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The Case of In-Room Technology

GABRIELA ESCUDEIRO GOMES

Dissertation submitted as a partial requirement for the degree of Master in Hospitality and Tourism Management

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Departamento de Marketing, Operações e Gestão Geral

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BUSINESS
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Abstract

In-room technology has suffered significant changes throughout the years in the hospitality industry. A few studies have proven that this has increased customer satisfaction, due to its effectiveness and efficiency and because of the generation facing the future. A generation that is familiar and surrounded by technological devices makes it difficult for hotels to find a differentiation factor within this concept. Nowadays, hotels are already expected to contain several in-room technologies, due to the engagement people have with their technological devices which are considered indispensable when staying at a hotel.

This study contributes to the future of the hospitality industry since it is facing a different reality that is constantly changing and updating, making it hard and costly for these industries, because they need to keep their services up to date, to assure customer satisfaction and loyalty.

In conclusion, to explore more about this subject, this research made use of a qualitative approach, interviewing 10 general managers in Portugal, to better understand the role that technology has on their hotels and how they react to new technologies.

Keywords: New Technology; Hospitality; Innovation; Generation; In-room Technologies; Amenities Technology.

Resumo

A tecnologia dos quartos, considerando o setor da hotelaria, tem vindo a sofrer alterações significativas ao longo dos anos. Alguns estudos provaram que esta tem aumentado a satisfação dos clientes, devido à sua eficácia, eficiência e claro, à geração que enfrenta o futuro. Neste caso, uma geração com bastante conhecimento e conforto em relação às tecnologias, pois a mesma está rodeada de dispositivos tecnológicos, tornando-se assim cada vez mais difícil para os hotéis encontrarem um fator de diferenciação, dentro do conceito da tecnologia. Atualmente, já se espera que os hotéis contenham várias tecnologias no quarto devido à ligação que as pessoas já criaram com estes dispositivos.

Este estudo serve para contribuir para o futuro da indústria hoteleira, uma vez que esta enfrenta uma realidade diferente, estando em constante mudança e atualização, tornando-se assim difícil e dispendioso para os hotéis, pois têm de garantir a satisfação e a fidelização dos seus hóspedes.

Concluindo, de forma a explorar mais sobre este tema, este estudo utilizou uma abordagem qualitativa, tendo-se entrevistado 10 diretores hoteleiros em Portugal, de modo a compreender melhor o papel que a tecnologia tem nos hotéis e como enfrentam as novas tendências tecnológicas.

Palavras-Chave: Tendências tecnológicas; Hotelaria; Inovação; Geração; Tecnologias de quarto; Amenities tecnológicos.

Introduction

Can in-room technology impact the customer's experience in hospitality? The answer to this question lies mostly in the value, rareness, inimitability, and ease that the hotel can provide to its guests.

This project aims to better understand and explain the importance of hospitality technology, since it has been growing in the market and creates an impact, on the customer's stay. The focus of the project is to recognize how customers react and feel when staying at a hotel that offers in-room technology, and how that impacts the client (positively or negatively). Besides that, it will also be to study how technology can help to improve customer satisfaction before, during and after the customer's stay.

Technology has been seen as a taboo throughout the years, this has been like this for several years and has to do with the audience. For instance, in Europe, it is almost unimaginable to rely only on technology since the European audience prefers to rely on human contact since it appears to be more secure. On the other hand, technology in some Asian countries works wonders for them and they prefer technology to human contact. One great example of that is the Quick Response code, or as we know "QR-Code". QR codes were invented by a Japanese company in 1994 and have been implemented in Japan since 1994 with the purpose of quickly accessing a site, or video, among others (QR New, n.d.). While in Portugal it was only implemented in 2019 and it is not having a positive impact on customers.

Therefore, for this study, the main focus is on technology in the hospitality industry but focuses mostly on in-room technology and how this can affect customers' satisfaction and improve their stay. Moreover, analyses what customers value most, what they enjoy having and what is indispensable for them. Nowadays, technology is a very "basic" thing since everyone owns any sort of it, so most of the time clients do not even realize that they are using technology, or they will not think of it as innovative. So, in order to make customers think that way, hotels should seek differentiation and personalization in their services, for example having the customer's name on the TV when they arrive, which is something very common nowadays. With this in mind, this research will also help to understand if the adaptation to this type of technology has to do with the consumer's segmentation, such as demographic segmentation or behavioural segmentation. Several studies have proven that the generation can influence the adaptation to in-room technologies, but other studies focus also on the overall increase of customer satisfaction due to the use of technological devices and how people have started to choose their hotel depending on the in-room technology available.

This study will focus only on Portugal since it is an audience that has some difficulty adapting to these technologies. Therefore, the aim is to explain technology advance, and how it can be useful for hospitality and tourism, and see how technology can adapt to the hospitality industry, for example, check-in machines, bedroom cards (magnetic), robots, recognition technology, PMS (property management system), QR-code; in-room technology, technological amenities, among others; recognize what type of in-room technology a customer is looking forward to having when staying at a hotel and to know the consequences that in-room technology can bring to the consumer. These measures can change the hospitality game since it will allow a much more efficient job and provide a safer option for their customers since they will not share with staff their personal information (Gupta & Sharma, 2021). In order to obtain answers and confirm these objectives, there will be followed by research questions.

Moreover, with this project, the goal is to acknowledge and explain the importance of hospitality technology since it has become a big reality in this industry. As well, as study how this has been impacting the customers' stay (before, during and after). Since technology still has not been accepted by everyone (Brochado et al., 2016), due to adaptation and even tradition, a lot of hotels have been stuck and afraid to improve, adding value to the technology industry as well as the hospitality industry and creating a view that can combine these two elements to work together. A crucial aspect of this investigation involves engaging in valuable discussions with Hotel General Managers. These conversations will help capture their valuable insights and firsthand experiences as they navigate the difficulties of incorporating technology into their establishments. This qualitative element aims to establish a practical framework for comprehending the obstacles, advancements, and innovative approaches that shape the dynamic interplay between technology and the hospitality sector.

Furthermore, the scope of the research will extend to a detailed examination of online scientific articles distributed across a variety of platforms, extending from social media platforms to online travel agencies. This comprehensive analysis aims to uncover the emerging trends and subtle currents that provide early glimpses into the future impact of embracing technology in the hospitality sector. By drawing insights from these practical encounters, a holistic comprehension of the possible outcomes, both beneficial and adverse can be extracted, providing valuable perspectives for both industry stakeholders and researchers.

In Portugal, technology is quite advanced just not as much as in Japan for instance, this happens due to the presence of several generations in Portugal and the fact that most of them

refuse to adapt to technology or have certain difficulties and do not want to learn. With this in mind, in-room technology will be analysed within Portugal. Understanding if it has made a difference throughout the years or if it is more the tourists who value such technology.

Therefore, a traditional dissertation was considered, where the theme is “the Case of In-Room Technology”, followed by a structure proposed in the script. The internet was used mainly as a means of research, as well as scientific articles, journals, and annual reports, among others.

Objectives

As highlighted in the introduction, the primary focus of existing scientific articles is on technology in general, rather than specifically on in-room technology. Consequently, there is a limited amount of research available regarding the impact of in-room technology on guests' experiences in hotels.

In order to bridge this gap in knowledge, this study centres around hotel managers as key participants, aiming to gain deeper insights into the evaluation and significance of in-room technology in the context of guest stays. Moreover, the three main objectives for this thesis are as follows:

O1 - First and foremost, the initial objective is to measure how in-room technology influences the overall guest experience. The main goal is to expose how this technology contributes to an enhanced level of customer satisfaction and, in turn, fosters a sense of loyalty among guests (Cobanoglu et al., 2011), taking us to RQ1 - How does the implementation of in-room technology impact the overall guest experience and contribute to guest satisfaction and loyalty? By engaging in conversations with experienced hotel managers, the aim is to gather valuable insights from those directly involved in the hospitality industry. Through their unique perspectives, we hope to unravel the complicated ways in which the combination of technology and guest interaction shapes the overall landscape of guest engagement and retention strategies.

O2 - Secondly, to identify the challenges and barriers that hotel managers encounter when introducing and overseeing in-room technology (kozmal et al., 2021), guiding to RQ2 - What are the main challenges faced by hotel managers in adopting and managing in-room technology, and how do they address these challenges? This comprehensive analysis encompasses a spectrum of challenges, ranging from seamless technology integration within existing infrastructures to the intricacies of training staff to effectively utilize these innovations (Gupta & Sharma, 2021).

O3 - Lastly, to explore the various factors that influence hotel managers' assessments of in-room technology, encompassing aspects such as guest satisfaction, operational efficiency, and financial performance (Verma et al., 2020). Giving us RQ3 - What factors influence hotel managers' evaluation of in-room technology, and how do they prioritize these factors? And RQ4 – How do hotel managers implement technology trends in their hotel, taking into consideration the staff and their target audience? (Kozmal et al., 2021)

In conclusion, in alignment with the research objectives, an essential aim of this study is to unravel how it can provide practical insights for hotel managers. By digging into the modern dynamics of in-room technology, this research seeks to uncover valuable knowledge that can foster managers to make informed decisions to enhance guest experiences, streamline operations, and optimize financial outcomes. Furthermore, this study could inspire future research in this area. By adding to the existing knowledge, its goal is to encourage researchers, scholars, and industry professionals to explore further into the growing relationship between technology and hospitality. As a result, this study aims to promote ongoing learning and innovation, benefiting the hospitality industry by pushing it to the forefront of technological advancements and best practices.

Research Questions

The research questions for this study are directly linked to the objectives we outlined above. To guide our exploration, I've developed four specific research questions that will drive our investigation into the relationship between technology and the hospitality industry.

These questions act as markers, helping us focus our investigation and shed light on the various ways technology and hospitality intersect. Through careful examination of these questions, the aim is to reveal a more profound comprehension of the intricate dynamics in motion.

With these research questions in hand, our aim is to expose valuable insights that will not only enhance academic understanding but also offer practical applications in both the hospitality and technology sectors.

RQ1 - How does the implementation of in-room technology impact the overall guest experience and contribute to guest satisfaction and loyalty?

RQ2 - What factors influence hotel managers' evaluation of in-room technology, and how do they prioritize these factors?

RQ3 - What are the main challenges faced by hotel managers in adopting and managing in-room technology, and how do they address these challenges?

RQ4 – How do hotel managers implement technology trends in their hotel, taking into consideration the staff and their target audience?

Thesis Structure

In order to fulfil the proposed objectives, the present dissertation will be divided into two parts. The first part consists of a literature review, followed by five chapters regarding the main themes under study.

The first chapter focuses on adapting technology in the hospitality industry. The study consists of gathering information about adaptation such as from the customers' point of view, in other words, if there is a noticeable impact on the hotel from the guest when using technologies, another example of this topic is the customer's age, for instance, if there is a difference on the impact regarding the guest's generation and evaluate if there is a significant difference between Baby Boomers and Generation Z and how that influences the hotel, keeping in mind the hotels target audience. Moving on to chapter two, technology before, during and after the customer's stay is studied, in order to better understand how technology can help the employees before, during and after their stay and how the hotel can act on the guest's needs quicker and more efficiently. The third topic focuses mostly on in-room technology that hotels have started to adapt and that can manage in their hotel. Furthermore, the fourth chapter analyses guest satisfaction regarding technological amenities and how guests feel when using hotel technology in the room. Finally, the last topic focuses on the adoption of new technology trends, meaning how hotels evaluate the need to implement these services.

The second part is focused mostly on the methodology used in this study. In this part, it is possible to notice the aspects that drove this investigation, the target audience of this study, as well as the procedures that made the interview and finally the analysis of the interview. Overall, this part allows a better understanding and knowledge of the topic in the case and how the target audiences act regarding this matter. Following this information, the study is presented with the investigation results as the discussion of the results and its conclusions.

Finally, to conclude the study there is a brief conclusion, as well as the theoretical and practical implications of the study, suggestions on future research and finally, the study's limitations.

1. Literature Review

1.1 Adaptation to new technologies

Nowadays, several new technologies bring value to hospitality and therefore have grown and positioned enthusiastically in the market. For instance, Interactive Mobile Technologies (IMT) have become a very important asset in the hotel industry, due to the facilitated transactions and the ability to provide a higher quality of the guest's experience. Besides that, IMT is seen as unique regarding immersive technologies, improving guest satisfaction and adding value to the hotel (Zhu & Morosan, 2014). With this in mind, technology adoption is crucial for the hotel industry since it will define its future (Tavitiyaman et al., 2022).

New technology has had significant growth throughout the years and has changed several aspects of human life, influencing industries (Ervina et al., 2021). Previous studies have confirmed that this can be a positive aspect of hospitality, as well as a negative aspect. This happens because there are still some generations, such as "Baby Boomers" and "Gen X", whose contact with technology is not as normal as for younger generations. Due to some customers value a lot more face to face interaction than digital interaction, hospitality cannot become completely digital. Besides that, although Baby Boomers accept new technologies and try to adapt, it is much more difficult for them to become technology adopters since most of the time they are not comfortable with technology since safety and privacy are much more valuable for them than for other generations. (Brochado et al., 2016)

Every day some changes occur, such as in customer behaviour in technological development. This happens due to the increasing familiarity with technological devices as well as the rapid technological innovations (Tavitiyaman et al., 2022). However, several studies prove that more and more clients have preferences within the technologies implied in hotels. Such as free access to TV, free WiFi and HSIA (high-speed internet access). In addition, studies have proven that the need for technology in hotels, is more significant for business travellers, than for leisure travellers. It is noticeable for the hotels, to keep in mind the new technologies and trends, more for business travellers than for leisure ones, in order to assure customer satisfaction since this specific customer seeks a way to be able to work and have the conditions to do so (Brochado et al., 2016). On the other hand, it is also noticeable that hotel categories also influence the implementation of in-room technology, for instance, a five-star hotel is expected to have a more differentiative technology than a three-star hotel. Therefore, a hotel should adapt its technologies according to its marketplace (Jung et al., 2014).

Many hotels have adopted information and communication technology (ICT) to manage rapidly changing environments. Room reservation systems, procurement and inventory systems, wireless internet, e-mail, electronic transactions, and hotel websites are just some of the ICT applications that have been broadly implemented throughout the industry. Hotel managers believe ICT adoption is a key success factor in enhancing hotel performance. Improving both operational productivity and customer satisfaction is seen as a key issue for survival and success in the long term (Sirirak et al., 2011). Moreover, ICT has a better connection with operational productivity than with customer satisfaction (Tavitiyaman et al., 2022).

On the other hand, adapting technologies to a company can be very dispendious and resourceful, therefore hotels should study what they can adapt to their services and determine the level of technology that they can adopt within the hotel rooms. These can vary according to the guest, since guest preferences vary according to gender, age, family trip and business trip, among others (Zhang et al., 2022).

1.2 Technology before, during and after customer's stay

Technology started appearing in the hotel industry in the 1970s and has extended and grown throughout the years becoming essential for this industry's functionality (Cobanoglu et al., 2011). With this in mind, technology is rapidly evolving and growing. Consequently, products and services are always changing, making it noticeable for organizations to keep in mind the trends and what consumers look forward to having when staying at a hotel (Schrier et al., 2010).

Throughout the years, technological devices drove consumers to opt in using online travel agencies and tour operators as their fonts, making it easier for the customer to book in advance travel tickets as well as hotel reservations, making it more accessible to travel, impacting positively the client before its stay. (Ervina et al., 2021). In Portugal, it is already possible to find hotels with sophisticated technology that are seeking to grow a lot more in this industry, looking for new technologies and trends, to keep up to date (Brochado et al., 2016).

Nowadays, some hotels have adapted their resources and now use technology to help guests when staying at the hotel, for example, Marriott's outlets have set up reference points at lodging problem areas, such as spas, restaurants, and bars. Likewise, Marriott Inns received a system for using reference points by placing them near the doors of lodgings to streamline the mobilisation technique. Besides that, beacon points can be used to guide guests in finding

their way or can supply guests going into their rooms with data on the most capable method to work in-room (Verma & Thakur, 2020). This enables guests to experience a more fulfilling and complete experience during their stay and will help to create engagement between the organization and the guest.

For instance, by using IMT, guests can communicate with the hotel beforehand, during and after their stay, such as ordering products, finding destination information, interacting with the hotel's staff, or even controlling room features, such as asking for specific things that the customer will want in the bedroom. This technology is very helpful for hotels to guarantee guest satisfaction because it allows the hotel to prepare the room exactly how the customer wants as well as satisfy the guest's needs during their stay. This feature is typically offered for free to their guests during their stay due to its capability of helping hotel workers, IMTs are more and more demonstrating their values for both, hotels and guests (Zhu & Morosan, 2014). One example of this type of technology is GXP a Marriott platform that allows the guests to communicate with the hotel staff without needing to wait or arrive at the hotel, making it easier for the hotel workers to get their job done more efficiently as well as providing a good stay to the guest. Despite that, it enables efficient communication and collaboration among hotel staff members. It may include features such as messaging, notifications, and shared calendars, allowing employees to stay connected and informed. GXP often includes reporting and analytics capabilities to generate insights on hotel performance, employee productivity, and guest satisfaction. This data can be used to make informed decisions and identify areas for improvement.

Furthermore, technology has been adapted to hospitality, to facilitate employee business as well as to improve customer satisfaction. One main addition to this factor has been the self-service kiosks, these allow the customer to do their check-in as their check-out, making the customer feel safer and more comfortable since its data is more private. Not all hotels have adopted this innovation, since a lot of hotels intend to keep a more traditional guest service and want to keep practising customer interaction (Gupta & Sharma, 2021). "Previous studies have indicated that hotel technology implementations can improve customer satisfaction, increase productivity and reduce costs, which can result in a competitive advantage" (Brochado et al., 2016 p.3)

1.3 In-Room Technology

Technology has become a critical factor in guest satisfaction as well as hotel selection. Most of the time, hotels take advantage of their technologies and use them as amenities to help add value, promote differentiation, improve customer satisfaction, and create customer loyalty (Cobanoglu et al., 2011). Besides that, implementing new technology does not always mean that there will be a positive impact on financial performance, even though there is a reduction in staff. These technologies are normally overpriced, however keeping customers satisfied guarantees long-term success, and technology has quite a role in customer satisfaction and hotel selection. Guest-room technologies have become the spotlight of recent industry initiatives to imitate home-based technologies in hotel rooms. In-room technologies are mostly used to provide a more comfortable and safer environment for guests (Jung et al., 2014). Despite that, WiFi is still considered to be one of the most important technologies that can be available in the hotel and the room (Brochado et al., 2016).

This challenges hotels to offer a better experience than a guest can have at home because nowadays people already own a large number of technological devices making it difficult for hotels to find something to differentiate and to WOW the customer (Bilgihan, 2012). Additionally, most technological amenities are needed and/or expected, and considered critical in defining customer satisfaction. This misleads the assumption that employees and facilities influence mostly the guest's satisfaction, therefore some technological amenities are mostly expected and indispensable. (Cobanoglu et al., 2011).

More and more hotel industries are seeking to offer a unique and personalized service to their customer. In-room technologies appeared to provide a safer and more pleasant service to the consumer, for example, having devices in the bedrooms such as voice over IP (used to transfer voice data); In-room pay-per-view; voicemail; in-room accessible outlets; HSIA (high-speed internet access); In-room safe; In-room control panel; Universal battery charger; among others. "In-room innovation civilities, intended to give a more agreeable and safe condition, may incorporate smaller than normal bars, electronic locks, what's more, safes, morning timers, personal computers, theatre setups, atmosphere control frameworks, fire annunciator and security frameworks, and others" (Verma et al., 2020, p.5). Although most of these new trends are a big thing for hospitality, several services do not impact the client in any way, since it is normal for the consumers to already own this (Verma et al., 2020) which makes it essential for the hospitality industry to innovate as much as possible, since guests do want to feel at home when staying at a hotel, but also want something to differentiate their stay (Brochado et al., 2016). Therefore, the main factor in hospitality, regarding technology, is

seeking differentiation and also, achieving distinctiveness. Consequently, managers need to know exactly what type of technology their consumers are looking for and consider dispensable when staying at a hotel (Kozmal et al., 2021). These studies have proven that there is an increasing relationship between hotel guest satisfaction with technology amenities-based on client satisfaction (Verma et al., 2020).

Moreover, consumers have vast access to the internet making the process of understanding the guest's choice crucial. Customers, have access to a variety of alternatives, allowing potential guests to gain access to different alternatives. In contrast, technology can add value to their guests through differentiation. Guests are so used to being surrounded by technological applications that sometimes they do not even notice them, in that matter, they insist on having this before, during and after their stay. This is the key to competitiveness in the hospitality industry, since nowadays most hotels, including budget and mid-priced hotels, take into consideration these factors, offering what best meets their customers' needs. (Kozmal et al., 2021). This means that most of the technological amenities, such as TVs and high-speed internet access are already an expected amenity for hotel guests. Besides that, these industries need to consider that guests already have mobile devices, such as laptops, cell phones, and MP3 players, all of which need to be powered or recharged in the room, therefore it is necessary to have some electric plugs available in the room (Beldona & Cobanoglu, 2007).

Sooner or later, hotels will adapt to an even more innovative strategy, where guests will be able to use their smartphones to access the room as a substitute for magnetic cards. In addition, throughout the years' hotels will also need to install smart rooms, such as door locks, as for the lighting, customers will be able to adjust the lighting of the bedroom through their own devices, texting the concierge, the TV will be in mirrors, smart thermostats which allow the guest to alternate the room temperature through their devices even if they are not currently in the room, light sensors (which also helps to reduce the electricity waste), among others (Kozmal et al., 2021).

1.4 Technology Amenity Guest Satisfaction

Technology Amenities are technological features and services provided by hotels to enhance guests' experiences, including in-room technology, mobile apps, and self-service kiosks, among others (Zhang et al., 2022).

Nowadays, it is difficult to imagine tourists travelling without using artificial intelligence. This was a major issue for the hospitality industry because this is based on the interaction between human beings and service delivery. This happens especially because of Generation Z, a generation that can no longer live or function without technological devices and does not even recognize some devices as technological anymore, since they are already so used to them (Vitezić & Perić, 2021). Thus, consumers have started to decide and choose hotels depending on the available room technology (Erdem et al., 2019). Besides that, the majority of consumers consider in-room technology as complementary to the hotel room and are eager to pay extra to benefit from it (Bilgihan, 2012). Although AI (Artificial Intelligence) has a great role in this industry, it cannot fully replace human interaction, because there are still a lot of people who do not trust these technologies (Vitezić & Perić, 2021).

In-room entertainment is becoming an opportunity for the hospitality industry to generate customized experiences through new revenue streams. Some examples of this consist of personalized welcoming messages on HD television, VOD, high-speed Wi-Fi, interactive TV systems, and video games, among others. These entertainment amenities accessible in hotels have grown over the past years. Nowadays, it is more difficult to know which options are expected from the clients and which ones will impact them positively (Bilgihan, 2012). In addition, this allows guests to benefit from personalized service, while also providing a source of income. Therefore, hotels should start investing more in in-room entertainment and technological amenities. These types of technologies can only impact positively an organization when they fit the customer's needs (Schrier et al., 2010). With this in mind, hotels should examine hotel guests' preferences and how these preferences impact guest satisfaction as well as the guest's behavioural intentions, such as coming back to the hotel or even recommending it to others (Zhang et al., 2022). Some smart technologies that are known to have had a great influence on the hospitality industry, voice-controlled speakers (Google Home and Amazon Echo) are considered to be the most impactable in 2019 (Cao et al., 2022).

There are a variety of in-room technology amenities, including welcome messages on high-definition television, videos on demand, and high-speed Wi-Fi. Most of these amenities allow humans to perform their tasks without any human interactions. This factor can help hotels improve their efficiency and effectiveness since the margin of error is lower (Tavitiyaman et al., 2020). Guests prefer technology amenities that offer convenience, efficiency, and personalization. Indicating that guests' satisfaction with technology amenities positively influences their overall satisfaction with the hotel (Zhang et al., 2022).

In addition, these technologies will be one of the biggest differentiation factors in the hotel industry, through the 21st century (Bilgihan et al., 2016). This happens because throughout the years the traditional customer has suffered some changes. Customers have started to prefer technology-assisted self-service environments. This is more adaptable and efficient for those who already use technology daily (Schrier et al., 2010). Consequently, service technology has become a practical substitute for human service in the hospitality industry. Despite the global acceptance of technologies in service businesses, it remains confronted to find the precise balance between technology and human interactions (Fan et al., 2022).

As mentioned before, in-room technologies can significantly impact a hotel guest's overall satisfaction, meaning that this determines the future behaviour of the customers in the hospitality industry. With this in mind, it is important that a hotel can offer a variety and diversity of resources because this will be considered a vital factor for customers when choosing a hotel as well as define if a client will return. For instance, customer loyalty does not only depend on good service, but yes, the hotel differentiation, for example, a client will want to go to new places or visit new hotels but if the hotel has the right factor of differentiation this will make the customer want that service and hotel, it will make he/she think why they want that specific hotel and not the one next door. (Cobanoglu et al., 2011).

Furthermore, one way to approach clients is to allow guests to choose the in-room service technology option that they prefer and most identify themselves, during the reservation process so that they can perceive higher control. Another way is to generate familiarity with the technological application used in the hotel room, by allowing guests to customize their technological in-room amenities. This will help the guest feel more comfortable and familiar with the devices since they will resemble their individual psychological needs. Besides that, AI is mostly introduced through digital communication technology, like smartphones. The majority of people already own their smartphone devices, and most of them plan their whole trip, hotel, and activities, among others through their devices. It is also possible to find that more and more, there are apps that help with this decision-making and ease the consumer's choices (Fan et al., 2022).

To sum up, guest satisfaction with technology amenities and overall hotel satisfaction significantly contribute to guests' behavioural intentions, including the intention to revisit the hotel and recommend it to others (Zhang et al., 2022). A customer's future behaviour is influenced by a previous experience. Therefore, someone who is used to interacting with technological devices will have a more positive encounter with these technologies than

someone new to this world. The recognition of this type of customer behaviour is very important for hotel managers since it can improve the hotel SERVQUAL (service quality) in a way that can positively impact this environment (Tavitiyaman et al., 2020).

1.5 Adoption of new technologies

Due to the COVID-19 pandemic, the hospitality industry has been forced to offer a contactless service to limit the spread of COVID-19, where the worth of technology has arisen as an alternative to provide safer interactions (Cao et al., 2022). The value offered by smart technologies in this industry lies in the co-creation of a balanced environment between technological intelligence, convenience and humanisation (Yang et al., 2021). Nowadays, it is possible to find studies that allow us to see how luxury hotels are looking forward to adopting new technologies and are willing to spend money on this. With this in mind, they are also eager to invest in security, due to all the trust issues people have with technology because of how easily corrupted it can be (Turisver, 2023).

It is very important for companies to understand guests' motivations and expectations when adopting interactive mobile technologies. Therefore, it is relevant to define three primary factors that influence the adoption process: Perceived Usefulness, is the stronger predictor, where guests perceive that using interactive mobile technologies will enhance their hotel experience, such as accessing information or services conveniently. A technology that allows customers to get what they want when they want effectively. Perceived ease of use, meaning guests' perception of how easy and user-friendly these technologies are to use, and perceived enjoyment, relates to the degree of pleasure or satisfaction guests derive from using the technologies (Zhu & Morosan, 2014). The Article "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology" says that perceived usefulness has a significant impact on user acceptance of Information Technology (IT). When users believe that a particular technology will be beneficial in achieving their goals or improving their work efficiency, they are more likely to accept and adopt it. Perceived ease of use also plays a crucial role in user acceptance. If users perceive the technology as easy to learn and use, they are more inclined to accept it. This study further suggests that these factors are influenced by individual differences, including prior experience with similar technologies, attitudes towards IT and personal characteristics. Additionally, external factors such as system quality and social influence can also impact user acceptance (Davis, 2010).

Hotels have started implementing and embracing new technologies to compete with their marketplace and add differentiation. They do this since they try to keep pace with the guest's

needs and preferences (Zhang et al., 2022). Furthermore, hotels should focus on promoting the perceived usefulness and ease of use of IT systems to increase user acceptance and adoption. By addressing these factors and considering individual and external influences, organizations can effectively implement new technologies and improve user acceptance (Schrier et al., 2010).

Nowadays, consumers can interact with AI-powered voice assistants as they do with actual people. Besides that, this enables clients to customize their in-room services through voice commands allowing them to personalize their stay. These smart devices help some customers to feel accompanied when staying in a hotel, referred to as “automated social presence”. This emphasizes that technology can help as a social representative in place of humans and engage clients on a social level (Fan et al., 2022). In addition, due to the numerous existing smart technologies, customers are continuously increasing their expectations when it comes to technological in-room amenities provided when staying at a hotel. This happens regularly because most guests already own some technological devices and compare their technological devices at home with the devices available in the hotel room. Consequently, non-technological guests despise these technological amenities and are not as familiar with them (Cao et al., 2022). Additionally, since hotels rely mostly on technological amenities, it is important for these organizations to understand the consumer’s motivations that will soon affect their behavioural intentions (Yang et al., 2021). The consumer’s behaviour depends on its willingness to spend more money in order to benefit from a more technological experience. With this in mind, this industry should consider customers’ purchase behaviour with customers’ willingness to consume this service (Zhong et al., 2020).

For example, SVA (Smart Voice Assistant) is known as “internet-connected software which responds to voice commands to provide content and services, interacting with users via digitally generated voice responses” (Cao et al., 2022, p.2). It combines technological developments such as speech recognition, natural language, and artificial intelligence, among others. They have evolved and improved, being able to carry over the context between requests and support multiple languages (Cao et al., 2022). With this in mind, hotels should focus on providing interactive mobile technologies that are perceived as useful, easy to use, and enjoyable for guests. By addressing these factors and considering guests’ individual characteristics and concerns, hotels can promote the adoption of these technologies, thereby enhancing the overall guest experience (Zhu & Morosan, 2014).

SVAs are relatively new devices in the hospitality industry. Not every hotel has these SVAs available, only several large hotel groups have started to introduce SVAs in their hotel operations and service offerings to improve the customer experience. However, some guests do not adapt well to these devices, because they are more concerned with their room privacy and are not familiar with them (Cao et al., 2022). Overall, technological amenities have a significant impact on the decision-making process and service experience. Therefore, smart gadgets have an important role in this business, since the main objective of every hotel is to offer a unique experience and this can happen through the use of smart technological amenities, such as SVA's, smart mirrors, rollable TVs, smart glass in the shower, among others (Yang et al., 2021). Besides the guest experience these devices can offer, there are also some flaws, such as loss of control over personal information. This can happen when this type of information is used without the client's knowledge. This creates a certain concern associated with SVA's data collection and practices since this device records every conversation in the room (Cao et al., 2022).

It is noticeable that there are some advantages of in-room technologies, such as efficiency and effectiveness, but there are also several additional factors that impact adoption, including guests' prior experience with mobile technologies, social influence, and perceived privacy and security concerns (Zhu & Morosan, 2014). Studies say that guests are more likely to adopt interactive mobile technologies when they perceive them as useful in enhancing their hotel experience. The ease of use plays a crucial role as well. Meaning, that when guests find the technologies easy to use and navigate, they are more inclined to adopt them (Zhu & Morosan, 2014).

2. Methodology

The following chapter's main objective is to present the methodology used in this study to better understand all the aspects that drove to this investigation, and how the responses were obtained for this study.

This subject has not been studied a lot previously, therefore the best approach for this study in order to attain the objectives of this project, was through a qualitative study as it places greater emphasis on the interpretation of experiences.

2.1 Research Context

Technology has become so normal that almost all types of hotels have already started using this system in their hotel. However new and advanced technologies tend to focus on higher-category hotels, such as 4-star hotels or 5-star hotels. The present study examines the customer's behaviour and satisfaction, due to in-room technology in Portugal since some hotels have already started to use some modern technology in the rooms.

According to a study by Verma et al. (2020), guests tend to feel more satisfied when staying at a hotel that offers in-room technology. An example of the most known hotel in Portugal that practices in-room technology is Evolution Hotel, a four-star hotel located in the centre of Lisbon. Besides that, hotel, there are also others such as Yotel in Porto, therefore this hotel focuses more on the overall hotel technology itself and not so much on the in-room technology. On the other hand, Yotel recently had to update its marketing positioning, focusing mostly on lifestyle, and losing focus on technology it kept some technological devices such as robots, kiosks check-in, and high-speed technology, among others. Thus, it is possible to see that Portugal has already implemented this concept in some hotels.

With this in mind, the plan is to analyse consumer satisfaction in Portugal. Besides that, also study how hotel managers, can manage this in their hotels, in order to get an overview of guest satisfaction when implementing technology, as well as how they manage their decisions when it comes to technology trends and how they can adapt that to their hotels, or even train their staff to provide these types of services, in other words, to explore and understand how hotel managers perceive and implement in-room technology to enhance guest experiences in the hospitality industry.

2.3 Research Design

For this study, there will be an examination of upscale websites, reviews on online travel agencies, interviews with hotel managers and an internet search regarding the latest in-room technological innovations, to analyse how these technologies can improve customer satisfaction throughout their stay.

Then as for the qualitative phase, an interview will be developed specifically for hotel managers to analyse how they measure what is more efficient for their hotel and if the hotel they run attracts guests who are willing to have in-room technology during their stay, and also if the investment in technology has a positive outcome towards the hotel or if it has the opposite effect regarding customer satisfaction.

This interview will be useful for this study since it will define whether technology and in-room technology have an important and significant impact in Portugal, as well as understand if it is beneficial for the hotel or not, also for staff since it helps employees to work faster and more efficiently, as well as personalize the customers stay or even to respond rapidly to the guest.

2.4 Data Collection and Data Treatment

For this study, an empirical qualitative approach will be utilized to gain a deep and thorough understanding of hotel managers' perspectives on the use of in-room technology to enhance guest experiences. The aim is to gather some information through hotel general managers, who can provide a sample from the past 12 months where they show me how they have implemented technology trends in their hotel and its results throughout the time. Besides that, also try and understand their point of view regarding this theme, focusing not only on technological hotels but also family and leisure hotels and try to understand why they do not invest a lot in in-room technology and if they think, regarding my research and objectives, if it will be an added value for them to have this type of technology in their hotel and if their guests will be willing to adapt to it.

As mentioned above, this study will follow a qualitative structure since it aims to gather specific information and understand how hotel managers adapt to this situation. In order to perform this sample, an interview will be prepared with some hotel managers followed by a case study basing the study on their answers and some further research.

Additionally, this study's results were based on primary data, meaning all the data obtained by the investigator directly to gather in-depth information about their experiences,

opinions, beliefs, or perspectives, aiming to explore particular experiences, meanings, and interpretations.

This method was chosen to capture the leader's voice involved in the study. In other words, despite the existence of an interview script that channels the interviewees, the topic that was under investigation allows the interviewee to develop answers according to the direction that he/she considers most appropriate. This method made it possible to better explore and integrate different questions. Although they could also select some pre-defined answers.

This approach allowed me to better explore certain issues and integrate different questions (of interest to the study) according to how the different interviews unfolded. In addition, the interview is the best way to capture the behaviours, opinions, desires, attitudes, and expectations.

2.5 Participants

The research in question utilized a convenience sampling method, wherein participants were chosen based on their accessibility and proximity to the researcher. While this approach is generally adopted due to its ease and simplified data collection process, it's important to acknowledge that it can introduce biases, as the sample may not accurately reflect the broader population.

In this case, Portuguese hotel managers were selected, from different types of hotels, to get a greater overview of this topic. The interviewees were contacted through email, where they were asked to participate in a study in which the aim would be to understand their opinions, based on their experiences as hotel managers about how they feel about technology's impact on the guests' amenities. Overall, this interview was made to understand whether, in this industry, hotels feel the urge and need to adapt quickly and keep updated with technology trends. Or if it depends on the typology of the hotel, regarding their target audience and if it influences their stay.

Furthermore, to begin the interview it was explained the purpose of this study as well as its objective and how their opinion could help this study's reliability. It is important to state that, due to the position of hotel managers in the hospitality industry, this study was kept anonymous.

Besides that, the purpose was also to try and understand what measure they consider regarding this study, more specifically, how they analyse its profitability for the long term if it is worth the initial investment and if they value technology capacity in their hotel. After

analysing the interviews, it was possible to understand that most of the time the problem with technology in the hospitality industry has to do with the guests themselves and their adaptability to this service.

2.5.1 Ethical Considerations

- The confidentiality and anonymity of participants will be strictly ensured.
- Participants will be provided with clear information about the study's purpose and nature.
- Any potential conflicts of interest will be transparently disclosed and appropriately managed.
- Informed consent will be obtained from all participants.
- Interviews will be conducted either face-to-face or virtually, depending on the participants' preferences.
- A semi-structured interview guide will be employed, comprising open-ended questions to delve into participants' viewpoints, experiences, and practices related to in-room technology and its impact on guest experiences.
- Interviews will be recorded with participants' consent and transcribed verbatim for subsequent analysis.

2.6 Procedure

One of the crucial stages in any research attempt involves the meticulous planning of the interview process and the development of a well-structured interview script. Great care was taken in the construction of the interview script to ensure that the data collected would effectively address the objectives of the present investigation.

The interviewees were contacted via email, where they were invited to participate in a study aimed at understanding their opinions, based on their experiences as managers, regarding the adaptation of technological services in the hotel. This part was very challenging since most of the hotel managers would not respond to the email, making it difficult to reach the number of interviews expected initially. Therefore, it was possible to analyse with a smaller sample, since the hotels that were studied offered different services.

To begin the interview, there was a brief explanation regarding the purpose of this study, and how the interviewee's answers could help this research. Moving on, to the interview structure, this one is divided into four parts.

To begin with, the first part of the interview focused mainly on the hotel managed by an interviewee, such as the type of hotel, how many stars, the technological amenities offered, and finally if they consider technological amenities to have a big impact in their hotel, such as guest behaviour, guest intent of coming back to the hotel, guest recommend, among others.

Furthermore, the second part of the interview consists of a more analytic phase, where the focus is mainly on how hotel managers gather the information that helps them decide which technological amenities they should offer at their hotel, or even if they have suffered situations where they were obligated to change and adapt their technological services with new technology, regarding guest gu or even to maintain a competitive advantage with other hotels.

Moreover, the third part of this interview is directed into a more internal factor, to understand how hotel managers, manage their staff when it comes to technology, for instance, if they use training programs, demonstration methods, manual, internal knowledge sharing, feedback and evaluation, among others. Besides that, it also focuses on how a manager measures the success of these technological amenities concerning guest satisfaction and return on investment.

For this, some options were provided, such as “guest surveys”, “online reviews”, “guest feedback”, and “usage analytics” in other words analysing patterns and engagement levels of technological amenities. “Return on Investment” to analyse the final return from their evaluation of financial investment, “operational efficiency” meaning that if these types of technologies help the operation to be more effective, “guest loyalty”, if guests come back to the hotel due to what the hotel offers and how the customer feels regarding these amenities, among others.

Finally, the last part of this interview aims to understand if these managers find obstacles when implementing technological amenities, such as staff training, and guest education as a lot of guests are not used to this which makes it hard for them to adapt to it, or even, cost and hotel budget, security problems, guest preference, integration with existing systems, among others. Moreover, the purpose of this part is also to better understand how managers maintain a balance between costs and keeping up to date with these technologies since they can have a big impact on the hotels’ costs and budgets since the initial investment is very high. And finally, to gather the manager’s opinions on how they believe technological amenities will impact the future of the hospitality industry.

2.7 Information Analysis

Throughout this topic, I will be profoundly analysing the responses gathered from hotel managers during small interviews. These managers have on-the-ground experience and awareness about the hospitality industry. By picking apart their answers, I hope to find trends and patterns that can help us better understand what's going on in the world of hotels today.

Additionally, it is noticeable that the hospitality industry is changing fast due to technology and changing traveller preferences. Hotel managers are at the forefront of dealing with these changes. By analysing their interview responses, I want to get a clearer picture of the challenges they face, from meeting guest expectations to managing finances, training their staff, and sustainability.

During the analysis, I will be using both numbers and words to make sense of the data. The objective here is to provide a detailed examination of the viewpoints expressed by hotel managers and filter essential insights that can guide strategic decision-making for both individual establishments and the entire industry. Additionally, it's worth mentioning that this study acknowledges the potential restrictions associated with depending exclusively on interview data. Consequently, a methodologically rigorous approach has been employed to uphold the credibility and consistency of the insights produced.

In the upcoming pages, I will be sharing the results that I have put together, regarding the interviews. Hopefully, it will contribute to helping us all understand the hotel industry a bit better and make smarter decisions in this dynamic field.

2.7.1 Significance

This study aims to provide a comprehensive understanding of how hotel managers interpret and employ in-room technology to elevate guest experiences. The outcomes of this research hold the potential to provide valuable insights for the seamless integration of in-room technology, aligning with guest expectations and ultimately enhancing overall guest satisfaction.

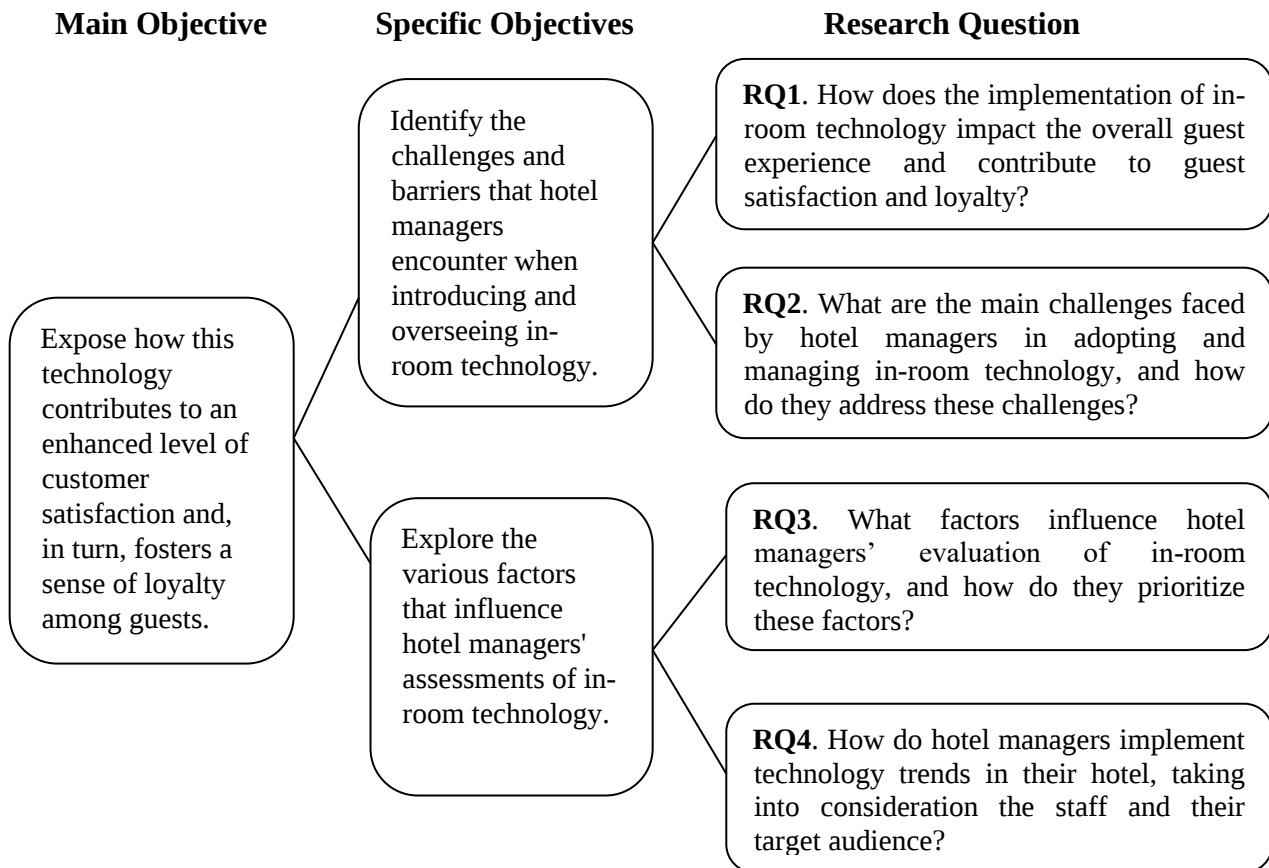


Figure 1 - Diagram of the research model

Source: Author's elaboration

3 Results & Discussion

3.1 Part I

Hotel category and typology

The responses covered a range of perspectives, coming from managers of hotels with 3, 4, and 5 stars. The diversity of perspectives was enriched by the fact that the hotels represented a variety of types, including city break hotels, resorts, budget accommodations, boutique spots, and even technology-focused hotels. This assortment of hotel typologies provided a comprehensive foundation for exploring the subsequent questions in my research.

Most hotels studied were 3-star hotels, which helped me understand the differences between a 3-star hotel and a 4 or 5-star hotel. The demands of each hotel vary depending on that; therefore they should adapt these technologies depending on their marketplace (Jung et al., 2014).

Technological amenities

Moving on from the initial inquiry, the second question took centre stage. This question revolved around understanding the technological amenities that the respective hotels had integrated into their offerings. The responses were quite diverse, given the variation in hotel types. However, there were some common threads across all the hotels. Notably, all of them provided complimentary Wi-Fi access and featured smart TVs in their rooms. Additionally, a notable pattern emerged as five of the interviewees highlighted mobile or self-check-in services.

Furthermore, three respondents mentioned the availability of keyless entry options through mobile systems. It was noticeable that two interviewees spoke about their hotels having dedicated apps that streamlined guest communication. These apps served multiple purposes, including placing orders, addressing complaints, or vice versa, and fostering guest engagement. A unique addition was discovered in one of the hotels, which had a Sonic chair. This innovative piece of furniture allows guests to enjoy Bluetooth-connected music simply by settling into the chair. The combination of such varied technological features showcased the distinctive offerings of each hotel type and set the stage for further insights into the world of hospitality technology.

With that said, it is possible to notice that all the respondents said that they offered free Wi-Fi and smart TV, which makes us notice that regarding the typology of the hotel, these two features are expected in every hotel (Beldona & Cobanoglu, 2007). Besides that, it was

also mentioned, by five interviewees that their hotel offered mobile check-in and mobile keys, this allows the customer to do his own check-in as well as always have their room key, having no need to worry about losing the key or forgetting it. These two features were mostly mentioned in 4 and 5-star hotels.

Impact of technological amenities

Moving forward, the third question aimed to grasp the magnitude of impact that technological amenities held over the guest experiences, ranging from "very low impact" to "very high impact." Remarkably, a significant majority of the interviewees indicated that these technological features carried a high impact on guest experiences. Among the remaining responses, a few expressed the belief that these amenities had a small impact, while another portion considered the impact to be moderate. Finally, one interviewee held the view that technological amenities bore a very high impact on their guests' experiences.

The variety of perspectives on the impact of technological amenities can be attributed to various factors. For those who perceived a low impact, it's possible that they have observed limited engagement or preference from their guests towards these features. They might feel that the traditional aspects of hospitality, such as personal interactions and physical comforts, carry more weight in shaping guest experiences (Brochado et al., 2016).

On the other hand, those who recognized a moderate impact might view technological amenities as contributing to guest satisfaction to a certain extent, without fundamentally altering their overall experience (Verma et al., 2020). These managers may believe that while technology adds convenience, it might not be the primary driver of guest loyalty or satisfaction.

Those who reported a high or very high impact, likely see technological amenities as fundamental components that significantly enhance guest experiences (Verma et al., 2020). They might have witnessed a strong correlation between positive guest feedback and the availability of tech-driven conveniences. These managers could also view technology as a means of staying competitive and meeting the evolving expectations of technologically adept travellers in today's digital age (Kozmal et al., 2021).

In summary, the range of perspectives on the impact of technological amenities reflects the complexity of the hospitality landscape, where various factors influence how technology is perceived by both hotel managers and their guests (Zhang et al., 2022). With this in mind, five of the interviewees believed it to have a "High Impact", while one said it had a "Very

High” impact on their hotel, two believed it had a “Moderate Impact” and finally, two respondents said it has a “Low Impact” regarding their hotel.

Guest Behaviour

Now, moving forward to the fourth question, this segment pursued to determine whether hotel managers have detected any changes in guest behaviour when staying at establishments that provide technological amenities. Notably, two of the interviewees remarked that no discernible differences were observed, at least none that they believed significant. In contrast, the remaining respondents confirmed tangible changes.

Firstly, many attributed these changes to the demand for prompt responses from guests. The increasing desire for immediate assistance, particularly during service disruptions or unexpected problems, has urged a preference for technology-driven interactions. According to Zhu and Morosan (2014). This inclination reduces the expectation that technological ways offer quicker resolutions.

Moreover, an obvious trend emerged regarding the increased interest guests display in accessing digital resources, such as menus, maps, and general hotel information. The appeal of having these resources immediately accessible at any time and from anywhere significantly influences the guest experience. Furthermore, a relevant observation was made regarding guests' decreasing tolerance for lacking Wi-Fi connectivity. In line with Zhu and Morosan (2014), this trend indicates a growing familiarity with the standard services hotels should provide, regardless of the establishment's category.

On the other hand, an intriguing perspective arose, indicating that some guests have elevated expectations for technology-enhanced services. This sentiment is particularly pronounced after their experiences at hotels with advanced technological amenities, often outside Europe. Notably, the historical apprehension towards technology, decreasing from concerns about complexity, has faded over the years. In agreement with Bilgihan et al. (2016), technology's evolution, combined with its integration into society and daily routines, has transformed the landscape. Therefore, hotel guests now fall towards user-friendly and intuitive technological amenities (Erdem et al., 2019). This perceptual change is underscored by the recognition that technology is no longer a mystery but an integral component of modern life.

To conclude, these changes in attitude are demonstrated by the prioritization of technology-enabled services like self-check-in kiosks over traditional check-in methods. This adaptation reflects an evolving preference for streamlined and efficient processes, showing

how technology has been seamlessly embraced to enhance the guest experience. However, only two of the interviewees did not notice any changes in guest behaviour regarding the technological services they offer, all the other respondents believe that the technology offered by the hotel does have an impact on the guest's behaviour since more and more guests depend on it and want quicker solutions.

Therefore, the first research question is considered to be significant:

Research Question 1 (RQ1): How does the implementation of in-room technology impact the overall guest experience and contribute to guest satisfaction and loyalty?

Table 1- Impact of overall guest experience, satisfaction, and loyalty, due to in-room technology

Text	Number of responses
Hotel Category - The need of technology services changes regarding the hotel category. In a 4 to 5-star hotel, the technology it presents has a greater impact on the customer.	10
Wi-Fi/Smart TVs – These two features are expected to be in every hotel room, regarding its number of stars.	10
Self-check-in and keyless entry – Used to ease the customer, making them more independent and not having to wait in line or give their information to someone.	5
Hotel apps – Help the employees and customers communicate throughout their stay, helping the hotel improve their service.	3
Quick Response – Technology-driven to help provide a more sustainable service, as well as reduce the waiting time.	3

Source: Author's elaboration

3.2 Part II

Decision-making procedures

In this question, the aim is to reveal the decision-making procedures utilized by hotels concerning their typology and management strategies. These two factors bear substantial weight in shaping the decision-making process, given their influence on guest expectations.

A notable consensus among the interviewees revolved around the themes of Sustainability and Energy Efficiency. Outstandingly, there was a shared emphasis on prioritizing technologically advanced amenities that align with environmentally conscious practices. This echoes the current trend where sustainability holds significance across industries and among a broad audience.

Further responses also mentioned guest preferences and industry trends emerged as key drivers. The consideration of guest preferences and insights gathered from market research were highlighted as vital components in determining the most desirable technological amenities. Keeping a finger on the pulse of emerging technological trends within the hospitality sector also featured highly.

Moreover, strategically evaluating the costs and potential benefits of each technology amenity was yet another possibility pursued. This approach involves a pragmatic cost-benefit Analysis, allowing hotel managers to assess the financial viability of integrating new technologies.

Additionally, recognizing the transformative value of feedback, interviewees stressed the importance of Guest Feedback. By leveraging surveys, reviews, and direct interactions, hotels seek to purchase guest experiences and insights to shape technological decisions. This goes according to Zhang et al. (2022) when they defend that a customer's future behaviour and intent to recommend will depend on how well the previous stay went.

Focusing on the practical insights of staff members emerged as a significant factor. Involving staff in the decision-making process provides insights into the realism of implementing technological upgrades and utilities in identifying potential challenges.

Besides that, establishing strategic partnerships with Suppliers and technology vendors was highlighted as a collaborative opportunity to explore available technological options. By tapping into external knowledge, hotels can ensure their decisions are well-informed.

Furthermore, in line with, Cobanoglu et al. (2011) the need to remain competitive in the industry landscape was also a driving factor. Competitive Analysis, entailing a study of

technology amenities offered by rivals, assists hotels in standing out within a competitive market.

Finally, the approach of Pilot Programs. This involves conducting trials to assess how new technologies perform and collecting guest feedback before broader implementation. This aligns with what Zhang et al. (2022) defend when the recurring approach enables hotels to adjust their offerings based on real-world experiences.

Altogether, these diverse approaches to decision-making underline the sophisticated considerations that guide hotels' decisions regarding typology and technological amenities (Kozmal et al., 2021). It was possible to analyse that, overall, 7 of the respondents talked about sustainability, I gather that this is such a hot topic, that when it is possible to introduce technology to provide a more sustainable hotel, it makes the hotel more attractive. Nowadays, people tend to prefer sustainable services since it has become an issue throughout the years. Besides sustainability, about 6 participants said that for their hotel they focus mostly on guest preferences and also the benefits that technology can bring to the hotel. To sum up, these were the three most mentioned techniques that help hotel managers decide on which technological amenities to offer at their hotel.

New technological amenities

Moving on to the other question, I questioned whether the interviewee had encountered situations where they needed to enhance or introduce new technological amenities in response to guest feedback or considering competitive pressures from other hotels.

Out of all the interviewees, it's noteworthy that merely two participants indicated the necessity to renovate their technological amenities. Interestingly, both these respondents specifically highlighted changes they made to the Smart TV in their guest rooms, regarding its size and its accessibility. This commonality emphasizes the significance of this amenity in granting the development of guest preferences and staying aligned with industry trends (Beldona & Cobanoglu, 2007). According to Cobanoglu et al. (2011), these occurrences of targeted technology updates illustrate a proactive approach to enhancing guest experiences and keeping pace with competitive dynamics within the hospitality landscape.

With that said, it takes us back to the first part of the interview, where it was possible to notice that hotel guests are already expecting to have a smart TV in the room (Beldona & Cobanoglu, 2007), therefore despite the typology of the hotel, they all offer Smart TV service. To sum up, 8 interviewees until today, never needed to update their technology services due to guest feedback.

Therefore, the second research question is considered to be significant:

Research Question 2 (RQ2): What factors influence hotel managers' evaluation of in-room technology, and how do they prioritize these factors?

Table 2 - Influencing factors hotel managers evaluate when implementing in-room technology

Factors	Number of responses
Sustainability and Energy Efficiency: Prioritize environmentally responsible technology amenities.	10
Research and Guest Preferences: Analyse guest preferences and market research to determine desired technology amenities.	6
Cost-Benefit Analysis: Evaluate the costs and potential benefits of each technology amenity.	6
Industry Trends: Stay updated on emerging technology trends in the hospitality industry.	5
Guest Feedback: Seek feedback from guests through surveys, reviews, and direct communication.	4
Partnerships and Suppliers: Collaborate with technology vendors and experts to explore available options.	3
Staff Input: Involve staff members to gather insights on feasibility and implementation challenges.	2
Competitive Analysis: Study technology amenities offered by competitors for differentiation.	2
Pilot Programs: Conduct trials to assess performance and gather guest feedback.	2

Source: Author's elaboration

3.3 Part III

Staff Training

In this section of the interviews, the focus shifted to understanding how the managers oversee staff training in using and troubleshooting the technological amenities offered by their hotels. Through these questions, I aimed to reveal the various strategies hotels employ to ensure their staff can effectively handle the technological offerings.

The managers I interviewed shared several effective methods they employ to ensure their staff is well-prepared to handle the technological amenities offered by their hotels. These strategies collectively contribute to enhancing guest experiences and maintaining smooth operations within the establishments.

Following are the key approaches they mentioned:

Training Programs: They develop comprehensive training programs that provide their staff with a deep understanding of how to use and troubleshoot various technology amenities. These programs ensure that their employees are well-equipped to assist guests with any technological needs they might have.

Hands-on Demonstrations: Practical demonstrations are an integral part of their training process. By showing their staff how each technology amenity works in a hands-on manner, they ensure that their team members are familiar with the equipment and can guide guests effectively.

Dedicated Training Sessions: Some managers conduct specialized training sessions solely focused on technology amenities and troubleshooting techniques. This targeted approach helps staff members develop specific skills related to managing these amenities.

Ongoing Training: They emphasize continuous learning by offering regular training sessions and refresher courses. This keeps their staff up to date with the latest technological features and ensures that they remain confident in assisting guests.

Collaboration: Partnering with technology vendors for training sessions or webinars allows their staff to gain insights directly from experts. This approach enhances their ability in handling these amenities and addressing any related issues.

Internal Knowledge Sharing: Encouraging their staff to share their knowledge and best practices among themselves creates a collaborative learning environment. This collective sharing of expertise enhances the overall competence of the team.

Feedback and Evaluation: Actively seeking feedback from their staff about the training processes helps them refine their training methods. This feedback loop ensures that their training programs are effective and responsive to their staff's needs.

Through these proactive training methods, hotels cultivate a skilled workforce capable of confidently managing technological amenities. This competence not only helps in providing excellent guest service but also positions the establishments to meet the demands of digitally knowledgeable travellers in today's hospitality landscape (Jung et al., 2014).

In conclusion, it was possible to note that most responses, at least 7 invest in training programs, in order to help the staff. Besides that, the second most mentioned method was through practical demonstration, where they take the time to personally teach the staff how to use the technological amenities.

The outcome of these amenities

Additionally, I explored their methods for measuring the success of these amenities in terms of guest satisfaction and return on investment (ROI). Moreover, studying how these establishments judge the impact of these amenities on guest experiences and financial outcomes thrives on the stronger implications of integrating technology within the hospitality sector.

The managers I spoke with outlined a range of measures they employ to assess guest satisfaction and evaluate return on investment (ROI) concerning the technological amenities offered by their hotels. These methods collectively assist in understanding the effectiveness of these amenities in enhancing guest experiences and their financial implications.

Bellow follows the key measures they mentioned:

Guest Surveys: Conducting guest surveys helps them gather direct feedback from guests about their experiences with the technological amenities. This firsthand input provides insights into guest satisfaction levels.

Online Reviews: Monitoring online reviews gives them a pulse on how guests perceive the technology amenities. By analysing guest comments and ratings, they gain valuable insights into the impact of these amenities on guest satisfaction.

Guest Feedback Forms: These managers use dedicated guest feedback forms to specifically capture input related to the technology amenities. This focused approach ensures that they are gathering targeted insights on these offerings.

Usage Analytics: Using analytics tools, they analyse usage patterns and engagement levels of the technology amenities. This data-driven approach provides quantitative insights into how guests are interacting with these features.

Return on Investment Analysis: They evaluate the financial investment made in implementing these amenities and compare it against the returns generated. As reported by Jung et al. (2014) this analysis helps them assess the financial viability of these offerings.

Operational Efficiency Metrics: In line with what Zhu and Morosan (2014) defend, they measure how the technology amenities impact operational efficiency. This includes factors like updated processes, reduced service times, and improved resource allocation.

Guest Loyalty and Repeat Business: As reported by Zhang et al. (2022) they track whether the availability and quality of technology amenities contribute to guest loyalty and repeat business. Satisfied guests are more likely to return, and this measure helps estimate the long-term impact.

Comparative Analysis: They perform comparative analyses, comparing guest satisfaction and financial metrics when technology amenities are available versus when they are not. This provides insights into the direct impact of these offerings according to Zhang et al. (2022).

Benchmarking: These managers benchmark the performance of technology amenities against industry standards or competitors. This external perspective helps them evaluate how well their offerings stack up.

Staff Feedback: They consider staff feedback as an internal indicator. The insights and observations of the staff who directly interact with guests provide a valuable perspective on the effectiveness of these amenities.

By employing these comprehensive measures, hotels gain a holistic understanding of how technological amenities impact guest satisfaction and financial outcomes. This data-driven approach guides decision-making, enabling these establishments to refine their offerings and enhance their guest experience (Bilgihan, 2012). With this in mind, it was possible to extract that all of the interviewees measured the success of their technological services through online reviews. Nowadays, online reviews have a very powerful impact on hotels, since all the guests have access to it and can easily stain the hotel's image. Besides that, more and more people tend to choose their hotel through online reviews, therefore all of the managers take online reviews into account so seriously.

Therefore, the fourth research question is considered to be significant:

Research Question 4 (RQ4): How do hotel managers implement technology trends in their hotel, taking into consideration the staff and their target audience?

3.4 Part IV

Obstacles faced by these technologies

It is evident that the implementation of technology within hotels comes with its share of challenges. These challenges, though varied, offer a comprehensive glimpse into the difficulties of integrating technological amenities. Therefore, in this part, I will start by analysing the obstacles managers face when implementing new technological trends.

Bellow follows the challenges faced by most of the managers interviewed:

Infrastructure Compatibility: One recurring challenge is aligning the new technology with existing infrastructure. The diversity of systems and technologies in place can make whole integration a complex attempt.

Staff Training and Adoption: The process of training staff to effectively use and troubleshoot new technology amenities can be a significant hurdle. Ensuring that the team is well-informed and comfortable with these amenities is crucial for consistent guest experiences.

Guest Education and Familiarization: Introducing guests to new technology demands clear communication. According to Brochado et al. (2016) educating and acclimatizing guests to these amenities can be challenging, especially for those who are less familiar with technology.

Technical Issues and Downtime: The occurrence of technical faults and periods of downtime can disrupt guest experiences. Rapidly addressing these issues while maintaining smooth operations presents a continuous challenge.

Cost and Budget Constraints: Striking a balance between integrating advanced technology and adhering to budget limitations is an ongoing consideration. Regarding Kozmal et al. (2021) allocating funds in a way that introduces new amenities without compromising quality requires careful planning.

Integration with Existing Systems: Ensuring that new technology effortlessly integrates with established systems can be a challenge. Compatibility and integration concerns can arise, necessitating meticulous planning to avoid disruptions.

Maintenance and Upgrades: Sustaining the functionality and relevance of technology amenities requires regular maintenance and timely upgrades. Addressing this challenge is crucial to prevent disuse and uphold guest satisfaction.

Security and Data Privacy: Protecting guest data and maintaining security poses a significant challenge. Ensuring that technology amenities are fortified against potential violations or data leaks is of vital importance which goes in accordance with Zhu and Morosan (2014).

Guest Resistance or Preferences: Acknowledging that guest preferences vary, some individuals may resist the introduction of new technology. Striking a harmonious balance between accommodating different preferences and embracing innovation is a complex challenge which aligns with Zhang et al. (2022).

To sum up, by proactively understanding and addressing these challenges, hotels can navigate the complex environment of technology integration. These insights offer valuable guidance in implementing technology amenities effectively, elevating guest experiences in the process. The most common obstacle for this measure is the infrastructure compatibility, 8 of the interviewees face this obstacle. From talking to the hotel managers who mentioned this factor, it was possible to understand that this happens because most of the hotels were not built with the evolution of technology in mind, therefore it makes it hard for hotel managers to adapt to every technology trend, they must consider what they can use in their hotel.

Balance – Offering new technologies and cost control

In addition, in the next question placed on the interviewees, the focus shifts to understanding how managers proficiently manage the delicate balance between the ambition to offer new technological amenities and the necessity to control costs cautiously.

Several effective approaches were mentioned throughout the interviews:

Cost-Benefit Analysis: Managers carefully evaluate the potential costs and benefits of each technology amenity. This method ensures that investments align with the value they bring to guest experiences which goes in line with Cobanoglu et al. (2011) study.

Prioritization: Prioritizing technology amenities based on their impact and relevance helps managers allocate resources where they will have the most significant effect as stated in the article written by Kozmal et al. (2021).

Long-Term Planning: Taking a long-term approach, managers incorporate technology amenities into their long-term strategies. This way, investments are strategic and aligned with the hotel's future vision.

Strategic Partnerships: Collaborating with technology vendors and experts allows managers to access expertise and resources that support the cost-effective implementation of technological enhancements.

ROI Analysis: This analysis is a pivotal measure. By assessing the returns generated by technology amenities against the initial investments, managers ensure cost-effectiveness (Jung et al., 2014).

Guest Preferences and Value Perception: Understanding guest preferences guides managers in adapting technology amenities to what guests truly value. According to Zhang et al. (2022), this ensures that investments are targeted and well-received.

Operational Efficiency: Evaluating how technology amenities enhance operational efficiency offers insight into the cost-effectiveness of these enhancements.

By employing these approaches, managers adeptly navigate the implied challenge of incorporating technology while staying mindful of financial considerations. These methods ensure that technology amenities align with both guest satisfaction and the bottom line (Jung et al., 2014). Therefore, what helps most of the hotel managers to conduct the balance between offering new technologies and controlling the hotel cost, is analysing how technology can benefit their hotel and decide whether the cost is worth it or not.

Managers' perspective for the future

To conclude the interview, the final question centres on the perspectives of the managers. It digs into their viewpoints on how they envision technological amenities shaping the trajectory of the hospitality industry in the future and the justification behind their beliefs.

Below are the main points of view mentioned throughout the interviews:

Enhanced Guest Experience: Hotel managers simultaneously view technological amenities as a mechanism for elevating guest experiences. By integrating advanced technologies, they believe guests will enjoy a heightened level of convenience, customization, and overall satisfaction (Bilgihan et al., 2012).

Operational Efficiency: Technology will update operations. Automation and digital tools are anticipated to enhance efficiency, enabling staff to focus more on personalized guest interactions and seamless service delivery.

Improved Communication: Managers envision technology as a bridge for improving communication. With tech-driven communication platforms, they expect guests and staff to interact more effectively, leading to quicker responses, better coordination, and enhanced guest-staff interactions.

Data-Driven Insights: Technological amenities are anticipated to harvest valuable data insights. These insights are seen as integral for understanding guest preferences, behaviours, and patterns, which in turn will empower hotels to adapt experiences more effectively.

Sustainable Practices: Sustainable practices are a focal point in the future. Managers anticipate technology playing a fundamental role in promoting environmentally conscious operations. They see smart energy management and reduced resource consumption as central to their sustainability goals.

Differentiation and Competitive Advantage: Hotel managers recognize technology as a tool for differentiation in a competitive landscape. They believe that innovative technological amenities will set their establishments apart, attracting technology modern travellers and enhancing their market positioning.

Remote Guest Accessibility: Remote accessibility is a key theme. Managers foresee guests having increased control over their stays through technology. Features like mobile check-in, digital concierge services, and app-based room controls are anticipated to become standard.

To sum up, these viewpoints describe a future where technology is prepared to reshape the hospitality industry. Enhanced guest experiences, operational efficiencies, and sustainable practices are anticipated outcomes. These were the facts that all of the interviewees shared in common. The integration of data-driven insights, along with differentiation and remote accessibility, is expected to define the industry's path forward. These perspectives reveal a dynamic landscape where technology serves as a linchpin for evolution and innovation in the world of hospitality.

Therefore, the third research question is considered to be significant:

Research Question 3 (RQ3): What are the main challenges faced by hotel managers in adopting and managing in-room technology, and how do they address these challenges?

4 Final Considerations

4.1 Conclusions

In summary, this research sheds light on the elaborate relationship between in-room technology and the hospitality industry, particularly in the context of Portugal. By exploring the various dimensions outlined in the introduction, we gain a more subtle understanding of how technology and customer experiences intersect.

It was clear to me that this study stresses that the impact of in-room technology on guest satisfaction is far from a one-size-fits-all scenario. The opposite preferences between regions, like Asia and Europe, emphasize that technology's role is contingent on cultural and individual factors. The contrast of technological preferences among different generations and societies highlights the multifaceted landscape that hotels must navigate. This leads us to RQ1 since there were interviewees who believed that technology does not impact the guest. But on the other hand, most respondents stated that more and more, clients rely on technology due to its rapid response and expect fast and rapid solutions from it. When considering O1, it is noticeable that the hotel typology also influences the guest expectation, so if we are considering a 3-star hotel the expectations are lower than a 5-star hotel, when consumers pay more for a service they expect more. In this case, they will expect that in a 5-star hotel, the technology offered is more efficient and innovative than in another hotel.

In addition, what emerges clearly in my opinion, is the necessity for a balanced approach. While technology undoubtedly streamlines processes and opens avenues for innovation, it should be seamlessly integrated to complement, rather than overshadow, the human-centric nature of hospitality. This topic answers RQ2, whereby analysing the respondent's answers that there must be a balance when it comes to implementing technological features, most of the interviewees say that cost control and prioritization are the most important, basically to know when the right time for their hotel is and consider what are their guests needs before. Moreover, the reveal of technological amenities available to hotels accentuates the need for tailored strategies. Quick Response (QR) codes, recognition technology, and other advancements must be selected and employed cautiously, considering the specific preferences of guests and the local environment. This takes us to RQ4, since most of the respondents have a lot of challenges when implementing technologies, due to infrastructure resources, and guest education because of the typology of the hotel some hotels have specific guests who are not interested in having technological resources. And of course, the cost of these amenities, most hotel managers struggle with the cost of these technologies since the initial cost is very high.

However, they also state that the outcome in the future is much better when investing in these technologies. With this said it is possible to conclude that there are various factors that impact the decision-making when it comes to new technological trends.

Likewise, this research benefits from insightful discussions with Hotel General Managers, offering on-the-ground perspectives that shape a logical framework for integrating technology. The comprehensive analysis of scientific literature and industry trends provides a glimpse into the evolving landscape of hospitality technology.

In the Portuguese context, where technological adaptation varies across generations and demographics, in-room technology's role is complex. I was able to analyse that its potential is palpable, yet its complete integration is a journey that's still underway. As attitudes evolve and technology becomes more universal, the hospitality industry faces the challenge of embracing progress while upholding the core values of guest satisfaction.

In conclusion, this study serves as a guiding compass for hospitality stakeholders and researchers, advocating for a thoughtful and strategic approach to incorporating technology. At its core, this proposition underscores the significance of understanding the diverse range of guest needs and preferences. Taking us to RQ3, by acknowledging the challenging interplay of individual desires and cultural disparities, the industry can tailor technological implementations to resonate deeply with its diverse consumers. This topic guides us to O3, where it is possible to state that hotel managers are driven to adapt to these technologies based on data. So, if guests are asking for more technology, and they complain about the resources available, then the hotel managers will act since they need to prioritize the hotel's needs as well as the consumer's. The idea of "embracing innovation" transcends simple adoption, encompassing the artful blending of modernity with cherished hospitality traditions and still providing what the guests want and expect. As technology continues its rapid evolution, its partnership with the world of hospitality promises to be a captivating narrative to observe.

4.2 Theoretical and practical implications

As I mentioned before, technology is not something new in the world, but we can make more use of it and take more advantage of it. While studies on public perceptions of technology are abundant and easily accessible, the landscape of in-room technology has received comparatively limited attention, indicating an underexplored field of research.

With this in mind, there's a significant gap in our understanding that calls for more extensive exploration. This presents a valuable opportunity for future research. Specifically, examining into the world of in-room technology is crucial to uncover how hotel managers can

truly make the most of it to offer more sustainable, efficient, and effective services to their customers. This incorporates understanding how both staff and customers adapt to and trust these technological advancements, while also focusing on encouraging security measures.

There are still so many questions surrounding this topic to be answered. By navigating into this territory, I have the chance to demystify uncertainties and lay the base for future progress. The insights drawn from this study not only bridge current gaps but also provide a roadmap for scholars and industry experts to embark on meaningful research paths. In essence, this study not only addresses existing questions but also serves as a guide, steering us towards new research avenues that promise to shape the future of in-room technology in the hospitality sector.

4.3 Suggestions for future research

In the future, researchers can take different ways to study deeper into the theme of in-room technology and its influence on the hospitality industry. Following are some examples that can help future investigations.

Firstly, in my opinion, case studies could track the evolution of technology adoption in specific hotels over time, calculating its impact on guest satisfaction and operational efficiency. Moreover, guest surveys and feedback analysis can offer insights into guest preferences and challenges they face with technology, this will help understand the guests' preferences when implementing technology. Comparative studies across different cultural contexts can clarify on how cultural factors shape technology integration.

In addition, exploring how hotel staff adapt to technology through training programs is a promising avenue, as is investigating the design and layout of smart rooms to enhance guest interactions. Researchers can also examine the perception between technological amenities offered by hotels and guest expectations. Moreover, I think that trust and security insights can be explored, considering guest comfort with data security and privacy, since it is one of the manager's obstacles.

Sustainability and energy efficiency in the context of in-room technology can also be an area of exploration since this has also become a hot topic throughout the years, due to the sustainability problems the world faces. Besides that, researchers can judge the environmental impact of technology use and evaluate its potential to contribute to eco-friendly practices. Furthermore, examining emerging technological trends, like improved reality or voice controls, can provide insights into their potential impact on guest experiences.

To sum up, collaboration with the hospitality industry can harvest practical insights through real-world testing of technologies in hotel settings. Overall, the multifaceted nature of in-room technology and its interactions with guest experiences ensure an overflow of exciting research avenues for the future.

4.4 Limitations

Through this study, I encountered some challenges during its progress. Initially, the aim was to conduct a sample of around 20 interviews with hotel managers. However, it proved to be a difficult task to achieve this goal. Establishing communication with these managers stood significant difficulties. Therefore, I was only able to conduct a sample of data saturation of 10 hotel managers, with distinguishing hotel typologies.

The task of securing interviews with hotel managers, as envisioned in the initial plan, encountered unexpected hurdles that stemmed from the dynamic and multifaceted nature of the hospitality industry. Hotel managers often contend with busy schedules and an excess of operational demands, which understandably limit their availability for interviews. This challenge underscored the intricate balance that researchers must strike between the research's ambitious scope and the practical constraints caused by real-world factors. In addition, Research doesn't always go as planned, and unexpected problems can pop up. This challenge reminded me that doing research means dealing with real situations that do not always follow our expectations. However, I want to stress that this challenge doesn't make the study less important, the study still offers useful insights into how technology and hotels connect.

Besides that, a notable limitation was the lack of resources specifically dedicated to in-room technology in the context of the hospitality industry. Most existing articles tended to focus on technology in a broader context, rather than focusing mainly on a specific type of technology.

This limitation highlighted the difficulty of exploring a field with limited access to relevant information, much of which only roughly related to the specific focus of the study. Despite the quest for thorough insights into the difficulties of in-room technology, the lack of specialized resources posed a significant obstacle to achieving a comprehensive perception of the subject.

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ATTACHMENT A – Interview Questionnaire

Part I

Question 1

What are your hotel characteristics?

Question 2

What technological amenities do you have in your hotel?

Question 3

Do you think that these amenities have a big impact on guest experience and satisfaction? From very low impact to very high impact.

Question 4

Have you noticed any changes on guests' behavior, regarding in-room technology?

Part II

Question 5

What are the key decision-making procedures that hotels employ, considering the hotel typology and management strategies?

Question 6

Have you ever encountered situations where you needed to adapt new technological amenities, due to guest feedback or competitive hotels?

Part III

Question 7

How do you manage staff training when using and troubleshooting technological amenities offered by the hotel?

Question 8

What are the methods used to measure the success of these amenities, regarding guest satisfaction and return on investment?

Part IV

Question 9

What are the obstacles you as a general manager face when implementing new technological trends?

Question 10

As a hotel manager, how do you manage the balance between the ambition to offer new technological amenities and the necessity to control costs cautiously?

Question 11

How do you envision technological amenities shaping the future of the hospitality industry, and why?