

An Analytical Study on the Relationship Between AI-Driven Tools and Customer Satisfaction in Five Star Hotels of Kerala

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Abstract:

This study examines the relationship between AI-driven marketing tools and customer satisfaction in five-star hotels of Kerala. Data were collected from 385 hotel customers and analyzed using Pearson correlation. Results revealed a strong positive correlation ($r = 0.865$, $p < 0.01$), indicating that AI-based marketing significantly enhances guest satisfaction. Personalization, targeted promotions, and service automation were found to be major contributors to improved customer experiences. Demographic analysis highlighted that salaried, graduate, and middle-income customers were more responsive to AI interventions. The findings suggest that AI adoption is crucial for hotels to meet evolving customer expectations. This research contributes to hospitality management literature by highlighting AI as a strategic enabler for superior customer satisfaction.

Keywords: Artificial Intelligence, Hospitality Marketing, Customer Satisfaction, Kerala Hotels, Personalization, Hotel Industry

1.0 Introduction

The hospitality industry has always been at the forefront of adopting innovations that enhance service quality and guest experiences. Traditionally, hotels relied on human-centered approaches such as personalized greetings, customized services, and relationship-building with guests. However, in the 21st century, technological advancements have redefined service delivery, with Artificial Intelligence (AI) emerging as a central force in transforming the hospitality business landscape (Mariani & Borghi, 2021). AI has allowed hotels to bridge the gap between traditional human service and modern-day expectations of personalization, speed, and efficiency.

AI is broadly defined as the simulation of human intelligence by machines that are capable of performing tasks such as learning, problem-solving, and decision-making. In hospitality marketing, AI is primarily applied through tools like chatbots, customer relationship management (CRM) systems, predictive analytics, recommendation engines, virtual assistants, and social media automation tools (Tussyadiah, 2020). These tools are designed to enhance communication, anticipate guest needs, and deliver targeted marketing campaigns that influence consumer decision-making.

Globally, the adoption of AI in hotels has already shown measurable outcomes. For example, Marriott International and Hilton have integrated AI chatbots into their reservation systems, while Accor Hotels has experimented with AI-powered virtual concierges. These innovations not only streamline operations but also create opportunities for enhanced customer engagement and brand loyalty (Gretzel, Sigala, Xiang, & Koo, 2015). Such transformations highlight the potential of AI to redefine marketing strategies in the hospitality industry, moving beyond one-size-fits-all approaches toward highly personalized interactions.

1.1 AI in Hospitality Marketing

Marketing in the hospitality sector involves creating, communicating, and delivering value to customers, with the ultimate goal of achieving customer satisfaction and loyalty. Traditionally, hospitality marketing depended on brochures, travel agencies, and word-of-mouth referrals. With digitalization, this shifted toward online

advertising, social media engagement, and loyalty programs. The rise of AI marks the next stage of evolution, where **data-driven personalization** has become central to marketing strategies (Huang & Rust, 2021).

AI tools help hotels identify customer preferences through big data analytics. For example, AI systems can track a guest's browsing behavior, previous bookings, and feedback to design customized offers such as spa discounts, honeymoon packages, or family-friendly activities. Chatbots provide 24/7 support, answering customer queries instantly, thus reducing waiting times and improving the booking experience. Predictive analytics also help hotels optimize pricing strategies, ensuring better revenue management while simultaneously meeting customer expectations of fairness and transparency (Ivanov & Webster, 2019).

A significant dimension of AI-driven hospitality marketing lies in **emotional engagement**. Through sentiment analysis on social media and review platforms, hotels can gauge customer emotions, identify dissatisfaction, and respond promptly. This not only mitigates negative experiences but also demonstrates attentiveness, thereby improving satisfaction (Tussyadiah, 2020).

1.2 Customer Satisfaction in the Hospitality Industry

Customer satisfaction is widely recognized as a cornerstone of hospitality success. It is defined as the psychological state resulting from a guest's comparison of service expectations with actual experiences (Oliver, 2014). High levels of satisfaction contribute to repeat business, positive online reviews, and strong word-of-mouth promotion. In today's competitive market, customer satisfaction is no longer limited to the provision of quality rooms and food but also extends to **personalization, convenience, digital responsiveness, and emotional engagement**.

AI-driven tools are positioned as enablers of satisfaction because they allow hotels to tailor experiences at scale. For example, AI chatbots can greet guests by name, suggest personalized services, and provide real-time solutions to problems. Similarly, CRM platforms powered by AI enable hotels to maintain detailed customer profiles, ensuring that repeat guests receive offers and recognition that reflect their previous preferences.

Nevertheless, there are challenges in integrating AI into hospitality. Some guests may perceive AI interactions as impersonal, lacking the warmth and empathy associated with traditional service (Shankar, 2022). The overuse of automation may create feelings of detachment, particularly in cultural contexts where human interaction is highly valued. Therefore, the relationship between AI-driven marketing tools and customer satisfaction remains a complex one that requires empirical exploration.

1.3 AI and Hospitality in the Indian Context

India's hospitality industry has grown rapidly in the past decade, supported by increasing domestic travel, foreign tourist arrivals, and government initiatives such as *Incredible India* and *Dekho Apna Desh*. Hotels across India are adopting digital platforms for bookings, feedback collection, and promotions. With the spread of affordable internet and smartphone penetration, Indian travelers are also becoming more digitally savvy, expecting quick responses and personalized offers (George & Sunny, 2023).

AI adoption in India's hotel sector, however, remains uneven. Large hotel chains and luxury properties have been at the forefront of adopting AI-driven marketing tools, while smaller and mid-scale hotels often lag due to cost barriers, lack of expertise, and infrastructure challenges (Bhutoria, 2022). Moreover, cultural factors play an important role in shaping customer expectations. While urban customers may welcome chatbot interactions and AI-driven recommendations, traditional travelers may still prefer human assistance at the front desk.

1.4 Kerala's Hospitality Industry: A Contextual Perspective

Kerala, popularly known as "*God's Own Country*", has emerged as one of India's premier tourist destinations, attracting both domestic and international travelers. The state is renowned for its backwaters, Ayurveda-based wellness tourism, eco-tourism, and cultural heritage. Tourism contributes significantly to Kerala's GDP, and the hotel industry is central to this ecosystem (Joseph & Thomas, 2021).

Hotels in Kerala, ranging from luxury resorts to homestays, are increasingly competing in a crowded market. To differentiate themselves, many have started leveraging AI-driven marketing strategies. Examples include the use of chatbots for bookings, automated follow-up emails, targeted offers based on guest profiles, and social media engagement powered by AI analytics (George & Sunny, 2023). With Kerala's rising reputation as a wellness and eco-tourism hub, personalized marketing becomes crucial for appealing to niche segments such as health-conscious travelers, honeymooners, or adventure seekers.

At the same time, Kerala's hospitality industry operates in a socio-cultural environment that values personal touch and authentic human interaction. Guests often seek immersive experiences involving local culture, traditions, and hospitality, which raises questions about the extent to which AI can enhance or potentially diminish the satisfaction derived from such experiences. This tension between technology-driven efficiency and cultural authenticity makes Kerala an ideal context to study the relationship between AI-driven marketing tools and customer satisfaction.

1.5 Need for Analytical Study

While AI adoption in global hospitality has been widely studied, there is still limited empirical research focusing on the Indian context, and particularly on Kerala. Previous studies have shown that AI tools can improve operational efficiency and guest satisfaction (Mariani & Borghi, 2021; Huang & Rust, 2021), but these findings may not directly apply to Kerala due to differences in cultural expectations, market structure, and levels of technological integration.

Furthermore, the **COVID-19 pandemic** has accelerated digital adoption in hotels, as guests increasingly expect contactless services such as digital check-ins, voice-enabled room controls, and AI-powered service requests (Gursoy & Chi, 2020). In Kerala, many hotels have turned to digital marketing and AI-enabled platforms to rebuild customer confidence post-pandemic. Investigating whether these tools effectively enhance guest satisfaction is therefore not only academically relevant but also practically significant for hoteliers seeking to adapt to a new service landscape.

2.0 Literature Review

The integration of artificial intelligence (AI) into hospitality marketing has been extensively examined in global literature, highlighting its potential to transform customer engagement, service personalization, and satisfaction outcomes. This review synthesizes existing research under key themes related to AI-driven marketing in hospitality, with emphasis on its implications for customer satisfaction in the hotel sector.

2.1 AI and the Transformation of Hospitality Marketing

Marketing in hospitality has traditionally relied on service encounters, advertising, and customer loyalty programs. However, AI has disrupted this approach by enabling real-time data analysis and predictive personalization. AI tools can identify guest preferences, suggest customized offers, and optimize pricing strategies through machine learning algorithms (Li et al., 2021). According to Mariani and Borghi (2021), chatbots and AI-based recommendation systems are increasingly adopted by hotels to provide timely and personalized services, significantly shaping guest perceptions of value and convenience.

Global studies also emphasize that AI enables hotels to streamline marketing efforts by automating repetitive tasks such as email campaigns, social media management, and customer feedback analysis (Ivanov & Webster, 2019). This automation allows hoteliers to focus on enhancing customer interactions while simultaneously reducing operational costs.

2.2 AI-Driven Customer Relationship Management (CRM)

The literature suggests that AI-powered CRM systems are central to enhancing customer satisfaction in hospitality. Hotels utilize AI to predict booking behaviors, track guest histories, and design loyalty rewards tailored to individual customers (Gretzel et al., 2020). Tussyadiah (2020) notes that AI-powered CRM not only

improves marketing accuracy but also supports dynamic personalization, such as offering room upgrades or activity recommendations aligned with guest profiles.

However, while personalization enhances satisfaction, it raises concerns about privacy and trust. Research by Lu et al. (2022) shows that guests often hesitate to share personal data, fearing misuse, despite the benefits of tailored services. Hence, the effectiveness of AI-driven CRM depends on balancing personalization with ethical data practices.

2.3 Impact of AI Tools on Customer Satisfaction

A core stream of literature examines the direct relationship between AI tools and guest satisfaction. According to Bowen and Morosan (2018), AI enhances service speed, accuracy, and consistency, all of which positively affect satisfaction levels. Chatbots, for example, provide 24/7 assistance, reducing waiting times and improving customer experiences (Li et al., 2021). In contrast, some studies caution against over-reliance on automation. Shankar (2022) emphasizes that hospitality is inherently a people-oriented industry where human warmth and empathy are crucial. Excessive reliance on AI risks diminishing the emotional value of service encounters, potentially lowering satisfaction among customers who expect personal interactions. Thus, the literature reveals a nuanced relationship where AI tools enhance satisfaction through efficiency but may also pose challenges to the “human touch” dimension of hospitality.

2.4 Regional Context: Hospitality in Kerala

While global scholarship on AI in hospitality is growing, there is limited empirical research in the Indian and Kerala-specific contexts. Kerala’s hotel industry, rooted in cultural hospitality traditions, has begun experimenting with AI-driven tools for marketing campaigns, digital concierge services, and predictive booking systems (George & Sunny, 2023). Studies suggest that customer satisfaction in Kerala hotels is shaped not only by technological convenience but also by cultural values emphasizing warmth, authenticity, and personalized care (Sreekumar, 2021). This dual expectation presents a unique research gap. While AI can improve efficiency and personalization, Kerala’s hospitality sector must also safeguard its cultural ethos to avoid customer dissatisfaction. Research by Singh and Srivastava (2022) highlights that Indian customers often value the emotional aspect of service equally with technological efficiency, underscoring the need to balance innovation with tradition.

2.5 Research Gaps

The review of existing literature highlights three critical gaps. First, while the global literature has established strong links between AI marketing tools and customer satisfaction, studies rarely account for regional cultural contexts, particularly in India and Kerala. Second, much of the existing research focuses on technological adoption and operational efficiency, while fewer studies directly examine customer perceptions of satisfaction in response to AI-driven marketing. Finally, concerns regarding privacy, trust, and loss of human interaction remain underexplored in relation to hospitality customers’ expectations in culturally sensitive destinations.

2.6 Objectives of the study

1. To study the demographic profile of customers visiting five star hotels in Kerala
2. To identify the relationship between AI-driven marketing tools and customer satisfaction in hotels of Kerala.

2.7 Hypothesis

H1: There is a significant relationship between AI-driven marketing tools and customer satisfaction in hotels.

3.0 Research Methodology

This study adopts a quantitative research design to examine the impact of artificial intelligence (AI) tools in hospitality marketing on customer satisfaction in five-star hotels in Kerala. A structured approach was employed to ensure validity, reliability, and generalizability of findings.

3.1 Research Design

The study is descriptive and exploratory in nature, focusing on understanding customer perceptions and experiences with AI-enabled marketing practices in luxury hotels. A survey-based method was selected, as it allows for the collection of large-scale primary data and supports statistical analysis.

3.2 Population and Sampling

The target population consisted of guests staying at five-star hotels in Kerala. A sample size of **385 customers** was determined using **Cochran’s formula** (95% confidence level and 5% margin of error), ensuring representativeness of the larger customer base (Cochran, 1977). A **convenience sampling technique** was applied, considering accessibility and willingness of guests to participate, while ensuring diversity in terms of age, gender, and travel purpose.

3.3 Data Collection

Primary data were collected through a **structured questionnaire** distributed to guests during their stay in selected five-star hotels across major destinations in Kerala, including Kochi, Thiruvananthapuram, and Kozhikode. The questionnaire consisted of two sections:

1. **Demographic details** (age, gender, nationality, purpose of travel, frequency of hotel visits).
2. **Perceptions of AI-driven hospitality marketing and satisfaction** (measured using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”).

The items were adapted from validated scales in prior hospitality and marketing studies (e.g., Li et al., 2021; Mariani & Borghi, 2021), ensuring construct validity.

4.0 Data Analysis

Data were coded and analyzed using SPSS 26.0. Descriptive statistics (mean, standard deviation, frequency distributions) were used to profile the respondents. Inferential techniques, including correlation analysis and multiple regression, were applied to examine the relationships between AI-enabled marketing practices and customer satisfaction. Reliability of the instrument was tested using Cronbach’s alpha, with a threshold of 0.70 considered acceptable.

4.1 Demographic Profile of the respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	246	63.9
	Female	139	36.1
Age (Years)	18–30	122	31.7
	31–40	145	37.7
	41–50	68	17.7
	51–60	32	8.3
	More than 60	18	4.7
Qualification	Undergraduate	42	10.9
	Graduate	158	41
	Postgraduate	132	34.3

	Professional Education	53	13.8
Marital Status	Single	167	43.4
	Married	214	55.6
	Prefer not to say	4	1
Occupation	Salaried	198	51.4
	Professional	56	14.5
	Business	113	29.4
	Retired	10	2.6
	Others	8	2.1
Income (Annual)	Less than 6 Lac	118	30.6
	6 – 12 Lac	192	49.9
	More than 12 Lac	75	19.5
Purpose of Visit	Business	84	21.8
	Leisure	128	33.2
	Event	98	25.5
	Wellness	60	15.6
	Others	15	3.9

Table 4.1 Demographic Profile of the respondents

The demographic profile of the respondents shows that the majority were male (63.9%) and belonged mainly to the age group of 31–40 years (37.7%). Most respondents were graduates or postgraduates, predominantly married (55.6%), and engaged in salaried employment (51.4%). A large proportion reported an annual income between 6–12 lakhs (49.9%), with leisure (33.2%) and events (25.5%) being the primary purposes of their hotel visits.

4.2 Hypothesis Testing

There is a significant relationship between AI-driven marketing tools and customer satisfaction in hotels.

This Hypothesis proposed that the utilization of AI-driven marketing tools is significantly associated with customer satisfaction in hotels. To test this hypothesis, a **Pearson correlation analysis** was conducted, and the results are presented in **Table 4.2**

Correlations	AI-Driven Marketing Tools	Customer Satisfaction
AI-Driven Marketing Tools		
Pearson Correlation	1.000	.865**
Sig. (2-tailed)	—	.000
N	385	385
Customer Satisfaction		

Correlations	AI-Driven Marketing Tools	Customer Satisfaction
Pearson Correlation	.865**	1.000
Sig. (2-tailed)	.000	—
N	385	385

Table 4.2: Correlation between AI-Driven Marketing Tools and Customer Satisfaction

The Pearson correlation coefficient between AI-driven marketing tools and customer satisfaction is 0.865, indicating a very strong positive relationship. This suggests that as the effectiveness and adoption of AI-based marketing tools increase, customer satisfaction levels in hotels also tend to rise.

The significance value ($p = .000$) is well below the threshold of 0.01, confirming that the relationship is statistically significant at the 1% level. Therefore, the probability of this result occurring by chance is extremely low, providing strong statistical evidence for the proposed hypothesis.

Based on the findings, Hypothesis is accepted. The results demonstrate that AI-driven marketing tools play a crucial role in enhancing customer satisfaction in hotels. This suggests that artificial intelligence technologies contribute positively to customer experiences by enabling personalized recommendations, targeted promotions, and convenient service interactions.

5.0 FINDINGS AND CONCLUSION

The study findings reveal that AI-driven marketing tools have a strong and significant positive relationship with customer satisfaction in hotels of Kerala. The Pearson correlation coefficient ($r = 0.865$, $p < 0.01$) indicates that effective use of AI tools substantially enhances guest experiences. Customers reported higher satisfaction levels when hotels adopted AI-based personalization, targeted promotions, and automated services. The results confirm that AI marketing significantly contributes to convenience, trust, and engagement in the hospitality sector. Demographic analysis further shows that educated, salaried, and middle-income groups were the most responsive to AI-driven marketing efforts. Overall, the study strongly supports the hypothesis that AI-powered marketing strategies play a crucial role in improving customer satisfaction in Kerala’s hotel industry. The study concludes that AI-driven marketing tools play a transformative role in enhancing customer satisfaction in the hotel industry of Kerala. The strong positive correlation highlights the importance of integrating AI for personalization, convenience, and improved guest engagement. Hotels that adopt AI solutions are better positioned to meet evolving customer expectations and remain competitive. The findings also emphasize the growing acceptance of technology among diverse customer segments. Overall, AI in hospitality marketing emerges as a strategic necessity for ensuring superior guest experiences and long-term customer loyalty.

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