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Advancements in arena technology: Enhancing customer experience and employee adaptation in the tourism and hospitality industry

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ABSTRACT

In today's fast-paced and highly competitive tourism and hospitality industry, technological advancements play a pivotal role in shaping customer experiences and employee adaptation. Technological innovations such as mobile apps, artificial intelligence (AI), virtual reality (VR), and the Internet of Things (IoT) have revolutionized how businesses interact with their clientele. Mobile apps enable guests to make reservations, check in, and access key information conveniently; while AI-powered chatbots provide instant responses to queries. VR and IoT enhance the immersive experience, allowing customers to preview destinations and control room features seamlessly. Moreover, technology-driven data analytics and personalization algorithms enable businesses to gain valuable insights into customer preferences and behaviour, facilitating customized service delivery. The hospitality industry is seeing the integration of robotics and automation in tasks such as room cleaning and food delivery, freeing up employees to focus on more personalized guest interactions. In this endeavour, technological advancements have emerged as a powerful catalyst, revolutionizing both customer experiences and employee roles within this sector. The significance of this study is indicative in the fact that it addresses a major concern of the level of technology that needs to be adapted and areas where restraint is needed. This research paper delves into the evolving landscape of technology in the tourism and hospitality industry, focusing on its profound impact on enhancing customer experiences and the essential need for employee adaptation.

Keywords: tourism; hospitality industry; customer; technology; artificial intelligence; robotics

1. Introduction

To deliver the finest client interaction in any venue around the world, the hospitality and tourist sectors, like many other service industries, depend on people. Since the beginning of the hotel and hospitality industries, there has been a rise in the need for qualified labor at a certain price point[1]. The daily participation of competent individuals in their chosen professions is necessary to facilitate the guests, starting with security check-in at the lodging establishment's entry through the parking lot, which is located at the main entrance of the hotel lobby, or the reception desk during undertaking the reservation process and the registration activities. The hospitality sector is substantially different today than it was in the 1990s, though. The basic guest service

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provided by hotels and restaurants is currently subject to vigorous selection by clients[2]. Personalized customer service is now more in demand than standard hotel amenities. People have the opportunity to find any hotel at any time according to their preferences because a large number of national and international brands have flooded the market and are offering amenities at a reasonable price[3]. As a result, it is always a difficult effort for any hotel or luxury business owner to keep prospective clients/guests satisfied to thrive in this competitive industry[4]. Customers grew accustomed to expecting speedy service from these businesses in a short amount of time, which is how the need for automation and technological advances in the hospitality industry first emerged. People may now more easily find any hotel or restaurant in any area according to their preferences thanks to accessibility to the internet, automation, and digitalization. The centrally administered Central Reservation System (CRS) was modified to become the Global Distribution System (GDS), which linked all hotel accommodations at one location and made it easier for people to reserve a hotel stay online. On the other side, the advancement of smartphones simplifies everything for everyone at their fingertips[5]. People can access the hotel website using any specific website or mobile app, and then check the availability of accommodations, check-in and checkout times, amenities, and other features that a hotel offers to a certain location at a standard rate[6]. Before the introduction of self-service vending machines, visitors had to wait while completing billing requirements at the time of arrival and departure. To cut down on time waste and provide travellers with help on a digital platform, several hotel and hospitality businesses have adopted these devices[7]. They give accurate, uniform client service, and if done manually, following the standard operating procedure, or SOP, of a hotel or other hospitality institution is a crucial duty. Robotics, the Internet of Things (IoT), artificial intelligence (AI), and information technology (IT) have all been crucial in this situation for fast and efficient guest service[8].

The hospitality industry has been systematized during the past 10 years by the use of robotics, artificial intelligence, and other advances. To support industry and academia, several academic institutions such as colleges, institutions of higher learning, business colleges, and training institutes offer professional courses at the undergraduate, graduate, doctorate, and post-doctoral levels[9]. To support this business, hundreds of hospitality experts join every year. People are employed all over the world in a variety of hospitality-related sectors, including airlines, cruise lines, and ships, as well as in-flight catering services, hotels, and other customer-facing industries. But throughout two and a half years, under the new normal post-pandemic, a distinct image has emerged, with tourism and the hospitality industry being particularly hard hit by the pervasive coronavirus[10]. The issues experienced by the hotel sector included personnel layoffs, retrenchments from employment, and other serious situations that were documented. To prevent the further spread of the infection throughout the population, the government mandated that operations be carried out with a minimal staffing level[11]. Additionally, there may be regulations implemented to enhance contactless guest service across the board. Although the use of automated and semi-automatic devices in the hospitality sector is not particularly new, in the last two years, the use of these tools has increased by about 80% in the majority of hotels[12] throughout the world[13].

However, because there were fewer job openings, job losses, or concerns about employee termination, this sudden transition made hospitality workers anxious and afraid they wouldn't survive[14]. Since the provision of personalized services to individual visitors depends on their specific needs, human connection is always required in the hospitality industry. This is because the knowledge of human emotions is another essential component[15]. The application of robotics, automation, and artificial intelligence in the tourism, hospitality, and hotel management industries has previously been the subject of a variety of studies. However, only a small amount of research has been done on how these machines' involvement will affect society as a whole. This leaves open the question of whether the integration of technology and machines will eliminate the

need for human labor in the hospitality sector[16]. Several smart hotels have now opened for business in various cities. In addition to the virtual reality theme, speech recognition, and voice command, they are providing a large selection of in-room eating experiences[17]. The current market illustrates the worth of products that are currently offered in several places at a competitive price. As a result, it was evident that the operators needed to acquire various technological advances and thereto improve the experience for their visitors and maintain their operations in a cutthroat market[18].

2. Objectives

The objectives of this research are:

- To ascertain whether customer experience is enhanced by the use of technology and to what extent.
- To analyse the status of employees' readiness to use such technology.

3. Review of literature

According to the explanation, the so-called fourth industrial revolution is already underway. In this particular period, the improvisation of forming technologies—including automation, machine intelligence (AI), nanotechnologies quantum computer technology (QC), the internet of things, and fully autonomous vehicles—has altered our way of life and lifestyle. Adapting to technological innovation during the Third Industrial Revolution was difficult since it was "fuelled by data and machine learning"[19]. However, as technology advances and the demand for productivity rises, robots are being linked by various interfaces to serve the service industry requiring human intervention during the era of the fourth industrial revolution[20]. Most hospitality and service-related organizations currently have numerous established procedures and mechanisms in place, which are capable of responding to and answering any individual through particular commands, signal, or gestures. As a result, the majority of hotels and other hospitality businesses have started to substitute machinery or digitization for employees. Researchers have voiced their opinion that, compared to the previous 30 years, expectations from hospitality facilities have increased as a result of customer demand being at an all-time high in the tourism and hospitality sectors. According to researchers' findings, "in frequent contact with customers' settings, service robotics are more effective than humans when performing standardized assignments, partially due to their logical and analytical nature." The majority of hotels, however, are utilizing a variety of technologies, including ChatGPT, Robotics, Artificial Intelligence, and other machines, to lighten the strain and increase productivity while still providing genuine customer service[21]. Researchers and hoteliers have noted that Service Robots (SR) have not been able to match human service and emotional connections in terms of productivity and intellectuality in any area of the hospitality industry. Since hospitality services are highly perishable and demand-driven, there is always a larger-than-average typical demand for trained employees. Therefore, hotels, restaurants, and the majority of hospitality industries rely on technological support to meet client demand, boost productivity, and lower employee wages[22].

Researchers have confirmed that while machines may perform tasks more accurately than humans, they are still limited to using programs and applications software to operate the mechanism. Researchers have frequently noted that clients in the service sector, like those in many other industries, need personal contact with someone they can communicate with, comprehend, or who can empathize with them to help the other person comprehend the thing he or she is searching for. One of the current trends in customer convenience is the advancement of technology, particularly artificial intelligence and robotics[23]. The hospitality and hotel industries, which are both known for their demanding labour nature, have begun to embrace technological innovation to provide customers with timely service. As a result, hotel owners and hospital care providers are employing these technologies more frequently to cut labour expenses and raise service standards. These

technological developments include robot waiters, artificial intelligence software, and many others. Nowadays, individuals would prefer to use a digital terminal to get the service they need rather than wait in queue[24]. The hospitality and tourism industries are now mostly managed by software and other internet platforms due to the rise in public expectations in the twenty-first century. Utilizing their cell phones, people are utilizing Google to find restaurants based on their menu preferences and financial capacities to plan their trips and reserve a table at a restaurant[25]. People can virtually travel to any location nowadays by using a variety of websites that offer the user access to the destination's many aspects through the use of augmented reality and contemporary technology[26]. Even at restaurants, customers now prefer to view the digital menu over the conventional ones that were previously hung on the wall and handed to each customer by the wait staff[27]. People have the freedom to reserve their order, change their minds, or keep their reservation for a future date. To provide timely service where humans may make a small error, numerous hospitality and hotel organizations currently rely on surveillance robots and technology that is more efficient than humans[28]. Researchers have also stated that these mechanisms or robots can only carry out their work by the installed program or norm. They have additionally claimed that Miss might handle this equipment if it is being used for bad purposes. A sizable portion of customers in the hospitality industry are always in favour of technological advancement and the use of fully automatic systems, but a billion visitors are in favour of human service, where they can obtain human emotion, effective communication, and the level of treatment they deserve in exchange for money[29]. There has been a growing interest among everyone in using service robots in various sections of society during the past few years. The fundamental justification for this is that, in comparison to a human, it can provide better comfort and assistance with correct information and services. Artificial intelligence and robotics are widely used in the service sector and provide varying degrees of comfort and assistance to the consumer[30]. Through user-friendly interfaces that are already providing daily basic services, the hospitality sector is already integrating with various artificial intelligences. Humans began to utilize technology naturally as a result of the growing interest among people in the creation and application of new interfaces for communication[31].

Even seasoned workers use artificial intelligence or various user interfaces to address common problems that could be solved with straightforward communication. An individual receptionist might use voice recognition technology to tell each client in a specific room, for instance, while speaking with them directly inside their room[32]. An individual can apply precise comments for employing Alexa to fulfill his need to book a cab or prepaid taxi or perhaps brew a cup of cappuccino or a particular coffee. Consumers had to wait in a long queue during check-out or guest registration, as is typical. The use of the interface between humans and machines must be transparent, allowing people to interact with various surfaces without exerting any mental effort. However, reality is very different from expectations[33]. The scenario has since become more primitive, and consumers can now finish their transactions quickly and without waiting by using an expedited checkout system or a completely automatic vending machine[34]. To reduce human labour and eliminate salary wages, the majority of manufacturers are attempting to bring new technology that can make and prepare certain foods on the range without even the slightest assistance from a chef or cook. When dealing with a robot or purchasing a product through a machine rather than a human, many researchers have expressed worry[35]. The majority of people have difficulties when visiting any hospitality facility because they lack knowledge of how to use the self-service terminal interfaces or other support[36]. It is true that using artificial intelligence, robotics, and other technologies[37,38] to appeal to a large segment of the population will increase revenue, but on the contrary side of society, those who have a direct or indirect role in this sector of the economy in terms of wage production and other associated goods and services may face serious difficulties as a result of the loss of employment for 30% of the world's population[39]. The employment of machines and technology benefits the service industry significantly, but it also creates worry in society. If artificial intelligence and technology may eliminate humans

from the tourism and hospitality sectors, there are already numerous debates and conversations about this topic[40].

3.1. Areas where human labour has been replaced by artificial intelligence

We have seen the effective global expansion of the hotel and tourism industries over the last 20 years. As a result, there is now a greater need for adequate aviation and other transportation services[41]. Due to the widespread usage of self-service terminals, people in several hospitality sectors, including customer service, welcome, travel desk, and ground personnel management at airport terminals[42], and at reservation and booking counters, have already largely replaced[43]. The majority of international airports in various nations use express check-in self-service terminals, allowing passengers to sign up for web check-in without assistance from anyone or the ground crew[44]. The number of employees who previously worked in that company as customer service attendants has already decreased thanks to the numerous visual displays that are already available at the hotel reception[45]. These displays show people the location and layout of various places within a hotel. The number of employees who once worked in restaurants as hosts or hostesses has decreased as more kiosks, fast-food restaurants, and quick-service restaurants use audio-visual systems and display screens to market their goods to customers[46]. Even at the food counter, customers can acquire their products simply by employing an audio-visual system to proclaim their name and token number[47].

When multiple machines like Hoover cleaners, upright Hoover cleaners, and other products entered the market in the 2000s for the sake of productivity and accuracy, those establishments reduced their staff turnover because one machine could perform the task of ten people at once[48,49]. In the 1990s, the majority of well-known hotels and the hospitality industry chains had a turnover of 1000 guest room attendants and public area attendants to clean various surfaces. Fully automatic laundry machines, including a washer extractor, dryer tunnel, and washer calendaring machine, are already present in commercial laundry facilities and on-premises laundry, which are frequently found in business hotels[50]. The amount of time wasted by just the labour force has decreased because of steam presses and steam irons[51]. These machines can quickly complete labour-intensive cleaning tasks and can be operated by just one person. For use with a variety of coffee preparation techniques, many coffee shops and cafés use Potter filters and coffee makers[52]. In addition to requiring fewer personnel overall, it has also allowed for quicker delivery of the same product to the client. It is impossible to avoid using a variety of tools and gadgets in the kitchen and during cooking[53]. Manually grinding several spices is extremely uncommon as compared to using a mixer grinder or food processor. Scrubbing machines or completely automatic floor cleaners may clean inside surfaces with lint-free cleaning in less time for the majority of multiple complex hotels, hospitals, and other institutions while cleaning the hallway or lobby. As a result, there are currently only a few participants in public spaces who mostly work in the various locations of any company or city hotel to carry out any cleaning tasks[54]. Particularly during the pandemic, when every government-imposed lockdowns and social isolation to stop the further spread of the disease among the populace. During the pandemic, hospitality establishments have reduced staff and implemented new technologies like automatic sterilization systems, digital face recognition, and robot waiters to maintain operations[55]. Unfortunately, these advancements have left many workers unemployed and unable to re-join their previous organizations[56].

3.2. Major involvement of AI and automation systems and their involvement in travel and tourism industry

Although some applications are designed to offer services and assistance throughout the travel journey, the applications of automation in tourism can be mapped into the tourism experience, along with the benefits and risks for tourists (consumers) and destinations (authorities and service providers)[57]. During the pre-trip

phase, intelligent automation can be used to inspire travellers and help them with the information search, booking, and pre-arrival experiences[45,58]. For service providers, implementing AI is essential to omni-channel marketing automation, which allows them to expand marketing content worldwide, offer clients personalized offers and a simpler route to purchase, as well as develop and nurture leads[59]. Marketing automation is dependent on personalization and predictive analytics engines that gather and analyses pertinent customer data, create customer profiles through identity matching (biographical data, social media profiles, device and location information, etc.), and identify important customer attributes[60]. Service providers can forecast consumers' response likelihood and purchase propensity using predictive analytics and adaptive modelling, which enables them to predict client lifetime value[61]. This frequently calls for behavioural insights gleaned through pattern recognition, supplemented with data on credit, risk, and loyalty[62]. In turn, quicker purchase (booking) rates are made possible by the application of artificial intelligence algorithms[63]. Digital material is scaled up to a worldwide audience using applications like natural language creation, including text-to-speech paired with automated translation[64]. These systems are then connected to user interfaces that support continuous communication, ease the path-to-purchase, and offer guidance in the pre-arrival experience. Examples of these interfaces include chatbots, messenger apps with chat functionality, virtual hosts specific to a particular provider (like Edward from the Edwardian Hotel), and personal travel assistants (like Mezi from American Express)[65,66]. Currently, "analytical AI" (cognitive intelligence) technologies that gather and analyse vast volumes of customer data dominate applications. Some of these platforms can help travellers at every step of the way, even in the post-trip phases of sharing, thinking back, and following up on their travel experiences. When visiting and departing from a location, travellers encounter difficulties with wayfinding and navigation, selecting a mode of transportation, and transit experience (such as in airports)[67]. This is a crucial phase for authorities and service providers in terms of security since it calls for striking a balance between facilitating travel and ensuring tourists' identities when they cross borders. Airlines now offer self-service bag drop and check-in.

Various government organizations, airlines, and airport authorities have conducted pilot tests of automated border control systems across the globe. For instance, the US Customs and Border Protection uses data from immigration agencies, Interpol, and passenger manifests, together with machine learning to identify questionable individuals and goods at border crossings.

2018 saw the introduction of the iBorderCtrl (Intelligent Portable Control System), an AI border control agent that combines risk assessment, document authentication, automated deception detection, and biometric verification. It was implemented in Hungary, Latvia, and Greece. Travelling and crossing borders is easy for those who pose no threat to security since they can pass through customs and security checks quickly and don't have to show identity documents repeatedly. This field is once again dominated by "analytical AI" technologies, but intuitive AI is beginning to take centre stage, particularly for automated risk and deception assessment. Additionally, "embodied AI" (robotics incorporated) is used at this stage for customer service and mobility.

Autonomous mobility technologies, including people-moving pods and drones, have advanced tremendously in the last ten years. At airports, passengers are assisted with interactive robots of the traditional mobile type, such as autonomous carts (like KLM's Care-E) and assistance robots (like Munich Airport's Josie Pepper)[68]. Real-time question-answering and learning features are built into customer service robots; they use the knowledge they gain from repeated interactions to continuously improve their responses to consumer inquiries. Moreover, airports host a variety of retail and hospitality spaces that employ interactive and mechanical robots to assist passengers. At this point, automated travel companions and smartphone chatbots are crucial in providing information for navigating and way-finding[69].

The on-site experience is the process by which hotels, tourist destinations, and entertainment venues automate service procedures using a variety of robots, from commercial to Android. Intelligent service robots or collaborative robots broadened with artificial intelligence are primarily used as robot concierges. Examples of these robots are Hilton's Connie and Marriott's Mario, who can recommend attractions worth visiting, answer questions instantly, and self-learn to perform better. Intelligent mobile robots (like Aloft's Botlr) are employed to carry products to hotel rooms since they can self-navigate in indoor areas among humans and objects. Robotic roommates (like Henn-na Hotel's Tapia) or ubiquitous agents on autonomous devices (like Wynn's Amazon Alexa), predominantly responding to voice commands, help hotel guests manage the lighting and temperature in their rooms, schedule laundry services, make reservations, and other tasks. Robotic receptionists on front desks do not yet possess advanced interaction capabilities. For example, the dinosaur robot Mirai at the Henn-na Hotel can be used as an add-on to self-service check-in and check-out systems.

Stationary industrial robots, often known as "Mechanical AI," are used in automated storage and locker systems (like the robot in the cloakroom of the Henn-na Hotel), restaurants (like the robot chef in the Henn-na Restaurant), cafés (like the Café X coffee bar system) and bars (like the Makr Shakr robotic barman). Robotic tour guides, which primarily use humanoid robots, have been adopted by museums and galleries for tourist experiences like sightseeing and tours. In Kyoto, Japan, multilingual small humanoid robots with AI capabilities—like Sharp Co.'s RoBoHon—accompany visitors in cabs due to the growing popularity of hiring taxis for sightseeing.

Digital assistants connected to services that are location-based that provide push alerts and automatically translate text in real-time to enhance interactions between tourists and locals as well as their understanding of the attractions are examples of "disembodied AI" systems utilized for on-site encounters. Digital assistants can aid visitors with experience sharing by guiding them through post-trip activities (e.g., writing assessments, collating images, and preparing for future visits). Distributed artificial intelligence, aided by distributed database technology like blockchain, makes it possible to evaluate vast amounts of text data more quickly and train chatbots to improve customer service. Hotels and other venues are using artificial intelligence ("AI") and the Internet of Things in addition to consumer-facing applications to create smart, connected buildings, particularly for facility management and energy optimization (i.e., problem detection and preventative maintenance).

In a nutshell, the information-intensive character of tourism, where travellers' decision-making requires digesting a lot of information, is reflected in the implementation of automated thinking in the travel industry. The use of "analytical AI" to automate the retrieval of data and subsequent evaluation for marketing and decision-making services predominates in these applications. "Analytical AI" is used in conjunction with chatbots and/or interactive service robots to provide customer support. "Mechanical AI" (industrial robots, for example) is now only used in transit and hospitality settings. The infrastructure required to support the notion of smart tourist ecosystems is provided by the pairing of artificial intelligence technologies with the Internet of Things, as well as the gathering, sharing, and transformation of data along the tourism value chain.

There are multiple applications of automation and artificial intelligence systems in the present tourism industry and hospitality business. These technologies not only help the consumer to find effective and relevant information to help them in decision-making but also provide an updated tourism experience to the visitors. On the other hand, from the business perspective, artificial intelligence could be more useful to the management in terms of product promotion and marketing and also in creating sustainable travel experiences as suggested by the researchers. AI will influence the customer to achieve more luxury and recreational experiences during the journey[70].

The new trends of virtual meetings and discussions entered the hospitality industry as well as other industries, using platforms like Zoom, Google Meet, Microsoft Teams, Blackboard, and others. In the past two and a half years, people have advanced in their use of digital devices and upgraded software to locate them, conduct seminars, and teach classes at various institutions[71]. However, the majority of users have difficulty using these platforms because they lack the necessary skills, training, or opportunities to use various gadgets. Due to the COVID-19 pandemic infection, it has been noted that even in hospitality academics and hotel management institutions, the majority of classes have been held online over the past two years[72]. This includes both the exams and practical exams, and the institutions are requiring their instructors to conduct classes online. For the majority of the trainers and industry specialists working on short notice, it was nearly impossible. As a result, the majority of people are forced to quit their occupations or are let go without receiving any quicker guidance from their employers. OTAs, or online travel agent platforms, currently control the majority of the hotel industry[73]. They are primarily responsible for providing guests with a single window with a range of hotel room rates from which they may choose a desert hotel based on factors like location, price, and amenities. The development of the online travel agency system has not only reduced the workload and business of travel agents but has also freed up more time for the offline tour industry. The majority of people prefer to conduct their transactions or payments online or using UPI to prevent transactional inconsistencies.

3.3. Areas where machines and artificial intelligence cannot fully replace people

Hospitality and tourism industries that rely on services are constantly dependent on people. Virtual reality, automation, robots, and artificial intelligence[74] have dominated the delivery of futuristic services to the general public, yet they are limited by human creativity, which is not possible without it[75]. Based on inputs and programming, the majority of self-service interfaces at various hotels and restaurants, offer customers a pleasant experience[76]. However, these third-generation interfaces cannot satisfy the needs of the consumer beyond those applications and program data[77,78]. It is conceivable to automate or use service robots to create recipes, but only a chef can conduct trials using readily available ingredients. Automation may not be a viable alternative to cheap labour that can be fully exploited in Third World nations with labor-intensive marketplaces, such as India[79]. Robots might offer the guests unique pleasantries, but they lack the warmth of a human touch. According to evidence from numerous studies, machines might start multitasking based on programmable data, but they are limited to that[80].

The use of artificial intelligence and related innovations for guest service may be seen in many areas of the hospitality sector. One of the key tools that can multitask and assist hotel workers is artificial intelligence. There are numerous ways that artificial intelligence and information technology may operate different aspects of his activity and eliminate human involvement by raising productivity and efficiency requirements. Although it is currently exceedingly expensive to deploy new systems or mechanisms throughout the whole hospitality industry, this will soon be the case for the majority of the industry. For instance, personalized interfaces made possible by artificial intelligence can improve the client experience. The modern AI facilities have detailed upgrades that can keep the recording of the guest experience for future use and it is also capable of keeping track record of every customer on their liking and dislikes[81].

When a guest returns, these interfaces will be able to identify them by name or based on previous interactions, and they will be able to explain to the hotel what problems the visitor encountered on his previous visit. As a result, the technology will become a superb innovation that has already incorporated the capability to connect with the visitor in terms of discussing or resolving any problems arising from guest complaints. Artificial intelligence plays a key role in operational effectiveness and data management. The majority of hotels use PMS (Property Management Systems), which gathers data on all visitors over business hours and retains a record of all communications between visitors and staff, feedback from visitors, complaints from

visitors, the timing of meals, etc. Artificial intelligence and service roads may revolutionize hotel receptions and guest interactions, reducing documentation and enhancing efficiency. This technology will use guest information from PMS, direct messaging, and online chatting services. Facilities use chatbots and auto messaging systems to provide 24 × 7 customer services, such as "SAM" in the hotel industry, allowing customers to book hotels through a recording system. Data analysis is a recent innovation in the hospitality industry, enabling hotel managers to understand revenue generation percentages for individual days. Software and interfaces can analyze property reviews based on web ratings. Digital concierge technology is increasingly used by hotels, allowing them to communicate in multiple languages and resolve guest queries. This process improves guest experience and helps hotel operators hire fewer employees. It includes making itineraries, booking private vehicles and flights, and finding restaurant locations. This has led to an increase in efficiency and reduced employee hiring. When visiting other institutions, many foreign guests frequently struggle to understand conversations in other languages. To aid the customer more easily, the translator built inside the chat bots has taken responsibility for this issue. It has also made it easier for the hotel receptionist to communicate with visitors who don't speak the language. Through voice recognition technology, this particular chatbot translator can write or record the customer's words. We can only hope that shortly, hotels will employ fewer receptionists and reservation agents who are solely controlled by robots with artificial intelligence interfaces to address customer inquiries.

4. Methodology

Researchers employed secondary data to carry out the study. Researchers have gathered pertinent information for secondary data collected from a variety of sources, including pertinent books, relevant journals, reports, pertinent websites, and conference proceedings. This research work is mainly a conceptual study of the hospitality and tourism industry where automation artificial intelligence technical advancement and technical advancement have been discussed in detail. Since the secondary data was used during this study to gather supportive information relevant to this study, researchers haven't used any form of questionnaire or other primary data. The necessary inferences and conclusions have been drawn on the basis of the analysis of the secondary data and the cumulative findings of the reviewed research content.

5. Key findings

Based on the information we have gathered from various sources, we can infer that ICT and artificial intelligence are currently helping to grow the hotel and tourism industries. The hotel and hospitality industries are benefiting from new technology that makes labour easier and more accurate. To adapt, several hoteliers are attempting to use new technologies and methods. It is far more efficient to adapt integrated hotel management solutions than to use human labour, but it is also highly expensive to establish. The results show that because production is high, there is always a possibility that staff members in the hotel industry would be let go.

In the rapidly changing hospitality industry, staff collaboration is crucial due to the growing focus on technology among clients. Many hospitality business owners support the use of data-driven tools and interfaces, while the younger generation prefers technology over manual labour. However, customers still value human interaction and prefer professionals over machines or robots. The sudden shift in technological advancements has led to numerous employee terminations, layoffs, or retrenches during the COVID-19 pandemic. This highlights the need for staff to adapt and collaborate effectively in the evolving environment, as clients increasingly prefer human interaction. The rapid shift in technology has resulted in numerous records of employees being terminated, laid off, or retrenched from their positions. However, it will simultaneously

produce potential risk factors such as a lack of employment options for individuals, security issues with client data, anger within the current workforce due to a lack of attention, training, or adaptation, as well as other environmental effects.

6. Conclusion and recommendation

A vast majority of the tasks of the hospitality industry are performed through the personalized commitment of individual employees who are keen to provide such service to their guests. In today's world, there has been a new entrant in the form of machines and artificial intelligence.

- The prime objective behind the introduction of machines is to reduce complaints from customers as well as to reduce the errors caused by human factors. Today, customers prefer contactless and touchless services, especially after the pandemic. Hotels put AI to various uses like analysing trends and behaviour of customers so that the service standards can be more accurate and efficient.

- In the case of many developing nations, there is still an underlying issue of dependence on AI and robotics for hotel operations. Some hotels are using Alexa and other such tools that are installed in guest rooms to minimize physical interaction.

- Post Covid the use of automation and AI has become more frequent in hospitality across the globe, which has made the interactions very convenient for some guests who are well versed with the latest technology, whilst it has become a nightmare for many.

Hence, after going through the study, we can say that for our first objective,

- It is true that customer experience is enhanced.
- For the second objective, the response is mixed and we can conclude that there needs to be a middle-line approach for the implementation to be successful and sustainable.

Some logical recommendations that need to be looked at arising from the conclusions are:

- The use of AI must be complemented with human presence to add value and acceptability.
- Automation or the use of robots must be limited to peak hours and act as a supplement support to the human service element.
- The role of human in-service is essential, as they can deal with the emotions of the customers which cannot be possible for machines.
- Establishments that want to promote automation must initially train their staff as well as educate the customers to get friendly with the use of the machines.
- Scientific innovation is a necessity but cannot become a barrier to human welfare and must be used with caution.

Author contributions

Conceptualization, BKR; methodology, BKR; software, BKR; validation, BKR; formal analysis, BKR; investigation, BKR and SRP; resources, BKR; data curation, BKR; writing—original draft preparation, BKR; writing—review and editing, BKR and SRP; visualization, BKR and SRP; supervision, BKR and SRP; project administration, BKR and SRP; funding acquisition, BKR and SRP. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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