

# Enhancing the Guest Experience in Hospitality Through Technology: an Outlook of the Future

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## Abstract

This paper aims to achieve three main objectives. Firstly, it seeks to offer an extensive examination of the existing literature on guest experience within the hospitality industry, with a particular focus on the role of hospitality technology and smart hotels. Secondly, it aims to critically evaluate the advantages and disadvantages of implementing technology in the hospitality sector, while also exploring the potential impact of smart hotels on enhancing guest experience in the forthcoming years. Lastly, this paper intends to present a series of key recommendations that are designed to improve guest experience in the future through the utilization of technology. In order to address the research questions, numerous technological features and apps that improve the visitor experience are given, and content analysis is done. Journal articles, websites, and most recent statistics and reports are among the sources that are frequently sought. According to the analysis, smart hotel amenities and mobile technologies have a big impact on how satisfied guests are. The positive experiences and satisfaction of hotel guests are directly correlated to the implementation of smart technologies that enhance their overall experience. These technologies include smart check-in/check-out systems, electronic bills facilitated by IoT, smart concierge services, advanced in-room amenities, and the introduction of robot room service. These innovative advancements in the hospitality industry have proven to significantly improve the overall guest experience and contribute to their overall satisfaction during their hotel stays. Businesses must also satisfy the following customer needs to provide an exceptional visitor experience in the future: Know me, Engage me, Hear me, Empower me, and Delight me. On the other hand, the hotel of the future will have the following key characteristics: Authenticity; Local elements; Intimacy; Wellness and biophilic; Smart technologies; and, Instagrammability.

## Keywords

Guest experience, hospitality, technology applications

## 1. Introduction

In the modern era, individuals are presented with an abundance of options when it comes to the products and services they can choose from in various aspects of their everyday existence. Consequently, customers may have developed higher expectations with regards to their preferences and requirements [1], leading to a greater inclination towards making customized selections [2]. Additionally, customers have become more attentive to details, receptive to new ideas, well-informed, and anticipate that all parties involved in their "journey" will strive to meet their demands and fulfill their personalized choices [3].

Delivering extraordinary guest experiences is of utmost importance in the hospitality industry. It is a fundamental requirement for any hotel establishment that aims to both attract and maintain a loyal customer base. However, limited study has been conducted over the years to address this specific issue, namely the experience trend [4] and how it influences a firm's distinction and improvement in comparison with its competitors.

This paper aims to achieve three main objectives. Firstly, it seeks to offer a thorough review of existing literature pertaining to the guest experience within the hospitality industry, as well as the role of technology in this context, specifically within the realm of smart hotels. Secondly, it aims to identify and analyze key findings from the research conducted in this area. Lastly, it

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endeavors to provide valuable insights and recommendations for future studies and potential advancements within the field. b) The objective is to provide an in-depth analysis of the advantages and disadvantages of implementing technology in the hospitality industry. Additionally, the anticipated effects of smart hotels on improving the overall guest experience will be examined. c) Furthermore, this study will put forward several key recommendations with the goal of enhancing the guest experience in the future through the utilization of technology.

Upon conducting an in-depth examination of existing literature, the authors discovered a notable absence of research pertaining to guest experience and technology within the hospitality industry. Consequently, a comprehensive content analysis was undertaken to address these research gaps. The resources consulted encompassed a wide range of materials, including journal articles, conference papers, books, web pages, statistics, and reports. In order to provide the most up-to-date information and data, the focus was primarily on resources published within the past decade.

## **2. Guest experience in the Hospitality Industry**

According to Holbrook and Hirschman (1982), experience is a component of the customer's behavior that influences his or her fantasies, emotions, and perceptions [5]. Cetin and Dincer (2014), Abrahams (1986), and Maslow (1964), respectively, investigated experience as an aspect of human nature in numerous sciences such as psychology, philosophy, and anthropology [6],[7],[8]. Cohen (1979) and MacCannell (1989) studied customer experience from a sociological, rather than a marketing perspective, and concluded that tourists require experiences that are unrelated to their usual daily lives [9], [10].

According to Meyer and Schwager, the customer experience refers to the personal and subjective reaction that customers have when they come into direct or indirect contact with a company. Direct contact encompasses interactions related to purchasing, using, and receiving service from the company. On the other hand, indirect contact refers to unplanned encounters with representatives of a company's products, services, or brands. This can take the form of word-of-mouth recommendations or criticisms, advertising, news reports, reviews, and other similar mediums [11].

Experiences entail a personal level of involvement and participation from customers. Since experience is a subjective matter and each customer has unique beliefs, behaviors, and attitudes, it is thought to be a challenging concept to define [12]. Even if two or more people watch the same movie in the same theater, their individual experiences will result in very different outcomes. According to Kandampully, Zhang, and Jaakkola (2018), customer experience encompasses all phases of the hospitality circle, from pre-consumption to post-consumption, during the customer's interaction with a hotel company [13]. This illustrates the importance of carefully considering each phase of the hospitality circle to ensure a flawless customer experience.

Although this multiplicity of ideas has given the "customer experience" concept an intriguing history, there has been little success in offering a generally agreed-upon definition [14]. Defining customer experience can pose a challenge, yet its absence is unmistakable once observed [15].

## **3. Hospitality Technologies**

In the last century, innovation and technology have transformed the hospitality industry. With emerging technologies constantly evolving, it remains to be seen how they might impact the hospitality industry. One thing is for sure, hoteliers will continue to adopt the latest technology to meet the demanding expectations of guests [16].

### **3.1. The Present and Future of Hospitality Technology**

The impact of COVID-19 has been felt in every corner of the world, and the hotel industry is facing an uphill battle to stay afloat. The pandemic has undeniably sped up the integration of new

technologies and applications into hotel businesses. What were once considered innovative additions or extra conveniences have now become essential features, especially in a time when many individuals are hesitant to venture outside their homes [17]. The hotel industry is continuing to be severely impacted by the ongoing outbreak of COVID-19, leading to significant concerns about the current and future viability of the sector [18]. However, despite the devastating consequences, there is potential for the tourism industry to recover from the effects of the pandemic. In order to adapt to the new normal, "contactless" or "touchless" technologies have emerged as crucial solutions and are now considered to be the most important emerging trends in the hotel business post-pandemic. This entails reducing the reliance on front desk check-ins and increasing the use of online check-ins, minimizing physical interactions and increasing digital communication and customer loyalty. Moving forward, technological innovation will play a key role in driving the necessary changes to promote and ensure health and safety in a post-COVID-19 era [19].

### 3.2. Advantages of Using Technology in the Hospitality Industry

In response to evolving customer expectations, the utilization of hospitality technology has become essential across all departments within hotels. Its purpose is to enhance the overall guest service and experience, streamline operations, establish post-COVID-19 protocols, and foster improved communication between staff and guests. The integration of technology also enables businesses within the hospitality industry to remain competitive and compliant, while concurrently saving time, cutting costs, and amplifying customer satisfaction. In the subsequent section, we outline several benefits associated with the incorporation of technology within the hotel industry.

In terms of efficiency, guests have a strong desire for their hotel stay to be streamlined, prompt, and uncomplicated. As contactless hospitality becomes increasingly prevalent, the utilization of automated kiosks for check-in by means of QR code scanning or the ability to order room service through a tablet not only enhances overall satisfaction but also results in time savings [20].

**Security:** The security of guests' personal information, including credit card numbers, billing addresses, and communication details, is entrusted to hotels. Instead of solely relying on on-site computers, which are susceptible to loss or theft, hotels should consider utilizing cloud storage. Many contemporary software applications now offer cloud storage and backup features [21].

Customer Relationship Management (CRM) programs play a crucial role in scalability. These programs seamlessly combine customer data, automate payment processes, and provide assistance in managing accounts and generating comprehensive reports [22].

**Simplicity:** Built-in mobile tools easily provide resources that customers need in one place. Many hotels have created a customer app where customers can find useful information as they can easily locate amenities such as swimming pool, gym, spa, nearby entertainment venues, medical facilities or even washing machines [23].

**Sustainability:** The incorporation of contemporary technologies like mobile keys, smart televisions, room control, and interactive digital signage contributes to sustainability and enhances the overall customer experience [24].

**Cost reduction:** One of the benefits of technology in the hotel industry is its ability to enhance operational efficiency and reduce labor costs. In addition, it can also improve the guest experience by enabling seamless communication and interaction with the hotel staff [25].

**More educated staff:** A particularly significant factor in the service industry is the investment in staff having the proper knowledge and also attitude towards the guests. Technology (such as on-line training platforms) can assist in the continuous process of education, gaining experience, and staff development [26].

### 3.3. Disadvantages of Using Technology in the Hospitality Industry

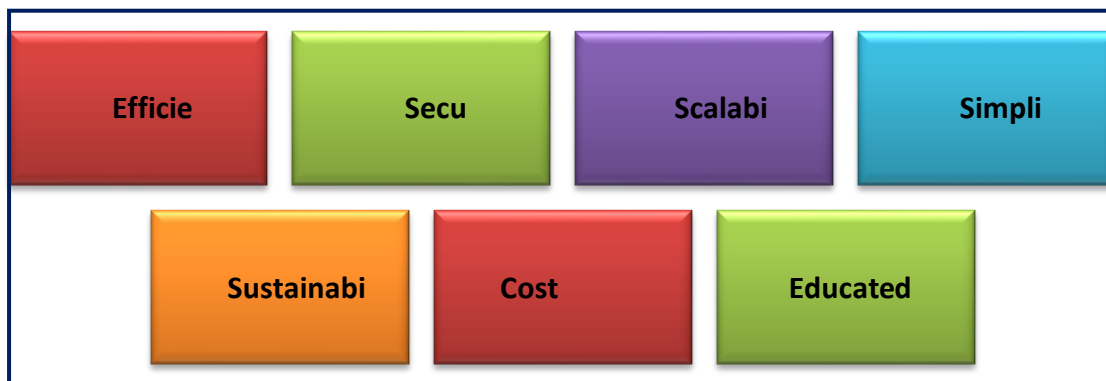
**Cyber-attacks:** Hotel operators must possess knowledge regarding the various forms of cyber-attacks, as these can have detrimental effects on their brand image, financial standing, and most importantly, the well-being of both employees and guests. In addition to causing disruptions to the hotel's network, cyber-attacks have the potential to hinder guests from utilizing the hotel's amenities [27].

**Lack of personal contact:** Some prominent hotels focus on providing personal care services to adopt a more welcoming profile and differentiate their brand. If guests use their smartphones to manage their stay at hotel, much of that differentiation will be lost [28].

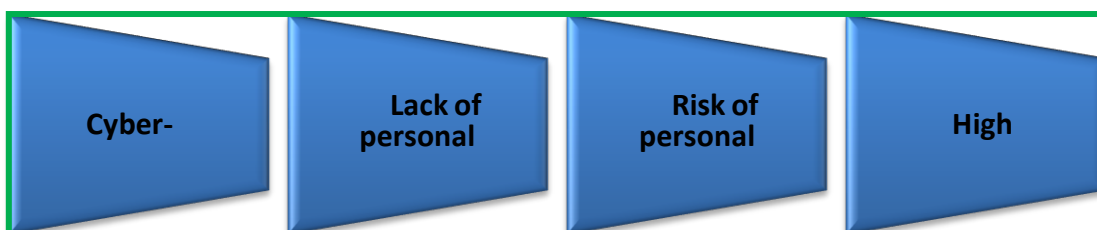
**Risk of personal data:** Another risk is that personalization relies too much on the fact that customers share their personal data. To claim recognition of them as custodians of personal data, hotels should reconsider risk management, ensuring oversight of processes across the organization. Those who succeed will be able to deliver real value to customers [29].

**High cost:** Hotels should be equipped with the appropriate technological equipment and the cost for such investments is very high. A potential challenge for some hotels is the fact that owners are reluctant to invest large sums in upgrading their IT systems. The situation in question can cause tensions between managers and owners [30].

In summary, the pros and cons of using technology in the hospitality sector are the following (Figures 1 and 2):



**Figure 1:** Advantages of Using Technology in the Hospitality Industry Source: Authors' own elaboration.



**Figure 2:** Disadvantages of Using Technology in the Hospitality Industry Source: Authors' own elaboration

### 3.4. Use of New Technologies to Enhance Guest Service

Guest service is a key concern of a hotel so that the customers to have a pleasant stay which will lead to the return of customers (repeaters) and its recommendations to new customers. The recommendations can be either personal or through the social networks. In addition, concern for both health, and customer safety, due to the COVID-19 pandemic, has accelerated not only the existing technologies but also the usage of new technologies in a hotel, so that it can give a modern air in its existing structures. The ways in which the service customer experience can be improved by using the latest trends of hotel technology are listed below [31].

## New Technology Applications

**Keyless Room Entry – Digital Key:** Mobile digital keys help reduce costs as well as improve overall customer experience. Moreover, they make hotel operations more seamless [32]. For these reasons, hotels are increasingly installing "smart" access systems that allow entry to the rooms simply by using a phone [32].

**Facial Recognition** Hotel operators must possess knowledge regarding the various forms of cyber-attacks, as these can have detrimental effects on their brand image, financial standing, and most importantly, the well-being of both employees and guests. In addition to causing disruptions to the hotel's network, cyber-attacks have the potential to hinder guests from utilizing the hotel's amenities [33].

**Voice search & Voice Control:** The utilization of voice control technology allows for seamless interaction between humans and various devices, including smartphones, smart TVs, and household appliances. By comprehending human speech and responding to simple voice commands, these devices are able to facilitate a user-friendly experience. It is important to note that the extent of voice control capabilities may differ from device to device. While some devices can be activated or deactivated through commands such as 'wake up' and 'idle', others possess the ability to execute complex tasks, provide real-time information, and even manipulate neighboring devices [34].

**Artificial Intelligence (AI):** Artificial intelligence, as defined by experts, encompasses the ability of computers or machines to carry out behaviors that appear to be intelligent [35]. While the integration of artificial intelligence in the hotel industry is still in its nascent phase, it has already demonstrated numerous practical applications, a few of which are outlined below:

*Customer service staff.* One instance of artificial intelligence being utilized in the hospitality industry is in the field of customer service. The Hilton Hotel, for example, has implemented an AI robot named 'Connie' to provide personalized assistance to guests. 'Connie' is capable of offering tourist information to customers who engage with it. What sets this robot apart is its ability to learn and adapt to individual preferences through interactions with humans. This implies that the more customers interact with 'Connie', the more refined its performance becomes [36].

*Chatbots and messages.* The utilization of chatbots is on the rise in the realm of hospitality technology, as customers increasingly require immediate answers to their inquiries, regardless of the time of day. Given that hotels frequently receive inquiries from individuals residing in various time zones, the value of chatbots cannot be overstated, as they are able to provide prompt responses [37].

*Data analysis.* Data analysis is another application of AI in the hospitality sector. This technology enables the rapid organization and interpretation of vast quantities of data, allowing for meaningful insights to be gleaned about customers and potential customers [38]. An illustration of this can be seen in the implementation of the Metis AI platform by the hotel chain Dorchester Collection. By utilizing this platform, the company was able to categorize data collected from surveys, online reviews, and other sources, facilitating comprehensive analysis of its overall performance.

**Virtual Reality (VR):** In the hospitality industry, virtual reality has a special appeal because it can carry the customers digitally in a hotel. While this technology is still far from perfect, many hotels already use it, both as a novelty attraction and as a function that helps visitors to make a choice and generally improve their experience [39]. Moreover, VR has become particularly important, because of the amount of information the average customer needs before booking a hotel room [40].

**Augmented Reality (AR):** Over the past few years, augmented reality (AR) has become an essential tool for marketing purposes, as it allows businesses to alter customers' perception of their surroundings. This technology has proven to be particularly valuable in the hospitality industry, as hotels primarily sell a physical environment that can be enhanced through AR. Augmented Reality Systems possess the following key features: a combination of real-world and virtual objects within the actual environment, synchronization of real and virtual elements, and a highly interactive 3D experience in real-time [41].

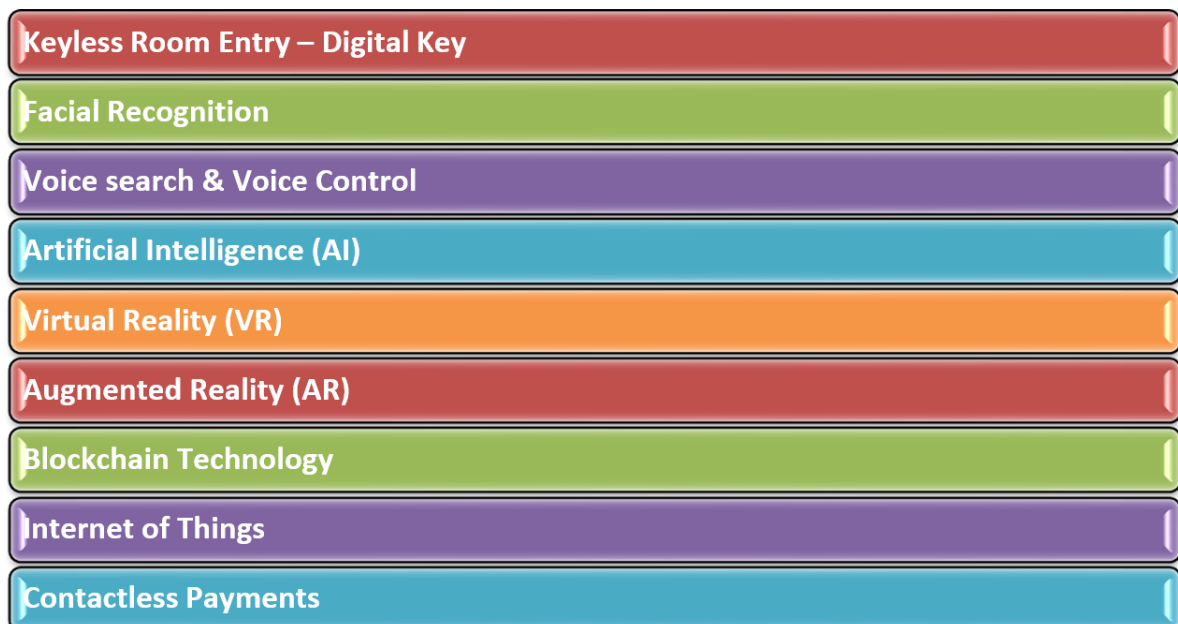
The purpose of augmented reality (AR) is to alter an individual's perception of their natural surroundings by utilizing computer technology. Although AR is frequently juxtaposed with virtual reality (VR), the two differ in their approach. Virtual reality completely substitutes the real environment with a virtual one, whereas augmented reality enhances the actual environment in real-time [42]. In the realm of the hospitality industry, there are several noteworthy applications of augmented reality (AR) that have proven to be highly impactful. These include the implementation of interactive hotel rooms, captivating games, augmented hotel environments, and the utilization of beacon technology.

**Blockchain Technology:** One of the most captivating advancements in digital technology is the emergence of blockchain technology. Its potential to revolutionize the manner in which transactions are conducted, as well as the storage and retrieval of information, is truly remarkable [43]. In the realm of hospitality management, blockchain technology presents numerous advantages, with security and stability being among the most apparent. For instance, the decentralization of data ensures that the database remains impervious to cyber-attacks, thereby safeguarding financial transactions [44].

**Internet of Things (IoT):** Within the hospitality industry, the Internet of Things (IoT) has the potential to transform various devices and applications into "intelligent" objects. These objects have the ability to transmit and receive data, as well as communicate with one another [45]. This integration of IoT technology offers numerous advantages, including enhanced data collection, increased automation, and the ability to control and monitor multiple devices from a central hub, such as a smartphone or tablet. The benefits extend beyond cost savings on energy consumption; they also encompass the provision of a superior customer experience [46]. Specifically, IoT technology enables hotel owners to optimize conditions within their establishments, delivering a more personalized experience to guests while minimizing waiting times. Noteworthy examples of IoT implementation in the hospitality sector include highly customized hotel rooms, location-based information services, predictive maintenance and repairs, electronic key cards, and customer service facilitated through voice control.

**Contactless Payments:** The hospitality sector is increasingly embracing contactless payments due to the numerous benefits they offer to resorts, restaurants, bars, and cafes. This method not only expedites payment processes and enhances customer satisfaction but also seamlessly integrates with loyalty programs [47].

Figure 3 below summarizes the new technology applications used in the hospitality industry.



**Figure 3:** New technology applications used in the hospitality industry Source: Authors' own elaboration.

## 4. Smart Hotels

There is an undeniable appeal to the concept of smart hotels, as it provides customers with a multitude of advantages, including enhanced convenience and personalized experiences. Not only does this benefit the visitors, but it also has the potential to enhance the financial outcomes for hotel owners. Additionally, the overall customer experience is greatly enhanced by the implementation of smart hotel technologies [48]. A smart hotel is essentially a hotel that utilizes devices connected to the internet, allowing them to communicate and interact with each other [49]. This concept is often referred to as the Internet of Things (IoT), which means that even ordinary devices can become "smart" by being able to send and receive data [50]. The advantages of these "smart" devices are numerous. Their ability to communicate with one another enables users to control multiple devices from a single control point, such as a remote control, smartphone, tablet, or smart speaker. Additionally, these devices can access and utilize information from the internet, allowing them to intelligently respond to user requests [51].

The significance of Smart Hotels is on the rise due to their ability to greatly enhance the overall customer experience. An illustration of this can be seen in the implementation of smart room controls, which enable guests to customize their room according to their preferences in terms of temperature, lighting, and air conditioning, eliminating the need for manual adjustments of individual devices. Additionally, a smart hotel can provide entertainment devices that can be operated through voice commands and even allow for the convenient ordering of services, such as room service, without the necessity of direct communication with staff [52]. The cumulative effect of staying in a hotel result in enhanced convenience, leading to increased guest satisfaction, a more memorable experience, and a higher likelihood of future return. Furthermore, the implementation of smart hotel rooms can also boost demand, allowing hotels to raise rates and maximize revenue generated from visitors. Although the conversion process may necessitate a substantial investment, smart hotel rooms have the potential to generate cost savings for hotels [53].

### 4.1. Advantages of Smart Hotels

**More sustainable hotel rooms.** The Internet of Things offers automation capabilities that enable smart hotels to conserve energy within their rooms. A prime illustration of this is the ability to adjust the power of light bulbs based on the ambient light levels in the room. Moreover, the heating system can be programmed to maintain a desired temperature and automatically switch off the radiators once that temperature is achieved. Consequently, these measures lead to reduced energy consumption and subsequently lower utility costs [54].

**Improved levels of personalization.** Personalization is a key advantage of smart hotels. One example is the ability to customize TVs based on proximity, allowing guests to be addressed by their names. Furthermore, a central control panel enables guests to adjust room conditions according to their preferences. Through the use of IoT technology, these devices can automatically create the desired environment. Additionally, smart TVs and speakers offer guests the convenience of accessing their own accounts on popular services like Netflix and Spotify. Notably, the Alexa for Hospitality service plans to introduce a feature that allows guests to log in with their Amazon account and access their personal audio books and music files in the near future [55].

**Easier access to information.** Accessing information is another significant benefit of smart hotel technology. By utilizing Amazon Alexa, guests have the convenience of asking questions verbally and receiving intelligent responses. Moreover, these devices can also be integrated with other hotel amenities [56]. For instance, a guest could utilize a smart node to inquire about restaurant availability. This feature can be directly connected to the hotel's restaurant reservation system, granting access to real-time data.

**Make decisions based on data.** When it comes to safeguarding customer privacy, it is imperative for hospitality professionals to prioritize the management of smart hotel systems.

Given that hotels operate with transparency and adhere to data protection laws, the information gathered from smart hotel solutions can prove valuable [57]. While it is important to securely delete voice recordings and other customer data stored on devices like Amazon Echo, certain data, including basic usage information, may still be collected. This data can provide insights into the most popular TV channels or radio stations, enabling hotels to make informed decisions about default options based on data analysis.

**Preventive maintenance and repairs.** The advantages of a smart hotel extend to both guests and hotel owners, particularly when it comes to preventative maintenance and repairs. With the implementation of IoT technology, hotel staff can access real-time performance and operational data for individual devices. This enables them to swiftly identify any issues, and in some cases, even anticipate them before they occur. By addressing repairs promptly, the number of disruptions experienced by guests is minimized, and hotel owners can potentially save on replacement devices. Additionally, the timely completion of repairs reduces the financial impact of having rooms out of order. Figure 4 below shows smart hotel features enhancing guests' experience.



**Figure 4:** Smart hotel features enhancing guests' experience Source: Authors' own elaboration

## 4.2. Smart Hotels and Guest Experience in the Future

According to a study conducted by Deloitte, a significant majority of global participants, 73% to be exact, believe that a positive experience plays a crucial role in shaping their brand loyalty. Furthermore, the study revealed that consumers are willing to pay up to 16% more for a superior customer experience. However, what exactly constitutes a positive customer experience? The study found that nearly 80% of respondents identified speed, convenience, helpful expertise, and friendly service as the key components of a positive customer experience [58]. In its research, Deloitte identified the factors that contribute to creating an unforgettable visitor experience. To achieve this, businesses need to meet the following customer demands identified by Deloitte in their research:

**Know me:** Travelers expect hotels to be aware of and recollect their requirements and preferences. Improvements in this area can enhance loyalty [59].

**Engage me:** In order to provide "personalized, authentic, and attentive ways" of visitor interaction, hotels must guarantee that their staff members do so. Survey responses suggest the top factor for a great encounter is the kindness of the hotel employees [60].

**Hear me:** Hotels have a distinct approach to attending to the needs of their guests. They actively listen to their concerns, show empathy towards their situations, and ensure that appropriate actions are taken to address those needs.

**Empower me:** In the present day, individuals who visit various destinations have a strong desire for autonomy and the ability to personalize their experiences. This can be achieved through the utilization of applications and other online platforms that offer customized suggestions for activities, dining options, and transportation services. The significance of this



trend is expected to grow even more in the coming years, as the younger demographic between the ages of 18 and 34 displays a substantially higher demand for empowerment compared to individuals aged 55 to 70 [61].

**Delight me:** According to the poll, this particular attribute received the lowest level of satisfaction and pertains to a hotel's ability to offer experiences that surpass the expectations of its guests. Only 56% of the participants reported that their hotel stays had been successful in bringing them joy. It is a common misconception that this satisfaction is always dependent on extravagant and expensive additions or gifts. However, even the smallest gestures that are personalized, unexpected, and presented in unique ways can bring me happiness, as stated by Deloitte [62].

The current trends within the industry are heavily influenced by shifts in consumer preferences. Organizations must adapt to attract new categories and segments of customers, such as millennials, Gen Z, digital nomads, extended stay travelers, and those interested in bleisure. They must also focus on enhancing and customizing the visitor experience, while embracing digital solutions and sustainable practices to maintain competitiveness. Consequently, new consumer generations, such as Millennials and Zoomers (Generation Z), have emerged with distinct desires and demands. These include the constant need for digital communication (connectivity), cutting-edge technological advancements, authentic and fully personalized activities and experiences, as well as new concepts and standards in accommodation, and interaction through social media platforms and other digital channels.

In order to identify the latest trends and developments in resort design, Deloitte conducted a survey on what the 'hotel of the future' will look like and the survey highlighted the following key trends [63]:

**Authenticity:** In order to give tourists a sense of location and authenticity, they should concentrate on a design that seamlessly integrates historical and modern aspects [64].

**Local elements:** to include distinctive aspects of the location, as well as local traditions and culture, so they may provide visitors a really local experience [65].

**Intimacy:** Comfort and intimacy in lodging (the "home away from home" concept) are crucial components that enhance the visitor's experience [66].

**Wellness and biophilic:** Using wellness and biophilic components, such as natural and diffused lighting, minimally processed materials, stimuli that induce a conscious reference to nature, neutral coloring, a visual link with nature and its elements, a lot of water, etc. [67].

**Smart technologies:** the use of cutting-edge equipment to enhance the visitor experience, cater to the demands of tech-savvy clients, streamline hotel operations, boost income per available room, and set oneself apart from the competitors [68].

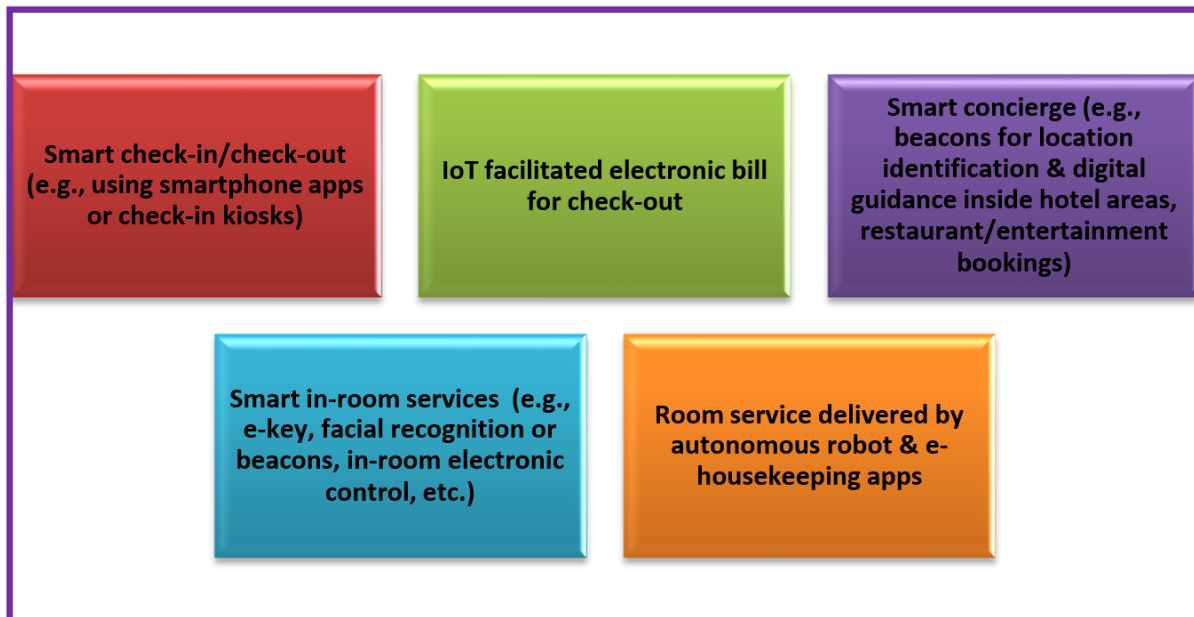
**Instagrammability:** The focus of this specific trend is on the younger consumer generations, namely Millennials and Zoomers (Generation Z). These generations are highly engaged on social media, actively seek out travel experiences in foreign countries, and have a preference for resorts that offer visually appealing features, such as infinity pools, which garner attention and likes on social media platforms. Moving forward, resorts should prioritize design elements that provide the perfect backdrop for photography, achieved through careful consideration of lighting, decor, music, and other components of the setting [69].

## 5. Discussion

When considering tourism, technology has the potential to enhance the experiences offered to tourists, while also increasing efficiency and enabling automation for the organizations involved. The implementation of smart technologies like cloud computing, big data, mobile apps, location-based services, beacon technology, and virtual reality significantly improve the quality of tourism services and the overall experience [70].

Mobile technologies, particularly the utilization of smartphones and their various applications, have a profound impact on the development of smart tourism. The integration of GPS and location-based tracking, along with the utilization of applications, provides valuable information

for service providers and enhances the convenience of travelers. Furthermore, within the hospitality industry, the implementation of "experience-enhancement (EE) smart technologies" has a direct influence on the overall hotel experience and guest satisfaction. These technologies include features such as smart check-in/check-out, which can be performed through smartphone apps or check-in kiosks, as well as IoT facilitated electronic billing for check-out. Additionally, smart concierge services utilizing beacons for location identification and digital guidance within hotel areas, as well as assistance with restaurant and entertainment bookings, further enhance the guest experience. Smart in-room services, such as e-keys, facial recognition or beacon technology, and in-room electronic control systems, also contribute to guest satisfaction. Lastly, the use of autonomous robots for room service delivery and the utilization of e-housekeeping apps further enhance the overall hotel experience for tourists [71].



**Figure 5:** Experience-enhancement smart technologies in hospitality Source: Authors' own elaboration

In spite of the Covid-19 pandemic and the resulting global crisis, an increasing number of hotel companies have embraced the concept of the smart hotel room. The reason behind this trend is the technology's potential to enhance the overall hotel experience, particularly in terms of convenience. Apart from this, smart hotel solutions are gaining popularity due to their ability to reduce operational costs, thereby improving the financial performance of hotels. Additionally, the unique aspect of a smart hotel room can serve as a marketing advantage, distinguishing it from conventional hotels and resorts. This makes it an intriguing concept for marketing purposes [72].

In order to thrive in the travel and hospitality industry, it is imperative for all organizations to establish intelligent digital strategies that prioritize tailored customer experiences and exceptional service. It is essential for these strategies to target and engage travelers at every step of their journey. In order to achieve this objective, it is imperative for the government to create an environment that supports and fosters growth. This can be accomplished through the implementation of comprehensive financial support programs and tax incentives. Additionally, offering financial incentives to tourism businesses would serve as a catalyst for the adoption and exploration of digital solutions in their day-to-day operations.

Simultaneously, it is imperative for the business sector to allocate time, capital, and assets in order to effectively disseminate the knowledge, expertise, and distinct attributes that businesses possess. It is undeniable that fostering a collaborative relationship between startup ecosystems and companies striving towards a shared objective will undoubtedly yield reciprocal advantages.

In the future, there are several digital initiatives that have the potential to enhance the guest experience in the hospitality industry. These initiatives include the development of a Mobile Guest Lifecycle App, the creation of a social media platform and accompanying applications, the integration of promotions within the Mobile Guest Lifecycle App, the improvement of customer interactions through the use of Artificial Intelligence, the implementation of mobile check-in capabilities, the expansion of guests' mobile payment options, the utilization of smart hotel solutions to create a seamless "phygital" experience, and the provision of an integrated booking experience.

Moreover, "contactless" technologies which emerged from the Covid-19 pandemic and are now a necessity will continue to be considered as one of the optimal solutions in the future for the improvement of guest experience and satisfaction.

## References

- [1], [3] Erdly, M., & Kesterson-Townes, L. Experience rules: a scenario for the hospitality and leisure industry circa 2010 envisions transformation. *Strategy & Leadership*, 31 (3), pp. 12-18 (2003)
- [2] MAGRONE, N. (2019). ICLG
- [4],[13] Kandampully, J., Zhang, T. C., & Jaakkola, E. (2018). Customer experience management in hospitality. *International Journal of Contemporary Hospitality Management*, 30 (1), pp. 21-56.
- [5] Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of consumer research*, 9(2), 132-140.
- [6] Cetin, G., & Dincer, F. I. (2014). Influence of customer experience on loyalty and word-of-mouth in hospitality operations. *Anatolia: An International Journal of Tourism and Hospitality Research*, 25 (2), pp. 181- 194. DOI: 10.1080/13032917.2013.841094
- [7] Abrahams, S. C., & Marsh, P. (1986). Defect structure dependence on composition in lithium niobate. *Acta Crystallographica Section B: Structural Science*, 42(1), 61-68
- [8] Maslow, A. H. (1964). Synergy in the society and in the individual. *Journal of Individual psychology*, 20(2), 153.
- [9] Cohen, E. (1979). Rethinking the sociology of tourism. *Annals of tourism research*, 6(1), 18-35
- [10] MacCannell, D. (1989). Faking it: Comment on face-work in pornography. *The American Journal of Semiotics*, 6(4), 153.
- [11] Meyer, C., & Schwager, A. (2007). Understanding customer experience. *Harvard business review*, 85(2), 116. Retrieved January 1, 2022 from <https://hbr.org/2007/02/understanding-customer-experience>.
- [12] Kim, M., Vogt, C. A., & Knutson, B. J. (2015). Relationships among customer satisfaction, delight, and loyalty in the hospitality industry. *Journal of Hospitality & Tourism Research*, 39 (2), 170-197. DOI: 10.1177/1096348012471376
- [14], [15] Brodie, Roderick J., Linda D. Hollebeek, Biljana Juric and Ana Ilic (2011), "Customer Engagement: Conceptual Domain, Fundamental Propositions, and Implications for Research," *Journal of Service Research*, 14 (3), 252-271
- [16] Adelson, D. (2016). Intelity forecast of hotel technology in 2017.
- [17] Krishnan, V., Mann, R., Seitzman, N., & Wittkamp, N. (2020). Hospitality and COVID-19: How long until\_no vacancy'for US hotels?
- [18] Berry, L. L., Danaher, T. S., Aksoy, L., & Keiningham, T. L. (2020). Service safety in the pandemic age. *Journal of Service Research*, 23(4), 391-395.
- [19] Barsky, J. D., & Dittmann, S. (1990). Theory S: total customer service. *Cornell Hospitality Quarterly*, 31(1), 88.

- [20] Belias, D., & Varelas, S. (2019). To be or not to be? Which is the case with robots in the hotel industry?. In *Strategic Innovative Marketing and Tourism: 7th ICSIMAT*, Athenian Riviera, Greece, 2018 (pp. 935-941). Springer International Publishing
- [21] Zhu, W. W., & Morosan, C. (2014). An empirical examination of guests' adoption of interactive mobile technologies in hotels: Revisiting cognitive absorption, playfulness, and security. *Journal of Hospitality and Tourism Technology*.
- [22] Elena, C. A. (2016). Social media—a strategy in developing customer relationship management. *Procedia Economics and Finance*, 39, 785-790.
- [23] Cobos, L. (2017). Determinants of continuance intention and word of mouth for hotel branded mobile app users
- [24] Alexander, S., & Kennedy, C. (2002). GREEN HOTELS: Opportunities and Resources for Success. Written by Zero Waste Alliance September 2002
- [25] Belanche, D., Casaló, L. V., & Flavián, C. (2021). Frontline robots in tourism and hospitality: service enhancement or cost reduction?. *Electronic Markets*, 31(3), 477-492.
- [26] Noe, Hollenbeck, Gerhart and Wright, 2012) Noe, R., Hollenbeck, J., Gerhart, B., Wright, P. (2012). *Human resource management: gaining a competitive advantage*, 3rd edition. New York, USA: McGraw-Hill Education
- [27] Arcuri, M. C., Gai, L., Ielasi, F., & Ventisette, E. (2020). Cyber attacks on hospitality sector: Stock market reaction. *Journal of Hospitality and Tourism Technology*.
- [28] Kattara, H. S., & El-Said, O. A. (2013). Customers' preferences for new technology-based self-services versus human interaction services in hotels. *Tourism and Hospitality Research*, 13(2), 67-82.
- [29] Morosan, C., & DeFranco, A. (2015). Disclosing personal information via hotel apps: A privacy calculus perspective. *International Journal of Hospitality Management*, 47, 120-130.
- [30] GrantThoton, [https://www.grantthornton.gr/globalassets/1.memberfirms/greece/insights/pdfs/surveys/gr\\_hotels\\_2020.pdf](https://www.grantthornton.gr/globalassets/1.memberfirms/greece/insights/pdfs/surveys/gr_hotels_2020.pdf) last accessed 2022/08/03
- [31] Kansakar, P., Munir, A., & Shabani, N. (2019). Technology in the hospitality industry: Prospects and challenges. *IEEE Consumer Electronics Magazine*, 8(3), 60-65.
- [32] Torres, A. M. (2018). Using a smartphone application as a digital key for hotel guest room and its other app features. *International journal of advanced science and technology*, 113, 103-112.
- [33] Xu, F. Z., Zhang, Y., Zhang, T., & Wang, J. (2021). Facial recognition check-in services at hotels. *Journal of Hospitality Marketing & Management*, 30(3), 373-393.
- [34] Karakaeva, M. (2021). MUST-KNOW HOSPITALITY TRENDS FOR FUTURE. In *Инсайты для развития гостеприимства: кросс-и межкультурные перспективы* (pp. 130-131).
- [35], [36], [37] Lukanova, G., & Ilieva, G. (2019). Robots, artificial intelligence, and service automation in hotels. In *Robots, artificial intelligence, and service automation in travel, tourism and hospitality*. Emerald.
- [38] Zhang, Y., & Qi, S. (2019, July). User experience study: The service expectation of hotel guests to the utilization of AI-based service robot in full-service hotels. In *International Conference on Human-Computer Interaction* (pp. 350-366). Springer, Cham.
- [39] Israel, K., Zerres, C., & Tscheulin, D. K. (2019). Presenting hotels in virtual reality: does it influence the booking intention?. *Journal of Hospitality and Tourism Technology*.
- [40] Dalgic, A., & Birdir, K. (2020). Smart hotels and technological applications. In *Handbook of research on smart technology applications in the tourism industry* (pp. 323-343). IGI Global.
- [41] Van Krevelen DWF & Poelman R, 'A survey of augmented reality technologies, applications and limitations', *International Journal of Virtual Reality*, Vol.9, No.2, (2010).
- [42] ÖZKUL, E., & KUMLU, S. T. (2019). Augmented reality applications in tourism. *International Journal of Contemporary Tourism Research*, 3(2), 107-122.

- [43], [44]. Khanna, A., Sah, A., Choudhury, T., & Maheshwari, P. (2020, November). Blockchain technology for hospitality industry. In European, Mediterranean, and Middle Eastern Conference on Information Systems (pp. 99-112). Springer, Cham
- [45] Mercan, S., Cain, L., Akkaya, K., Cebe, M., Uluagac, S., Alonso, M., & Cobanoglu, C. (2020). Improving the service industry with hyper-connectivity: IoT in hospitality. *International Journal of Contemporary Hospitality Management*.
- [46] Trautman, L. J., & Hussein, M. T. (2022). The Internet of Things (IoT) in a Post-Pandemic World. Available at SSRN 4149477. last accessed 2022/08/04
- [47] Lau, A. (2020). New technologies used in COVID-19 for business survival: Insights from the Hotel Sector in China. *Information Technology & Tourism*, 22(4), 497-504.
- [48] Dalgic, A., & Birdir, K. (2020). Smart hotels and technological applications. In *Handbook of research on smart technology applications in the tourism industry* (pp. 323-343). IGI Global.
- [49] Lim, W.M.; Teh, P.-L.; Ahmed, P.K.; Cheong, S.-N.; Ling, H.-C.; Yap, W.-J. (2018). Going keyless for a seamless experience: Insights from a unified hotel access control system. *International Journal of Hospitality Management*, 75, pp. 105–115.
- [50] Moura, F., & Silva, J. D. A. (2019). Smart cities: Definitions, evolution of the concept and examples of initiatives. W. Leal Filho, A. Azul, L. Brandli, P. Özuyar, T. Wall (eds.), *Industry, innovation and infrastructure*, 1-9.
- [51] Patel, K. K., & Patel, S. M. (2016). Professor PSA. Internet of Things-IOT: definition, characteristics, architecture, enabling technologies, application & future challenges. *Int J Eng Sci Comput*, 6(5), 6122-31.
- [52] Sbounias, J. (2019). Five smart hotels around the world that highlight this new global trend, <https://www.hotelieracademy.org/5-smart-hotels-that-confirm-the-potentials-of-this-new-hotel-trend/>, last accessed 2022/08/28
- [53], [56] Yang, H., Song, H., Cheung, C., & Guan, J. (2021). How to enhance hotel guests' acceptance and experience of smart hotel technology: An examination of visiting intentions. *International journal of hospitality management*, 97, 103000
- [54] Franco, S., Caroli, M., & Del Chiappa, G. (2021). The impact of hotel sustainability practices on tourist intentions to book hotel rooms. *Sinergie Italian Journal of Management*, 39(1), 21-35.
- [55] Almurbati, N., & Ahmed, N. (2021). Humanizing spaces through designing smart hotels.
- [57] Mariani, M., & Baggio, R. (2021). Big data and analytics in hospitality and tourism: a systematic literature review. *International Journal of Contemporary Hospitality Management*
- [58] Mercan, S., Cain, L., Akkaya, K., Cebe, M., Uluagac, S., Alonso, M., & Cobanoglu, C. (2020). Improving the service industry with hyper-connectivity: IoT in hospitality. *International Journal of Contemporary Hospitality Management*.
- [59], [60], [61], [62] Kim, H., & So, K. K. F. (2022). Two decades of customer experience research in hospitality and tourism: A bibliometric analysis and thematic content analysis. *International Journal of Hospitality Management*, 100, 103082.
- [63] Deloitte, <https://www2.deloitte.com/gr/en/pages/consumer-business/articles/the-hotel-of-the-future.html> last accessed 2022/08/28
- [64] Wang, N.: Rethinking authenticity in tourism experience. *Ann. Tour. Res.* 26(2), 349–370 (1999)
- [65] Gentile, C., Spiller, N. & Noci, G. (2007). How to sustain the Customer Experience: An overview of Experience Components that Co-Create Value with the Customer. *European Management Journal* 25(5), pp.395-410
- [66] Siddiqui, S. (2019). Home Away From Home, All Capstone Projects. 545.
- [67] Gillis, K. & Gatersleben, B. (2015). A review of psychological literature on the health and wellbeing benefits of biophilic design. *Buildings*, 5(3), 948-963.
- [68] Bhattacharjee, D. & Bera, R. (2014). Development of smart detachable wireless sensing system for environmental monitoring. *International journal on smart sensing and intelligent systems*, 7(3), 1239-1253.

- [69] Hosie, R. (2017). 'Instagrammability': most important factor for Millennials on choosing holiday destination. *The Independent*, 24.
- [70], [71], [72] Kapiki, S. T. (2021). Smart City and IoT Technologies Enabling Smart Tourism: the Case of Greece (pp. 80-112). In A. Brovko, O. Dolinina (Eds.) *Higher Education in Smart City Technologies: European, Kazakh, Mongolian, Russian Universities Approach*, ISBN: 978-5-00140-890-1.