



EMBRACING INNOVATION: DIGITAL TOOLS SHAPING THE FUTURE OF HOTEL OPERATIONS

* Prof. Shrikala Sawant & **Dr. Megha Bhargava

Sahyog College of Management Studies, Thane, Maharashtra, India

Abstract:

The incorporation of digital tools to optimise hotel operations is causing a revolutionary change in the hospitality sector. This study investigates how operational performance, customer happiness, and cost-effectiveness in hotel management are affected by developing technologies including artificial intelligence, cloud-based property management systems, and mobile applications. Using a mixed-methods approach, the study combines qualitative information from semi-structured interviews with other industry professionals with quantitative data collected from structured surveys of hotel managers in Mumbai area. In order to guarantee a varied representation of hotel sizes and service categories, the data gathering was carried out. Results point to a strong relationship between the use of digital tools and enhancements in areas including food ordering, guest experience, data-driven decision-making, and visitor check-in/check-out procedures. Obstacles were also noted, such as initial implementation expenses and personnel challenge. In order to exploit the advantages of digital transformation, this article emphasizes the need for strategic planning and employee training. The findings give a thorough grasp of how technology is changing hotel operations and have useful ramifications for industry participants hoping to maintain their competitiveness in a quickly changing environment.

Key Words: Digital, Future, Hotel industry, Technology, Guest Experience, Operations.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

Introduction:

The hospitality sector is always prepared to provide customers with individualized service. Offering the greatest experience is essential. In order to make guests feel special, hotels constantly believe that a personalized human touch is crucial. And for that reason, hotels were attempting to offer top-notch service.

However, the meaning of customized service has evolved since the pandemic. Personalized service used to allude to human touch that was loving and caring, but it has since moved away from human touch seamless service and toward technology. The hotel industry is severely damaged by the COVID-19 outbreak. Visitors were reluctant to stay in hotels. In order to provide visitors with fearless yet individualized service, hotels then begin implementing various digital tools. In light of the swift advancement

of technology, the hospitality sector is undergoing significant transformation and adaptation to meet the demands of the contemporary world. Development methods aimed at boosting competitiveness, streamlining management, and enhancing service efficiency are increasingly including digital transformation. These days, the way hotels and restaurants engage with their patrons is being revolutionized by a simpler booking procedure, interactive web services, and other digital tools. Changes in management, marketing, service, and other facets of the hotel and restaurant industry are therefore increasingly essential for success in a competitive market with swift technological advancements. (Rusavska V. et al, 2024)

Adopting digital technology is essential to raising safety and hygienic standards in the hospitality sector in the post-pandemic period. The increased emphasis

on health and hygiene has been one of the pandemic's most notable effects, and hotels have had to quickly adjust to satisfy guests' demands for a clean and safe atmosphere. According to Shin and Kang (2020), Through advances intended to lessen the health dangers that visitors may encounter, digital technology significantly contributes to satisfying these goals.

Literature Review:

Digital technology helps hotels manage their facilities more effectively. Room reservations, inventory control, and financial reporting are just a few of the administrative tasks that an integrated property management system may automate. With this technology, hotels may minimize human error and staff workload while responding to guest demands more quickly. This enhances internal hotel operations and frees up employees to concentrate on more individualized guest experiences. Digital transformation in marketing provides effective tools to connect with and interact with potential customers. Hotels may create more focused and successful marketing efforts by using data analytics to better understand visitor behaviour and preferences. Hotels may increase the relevancy and appeal of their campaigns by using digital platforms to offer promotions and special offers based on visitors' interests and past visits. (Fahmi A. et al, 2024)

As per Rusavska V. et al, (2024), Furthermore, the Internet of Things (IoT) is currently popular. It makes it possible for different equipment to connect to the Internet, which makes it easier to track and manage the establishment's numerous operations. In turn, by offering a dependable means of guest identification and transaction administration, the blockchain advances security and transparency in the hotel sector.

Research conducted by MD Salim, (2023), by tailoring pricing and offers to specific customers based on their preferences, past behaviour, and demographics, AI

may also help hotels maximize income by targeting the appropriate guests with the right offers at the right time. Artificial intelligence is transforming all hospitality procedures to maximize experience and offer insightful information for guest-centric hospitality. (Sushma B.S. 2020)

However, human relationships are crucial in the hospitality sector, even when AI has completely replaced people. The labour-intensive nature of the hospitality sector makes it difficult for technology to replace the interpersonal relationships among employees. (Sushma B.S. 2020)

By automating time-consuming processes like reservations and contactless check-in, artificial intelligence (AI) has the potential to greatly improve hotel operations and free up staff members to focus on providing guests with personalized attention. (MD Salim, 2023)

Research Gap:

We are discussing the digital innovations in the hotel industry.

As everyone knows, the hotel sector has traditionally prioritized individualized guest care. Making the visitor feel special by greeting them with a smile and a kind gesture. All of these elements give visitors exceptional service.

The COVID-19 epidemic has altered the definition of personalized service. Additionally, the hotel business used several digital tools. However, there are several drawbacks to digitalization, such as the fact that not all visitors are tech-savvy and that high energy use raises carbon footprints. Due to the high cost of some instruments, only upscale hotels can afford them; mid-scale or low-budget hotels cannot. Additionally, if a client chooses to interact with an autonomous AI agent instead of a human butler, they may feel less attended to.

Objectives of the Study:

1. To identify the key digital tools currently disrupting traditional hotel workflow.
2. To analyse the impact of automation and contactless technologies on operational efficiency and labour costs.
3. To evaluate digital innovations influences the guest journey from pre-booking to post-stay feedback.
4. To examine the challenges and barriers that hotels face when adopting these innovations.

Hypothesis of the study:

H01. AI-driven property management systems (PMS) greatly reduce down on the amount of time spent on administrative duties, which boosts employee productivity and lowers operating expenses.

H02. Compared to hotels that use conventional service models, those that use hyper-personalized digital guest interfaces (smart rooms, mobile apps) report better rates of repeat business and guest satisfaction.

H03. In luxury hotels, digital technologies don't take the role of human interaction; rather, they act as a catalyst, freeing up staff to concentrate on more valuable guest engagement, which improves overall service quality.

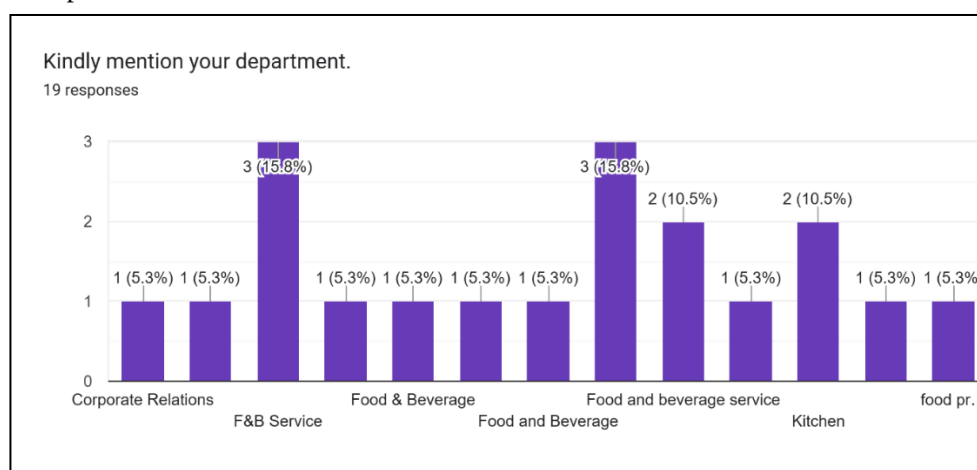
Research Methodology:

This study is about, finding the new future of hotel industry by using different digital tools. Hotel industry is ready to embrace innovation. Digital tools will help to enhance the guest experience and decrease the work load of employees. Because of digitalization hotel employees will get time to interact more with the guests, so they would know guest's expectations better. In this study, digital tools are independent variable and future of hotel industry is independent variable. The research design is descriptive and explanatory. It seeks to describe how digital tools will help to shape future of hotel industry while explaining the relationship between different variables.

Data Collection:

The below data I collected by using both qualitative and quantitative methods of data collection. Primary data has been collected from the questionnaire, which was circulated with the respondents and then it analysed by using graph.

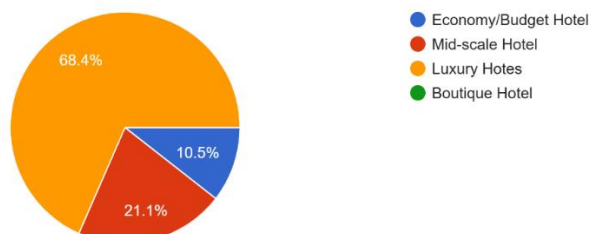
- **Sample Design-** I have used simple random sampling. Where I have selected a group of people and every person got equal chance of getting selected.
- **Sample Unit-** The sample unit of this study is comprising hotel employees of different hotels.
- **Target Respondents-** My sample size was 25 out of which I got 19 responses.
- **Research Area-** I prefer the area for research was Mumbai.





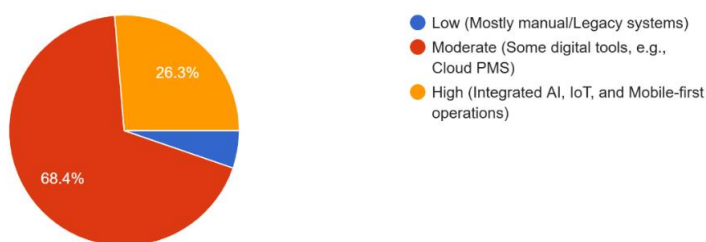
Hotel Category?

19 responses



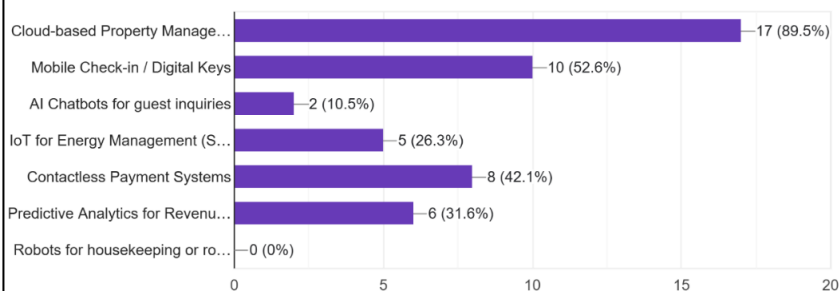
Current level of digital integration in your property.

19 responses



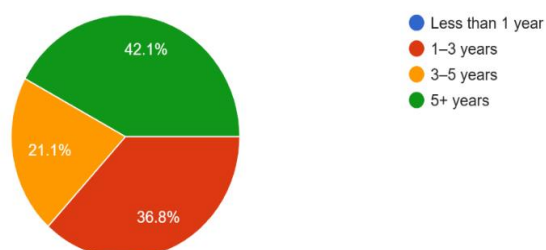
Which of the following digital tools are currently implemented in your hotel? (Select all that apply.)

19 responses



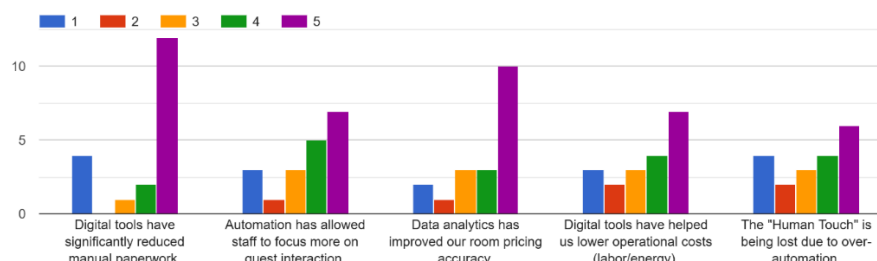
How long has your organization been actively "digitizing" its operations?

19 responses



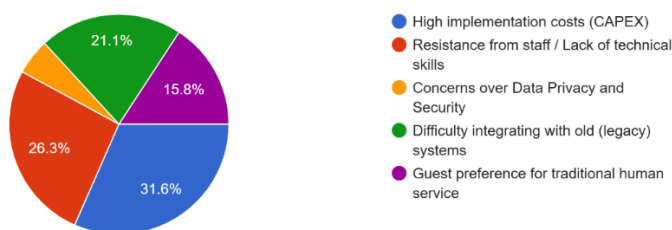


Please rate your agreement with the following statements (1 = Strongly Disagree, 5 = Strongly Agree).



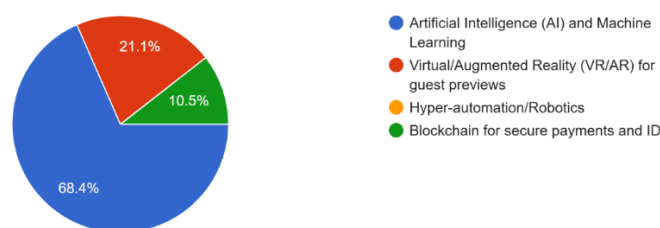
What is the biggest challenge your hotel faces in adopting new technology?

19 responses



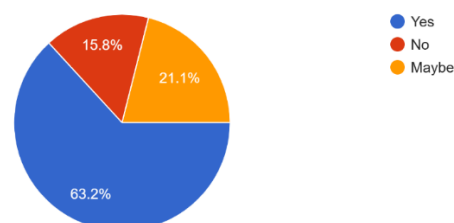
Which technology do you believe will have the BIGGEST impact on hotel operations in the next 5 years?

19 responses



In your opinion, is your hotel currently "future-ready"?

19 responses



According to survey Food and Beverage and Rooms Division Management are two departments, which are more in to digitalization. All most all the respondents said their hotel is transforming themselves and introducing innovative tools. Mostly AI and Machine learning will have biggest impact on hotel operations in next 5 years.

What is digitalization in the industry?

Digitalization is basically adapting the technology in daily operations. Integrating advanced technology like Artificial Intelligence (AI), Internet on Things (IoT) and mobile apps. Various digital tools are using in the industry.

- **AI Chatbots and Messaging-** Personalized tours, requests and guest inquires are all handled by automated AI messages on WhatsApp or SMS.
- **Mobile Check-in/ Keyless Entry-** By using digital tools visitors can avoid the front desk and utilize their phones as room keys, minimizing in-person interactions.
- **Voice- Activated Assistants-** In-rooms, smart devices regulate the temperature, TV and lighting.
- **QR Code Services-** QR Codes are used to control digital menus, laundry services, Spa reservations and in-room dining.

Cloud PMS (Property Management System):

Software known as a property management system aid lodging establishments such as hotels, motels, and vacation parks in running their day-to-day operations. It manages reservations, payments, cleaning, check-ins and check-outs, and guest communications all in one location, allowing employees to work more productively and visitors to have a better experience.

Cloud POS (Point on Sale):

A cloud-based point of sale (POS) system is an online solution that saves POS data on external servers in the cloud rather than on local servers and manages payments and transactions online. Cloud-based point-of-sale systems store and manage data via the Internet, enabling access from any Internet-connected device. Because it centralizes operations on a single platform and offers real-time access to sales data, inventory management, and client information, it is perfect for companies with various locations.

Benefits of digitalization:

Digital tools in Mumbai's hotel business promote operational efficiency, encourage direct bookings, and enrich guest experiences through contactless services and personalization. While digital marketing increases visibility and lessens reliance on pricey Online Travel Agents (OTAs), key technologies like Revenue Management Systems (RMS) can boost revenue by up to 20%.

Limitations of digitalization:

High implementation costs for smaller hotels, problems integrating digital tools with old systems, and serious cyber security risks are some of the challenges facing Mumbai's hotel business. Additionally, depending too much on technology can diminish the "human touch" that is essential for hospitality, and some visitors prefer conventional treatment due to the digital divide.

- **High Implementation and Maintenance Costs:** Advanced technology, software, and infrastructure demand significant upfront investment, which is particularly tough for smaller hotels or budget-conscious operators in a high-cost market like Mumbai.
- **Cybersecurity Risks and Data Privacy:** Because of unreliable Wi-Fi networks and occasionally insufficient security for sensitive visitor data, hotels are attractive targets for cybercrime, including ransomware and data breaches.
- **Legacy System Integration Challenges:** Older hotels, which are prevalent in Mumbai's older neighbourhoods, find it difficult to incorporate contemporary digital tools with their outdated property management systems.
- **Loss of Human Interaction and "Human Touch":** Excessive automation (such as AI chatbots and kiosks) might reduce the emotive, individualized service that is frequently necessary for upscale hotel visitor experiences.

- **Technical Vulnerabilities and Downtime:** Because digital tools are so important, system malfunctions or network outages can seriously impair day-to-day operations.
- **Digital Divide and Guest Preference:** Traditional service channels must be maintained because not all visitors, especially those who are older or less tech-savvy, feel comfortable using digital tools.
- **Lack of Skilled Personnel:** Effective adoption is hampered by a shortage of personnel with the necessary training to oversee and debug new technology.

Findings:

We have all embraced new technologies and accepted a new normal existence since the COVID-19 epidemic. Hoteliers are prepared for the future. Numerous luxurious hotels have already begun implementing technology to enhance guest satisfaction and operational effectiveness. However, many low-cost hotels continue to struggle with digitalization—not because they don't want to be prepared for the future, but rather because they can't afford the pricey digital tools. However, some of them are starting the new era of the hotel sector by integrating tiny tools like smart gadgets that control the lighting and QR codes for menus, among other things.

Conclusion:

This study was an attempt to find how digital tools are shaping future of hotel industry. Every hotelier was aware of the benefits and drawbacks of digitalization. For this reason, they are gradually introducing technology to their staff. Because technology may transform the future, speed up work, minimize physical labour, and lessen work-related stress. However, the hospitality sector is a people-oriented enterprise. It has always been renowned for providing individualized service. Technology may alter every

aspect of operations, but it will never be able to fully replace human touch, compassion, and care.

References:

1. Anwar, Fahmi & Deliana, Dian & Suyamto, Suyamto. (2024). *Digital Transformation in the Hospitality Industry: Improving Efficiency and Guest Experience*. *International Journal of Management Science and Information Technology*. 4. 428-437. 10.35870/ijmsit.v4i2.3201. DOI: <https://doi.org/10.35870/ijmsit.v4i2.3201>
2. Jacques Bulchand-Gidumal, Eduardo William Secin, Peter O'Connor & Dimitrios Buhalis (2024) *Artificial intelligence's impact on hospitality and tourism marketing: exploring key themes and addressing challenges*, *Current Issues in Tourism*, 27:14, 2345-2362, DOI: 10.1080/13683500.2023.2229480
3. DOI: 10.1080/13683500.2023.2229480
4. Rusavska, V., Peresichna, S., Zavadynska, O., Oliinyk, O., Neilenko, S. and Bratitsel, M. (2024). *Digital Transformation in the Hotel and Restaurant Business: The Impact of Technologies on Hospitality Management and Services*. *Econ. Aff.*, 69(Special Issue): 297-305.
5. DOI: 10.46852/0424-2513.1.2024.31
6. Saule Yolcu, Alperen Şahin & Taşkın Dirsehan (21 Jul 2025): *Gaining Ground: How Technology Fuels Hotel Competitiveness-A Systematic Review of the Literature*, *Tourism Planning & Development*, DOI: <https://doi.org/10.1080/21568316.2025.2534903>
7. Sayed Suhel Mohd Salim (2023), *Encourage the Hotel Sector to Use AI Technologies*, *International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)*, Vol .3, Issue 5, ISSN: 2581-9429, pg.no- 222-226.
8. Sushma B.S. (2020), *Impact of Artificial Intelligence (AI) on the Hospitality Industry*, *Hospitium*, Vol. 2, Issue 1, pg.no. 37-38.

Interview Questions:

1. Which specific digital tool has had the most disruptive (positive) impact on your daily operations in the last 12 months?
2. With so many emerging technologies (AI, IoT, Robotics), how do you decide which innovations are "must-haves" versus "nice-to-haves" for your specific property?
3. How are you using mobile-first journeys (keyless entry, digital concierge, automated check-in) to reduce "wait-time" friction for guests?
4. In 2026, guests expect we "know" them. How does your CRM/PMS use data to anticipate a guest's needs before they even ask?
5. As you collect more guest data for personalization, how are you balancing tailored service with increasing concerns about data privacy and cybersecurity?
6. How has AI-driven scheduling or task automation helped you navigate the ongoing labour shortages in the hospitality sector?
7. If you had an unlimited budget, what is the one futuristic technology you would implement tomorrow to stay ahead of the curve in 2027?

Cite This Article: Prof. Sawant S. & Dr. Bhargava M. (2026). Embracing Innovation: Digital Tools Shaping the Future of Hotel Operations. In **Aarhat Multidisciplinary International Education Research Journal**: Vol. XV (Number III, pp. 77–84)