



# AI in the Service of Hotel Management: New Tools and Technologies for Review Management and Guest Communication

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## Abstract

This paper analyses the application of generative artificial intelligence (AI), with an emphasis on automated text processing and communication tools, in managing online guest reviews within contemporary hotel management. Generative AI refers to systems that generate text and content automatically by processing extensive datasets. ChatGPT is applied for automated guest communication, Gemini supports multimodal analysis, and Perplexity enables structured information extraction. Empirical data were collected from two seasonal four-star hotels in Dalmatia across the 2022 and 2023 operating seasons, amounting to 1637 online guest reviews. The analysis identifies four operational advantages: accelerated processing, communication consistency, multilingual support, and personalised replies. The study identifies key limitations such as the absence of authentic emotional intelligence, emerging data protection requirements, and risks of algorithmic bias that necessitate regular ethical oversight. A hybrid AI-human interaction model is recommended, including continuous staff training and ethical monitoring to uphold service quality and digital reputation. Findings are contextualised through practical application and contemporary industry standards.

## Subject Areas

Business Analysis, Business Management

## Keywords

Generative Artificial Intelligence, Chatgpt, Hotel Management, Guest Reviews, Digital Reputation, Personalised Communication, Ethical AI, GDPR

## 1. Introduction

The hotel industry is increasingly faced with the complex challenge of managing

large volumes of online guest reviews across various platforms, including Booking.com, TripAdvisor, Google, and Expedia. According to industry benchmarks for the first quarter of 2025, the average response rate to online reviews in five-star hotels was 76%, while the average response time fell below four days [1].

Generative artificial intelligence (AI) utilises computational models to produce text, images, or code by processing large datasets [2]. ChatGPT is applied for language-based guest interactions; Gemini supports the analysis of text, images, and other data types; Perplexity enables the extraction and organisation of structured information from various sources [3] [4]. Industry requirements emphasise timely and appropriate responses to guest reviews, particularly those that are negative or emotionally charged, with attention to reputation management and guest empathy [5].

Primary limitations of generative AI in hospitality include the lack of authentic emotional understanding, the need for ongoing compliance with data protection regulations (e.g., GDPR, CCPA), and risks related to algorithmic bias. These factors require regular ethical audits and transparency in digital reputation management [6].

## 2. Method/Approach

This study utilises empirical data from two seasonal four-star hotels in Dalmatia, Croatia, operating each year from April to November. Across the 2022 and 2023 tourist seasons, 1637 online guest reviews were collected from Booking.com, TripAdvisor, and Google for two medium-sized hotels (106 - 112 rooms) [7]. Both hotels are medium-sized, with room capacities ranging between 106 and 112 units.

Data analysis focused on evaluating the impact of generative AI tools in review management according to four dimensions: response speed, communication consistency, multilingual support, and personalisation. The analysis also considered the context in which responses were generated, including emotionally charged or complex guest feedback requiring nuanced and reputationally sensitive communication.

## 3. The Application of Generative Artificial Intelligence in Review Management

The integration of generative artificial intelligence (AI) into hotel management represents a fundamental transformation in the processes of online review handling and digital reputation management. Generative AI employs computational models to produce coherent, context-sensitive text, images, or code based on large dataset analysis, allowing for a more refined and personalised approach to guest communication [2]. Core tools include ChatGPT, utilised for language-based response generation; Gemini, which integrates text, images, and numerical data; and Perplexity, which provides real-time source analysis and structured reporting [3] [4].

### 3.1. Operational Advantages of Generative AI

Recent literature and hotel practice analysis identify four core operational advantages of generative AI:

#### 1) Speed and Efficiency

Tools such as ChatGPT significantly reduce the time required to generate responses to guest reviews. According to industry benchmarks for the first quarter of 2025, five-star hotels achieved an average response time of less than four days, with a review response rate of 76%, and four-star hotels' response rate of 71% [1]. A qualitative evaluation of 1637 reviews from two seasonal Dalmatian hotels (2022-2023) indicated reduced staff workload and improved management efficiency for large review volumes, despite the absence of precise response time measurements [7].

#### 2) Consistency in Communication

Generative AI facilitates consistent tone, style, and terminology across communication channels and staff, contributing to brand identity consolidation and reduced deviation from hotel standards [8].

#### 3) Multilingual Support

Advanced AI tools personalise communication by tailoring responses to guest context and preferences, improving inclusivity and linguistic accuracy [5].

#### 4) Personalised Responses

Generative AI analyses guest history and preferences to generate responses referencing individual experiences, staff acknowledgement, or service improvement suggestions, enhancing the personalisation of communication [9].

**Table 1.** Operational advantages of generative AI.

Advantage	Description	Application Example	Source
Speed and Efficiency	Reduced response time	Reply generated in a few minutes	[1]
Consistency	Standardisation of tone and style	Uniform communication across all channels	[8]
Multilingual Support	Personalised communication across languages	Tailored reply considering the guest's context	[5]
Personalisation	Contextual and user-data analysis	Tailored replies addressing specific input	[9]

Source: Compiled by the author based on literature.

Cumulative analysis suggests that generative AI accelerates communication, improves response quality and completeness, enhances guest satisfaction, and supports operational efficiency in the hotel sector (See **Table 1**).

### 3.2. Limitations and Implementation Challenges

Despite various operational benefits, generative AI in hospitality faces notable limitations. Firstly, tools like ChatGPT, Gemini, and Perplexity do not possess

genuine emotional empathy, restricting their capacity to interpret complex emotional and cultural nuances. Second, full compliance with regulatory data protection frameworks (GDPR, CCPA) is essential, as insufficient privacy measures or misinterpretation of data rights can lead to serious legal and financial repercussions [6]. Third, algorithmic bias can unintentionally reproduce stereotypes or longstanding preferential patterns, resulting in unequal treatment of users. Industry best practices advocate for periodic ethical audits and continuous human oversight to mitigate these risks [4].

These limitations reinforce the importance of a hybrid application model, where AI tools function as support systems, while hotel staff retain primary responsibility for response verification, privacy protection, and ethical and reputational oversight of digital communication processes.

### **3.3. Practical Implementation and Evaluation**

Automated review monitoring systems provide real-time alerts to hotel management regarding incoming reviews and support timely, structured responses. In two seasonal hotels in Dalmatia, during two operational years (2022-2023), the implementation of generative AI allowed for better resource distribution, prompt and personalised replies to 1637 reviews, and the maintenance of a professional, consistent, and branded tone. Throughout the process, emphasis was placed on compliance with personal data protection standards and periodic monitoring of potential algorithmic bias manifestations [7].

Evaluations indicate improvements in guest satisfaction, increases in positive feedback, and the enhancement of guest loyalty. Sustainable success depends on a hybrid model combining advanced AI to improve communication efficiency and standardisation, alongside vital human oversight in ethical, reputational, and emotional aspects of review management.

## **4. Analysis of Advantages and Limitations: Where Generative AI Excels and Where Human Intervention Remains Essential**

The integration of generative artificial intelligence (AI) into hotel management corresponds with notable shifts in online review management and digital reputation processes [5] [8]. At the same time, practical experience and empirical research reveal the limitations of these technologies, which require human intervention and professional oversight.

### **4.1. The Superiority of Generative AI in Hotel Practice**

Generative AI has been shown to improve response times, facilitate multilingual support, optimise communication consistency, and enhance personalised interactions. Industry benchmarks indicate that average response times in luxury hotels decreased from over six days in 2022 to under four days by the first quarter of 2025, reflecting accelerated and digitalised communication processes [1]. The use

of AI has enhanced multilingual capabilities [5] without the need for external linguistic experts, ensured standardised communication, and reinforced brand identity [8]. These advantages contribute to greater guest satisfaction and stronger overall reputational metrics.

#### **4.2. Limitations and the Irreplaceable Role of Human Intervention**

Despite these advances, generative AI has a limited capacity for understanding emotional nuance and implicit guest expectations. For example, ChatGPT may produce a grammatically correct apology, yet fail to detect deeper causes of dissatisfaction, such as billing misunderstandings or inappropriate staff behaviour, that are not explicitly stated. A hotel manager, by analysing previous records and communication context, can identify these underlying issues and offer an individualised solution (e.g., an apology, refund, or special gesture).

In conflictual or sensitive situations, human expertise is essential. Only trained professionals can determine when a review warrants a personal phone call or direct outreach instead of a written reply. As Delfino (2023) notes, “authentic guest connection requires understanding what lies behind the words” [10], something algorithms still cannot replicate. Complex cases such as complaints about staff or internal service miscommunications always require managerial experience and analytical judgment. While AI may serve as a helpful draft, the final response must be refined and individualised using all available context [10].

Industry reports show that overreliance on AI-generated templates or generic responses may compromise authenticity and erode guest trust [10]. Practical experience further confirms that personalised, human-validated replies lead to stronger guest relationships and greater loyalty, especially in emotionally charged scenarios where authenticity is most expected.

#### **4.3. Ethics, Transparency, and Regulatory Requirements**

Key ethical and legal issues linked to generative AI include risks of algorithmic bias, challenges in data privacy, lack of transparency in decision-making, and the protection of users’ informed consent rights. GDPR and CCPA compliance require that guests be informed of AI usage and the purposes of data processing. Experts and regulators recommend regular algorithm audits, clear declarations of AI involvement in communication, and strict adherence to current data protection laws and ethical standards [4] [6].

Industry practice shows that personalised, human-reviewed responses foster stronger guest relationships and lasting trust. Technology must support, but never replace, professional accountability.

#### **4.4. Discussion and Recommendations**

Empirical findings and examples from the hotel industry confirm that AI offers measurable operational advantages, but only when paired with constant human oversight and a critical, ethical approach [11] [12]. The key to long-term success

lies not only in choosing advanced technology but in developing staff competencies, providing continuous training, monitoring results, and implementing robust ethical guidelines [11]. The evolution of digital hospitality is illustrated by the drop in average response time from over six days in 2022 to approximately four days in 2025 [1].

#### **Recommendations for Hotel Practice:**

- **Hybrid model:** Combine AI-generated responses with human oversight to ensure a balance between efficiency and authenticity [13].
- **Ongoing staff training:** Provide continuous education on the possibilities and limitations of AI, and emphasise the importance of personalised communication [11].
- **Regular evaluation and process adaptation:** Systematically track guest feedback and analyse response effectiveness to refine AI strategies [12] [14].
- **Ethics and transparency:** Communicate openly with guests about the use of AI and strictly comply with data protection laws to maintain trust and uphold professional responsibility [11].

In conclusion, artificial intelligence should complement, not replace, human expertise and empathy. Guest experience and brand development stem from a careful balance of innovation, authentic communication, and ethical practice, without which long-term competitiveness and guest loyalty cannot be sustained [11].

## **5. Conclusions**

The use of generative artificial intelligence in review management constitutes a notable progression in modern hotel management, facilitating prompt, linguistically tailored, and coherent guest communication. Based on empirical analysis of two seasonal hotels in Dalmatia, with a total of 1637 collected reviews during 2022 and 2023, the key operational benefits of these technologies have been confirmed, including accelerated processing of comments, multilingual support, and scalable personalisation.

At the same time, certain limitations have been identified, confirming that generative AI, despite its sophistication, cannot fully replace the emotional intelligence, ethical judgment, and contextual understanding provided by the human factor. The results of the analysis indicate that the optimal use of these tools requires a hybrid model, in which technology supports professionals, but does not assume their responsibility.

Effective adoption of generative AI in hospitality hinges on well-defined ethical guidelines, ongoing staff development, and implementation of mechanisms for algorithmic oversight. Future research should focus on deepening the understanding of AI's impact on user experience, as well as developing mechanisms that ensure transparency, security, and professional accountability.

In this context, the application of artificial intelligence is not merely a technological improvement, but a transformative tool that can contribute to more authentic, responsible, and higher-quality interaction with guests, provided it is used

thoughtfully and on an ethical foundation.

## Conflicts of Interest

The author declares no conflicts of interest.

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