

## THE IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON GUEST SATISFACTION IN HOTEL MANAGEMENT: AN EMPIRICAL STUDY OF LUXURY HOTELS

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**Abstract:** This study examines the impact of artificial intelligence (AI) (Personalized Guest Experience, Chatbots and Virtual Assistants, Revenue Management, Operational Efficiency, Fraud Detection and Security, Predictive Maintenance) on guest satisfaction in luxury hotels from perspective of managers. A quantitative methodology was employed through adopting questionnaire that was self-administered by (89) managers within luxury five stars hotels in Amman – Jordan. SPSS was used to tackle the primary data, results of study was able to accepted study hypotheses arguing that artificial intelligence has the ability to increase guest satisfaction in luxury hotels. Results indicated that AI in hospitality industry has the ability to revolutionize the concept of guest satisfaction through easing the process of services and increase their loyalty as well. Study indicated that the highest agreement was for chatbots and virtual assistants in influence. However, it argued that while AI has the potential to significantly enhance guest satisfaction in luxury hotels, it is essential to balance the use of AI with human interaction. Many guests still value the personal touch and human connection that comes with traditional hospitality. Therefore, it is important for hotels to ensure that AI is used to enhance, rather than replace, human interaction with guests. Study recommended that hotels should be focused on providing personalized experiences, streamlining operations, and enhancing convenience and comfort in order to increase guest satisfaction. Further recommendations were presented in the study. Significance of study lies in the fact that examining the impact of AI in increasing guest satisfaction in luxury hotel play a role in increasing competitive advantage, help luxury hotels save costs by automating tasks and reducing the need for human labor and stay ahead of the curve and embrace new technologies such as AI. Originality of study is in the fact that it help in developing new theories and frameworks for understanding the complex relationship between technology and guest satisfaction in the hospitality industry.

**Key words:** hotel management, luxury hotels, chains, guest, personalized experience, chatbots and virtual assistants, revenue management, operational efficiency, fraud detection and security, predictive maintenance

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### INTRODUCTION

Nam et al (2021) and Nozawa et al (2022) argued that in today's digital age, technology has become an integral part of our lives, and the hospitality industry is no exception. Luxury hotels are constantly seeking ways to enhance the guest experience and increase satisfaction, and technology has proven to be a valuable tool in achieving these goals. From the moment guests make their reservations to the time they check out, technology plays a crucial role in every aspect of their stay (Roy et al, 2020). With the help of technology, luxury hotels can personalize the guest experience, streamline operations, and provide a seamless experience that exceeds guest expectations. In this way, technology has become a key factor in enhancing guest satisfaction in luxury hotels, and its role is only set to grow in the future (Jabeen et al, 2022).

Nam et al (2021) argued that the adoption of AI and robotics in the hotel industry is still in its early stages, but that there are already several examples of hotels that have implemented these technologies successfully. Nozawa et al (2022) identified several concerns among consumers about the use of AI in hospitality sector including concerns about data privacy and security, the potential for job displacement, and the loss of human interaction in the dining experience. Roy et al (2020) identified several concerns about the use of AI in hospitality services, including concerns about data privacy and security, the potential for job displacement, and the loss of human interaction in the service experience.

Jabeen et al (2022) noted that the adoption of automation and AI in the hospitality and tourism industry is still in its early stages, but that there are already several examples of companies that have implemented these technologies successfully. On the other hand, Prentice et al (2020) provided valuable insights into the impact of AI and employee service

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quality on customer satisfaction and loyalty in the hospitality industry. The study suggested that while AI technologies can enhance the guest experience and improve operational efficiency, the impact on customer satisfaction and loyalty is dependent on the quality of employee service. Hussein et al (2022) argued that while there are challenges associated with the adoption of AI in the UAE hospitality industry, the potential benefits are significant, and that hotels that are able to effectively integrate these technologies into their operations will have a competitive advantage in the marketplace.

Wang (2022) provided valuable insights into the impact of service quality of hotel intelligent systems on customer satisfaction, using AI-based evaluation methods. Limna (2022) identified several challenges associated with the adoption of AI in the hospitality industry, including concerns about data privacy and security, the potential for job displacement, and the need for staff training and support. Launching from the literary gap above, this current research study seeks to examine the impact of artificial intelligence (AI) in terms of (Personalized Guest Experience, Chatbots and Virtual Assistants, Revenue Management, Operational Efficiency, Fraud Detection and Security, Predictive Maintenance) on guest satisfaction in hotel management by applying an empirical study of luxury hotels.

## LITERATURE REVIEW

### 1. AI in Hotel Management

Bharwani and Mathews (2021) noted that artificial intelligence (AI) has become an increasingly important tool for hotel management in recent years. AI technologies help hotels improve operational efficiency, enhance the guest experience, and increase revenue. Mnyakin (2023), Kacar (2023) and Tong-On et al (2021) argued that there are several approaches through which hotels can make use of AI in hotel management, such approaches included:

- Chatbots: Chatbots are AI-powered conversational agents that can handle customer inquiries, requests, and complaints. These bots can be integrated into a hotel's website or mobile application, providing guests with a quick and efficient way to access information and services. Chatbots are increasingly being used in the hotel management industry to improve customer service and streamline operations. Chatbots are being used in hotel management by completing many tasks including automated check-in and check-out: Hotels are using chatbots to automate the check-in and check-out process. Guests can use the chatbot to check in, receive their room key, and check out, all without having to interact with hotel staff. Room service and concierge: Hotels are using chatbots to provide room service and concierge services to their guests. Guests can use the chatbot to order food, request additional amenities, and receive recommendations for local activities and attractions. Reservation and booking management: Hotels are using chatbots to manage reservations and bookings. Guests can use the chatbot to book a room, modify their reservation, and receive confirmation of their reservation. Customer service: Hotels are using chatbots to provide customer service to their guests. Guests can use the chatbot to ask questions, report issues, and receive assistance from hotel staff.

- Revenue management: AI can help hotels optimize pricing and revenue management by analyzing data on room occupancy, demand, and customer behavior. This can help hotels maximize revenue and profitability. Some examples of how AI is being used in revenue management in hotel management include dynamic pricing, demand forecasting, market segmentation, channel management and competitive analysis

- Personalization Experience: AI can be used to personalize the guest experience by analyzing data on customer preferences, behavior, and history. Artificial intelligence (AI) is being used in hotel management to personalize the guest experience and improve guest satisfaction. Personalizing experience through AI in hotels can be done through reaching personalized recommendations, customized room settings, voice assistants, loyalty programs and predictive analytics where hotels are using AI-powered predictive analytics to anticipate guest needs and preferences. For example, AI-powered systems can analyze data on past guest behavior and preferences to predict what amenities or services guests may need during their stay.

- Predictive maintenance: AI can be used to predict and prevent equipment failures and maintenance issues, reducing downtime and improving operational efficiency. Hotels are using AI to predict when equipment and systems may need maintenance, allowing them to perform maintenance proactively instead of reactively. This can reduce downtime and maintenance costs, while also improving the overall guest experience by ensuring that facilities are functioning properly. Artificial intelligence (AI) is being used in hotel management to predict maintenance needs and prevent equipment failures, leading to improved guest experiences and operational efficiency. Some examples of how AI is being used to predict maintenance include sensor networks, machine learning, real-time monitoring and automated alerts: Hotels are using AI-powered systems to automate alerts when equipment performance falls outside of normal parameters. This allows hotel staff to quickly identify potential issues and take corrective action before they become major problems.

- Security: AI can be used to enhance hotel security by monitoring guest behavior and identifying potential security threats. Some examples of how AI is being used to enhance security in hotel management include video surveillance, facial recognition, access control, threat detection and fraud detection. Overall, AI is being used in hotel management to enhance security and prevent potential threats to guests and staff. By leveraging AI-powered technologies, hotels can monitor activities in real-time, detect potential threats, restrict access to restricted areas, and detect fraudulent activities, leading to increased security and safety for guests and staff.

Pizam et al (2022) stated that AI technologies are becoming increasingly important for hotel management, enabling hotels to improve operational efficiency, enhance the guest experience, and increase revenue. As the use of AI continues to advance, it is likely that we will see more hotels adopting these technologies to stay competitive in the market. However, it is important to note that the adoption of AI in hotel management must be approached thoughtfully and with consideration for the impact on both guests and staff (Hashem, 2022). Careful planning and management are necessary to ensure that AI

technologies are effectively integrated into hotel operations and can maximize their benefits for both the hotel and its guests (Hashem et al, 2020). Buhalis and Cheng (2020) argued that hotels now are using AI-powered chatbots and virtual assistants to provide personalized recommendations and assistance to guests. These chatbots and virtual assistants can answer common questions, recommend local activities and restaurants, and even make reservations. By using AI-powered chatbots and virtual assistants, hotels can provide 24/7 customer service and improve the overall guest experience.

From the perspective of Ponce (2022) hotels employ AI to analyze guest data, such as past bookings and preferences, to provide personalized recommendations and offers. By using AI to analyze guest data, hotels can provide a more personalized and tailored experience to guests, increasing guest satisfaction and loyalty. While Mohite (2020) revealed that hotels depend on AI to optimize their pricing and revenue management strategies. By analyzing data on occupancy rates, demand, and market trends, AI-powered revenue management systems can adjust pricing in real-time to maximize revenue and profitability. Markowitz et al (2023) argued that AI in hotels is used to analyze data on customer behavior and preferences to create targeted marketing and advertising campaigns. By using AI to analyze customer data, hotels can create more effective marketing and advertising campaigns that resonate with their target audience. Overall, AI is being used in the field of hotel management to improve guest experiences, increase efficiency, and drive profitability. By leveraging AI-powered technologies, hotels can provide a more personalized and seamless guest experience, while also optimizing their operations and improving their bottom line (Singh et al, 2022).

## 2. Luxury Hotels and Guest Satisfaction

According to Lee et al (2020), guest satisfaction refers to the level of satisfaction or happiness a guest experiences during their stay at a hotel or other hospitality establishment. Guest satisfaction is a crucial factor for the success of any hotel, as it can affect a guest's decision to return in the future and their likelihood to recommend the hotel to others. Ying et al (2020) argued that there are several factors that contribute to guest satisfaction; such as the quality of the hotel's amenities and services, the cleanliness and comfort of the rooms, the professionalism and friendliness of the staff, and the overall experience and value for money. Guests also expect a certain level of personalized attention and responsiveness to their needs and preferences. Padma and Ahn (2020) noted that in order to ensure guest satisfaction, hotels must prioritize the needs and preferences of their guests and strive to exceed their expectations. This can be achieved through a variety of strategies, such as personalized service, proactive problem-solving and ongoing communication with guests to gather feedback and address any concerns. Moise et al (2021) added that guest satisfaction is not only important for the success of individual hotels, but also for the industry as a whole. Satisfied guests are more likely to return to the same hotel or recommend it to others, leading to increased revenue and profitability for the hotel. Additionally, satisfied guests can help promote positive word-of-mouth about the hotel, which can attract new guests and improve the hotel's reputation.

Guest satisfaction was defined by Hashem and Ali (2019) as key performance indicator to how satisfied guests are with their overall experience at an organization. It is a measure of how well a hotel has met the expectations and needs of its guests, and how effectively it has delivered on its promise of service quality. Hashem (2021) added that guest satisfaction can be measured through a variety of methods, such as guest surveys, online reviews, and social media feedback. Such methods provide valuable insights into the guest experience and can help the hotel identify areas for improvement and make necessary changes to enhance the guest experience. On the other hand, Mariani and Borghi (2023) argued that guest satisfaction is important, as satisfied guests are more likely to return to the same hotel in the future, leading to repeat business and increased revenue. In addition to that, satisfied guests are more likely to leave positive reviews and ratings, which can enhance the hotel's reputation and attract new customers. Third, satisfied guests are more likely to recommend the hotel to their friends and family, leading to increased business through positive word-of-mouth.

According to Limna (2022) and Mariani and Borghi (2021) guest satisfaction is of utmost importance for luxury hotels for several reasons including the fact that satisfied guests are more likely to return to the same hotel in the future, which is especially important for luxury hotels where repeat business is a significant source of revenue. Wang (2022) added that satisfied guests are more likely to recommend the hotel to their friends and family, leading to increased business through positive word-of-mouth. From another perspective, Prentice et al (2020) stated that luxury hotels rely heavily on their reputation to attract and retain customers. Satisfied guests are more likely to leave positive reviews and ratings, which can enhance the hotel's reputation and lead to increased bookings. In addition to that, satisfied guests are more likely to develop brand loyalty, becoming advocates for the hotel and promoting it to others. Hussein et al (2022) saw that luxury hotel industry is highly competitive, and guest satisfaction can provide a competitive edge by differentiating the hotel from its competitors and attracting new customers, guest satisfaction is crucial for luxury hotels to maintain repeat business, positive word-of-mouth, reputation, brand loyalty, and a competitive edge in the market.

## 3. Worldwide Luxury Hotels Chains

Kong et al (2021) and Yik et al (2022) argued that there are many luxury hotel chains worldwide that have been innovative in their approach to guest satisfaction. Examples of them:

- Four Seasons: Four Seasons is a luxury hotel chain that has long been known for its exceptional customer service. The chain has implemented a number of initiatives to improve guest satisfaction, including the Four Seasons App, which allows guests to customize their stay, order room service, and make requests directly from their mobile device.
- The Ritz-Carlton: The Ritz-Carlton has a strong focus on personalized service and creating a memorable experience for guests. The chain has implemented a number of initiatives to improve guest satisfaction, including the creation of a "mystery shopper" program to ensure that staff are delivering exceptional service at all times.

- St. Regis: St. Regis is a luxury hotel chain that has been praised for its attention to detail and commitment to providing the highest level of service to guests. The chain has implemented a number of initiatives to improve guest satisfaction; including a "Butler Service", that offers personalized assistance with everything from packing and unpacking to arranging transportation. In terms of employing AI to reach the highest level of guest satisfaction, some luxury hotel chains took to the max considering that these hotels were aware that AI is increasingly being employed in the hospitality industry to enhance guest satisfaction and improve operational efficiency. Some examples of luxury hotel chains worldwide that have implemented AI technology in guest satisfaction Bharwani and Mathews (2021); Wang (2020) and Prentice (2020):
- Marriott International: Marriott International has implemented AI-powered chatbots to enhance the guest experience and improve customer service. The chatbots use natural language processing (NLP) to provide guests with instant responses to their queries and requests, enabling them to access information and services quickly and easily.
- Hilton Hotels & Resorts: Hilton Hotels & Resorts has implemented an AI-powered concierge service that uses machine learning to provide personalized recommendations and assistance to guests. The concierge service can suggest local restaurants, attractions, and activities based on the guest's preferences and previous behavior.
- InterContinental Hotels Group (IHG): IHG has implemented AI-powered voice assistants in its hotel rooms to provide guests with personalized services and recommendations. The voice assistants can control room temperature, lighting, and TV, as well as provide information about hotel services and local attractions.

#### 4. Related Studies

Nam et al (2021) explored the adoption of artificial intelligence (AI) and robotics in the hotel industry and identified the prospects and challenges associated with this adoption. The authors conducted a literature review of previous research on the adoption of AI and robotics in the hotel industry. They analyzed the literature to identify the main trends, drivers, and challenges associated with the adoption of these technologies. The authors found that the adoption of AI and robotics in the hotel industry is driven by several factors, including the need to improve **operational efficiency, enhance the guest experience, and reduce labor costs**. They also identified several challenges associated with the adoption of these technologies, including concerns about **job displacement, data privacy and security, and the need for staff training and support**.

Nozawa et al (2022) investigated consumer attitudes and responses to the use of artificial intelligence (AI) in restaurants, both in luxury and non-luxury settings. The authors conducted a survey of 300 consumers in the United States to assess their attitudes and responses to the use of AI in restaurants. The survey was designed to elicit information about consumers' perceptions of AI, their attitudes toward the use of AI in restaurants, and their willingness to use AI-based restaurant services. The authors found that consumers generally have positive attitudes toward the use of AI in restaurants, particularly in the areas of order taking and payment processing; they also found that consumers in luxury restaurants were more likely to have positive attitudes toward the use of AI than consumers in non-luxury restaurants.

Roy et al (2020) explored customer acceptance of the use of artificial intelligence (AI) in the hospitality industry in India. The authors conducted a survey of 300 customers in the Indian hospitality sector to assess their attitudes and acceptance of the use of AI in hospitality services. The survey was designed to elicit information about customers' perceptions of AI, their attitudes toward the use of AI in hospitality services, and their willingness to use AI-based services. The authors found that customers in the Indian hospitality sector generally have positive attitudes toward the use of AI in hospitality services, particularly in the areas of **booking and reservation management and personalized services**. They also found that customers who are younger, more educated, and have higher incomes are more likely to have positive attitudes toward the use of AI in hospitality services. Jabeen et al (2022) provided an overview of the current state of automation and artificial intelligence (AI) in the hospitality and tourism industry, and identified the challenges and opportunities associated with the adoption of these technologies. The authors found that the adoption of automation and AI in the hospitality and tourism industry is driven by several factors, including the need to improve **operational efficiency, enhance the guest experience, and reduce labor costs**. Hussein et al (2022) explored the potential of artificial intelligence (AI) in providing hotels with a competitive advantage, and identified the challenges and opportunities associated with the adoption of these technologies in the United Arab Emirates (UAE). The authors conducted a qualitative study using semi-structured interviews with 20 hotel managers and IT professionals in the UAE. The authors found that hotels in the UAE are increasingly adopting AI technologies to improve **operational efficiency, enhance the guest experience, and gain a competitive advantage**. They also identified several challenges associated with the adoption of AI, including concerns about **data privacy and security, the need for staff training and support, and the high cost of implementation**.

Prentice et al (2020) investigated the impact of artificial intelligence (AI) and employee service quality on customer satisfaction and loyalty in the hospitality industry. The authors conducted a survey of 400 customers who had recently stayed at a hotel to assess their perceptions of AI and employee service quality, as well as their levels of satisfaction and loyalty to the hotel. The authors found that while customers generally have positive attitudes toward the use of AI in the hospitality industry, the impact of AI on customer satisfaction and loyalty is mediated by employee service quality. Specifically, the authors found that the **positive impact of AI on customer satisfaction and loyalty** is stronger when employees provide high levels of service quality. The authors concluded that while the use of AI in the hospitality industry can enhance the **guest experience and improve operational efficiency**, the impact of these technologies on customer satisfaction and loyalty is dependent on the quality of employee service. They also noted the importance of employee training and support to ensure that employees are able to effectively use AI technologies to enhance the guest experience.

Wang (2022) investigated the impact of service quality of hotel intelligent systems on customer satisfaction, using artificial intelligence (AI) evaluation. The author collected data from 300 customers who had recently stayed at a hotel and

used the hotel's intelligent system. The author used an AI-based evaluation system to assess the service quality of the hotel's intelligent system, and then analyzed the data to identify the relationship between service quality and customer satisfaction. The author found that there is **a positive relationship between the service quality of hotel intelligent systems and customer satisfaction**. The author also found that the use of AI-based evaluation systems **provide more accurate and objective assessments of service quality** than traditional evaluation methods. The author concluded that the use of high-quality intelligent systems in hotels enhance **the guest experience and improve customer satisfaction**.

Limna (2022) provided a comprehensive review of the current state of artificial intelligence (AI) in the hospitality industry, including its applications, benefits, challenges, and future prospects. The author conducted a literature review of previous research on the use of AI in the hospitality industry. The review included articles from academic journals, conference proceedings, and industry reports. The author found that the use of AI in the hospitality industry is becoming increasingly prevalent, with applications ranging from customer service and marketing to operations and management. The author identified several benefits associated with the adoption of AI in the hospitality industry, including **improved operational efficiency, enhanced guest experiences, and cost reductions**. Mariani and Borghi (2021) investigated customers' perceptions and evaluations of mechanical artificial intelligence (MAI) in hospitality services using online review analytics. The authors conducted a quantitative study using online review data of five hotels in Italy that had implemented various MAI technologies such as chatbots and virtual assistants. The authors found that the use of MAI in hospitality services was generally well-received by customers, with positive sentiment outweighing negative sentiment. However, the authors also found that the effectiveness of MAI varied depending on the specific application and context. For example, customers were more positive about MAI in customer service tasks such as booking and reservation management, but were less positive about MAI in more complex tasks such as personalized recommendations. The authors also found that the perceived quality of MAI was positively associated with overall **customer satisfaction and loyalty, indicating the potential of MAI to enhance the guest experience and drive customer loyalty**.

Mariani and Borghi (2023) investigated customers' assessments of the impact of artificial intelligence (AI) on service production and resilient service operations in service industries. The authors conducted a quantitative study using survey data collected from 400 customers who had recently received services from companies that had implemented AI technologies. The authors found that customers generally have positive attitudes toward the use of AI in service industries, with high levels of satisfaction with AI-enabled service production. Specifically, customers identified the benefits of AI in terms of **increased efficiency, accuracy, and personalization of services**. Bharwani and Mathews (2021) explored the techno-business strategies used by luxury hotels to enhance guest experience. Authors depended on qualitative methodology based on in-depth interviews with senior managers of luxury hotels in India. The study focuses on the techno-business strategies employed by luxury hotels to enhance guest experience, including the use of technology such as AI, mobile applications, and social media. The study found that luxury hotels are increasingly using technology to enhance the guest experience and increase guest satisfaction. The use of **AI-powered chatbots and virtual assistants** to provide **personalized recommendations** and assistance to guests was identified as a key strategy for enhancing guest experience. The study also found that mobile applications and social media are being used to improve communication with guests and provide them with a more seamless and convenient experience. The study highlights the importance of integrating technology with traditional hospitality practices to provide guests with a personalized and memorable experience.

### MODEL, HYPOTHESES AND OBJECTIVES OF STUDY

Launching from the above argument, this current study highlighted the relationship between variables as according to the following model:

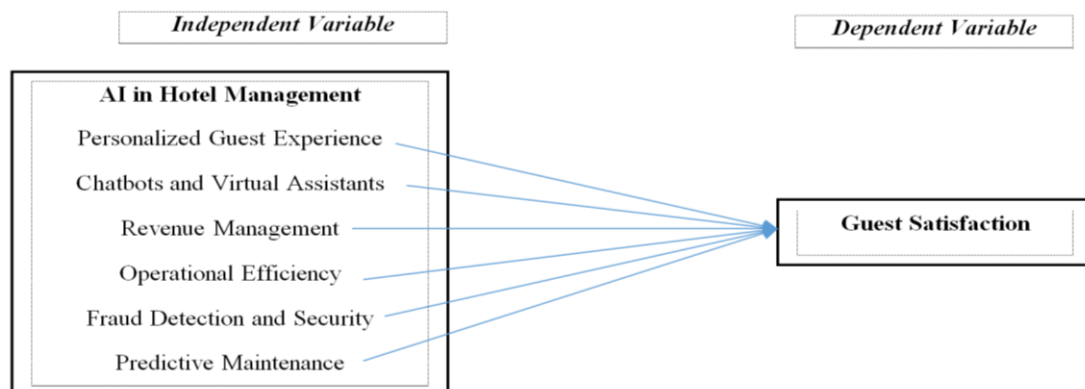


Figure 1. Study Model (Mnyakin, 2023; Kacar, 2023)

From above model, researcher was able to reach the following set of hypotheses:

#### Main Hypothesis:

**H:** AI in luxury hotels facilitates a better guest satisfaction from perspective of managers within five stars hotels

#### Sub-Hypotheses:

**H1:** Personalized guest experience facilitates a better guest satisfaction from perspective of managers within five stars hotels

**H2:** Chatbots and virtual assistants facilitates a better guest satisfaction from perspective of managers within five stars hotels

- H3:** Revenue management facilitates a better guest satisfaction from perspective of managers within five stars hotels  
**H4:** Operational efficiency facilitates a better guest satisfaction from perspective of managers within five stars hotels  
**H5:** Fraud detection and security facilitates a better guest satisfaction from perspective of managers within five stars hotels  
**H6:** Predictive maintenance facilitates a better guest satisfaction from perspective of managers within five stars hotels

## METHODS AND MATERIALS

### 1. Methodological Approach

Quantitative methodology was adopted in current study as it appeared to be the most suitable for gathering primary data from the largest population there could be.

### 2. Population and Sampling

Population of study consisted of managers within five stars hotels in Amman the Jordanian capital. Total of five stars hotels in Amman reached (35) hotels which were classified as luxury hotels. Total of (3) managers were taken from each hotels which made a total convenient sample of  $(35 \times 3 = 105)$  managers to respond the study questionnaire. After application process, author was able to retrieve (89) properly filled questionnaires which were valid for statistical processing. This indicated a response rate of (84.7%) as statistically accepted.

### 3. Tool of Study

Through the aid of previous studies, researcher was able to build a questionnaire based on likert 5-point scale. The questionnaire consisted of two main sections. The first section took into perspective demographics of study sample; while the other section presented statements related to study sub-variables including (Personalized Guest Experience, Chatbots and Virtual Assistants, Revenue Management, Operational Efficiency, Fraud Detection and Security, Predictive Maintenance) and (guest satisfaction) as a dependent variable. The questionnaire was presented before a group of specialized professors in the fields for the purpose of arbitration.

After arbitration process; the questionnaire was modified and fixed according to their perspective in a way that increased the reliability and consistency of questionnaire items with the main aim of study. In its final version, the questionnaire consisted of (37) statements divided on sub-variables of study.

Table 1. Alpha Values  
(Source: SPSS Prepared the Authors)

Variable	Alpha
Personalized Guest Experience	0.943
Chatbots and Virtual Assistants	0.881
Revenue Management	0.856
Operational Efficiency	0.887
Fraud Detection and Security	0.938
Predictive Maintenance	0.935
Guest Satisfaction	0.958

Table 2. Demographics  
(Source: SPSS Prepared the Authors)

	Frequency	Percent
<b>Age</b>		
22-26	10	11.2
27-31	17	19.1
32-36	21	23.6
+37	41	46.1
<b>Gender</b>		
Male	65	73.0
Female	24	27.0
<b>Education</b>		
BA	69	77.5
MA	20	22.5
<b>Experience</b>		
2-5	12	13.5
6-9	18	20.2
10-13	26	29.2
+14	33	37.1
Total	89	100.0

Table 3. Questionnaire Analysis (Source: SPSS Prepared the Authors)

	Mean	Std. Deviation
AI can analyze guest data to create personalized experiences	3.854	.948
Adopting AI can customize room amenities for special guests	3.854	.972
AI has the ability to personalize restaurant recommendations based on dietary preferences	3.888	.885
AI can curate activity itineraries based on guest interests.	3.730	.986
AI can enhance the overall guest experience and increase guest satisfaction.	3.753	1.037
<b>Personalized Guest Experience</b>	<b>3.827</b>	<b>.871</b>
AI-powered chatbots and virtual assistants can provide 24/7 assistance to guests	3.258	1.257
It facilitates answering their questions and fulfilling their requests in real-time	3.843	.916
Chatbots and virtual assistants can improve operational efficiency	3.753	1.026
It can provide a more seamless and convenient experience for guests	4.056	.759
Chatbots and virtual assistants can lead to increased guest satisfaction.	3.798	.881
<b>Chatbots and Virtual Assistants</b>	<b>3.742</b>	<b>.809</b>
AI can analyze data on room rates and occupancy rates	3.652	.841
It can deal with guest demographics to optimize pricing strategies, such as dynamic pricing	3.303	1.142
AI can personalize pricing based on guest profiles	3.618	.886
This can increase revenue and profitability of hotels	3.697	.884
AI can provide competitive prices that meet guest expectations.	3.843	.976
<b>Revenue Management</b>	<b>3.622</b>	<b>.758</b>
Employing AI can automate routine tasks such as check-in and check-out processes	4.079	.882
It manages room assignments, and housekeeping schedules	4.022	.953
It can free up staff time to focus on providing personalized service to guests	3.955	1.117
Employing AI in hotel management can result in a more efficient and effective luxury hotel experience	3.708	.944
AI has the ability to increase guest satisfaction.	3.539	1.023
<b>Operational Efficiency</b>	<b>3.861</b>	<b>.819</b>
AI can monitor and analyze guest behavior patterns and transactions to detect potential fraud and security threats	3.730	.974
It can monitor credit card fraud or identity theft	3.798	.967
AI is useful for luxury hotels maintain to secure environment for guests	3.753	.980
It can increase guest satisfaction and trust in the hotel	3.416	.998
It has the ability to provide safe and secure environment for guests	3.360	.980

<b>Fraud Detection and Security</b>	<b>3.611</b>	<b>.878</b>
AI can use sensors and data analytics to predict maintenance needs and equipment failures	3.562	1.087
AI allow luxury hotels to schedule maintenance before issues impact the guest experience	3.067	1.204
AI improve operational efficiency and quality of services presented	3.247	1.058
It can ensure that luxury hotels provide a reliable and high-quality experience for guests	3.360	1.141
It can lead to increased guest satisfaction through 24/7 high quality services	3.607	1.062
<b>Predictive Maintenance</b>	<b>3.369</b>	<b>.990</b>
The hotel is aware that guest satisfaction is the cornerstone of successful luxury hotel management.	3.382	1.163
Luxury hotel management must invest in the development of a customer-centric culture.	3.506	1.035
Luxury hotel management must monitor guest satisfaction through regular feedback and surveys.	3.618	1.103
Luxury hotel management must manage guest expectations by being transparent and providing clear information about the hotel's services, amenities, and policies.	3.775	.938
Luxury hotel management must invest in the development of staff training programs that focus on delivering exceptional service.	3.416	1.166
Luxury hotel management must prioritize the safety and security of guests.	3.607	1.040
Luxury hotel management must value guest feedback and use it to drive continuous improvement.	3.652	1.046
<b>Guest Satisfaction</b>	<b>3.565</b>	<b>.958</b>

#### 4. Screening of Primary Data

Statistical package for social sciences SPSS was employed in order to screen and analyze primary data. The reliability of the study was evaluated using Cronbach Alpha. Because each variable's alpha value was higher than the bare minimum permitted percentage of 0.70, it was acceptable and table 1 below confirmed the reliability and consistency of study tool (Sekaran and Bougie, 2016).

Table 4. Multicollinearity test  
(Source: SPSS Prepared the Authors)

Variable	Tolerance	VIF
Personalized Guest Experience	.373	2.681
Chatbots and Virtual Assistants	.320	3.122
Revenue Management	.439	2.279
Operational Efficiency	.504	1.985
Fraud Detection and Security	.710	1.408
Predictive Maintenance	.954	1.048

### RESULTS AND DISCUSSION

#### 1. Demographics

Table 2 below presented frequency and percentage of study sample's demographics, it was seen that all respondents were males forming 73% of total sample who were more than 37 years old and formed 46.1%. Also, majority of respondents held BA degree forming 77.5% with an experience of more than 14 years forming 37.1% of total sample.

#### 2. Questionnaire Analysis

Table 3 below presented the mean and standard deviation of questionnaire analysis. It was seen that variables and statements were positively received as they all scored higher than mean of scale 3.00. the highest variable was Personalized Guest Experience and scored 3.82/5.00 compared to the lowest mean – but still positive – scored by Predictive Maintenance with mean of 3.36/5.00.

#### 3. Multicollinearity test

Calculations for VIF and Tolerance were performed on the independent variables to look for multicollinearity. As it appeared in table 4 below, there was no multicollinearity in the data, as shown by the fact that all of the VIF values in the table 4 were less than 10 and all of the tolerance values were more than 0.10 (Gujarati and Porter, 2009).

#### 4. Hypotheses Testing

##### H: AI in luxury hotels facilitates a better guest satisfaction from perspective of managers within 5 stars hotels

Multiple regression was used to test the aforementioned hypothesis, and the findings indicated that the F value of 29.991 was significant at the 0.05 level. This suggested “AI in luxury hotels facilitates a better guest satisfaction from perspective of operational managers within 5 stars hotels”. Additionally, it was found that the correlation coefficient,  $r=0.829$ , was high and that the independent variables accounted for **68.7%** of the variation in the dependent variable under study.

Table 5. Main Hypothesis Testing (Source: SPSS Prepared the Authors)

Model	Coefficients						
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R Square
	B	Std. Error	Beta				
(Constant)	-1.243	.396		-3.136	.002	.829 <sup>a</sup>	.687
Personalized Guest Experience	.229	.111	.209	2.062	.042		
Chatbots and Virtual Assistants	.265	.129	.224	2.049	.044		
Revenue Management	.248	.118	.196	2.106	.038		
Operational Efficiency	.205	.102	.175	2.013	.047		
Fraud Detection and Security	.214	.080	.196	2.672	.009		
Predictive Maintenance	.141	.061	.146	2.309	.023		

Table 5 above presented coefficients and showed that the t-values for each variable were statistically significant at the 0.05 level, which accepted all presented sub-hypotheses as the following:



1. Personalized guest experience facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.062 was significant at 0.05 level
2. Chatbots and virtual assistants facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.049 was significant at 0.05 level and has the greatest influence on the guest satisfaction (as measured by  $\beta = 0.224$ ).
3. Revenue management facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.106 was significant at 0.05 level
4. Operational efficiency facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.103 was statistically significant at the 0.05 level
5. Fraud detection and security facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.672 was significant at 0.05 level
6. Predictive maintenance facilitates a better guest satisfaction from perspective of managers within five stars hotels, since  $t$ -value = 2.309 was significant at 0.05 level

## DISCUSSION

The current study aimed at examining the impact of artificial intelligence (AI) (Personalized Guest Experience, Chatbots and Virtual Assistants, Revenue Management, Operational Efficiency, Fraud Detection and Security, Predictive Maintenance) on guest satisfaction in luxury hotels in Amman from perspective of managers. Quantitative methodology was employed, and a questionnaire was self-administered by (89) managers within luxury five stars hotels in Amman – Jordan. SPSS was used to tackle the primary data through multicollinearity test and multiple regression.

The main hypothesis of study argued, “AI in luxury hotels facilitates a better guest satisfaction from perspective of managers within 5 stars hotels”. This hypothesis was accepted, and it appeared that (AI) has the potential to revolutionize the hospitality industry by providing personalized and efficient services to guests. Luxury hotels, in particular, can benefit from the use of AI to enhance guest satisfaction and loyalty, leading to increased revenue and growth.

Results of study also indicated that one of the key ways in which AI can increase guest satisfaction in luxury hotels is by providing personalized experiences through gathering data on guests' preferences and behavior, such as their room preferences, dining preferences, and preferred activities. This result agreed with Roy et al (2020) and Mariani, and Borghi (2021) who argued that through personalized recommendations and experiences to guests, the hotel could enhance guests' overall experience.

Another result of study indicated that could increase guest satisfaction with chatbots. AI-powered chatbots are employed to provide guests with instant assistance and support. Chatbots can handle routine requests such as room service orders, housekeeping requests, and booking requests, freeing up staff to focus on tasks that are more complex. Such results came into agreement with Mariani and Borghi (2021) who argued that chatbots provide guests with information about the hotel and local area, such as restaurant recommendations and tourist attractions. This can enhance the guest experience by providing quick and efficient assistance and reducing wait times.

Predictive maintenance was another way that appeared in study results in which AI can increase guest satisfaction in luxury hotels. AI is used in this sense to monitor hotel equipment and predict when maintenance is needed before a problem occurs. Wang (2022) have agreed on the same result arguing that predictive maintenance help to prevent equipment failures and minimize downtime, ensuring that guests have a seamless experience.

## CONCLUSION

### General Conclusion

These luxury hotel chains have all leveraged AI technology to enhance the guest experience and improve operational efficiency. By providing guests with personalized recommendations and assistance through AI-powered chatbots and virtual assistants, these hotels have been able to improve guest satisfaction while also reducing the workload of hotel staff. As AI technology continues to develop, it is likely that more luxury hotel chains will adopt these innovative solutions to better meet the needs and expectations of their guests. These luxury hotel chains have all demonstrated a commitment to delivering exceptional service and creating unforgettable experiences for guests.

In conclusion, AI has the potential to increase guest satisfaction in luxury hotels by providing personalized and efficient services to guests. AI-powered tools such as chatbots, voice assistants, facial recognition, recommendation engines, and virtual reality can all enhance the guest experience and increase their satisfaction and loyalty to the hotel. While it is important to balance the use of AI with human interaction, the use of AI in luxury hotels has the potential to revolutionize the hospitality industry and provide guests with a more seamless and personalized experience.

### Recommendations

Based on above discussion and conclusion, author of current study recommended:

- Employing AI to gather data on guests' preferences and behavior, such as their room preferences, dining preferences, and preferred activities.
- Providing guests with instant assistance and support through AI tools and handle routine requests such as room service orders, housekeeping requests, and booking requests, freeing up staff to focus on more complex tasks.
- Integrating voice assistants such as Amazon's Alexa or Google Assistant into hotel rooms, allowing guests to control various aspects of their room such as the temperature, lighting, and entertainment systems, all through voice commands.



### Theoretical and Practical Implications

Examining the impact of artificial intelligence (AI) on guest satisfaction in luxury hotels has both theoretical and practical implications. As for the theoretical implications; studying the impact of AI on guest satisfaction in luxury hotels can help advance our theoretical understanding of the role of technology in the hospitality industry. This can lead to new insights into how hotels can use technology to enhance the guest experience and ultimately, increase guest satisfaction.

Practical implications of current study can summarized enhancing guest satisfaction by understanding the impact of AI on guest satisfaction, luxury hotels can implement AI-powered solutions that enhance the guest experience and ultimately, increase guest satisfaction.

### Limitations of Study

Current study was limited to five stars hotels in the Jordanian capital Amman, the study was also limited to managers of these hotels as they are more aware of the budget stated for employing AI in their operations and have the needed awareness of AI-empowered services in five stars and luxury hotels.

### Future Studies

Current study suggested future research that included:

- Examine the role of chatbots and smart receptions in increasing guest satisfaction in hotels
- Examine the effect of employing social media smart analytics to collect data about guest and reach the maximum level of their satisfaction and loyalty.

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