotels across Southeast Asia and Europe. The findings reveal that AI enhances service speed, operational efficiency, and personalization, contributing to improved guest loyalty. However, significant challenges remain, including inadequate employee training, guest resistance to automation, and concerns over data privacy. The study emphasizes the need for a hybrid service model that strikes a balance between technological sophistication and human empathy, and recommends targeted employee training programs and enhanced data governance policies to facilitate the ethical implementation of AI in the hospitality industry.*

Keywords: *artificial intelligence, customer experience, hospitality industry, chatbot, service personalization, digital technology*

1. Introduction

The global hospitality industry is experiencing rapid transformation due to the advancement of digital technologies. Among these, Artificial Intelligence (AI) has emerged as a disruptive innovation that is reshaping how hotels operate and engage with their guests. AI enables the automation of services, facilitates personalized customer interactions, and supports data driven decision making, thereby significantly improving operational efficiency and customer satisfaction (Ivanov & Webster, 2019; Lu et al., 2020). These technologies extend beyond chatbots and

reservation systems to include facial recognition, predictive analytics, and voice assisted bright rooms.

Leading international hotel chains such as Marriott International and Hilton have adopted AI as part of their core strategy to enhance competitiveness. For example, Marriott utilizes machine learning for dynamic pricing, while Hilton employs AI powered chatbots for 24/7 guest interaction (Marriott News Center, 2022; Kaplan & Haenlein, 2020). These efforts are primarily driven by evolving customer expectations for responsive, seamless, and digitally enhanced service experiences.

However, AI adoption remains uneven, particularly in developing countries like Indonesia, where infrastructure limitations, cost barriers, and workforce readiness pose significant challenges. Many mid range and budget hotels in Indonesia still rely heavily on manual processes due to limited access to advanced technologies and a shortage of skilled personnel (Setiawan & Prayogo, 2021). Moreover, there is cultural resistance stemming from fears of job displacement and a lack of trust in automated systems.

Research conducted by Tung and Au (2018) revealed that the use of AI in hotel services can significantly enhance customer satisfaction, particularly when AI is employed to improve service speed and accuracy of information. A similar study by Ivanov and Webster (2017) stated that customers tend to have positive experiences when interacting with intuitive and responsive technology. However, these studies were primarily conducted in developed countries and the context of five star hotels. At the same time, there are still few studies that explore the effectiveness of AI implementation in local contexts and different cultures, such as in Indonesia.

The research gap lies in the limited empirical evidence on AI adoption within the Southeast Asian context, especially in middle tier hospitality businesses. While studies in developed countries emphasize the technical effectiveness of AI, few have addressed how cultural values, customer readiness, and workforce limitations influence its implementation in developing regions. This gap highlights the need for context sensitive research that explores both the benefits and limitations of AI in diverse hospitality settings.

The novelty of this study lies in its focus on the intersection between AI implementation and the cultural context of hospitality services in Indonesia. Unlike prior studies that often prioritize technological capability, this research investigates human perceptions both from the perspective of hotel staff and guests as the critical lens for evaluating AI's role in enhancing customer experience. This dual focus contributes to the theoretical understanding of techno human integration and provides actionable insights for the hospitality sector in the Global South.

The purpose of this research is to comprehensively analyze the role of artificial intelligence in improving customer experience in the global hospitality industry,

identify factors that support and hinder its implementation, and provide appropriate policy and strategy recommendations for the hospitality industry in Indonesia. Additionally, this research aims to assess customer perceptions of AI based services and the ethical implications that may arise from their use.

The benefits of this research are divided into three main categories: (1) Theoretical, this study is expected to enrich the literature on the relationship between AI technology and customer experience in the service industry; (2) Practical, hotel managers can use the results of this study to design service strategies that are technology based while still maintaining hospitality values; (3) Policy, this study provides input to stakeholders in the development of digital transformation policies in the tourism and hospitality sector.

The implications of this research include the strategic influence on the transformation of hotel operations. By understanding the role of AI, industry players can effectively utilize it to deliver a consistent and satisfying customer experience. In addition, the results of this study can serve as a basis for developing technology adaptive workforce training, as well as for formulating policies that support the integration of technology without compromising human values in hospitality services. In the long run, this can also enhance Indonesia's tourism industry's competitiveness at both regional and global levels.

Thus, this research not only enhances academic capacity and scientific understanding of AI in the hospitality sector but also makes a tangible contribution to accelerating the digital transformation of the service industry, focusing on customer satisfaction and experience.

2. Method

This study employs a descriptive qualitative design to investigate the role of artificial intelligence (AI) in enhancing customer experiences in the hospitality industry. This approach enables a contextual and in depth understanding of perceptions, practices, and operational dynamics surrounding AI implementation from both managerial and customer perspectives (Creswell, 2016; Denzin & Lincoln, 2018).

Research Locations and Time Frame

The research was conducted over five months, from September 2023 to January 2024, in three countries with active digital hospitality transformation:

1. Indonesia (Jakarta and Bali)
2. Singapore
3. France (Paris)

These locations were selected purposively to represent varying levels of technological adoption and cultural attitudes toward automation in the hotel industry.

Research Subjects

The study involved 15 key informants, including:

1. 5 hotel operations managers from international hotel chains (e.g., Marriott, Hilton, Accor)
2. 5 licensed hotel employees (front office staff, IT support, customer service)
3. 5 hotel guests aged 25–45 years, all of whom had used AI based services such as chatbots, intelligent room control, or facial recognition during hotel stays

The purposive sampling technique was used to ensure informants had direct experience with AI in hotel settings. The inclusion criteria included at least one year of experience managing or utilizing AI based hotel systems.

Research Instruments

The primary research instrument was the researcher, equipped with:

1. Semi structured interview guides, developed based on literature on AI and customer experience
2. Observation sheets, focused on recording AI use during hotel operations
3. Validated questionnaire items, designed to support triangulation with descriptive statistics

Instrument validity was ensured through expert judgment by hospitality technology scholars and practitioners.

Data Collection Techniques

Three main techniques were used:

1. In-depth interviews were conducted with hotel managers, staff, and guests online (via Zoom or Google Meet) and in person. Each session lasted 45–60 minutes and was audio recorded with the participant's consent.
2. Participatory observations were conducted at selected hotel sites to document the real time use of AI systems (e.g., automated check in, chatbot interactions, facial recognition devices).
3. Document analysis involved reviewing hotel AI brochures, SOPs, internal reports, and promotional materials.

In addition, questionnaires were distributed to hotel employees to collect complementary quantitative data on their perceptions of AI implementation.

Data Analysis

Qualitative data were analyzed using thematic analysis (Braun & Clarke, 2019), following six phases: familiarization, initial coding, theme development, theme review, definition, and reporting. NVivo 12 software supported systematic coding and pattern identification.

Quantitative data from the employee questionnaires were analyzed descriptively to identify trends in implementation across five AI related indicators. The integration of qualitative and quantitative data provided methodological triangulation, strengthening the credibility.

Trustworthiness Strategies

To ensure the validity and reliability of the data:

1. Triangulation was used across interviews, observations, and documents
2. Member checking was conducted by allowing key informants to review the summarized interpretations
3. Peer debriefing involved external academic reviewers evaluating the analysis process
4. Audit trails were maintained to document every research step for transparency

This comprehensive methodological framework ensured that the findings accurately reflected the realities of AI implementation in the hospitality sector within diverse global contexts.

3. Results & Discussion

Most of the respondents are from hotels belonging to the Accor Group, Marriott, and Hilton chains, with the age of AI implementation ranging from 1 to 5 years. The age range of the customers interviewed was between 25 and 45 years old, and they had a background as active digital users.

This research involved 15 key informants, consisting of:

1. 5 five star hotel operations managers in Southeast Asia and Europe,
2. 5 licensed hotel staff (front office, customer service, and IT),
3. 5 hotel customers who have used AI based services.

In depth interviews with hotel management revealed that the most dominant AI technologies in use are automated chatbots, check in features utilizing facial recognition, and predictive analytics for service personalization. They stated that the use of AI not only speeds up service but also helps in understanding customer preferences.

Some hotel manager quotes state:

"With an automated recommendation system, we can suggest rooms, meals, and spa packages that match the history of previous guests."

"The use of facial recognition reduced check in time from 10 minutes to less than 2 minutes."

AI is also used in big data processing to understand demand trends and market segmentation. However, concerns exist over the ethical use of personal data, particularly among European customers who are more sensitive to privacy issues.

The questionnaire was distributed to 5 licensed hotel employees who work directly with AI technologies. The following table summarizes the respondents' answers to the 5 indicators of AI implementation:

Table 1. Employee Assessment of AI Implementation in Hotels

AI Implementation Indicator	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AI accelerates customer service	4	1	0	0	0
AI improves the quality of customer interactions	3	2	0	0	0
AI replaces excessive human tasks	2	3	0	0	0
AI is prone to errors during peak hours	1	2	2	0	0
Training on the use of AI is still lacking	1	1	1	2	0

Analysis: The majority of employees agree that AI makes services faster and easier. However, two indicators show concerns: technical errors during peak hours and a lack of user training.

Based on in depth interviews with five star hotel management, it was found that AI plays a significant role in operational efficiency and service personalization. Features such as automated chatbots, predictive analytics, and facial recognition are spearheading digital transformation in the front office and customer service. Hotel managers stated that customers who have recognized their preferences will be more loyal to the brand because they feel that the service received is relevant and personalized (Lemon & Verhoef, 2016; Pine & Gilmore, 2019; Morosan & DeFranco, 2016).

One Accor Hotel manager stated that the customer return rate increased by 15% after implementing an automated recommendation system based on guest history. This reinforces the experience economy theory, which posits that service differentiation through meaningful experiences can lead to a competitive advantage (Pine & Gilmore, 1999). However, concerns exist over customer privacy violations, particularly in the use of AI that involves biometric data, such as face and voice recognition (Ivanov et al., 2019; Wirtz et al., 2018). This interpretation suggests that AI contributes positively to personalization and efficiency, but requires a strong ethical and data security framework for customers to feel comfortable with the system.

According to the questionnaire results, licensed hotel employees found that the majority agreed that AI speeds up service and replaces repetitive tasks. This finding aligns with the results of Lu et al. (2019), who noted that AI can enhance hotel staff

productivity by automating administrative tasks. However, concerns were raised regarding the lack of training on the use of AI and the system's vulnerability to errors during peak hours. It is essential to address this, as a negative experience during peak service times can significantly impact customers' perception of hotel quality (Ivanov & Webster, 2017; Kim et al., 2021). Employees recognize that AI is an effective tool, but it cannot fully replace human service, especially in complex or emotionally charged situations. This finding reinforces the techno-human balance theory proposed by Lee et al. (2020), which suggests that the adoption of AI does not mean the elimination of humans, but rather the intelligent integration of machines and human empathy in creating an optimal service experience.

Observations at two international hotels (Marriott and Accor) revealed that the majority of customers used AI services seamlessly, particularly during check in via facial recognition and room service booking via chatbot. In terms of efficiency, AI was able to reduce check in time from an average of 10 minutes to just 2 minutes. This demonstrates that AI streamlines the process and enhances customer satisfaction in terms of service speed (Tussyadiah, 2020). However, some customers seem to ignore AI features due to ignorance or a preference for direct service. This phenomenon supports the study by Wirtz et al. (2018), who stated that resistance to AI is still high among customers who are less digitally educated or who feel deprived of the human touch in service. In general, AI provides an efficient and personalized experience; however, a customer education strategy is necessary to optimize the use of this technology.

The findings in this study align with those of Ivanov et al. (2019), who stated that integrating AI in hotels increased operational efficiency by 30% and reduced employee workload. The study of Lu et al. (2019) also emphasized the importance of machine learning for service personalization in the hospitality industry. However, unlike previous studies that tend to focus on the technological aspect, this study centers on human perception as the primary subject, encompassing both customers and employees. This approach complements previous studies by prioritizing experience and perception as the benchmark of AI success, not just technical efficiency. This research also highlights the ethical aspects of AI and data privacy, which have not been widely studied in the Southeast Asian hospitality context. This is a significant contribution, as it represents a novel finding from previous studies.

4. Conclusion

This research aims to investigate the role of artificial intelligence (AI) in enhancing customer experiences within the global hospitality industry. Based on a qualitative approach involving in depth interviews, employee questionnaires, and field observations, it can be concluded that the implementation of AI technology

contributes significantly to service acceleration, improved operational efficiency, and personalization of the guest experience.

AI, such as chatbots, facial recognition, intelligent room control, and predictive analytics, are proven to shorten service times, provide guest history based service recommendations, and create responsive and adaptive interactions. These findings suggest that AI is not only a technological tool but also a catalyst for transforming the customer experience in the digital age of hospitality. However, resistance to technology, limited employee training, and concerns over data privacy remain key challenges that hotel management must address. This research highlights the importance of a hybrid service model approach that combines the sophistication of AI with a touch of human empathy to create a customer experience that is not only efficient but also meaningful. The results of this study provide practical implications for global hoteliers to design AI integration strategies that are sustainable, ethical, and human centered.

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