

Digital Transformation in the Hospitality Industry: Improving Efficiency and Guest Experience

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Abstract

Digital transformation in the hospitality industry has become critical in improving operational efficiency and guest experience. This study aims to analyze the impact of implementing digital technologies, such as Artificial Intelligence (AI), the Internet of Things (IoT), and big data analytics, on operational performance and guest satisfaction in star-rated hotels in Indonesia. Using a qualitative descriptive approach, this study was conducted through in-depth interviews with operational and IT managers from five-star-rated hotels in Jakarta and Bali, which have adopted digital technologies in their operational activities. The results showed that implementing a cloud-based property management system can increase operational efficiency by up to 30%. In comparison, using AI, such as chatbots, can reduce staff workload by up to 70%. The use of big data analytics also allows hotels to provide more personalized services, increasing guest satisfaction by up to 15%. The study also found that contactless digital technologies, which have become increasingly important during the COVID-19 pandemic, improve guests' perceptions of safety and comfort. However, system integration, staff training, and initial investment costs are the main challenges faced. The study concluded that digital transformation significantly improves hotel efficiency, guest satisfaction, and competitiveness in an increasingly competitive market. Continuous adoption of digital technologies is highly recommended to maintain the relevance of the hospitality industry in the future.

Keywords:

Digital transformation; Hospitality industry; Artificial Intelligence; Internet of Things; Big data.

1. INTRODUCTION

Digital transformation in the hospitality industry has become critical in improving operational efficiency and enriching the guest experience. This change has impacted not only the way hotels operate internally but also the way guests interact with the services provided by the hotel. The implementation of digital technologies such as voice-based virtual assistants and Internet of Things (IoT) systems has been shown to significantly reduce service barriers and provide hotel staff with the opportunity to focus more on efforts to improve the quality of their guest experience (Buhalis & Moldavska, 2021; Buhalis et al., 2019). Using voice-based digital assistants, for example, allows guests to make various requests or arrangements using simple voice commands. This not only speeds up the service process but also reduces the need for guests to interact directly with staff, which in turn can reduce stress and increase guest comfort. This technology allows guests to access information, adjust lighting, control room temperature, and even order additional services simply by talking to a device integrated into the room. In addition, IoT technology functions to connect various devices and systems in the hotel, allowing them to communicate automatically and effectively. For example, smart sensors can control cooling and heating systems based on guest preferences or usage patterns, while other devices can monitor and manage inventory in real-time. In this way, these technologies support more efficient operations and are responsive to guest needs. By implementing these technologies, hotels can offer a more personalized and responsive experience and create

a more comfortable and enjoyable environment for guests. Experiences tailored to individual preferences and quick responses to guest requests are crucial to building and maintaining guest loyalty. Research by Sadek (2022) shows that hotels that leverage digital technologies to improve guest interactions and services tend to achieve higher guest satisfaction rates and, as a result, increase their guest loyalty. Digital transformation is not only changing the way hotels operate, but it is also redefining guest service standards in the hospitality industry. These technologies play a vital role in creating a better guest experience, contributing to hotels' success and competitiveness in an increasingly competitive market.

One of the crucial elements in the digital transformation process is applying technology at every stage of the customer journey. According to Youssofi (2023), a deep understanding of the customer journey in the digital era is a significant factor. Each stage of the customer journey can be significantly improved using the right technology, ultimately improving the overall customer experience. For example, implementing a property management system integrated with an online booking platform has significantly improved operational efficiency and guest satisfaction. This technology facilitates hotels in managing reservations and room allocation in a more organized and efficient manner. By using this system, hotels can reduce the possibility of errors in the booking and room arrangement process, which previously often became a source of customer problems. This contributes to an increase in overall customer satisfaction. Previous studies have supported these findings, as explained in the study by Nadkarni et al. (2019), as well as in the report titled "Influence of Technology and ICT Policies on Hotel Guest Satisfaction in the Hotel Industry: A Case of 4 and 5 Star Rated Hotels in Nairobi City" (2023). Both sources underline that the effective use of integrated technology in the hospitality sector increases operational efficiency and significantly improves guest satisfaction levels. By applying advanced technology, companies can create a smoother and more satisfying customer experience, strengthening customer loyalty and positively influencing the company's reputation in the market. Thus, integrating technology at every stage of the customer journey is not just a trend but a necessity to achieve a competitive advantage in this rapidly growing industry. Digital technology plays a very significant role in meeting the preferences of the millennial generation, who are generally known to be very familiar with technological advances. Research conducted by Budidharmanto et al. (2021) and Kozmal et al. (2020) revealed that millennials tend to choose hotels that provide advanced and integrated digital experiences. This tendency reflects the expectations of this generation for facilities and services that optimize digital technology in every aspect of their stay. In today's digital era, tailoring offerings to the technological preferences of customers, especially millennials, is very important. Hotels that meet these expectations by providing state-of-the-art technology-based services and facilities will gain a significant competitive advantage. For example, features such as automated check-in and check-out, digital vital systems, and mobile applications for room service and hotel facility management are highly valued by guests from this generation. Digitally integrated experiences allow them to enjoy convenience and efficiency that align with their fast-paced, technology-driven lifestyles. A hotel's ability to offer experiences that align with millennials' technological needs will increase customer satisfaction levels and have the potential to strengthen loyalty and earn positive recommendations from guests. Successfully delivering experiences that match these technological expectations can result in better reviews and positive feedback, contributing to a better reputation in the market. Therefore, hotels need to continue to innovate and adapt to technological advancements in order to attract and retain millennial customers. By effectively leveraging digital technologies, hotels can meet the needs of today's customers and position themselves as leaders in the evolving hospitality industry. This approach will enable hotels to create more personalized and satisfying experiences, ensuring their relevance and appeal in an increasingly competitive market.

Digital analytics and big data technologies have brought about significant transformations in the hospitality industry, enabling hotels to understand their guests' behavior and preferences better. By applying advanced data analytics techniques, hotels can tailor their services more precisely to meet each guest's needs and wants (Gupta et al., 2020; Feng et al., 2022). By leveraging the available data, hotels can optimize their marketing strategies, improving the overall guest experience. Data analytics enables hotels to create more personalized and relevant offerings. For example, historical data and guest preferences can be used to provide more precise recommendations regarding additional services such as spas or restaurants. This is done by considering the guest's previous preferences and visit history, making the offerings more attractive and tailored to their desires (Buhalis & Leung, 2018; Buhalis, 2019). Applying these technologies not only helps provide more personalized services but also increases the effectiveness of marketing campaigns. Hotels can use data analytics to identify patterns and trends in guest behavior, which can then be translated into more effective marketing strategies. For example, hotels can design more attractive and relevant offers for specific market segments by knowing the time and type of service that guests most frequently choose. Furthermore, the ability to personalize guest experiences through data analytics also has an impact on increasing guest loyalty. When guests feel that their service is highly tailored to their preferences, they are likelier to return and recommend the hotel to others. Therefore, using big data in hospitality improves the guest experience, the hotel's reputation, and its competitive position in the market. Digital analytics and big data technologies offer hotels a considerable opportunity to improve operational efficiency and guest satisfaction. Properly used allows hotels to create more personalized and relevant experiences while optimizing their marketing strategies for better results.

In the post-pandemic era, adopting digital technology is critical to improving hygiene and safety standards in the hospitality industry. One of the most significant impacts of the pandemic has been the increased focus on health and hygiene, requiring hotels to quickly adapt to meet guest expectations for a safe and hygienic environment. Digital technology plays a significant role in meeting these demands through innovations designed to reduce the health risks that guests may experience (Shin & Kang, 2020). Contactless check-in and check-out systems are one example of technology crucial in creating a safer guest experience. With this system, the registration process and payment settlement are done digitally, reducing the need for direct physical interaction with hotel staff. This reduces the risk of disease transmission and speeds up the check-in and check-out process, providing additional convenience for guests (Shin & Kang, 2020). In addition, Internet of Things (IoT) technology has revolutionized hotel cleaning and sanitation. Using IoT devices, hotels can monitor and manage cleanliness in real time. For example, automated cleaning systems integrated with sensors can ensure that common areas and guest rooms are cleaned to set standards. These sensors can detect the level of cleanliness and send information to the cleaning team so that corrective action can be taken immediately if necessary. This helps hotels maintain a high and consistent level of cleanliness while providing guests with an added sense of security (Shin & Kang, 2020). The adoption of digital technology not only improves cleanliness standards but also strengthens guests' perceptions of safety. By having technology that reduces direct contact and ensures a clean and safe environment, hotels can build guest trust in their commitment to health and safety. This trust is critical in attracting guests who may have hesitated to travel during the pandemic. Digital technology plays a critical role in modernizing the hospitality industry post-pandemic by improving operational efficiency and providing a safer and more convenient experience for guests. By adopting contactless check-in/check-out systems and IoT-based automated cleaning technologies, hotels can meet guest expectations for a hygienic and safe environment while maintaining high service standards.

Digital transformation in the hospitality industry has revolutionized hotel operations and improved the overall guest experience. With advanced technologies, hotels can optimize various operations, from property management to marketing and guest services, creating a more responsive and engaging environment. This not only simplifies hotel operations but also contributes to increased customer satisfaction, which in turn strengthens customer loyalty amidst the increasingly competitive digital era (Shin & Jeong, 2022; "A Research Study to Identify the Post-Pandemic Key Success Factor (KSF) of Hoteliers in Bangkok," 2023). In property management, digital technology enables hotels to manage their facilities more efficiently. An integrated property management system can automate various administrative processes, such as room reservations, inventory management, and financial reporting. With this automation, hotels can reduce staff workload and minimize human error while speeding up responses to guest needs. This improves the hotel's internal operations and allows staff to focus on more personalized interactions with guests. In marketing, digital transformation offers powerful tools to reach and engage potential guests. Data analytics allows hotels to understand guest behavior and preferences better, allowing them to design more targeted and effective marketing campaigns. Through digital platforms, hotels can offer promotions and special offers tailored to guests' interests and visit history, increasing the relevance and appeal of their campaigns. Guest services also benefit significantly from digital technology. Mobile applications and cloud-based systems allow guests to self-check in and out, access room service, and quickly obtain necessary information. This technology reduces the need for face-to-face interaction, provides added convenience, and increases guest satisfaction. In addition, integrating technology into guest services allows hotels to provide a more personalized experience, such as recommendations for additional services tailored to guest preferences. The digital transformation of the hospitality industry brings many benefits that improve operational efficiency and enrich the guest experience. By effectively leveraging technology, hotels can address challenges and capitalize on opportunities in an increasingly competitive market, creating a more satisfying guest experience and stronger loyalty. This transformation underscores the critical role of technology in advancing the hospitality industry and has a significant positive impact on hotels and their guests.

2. RESEARCH METHOD

This study uses a qualitative descriptive approach focusing on case studies of several starred hotels in Indonesia that have adopted digital technology. This approach was chosen because it provides flexibility in exploring complex phenomena, such as digital transformation, by highlighting the direct experiences of hotel industry players. The main objective of this study is to understand in depth how digital technology affects operational efficiency and the quality of service provided to guests. This study also seeks to identify the challenges faced by hotels in the process of adopting the technology. Primary data were collected through in-depth interviews with operational and information technology (IT) managers from five-starred hotels in Jakarta and Bali. Information technology (IT) theory encompasses various approaches to understanding how individuals and organizations adopt and utilize technology. One of the most frequently referred to models in technology acceptance studies is the Technology Acceptance Model (TAM), introduced by Fred Davis. This model offers a framework for evaluating factors influencing technology adoption by highlighting two main

elements: perceived usefulness (PU) and perceived ease of use (PEOU) (Devi, 2022; Sya'diah, 2023; Suryana et al., 2021). Perceived usefulness refers to the extent to which a person believes that using a particular technology will improve his/her performance or provide significant benefits in the tasks he/she performs. Meanwhile, perceived ease of use refers to the extent to which a person feels the technology is easy to use without experiencing significant difficulties. The TAM model suggests that these two factors are crucial in shaping an individual's attitude and intention toward using technology (Sya'diah, 2023; Nur, 2020). Research shows that the higher the perception of the usefulness and ease of use of a technology, the greater the tendency of an individual to adopt it. In other words, technology perceived as valuable and easy to use is more likely to be widely accepted and used. TAM has become a valuable tool for understanding the dynamics of technology acceptance across contexts and organizations, providing important insights for more effective technology development and implementation (Devi, 2022; Suryana et al., 2021).

These five hotels were selected based on the level of digital technology adoption in their daily operations. The interviews focused on various aspects of digital technology implementation, including automation processes, guest data management, and guest interactions. Through these in-depth interviews, researchers gained a more detailed understanding of the benefits perceived by hotel management, including increased efficiency, cost savings, and increased guest satisfaction. In addition, the interviews also revealed the challenges hotels face in implementing digital technology, such as system integration issues, staff training, and initial investment costs. To complement the interviews, direct observations were conducted at the hotels to see how digital technology is used in daily operational activities, from guest check-in to monitoring hotel facilities. These observations are essential to see firsthand the real impact of technology on operational efficiency and guest experience. In addition to primary data, this study used secondary data from various sources such as academic journals, industry reports, and articles discussing digital transformation in the hospitality industry. These sources provide additional perspectives that help enrich the field's empirical findings and provide a global context regarding the implementation of digital technology. This secondary data is also used to identify the latest trends and developments in technology that have the potential to impact the future of the hospitality industry. By analyzing data from these various sources, this study was able to more comprehensively evaluate how digital transformation has been implemented in different parts of the world and its impact on improving efficiency and guest service. This study not only focused on ongoing trends but also on predictions about technological innovations that have the potential to be adopted more widely in the future. The data collected was analyzed thematically using a coding method to identify critical patterns emerging in adopting digital technologies. This method allowed the researchers to group the data based on important themes, such as operational automation, service personalization, and guest data management. Through this analysis, the researchers identified key factors that contribute to successful technology adoption and challenges that need to be overcome to improve the effectiveness of digital technology implementation in hotels.

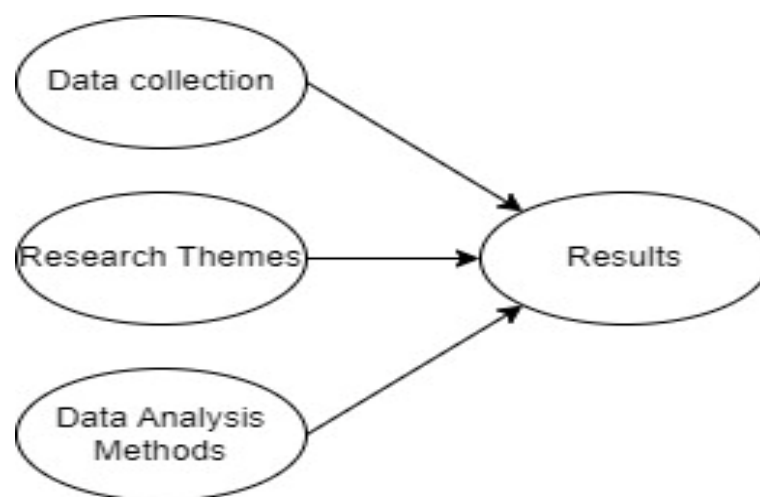


Figure 1. Research Model

This diagram reflects how each element of the research is connected from data collection to the results obtained. The image I created reflects the model visually in the diagram.

3. RESULTS AND DISCUSSION

3.1. Operational Automation to Increase Efficiency

Operational automation has become increasingly important in driving efficiency and productivity in various industrial sectors. In its implementation, Information and Communication Technology (ICT) is crucial in optimizing operational services and management. For example, using ICT in modern library management allows librarians to provide faster, more efficient, and broader services. Automation of library material management, such as cataloging, borrowing, and returning, not only speeds up the administrative process but also provides a better experience for library users. In addition, automation increases the professionalism of librarians by minimizing manual errors in managing library collections (Anwas, 2014). Furthermore, automation is essential in improving operational efficiency in various other industries. In the power generation sector, for example, sensors in the thermal treatment process allow monitoring and regulation of essential parameters such as temperature and pressure in real-time. This technology not only improves operational safety but also allows optimization of energy consumption, which positively impacts overall energy efficiency (Buratto, 2024). In this case, the automation system provides better control over industrial processes and reduces the potential for errors that can occur due to manual supervision. The logistics sector also benefits significantly from automation, especially with the development of artificial intelligence (AI). The application of AI in warehouse automation, such as Autonomous Mobile Robots (AMR) and robotic arms, has increased the efficiency of material management and picking. These robots can operate independently, navigate the warehouse environment, and adapt picking routes based on changing conditions. Thus, the time required to complete logistics tasks can be shortened, reducing operational costs and increasing overall productivity (Sodiya, 2024). This shows that automation plays a strategic role in addressing operational challenges in various industries, helping to improve efficiency, accuracy, and safety.

The study results show that hotels adopting a cloud-based property management system (PMS) have experienced a significant increase in operational efficiency. In one centralized platform, this system integrates various hotel operational functions, such as reservation management, housekeeping, inventory management, and financial reporting. With a cloud-based PMS, hotels can automate the check-in and check-out process, which previously required more human resources and time. Data taken from interviews shows that, on average, hotels can shorten the check-in/check-out process by up to 30%. This reduction in operational time directly impacts reducing the need for a workforce at the front desk so hotels can save on labor costs. Staff previously assigned to serve check-in/check-out can be diverted to other tasks that require direct interaction with guests, such as concierge services or customer relations, which tend to be more personal and provide added value to the guest experience. In addition, integrating PMS with the housekeeping module allows hotel management to monitor the cleanliness status of rooms in real-time. This makes it easier to allocate resources according to guest needs and hotel occupancy rates. Thus, hotels can minimize the waste of resources, whether in the form of time, labor, or materials, which contributes to overall efficiency. From interviews with operational managers, it was revealed that the use of cloud-based PMS also improves the accuracy of room inventory management, reducing errors that usually occur due to manual recording. For example, the system automatically updates the status of available rooms after the check-out process, thus avoiding double-booking errors that can harm guests and the hotel's reputation.

3.2. Leveraging Big Data for Strategic Decision Making

The use of big data in strategic decision-making has become a key element in many organizations in the digital era. Big data refers to a vast and diverse volume of data that cannot be processed using traditional data processing techniques. With the ability to manage and analyze this large amount of data, organizations can identify patterns and trends and gain insights that can be implemented in various operational and strategic aspects. Big data adds value to companies by providing more prosperous and detailed information, enabling faster and more evidence-based decision-making (Dunham, 2015). Big data has proven to be an essential tool for driving competitive advantage in the business world. By utilizing big data analytics, companies can better understand consumer behavior, predict market demand, and design more effective strategies, including marketing, supply chain management, and product development (Fatha, 2023). For example, analyzing consumer behavior based on sales data can help companies identify the most popular products, determine potential market segments, and design more targeted marketing campaigns. In addition, extensive data analysis can also be used to minimize risk by making more accurate predictions regarding future market trends. One of the analytical methods often used in big data is the clustering algorithm, such as K-Means. This algorithm allows data to be grouped into categories based on certain similarities. For example, in a point of sales (POS) system, this algorithm can be used to classify products based on customer purchasing patterns, which ultimately helps business owners plan purchases and stock management more efficiently (Supangat & Amna, 2019). With more efficient inventory management, companies can reduce the risk of overstock or stock-out, often leading to financial losses. By utilizing big data, companies are not only able to improve operational efficiency but also develop more adaptive business strategies. This advantage in data-based decision-making makes companies more responsive to changes in market dynamics, strengthens competitiveness, and increases long-term growth.

The use of big data analytics in hotel operations is one of the factors that helps management make more precise and targeted strategic decisions. The hotels that were the subjects of the study utilized data from various sources, such as guest preferences, booking patterns, activities during stays, and feedback given after check-out. This data was then analyzed to provide deeper insights into guest needs and behavior. Hotels could predict guest preferences more accurately, such as room preferences, food choices, and additional services often requested by the same guests on previous visits. This information was then used to provide more personalized services, such as preparing room temperature settings that suit guest preferences or providing restaurant menu recommendations based on previously preferred food choices. The results of extensive data analysis are also used to determine dynamic pricing strategies. Hotels can adjust room prices based on time or market demand levels by analyzing demand trends and occupancy rates. For example, hotels can apply higher prices to maximize revenue when occupancy rates are high. Conversely, hotels can provide discounts or promotions during the low season to attract guests. The study results showed that hotels that utilized this dynamic pricing strategy could increase revenue by up to 10%. Big data analytics are also used to improve the effectiveness of marketing campaigns. Hotels can identify more specific market segments based on demographic data and guest preferences so that marketing campaigns can be tailored to the needs and interests of a more precise audience. For example, a hotel can send special offers to guests who have booked spa or restaurant services on a previous visit, increasing their chances of returning and using the same services.

3.3. Personalization of Services Through Artificial Intelligence Technology

Artificial intelligence (AI) technology has transformed how hotels provide guests with more personalized and responsive services. This innovation improves the quality of interactions and creates a more enjoyable experience for visitors. Based on observations, implementing AI-based chatbots in modern hotels has proven effective in responding to guest requests quickly and accurately without requiring direct human intervention. This chatbot is designed to provide information about hotel facilities, recommend tourist destinations, and manage additional service reservations according to previously analyzed guest preferences. A case study conducted at a hotel in Bali revealed that the chatbot could handle up to 70% of the questions guests asked. With this technology, hotel staff can focus more on handling more complex requests that require a more personalized approach. This not only improves operational efficiency but also contributes significantly to guest satisfaction. The successful use of AI technology in the hospitality sector shows that service personalization can be achieved through proper data and analysis. By utilizing chatbots, hotels can speed up the service process and collect valuable information about guest preferences and behavior, which can be used to improve future offerings. Thus, artificial intelligence technology functions not as a tool but as a strategic partner in creating a more memorable and satisfying accommodation experience.

Personalization of services through artificial intelligence (AI) technology has become an increasingly important and relevant theme in various sectors, including education, healthcare, and marketing. AI technology enables the development of systems that customize the user experience based on individual preferences and needs. This increases efficiency and maximizes user satisfaction, which is the primary goal of any service. In education, AI plays a vital role in optimizing the learning process. AI-based systems can design learning experiences tailored to the specific needs of each student, which in turn contributes to increasing learning effectiveness (Rifky, 2024). Research shows that using chatbots and other interactive technologies can enrich the learning experience, making it more engaging and efficient. In addition, this technology also contributes to automated evaluation, which reduces the workload of educators in assessing assignments and provides faster and more accurate feedback. In the marketing sector, AI-powered advertising personalization has proven effective in increasing consumer engagement and providing strategic value to companies. Research shows that personalizing ads on social media, such as Instagram, can increase consumer engagement levels and significantly benefit companies (Subagio et al., 2020). Furthermore, AI-based recommendation systems implemented in e-commerce platforms can enhance user experience by presenting product recommendations relevant to their interests and needs. This enriches the shopping experience and contributes to increased sales conversions (Riswan, 2024). The application of artificial intelligence technology in service personalization shows excellent potential to improve operational efficiency and create a more satisfying experience for users in various fields. Organizations can better understand and meet user needs through AI, making it a precious tool in today's digital age.

3.4. Security and Privacy in Digital Transformation

Guest data security is fundamental to implementing digital transformation in the hospitality industry. The hotels studied showed a high level of awareness of the importance of personal data protection. In an era where digital information is increasingly vulnerable to threats, implementing advanced technologies to protect guest data is necessary. Many hotels have implemented robust encryption technology and dual authentication systems to ensure the security of sensitive information, such as credit card details and personal preferences. Encryption technology secures data by converting information into a format unauthorized parties cannot read. At the same time, dual authentication systems add a layer of protection by requiring verification from two different sources. This not only improves data security but also increases guest trust in the hotel.

The study results showed that these hotels adopt the latest technology and comply with applicable data protection regulations, such as the General Data Protection Regulation (GDPR). Compliance with this regulation ensures that guest data is processed and stored securely and gives guests the right to access and control their personal information. With a comprehensive approach to data security, hotels can create a safe environment for guests, improving the overall guest experience. Success in managing data security and privacy protects sensitive information and contributes to the reputation and sustainability of the hotel business in the era of ever-growing digital transformation.

Security and privacy in digital transformation are increasingly crucial issues, along with the increasing use of digital technology in various aspects of life. Digital transformation brings convenience and efficiency and presents new challenges related to data security and individual privacy. It is essential to understand how these changes affect user behavior and how organizations can effectively protect their sensitive information. Digital transformation has changed how people interact with technology, significantly increasing the risk of privacy breaches. Bahram (2023) noted that although digital transformation provides better accessibility to information, it also increases digital crime and privacy breaches. Research by Nabila (2023) supports this finding by showing that many social media users are unaware of the risks associated with the privacy and security of their data. The study revealed that the level of user awareness of these issues is still low, which can spread unsafe personal data and increase vulnerability to cyber attacks. Organizations must implement a comprehensive and sustainable security strategy to overcome this challenge. The use of robust encryption technology, more sophisticated authentication systems, and strict privacy policies are essential steps to be taken. In addition, education and increasing user awareness of the importance of data security are also essential. In doing so, organizations protect sensitive information and build trust with their users. Data protection regulations, such as the General Data Protection Regulation (GDPR) in Europe, have become a reference for many countries in regulating the management of personal data. Compliance with these regulations ensures that guest data is processed and stored securely and gives individuals the right to access and control their personal information. Implementing these regulations helps reduce the risk of data breaches and increases organizational responsibility in managing information. Security and privacy in digital transformation require a holistic and integrative approach. By combining advanced technologies, appropriate policies, and user education, organizations can overcome emerging challenges and maximize the potential of digital transformation. These efforts protect sensitive data and ensure that digital transformation can run safely and sustainably, providing maximum benefits to all parties involved.

3.5. Discussion

Digital transformation has brought significant changes in the hospitality industry, especially in increasing operational efficiency and providing more personalized services to guests. Implementing technologies such as cloud-based property management systems, artificial intelligence (AI), the Internet of Things (IoT), and big data analytics allows hotels to automate various functions, from check-in/check-out processes to real-time inventory management. This speeds up service times and reduces manual errors that often occur in conventional systems. For example, implementing a cloud-based property management system can increase operational efficiency by up to 30%. This technology integrates various hotel functions into one platform, allowing for more efficient management, such as reservations, housekeeping, and financial reporting. As a result, hotels can reduce the need for a workforce in the operational line, allowing staff to be diverted to tasks more focused on direct interaction with guests. In addition, using AI technology, such as chatbots, positively impacts handling routine guest requests. Chatbots can quickly respond to questions and requests, reducing staff workload by up to 70%. Thus, staff can focus more on handling more complex requests requiring a personal touch. The use of big data analytics has helped hotels develop more personalized services based on guest preferences. Data collected from booking patterns, activities during stays, and guest feedback allows hotels to offer services more tailored to individual needs. For example, room temperature settings or restaurant menu choices can be adjusted based on previous guest preference data. The importance of digital transformation was also seen during the COVID-19 pandemic, where contactless technology became a primary need to maintain guest safety. This increases comfort and guests' perception of the hotel's safety in the face of the pandemic. Digital transformation in the hospitality industry plays a crucial role in facing competition in an increasingly competitive market while sustaining guest loyalty and satisfaction.

4. CONCLUSION

The digital transformation of the hospitality industry has brought about fundamental changes in how hotels operate and manage the guest experience. This study highlights the importance of adopting digital technologies as a critical strategy to improve operational efficiency and deliver a more personalized and satisfying guest experience. The study found that using technologies such as cloud-based property management systems (PMS) can increase efficiency by up to 30% by reducing check-in/check-out times and optimizing resource usage. This reduces labor costs and minimizes human errors that were previously

common in inventory and reservation management. In addition, using big data and analytics in strategic decision-making allows hotels to understand guest patterns and preferences in greater depth. Using this data, hotels can offer more personalized services to guests, increasing their satisfaction by up to 15%. AI technologies, such as chatbots, have also proven effective in handling most routine guest requests, reducing staff workload by up to 70%. This allows staff to focus more on more complex requests, thereby improving the quality of service provided. Contactless interaction technologies, which have become increasingly important during the COVID-19 pandemic, also received special attention in this study. By allowing guests to check in, open their room doors, and order additional services through a mobile application, this technology improves guests' perceptions of safety and comfort, especially in the context of cleanliness and health. The study concluded that adopting digital technology improves efficiency and guest satisfaction and is also a critical factor in building guest loyalty and hotel competitiveness in an increasingly competitive market. Therefore, hotels in Indonesia are advised to continue to innovate in digital technology to maintain relevance in the hospitality industry. With the proper implementation, technology can be an effective strategic tool in improving service quality, optimizing operations, and strengthening guest relationships in the future.

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