The influence of smart hotel app features on five-star hotel guests booking intention

Master Thesis submitted in fulfillment of the Degree

Master of Science

Innovation and Experience Design for Tourism (IDT)

Submitted to Dr. Jason Stienmetz

Felix Fischer

1802012

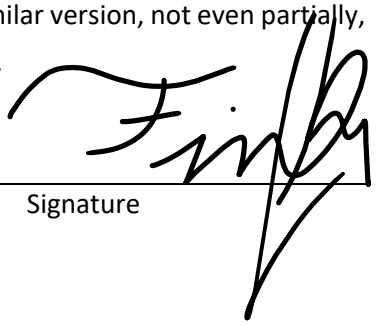
Vienna, 9th November 2021

AFFIDAVIT

I hereby affirm that this Master's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

09.11.2021	Felix Fischer
Date	Signature



ABSTRACT

The world is smart. Recent developments in information and technology systems triggered the birth of smart tourism, among many other trends. Smart tourism describes linking information technology and tourism to enhance the tourism experience by extensive information exchange. This linkage has a tremendous impact on tourists' behavior. (Pencarelli, 2020)

Especially the five-star tourism industry is unique in its nature and highly service-oriented and is known to strongly rely on human exchange in the service delivery processes to satisfy the guest's need. (Slattery, 2002) This paper aims to understand how the latest advancements in smart hotel apps impact the booking intention of a five-star hotel guest. Therefore, the author will examine how smartness affects premium hotel guests' booking intention, how price-sensitive these guests are regarding room rates of smart featured rooms, and which smart hotel app is the most preferred.

The first part of this thesis is a literature review, which analyzed and summarized the available literature on smart tourism, smart hotels, consumer behavior of smart five-star hotel guests, and smart hotel app features.

The paper further draws attention to challenges smart hotel apps bring along, such as security concerns or consequences of digital traces and usage requirements for guests such as usefulness and ease of usage which ultimately impact the acceptance of smart hotel apps. (Han et al. 2021)

The second part of this paper is an empirical study consisting of a questionnaire that evaluates five-star hotel guests' booking intention with smart hotel apps. The study results will allow the author to conclude if the availability of smart hotel apps in the five-star hospitality industry is developing and shaping guest behavior so that modern luxury is associated with convenience and stronger technology-based control or continues to rely on human interaction with concierges service. Furthermore, the author will conclude if five-star hotel guests are willing to pay more for a smart featured hotel room.

The author applied the simple linear regression model to analyze the relationship between parameters of the defined research model (Buhi. et al. 2007)

The study confirmed that the majority of five- star hotel guests do see an added value of using smart hotel apps in the pre-trip phase. Obviously critical usage requirements such as usefulness ease and security of usage need to be met as these are the key influence factors of a positive attitude towards smart hotel apps and ultimately decide whether smart hotel apps are accepted by travelers.(Han, 2011) Not surprisingly is, that the author identified that with increasing age a decreasing acceptance of smart hotel apps is applicable.

The last part of the thesis is the future research that discusses on the one side the potential of future studies on the influence of smart technologies on the booking behavior in budget as well as mid – ranged hotels. On the other side the future research part highlights opportunities for five-star hotels by using smart technology such as robotic technology or personalized futuristic services to revolutionize the tourism industry again. (Mingotto et al. 2020)

ACKNOWLEDGEMENTS

First and foremost, I want to thank my supervisor, Dr. Steinmetz Jason. I am very thankful that I had the opportunity to write my thesis 'the influence of smart hotel app features on five-star hotel guest's booking intention' under his supervision. His expertise paired with his continuous guidance and his exceptional patience were extremely helpful to complete this thesis.

Secondly, I want to thank my parents, Verena and Robert, for their endless support. They have always stood behind me and shared the link for my survey with their friends, as they were the right target group for this survey.

Thirdly, a big thank you goes to my partner Stefanie for distributing the questionnaire at the hotel, while I was not there.

Finally, I want to use the opportunity to thank my sister Marie and her boyfriend Christian for proofreading my thesis.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AC: Air Condition

APP: Application

BLE: Bluetooth Low-Energy

CB: Consumer Behavior

CRS: Customer Service Relations

GPS: Global Positioning Systems

ICT: Information and Communication Technology

IoT: Internet of Things

OTA: Online Travel Agency

PMS: Property Management System

QR Code: Quick Response Code

RFID: Radio Frequency Identification

STE: Smart Tourism Ecosystem

TAM: Technology Acceptance Model

TRAM: Technology Readiness and Acceptance Model

TRI: Technology Readiness Index

UNTWO: World tourism organization

WIFI: Wireless Fidelity

WKO: Wirtschaftskammer Österreich

1 INTRODUCTION

1.1 Background

Over the past decades, the world has been changing and has become much more interwoven. One of the main drivers for becoming a truly global marketplace were globalization with free trade and the ease for tourists to cross borders, global transportation systems, the launch of the internet, and the latest developments of smart information and communication technology.(Weber, 2008) The developments in information and communication technology created possibilities that no one could think of or imagine fifty years ago.(Ristova, 2019) These constant information and communication technology improvements have transformed our world into a sustainable, safe, innovative, competitive, and global marketplace. (Hunter et al., 2015). Further, the latest advancements in cloud computing, open and big data, internet of things, wearable devices, and social networks shaped many industries, including the tourism industry. (Bethapudi, 2013).

The implementation of novel information and communication infrastructure in the tourism industry led to smart technology deployment. Thus, allowing smart tourism destinations to enhance a tourist's consumer experience by customizing their vacation. (Lamsfus et al., 2015)

Gössling (2020) claimed that the Covid pandemic in 2019 completely changed how individuals lived, worked, and enjoyed their lives. In particular, it affected all service-related industries that have had to close down their businesses, depending on the geographic region, for almost a year. The impact on the profitability of restaurants, hotels, or airlines is dramatic. All players of the service industry are more than ever before challenged to differentiate themselves from other competitors.

Ghada and Shimaa (2020) explained in their research paper that for hotels smart hotel apps can facilitate this differentiation. On the one hand, smart hotel apps could support satisfying customers' needs most innovatively and effectively. On the other hand, contactless services can reduce the risk of getting infected with the virus.

Thus, with his literature review and empirical study, the author examines how the implementation of smart hotel apps can influence the booking intention of a five-star hotel guest in the pre-trip phase of the customer journey.

1.2 Motivation and problem statement of thesis

The author is a passionate hotel director, with a special career focus on five-star premium hotels. During his professional career, the author has seen various five-star luxury hotels with varying service quality standards across three continents. Even though the standards of those five-star hotels

were slightly different, they all had in common their decision to invest intensively in human resources to satisfy their hotel guest's needs. To date, most hoteliers believe that a five-star hotel needs to invest in staffing to stay competitive and deliver higher service quality to their customers. (Uysal, 2015) Aynalem et al. (2016) highlighted that high use of the workforce can be notably expensive depending on the country since labor costs vary from country to country.

With the latest development of smart technology, hotels have the opportunity to automate processes, react on needs of customer's faster and to deliver better service quality. Obviously, this new way of working allows hotels to different themselves from their competitors. (Gretzel et al. 2015)

Ghadaa and Shimaa (2020) dived deeper into the differentiation potential of hotels and researched, that firstly traveler's experience can be enhanced by offering information – based customized service. Secondly, these features allow a more direct and faster interaction with hotel guest and thirdly, hotels can make intelligent decisions based on gathered customer data which can lead to a higher customer satisfaction.

However, before justifying investments and transform a hotel into a smart hotel, it is necessary to evaluate if five-star premium hotel guests are willing to use smart hotel apps and how the availability influences their booking intention. Therefore, this paper is an excellent opportunity for the author to analyze which smart hotel apps can influence the customer's booking intention of a five-star hotel guest and how smart apps can boost a guest's experience in the pre-trip phase. A detailed outline of the objective of the thesis can be found in the following chapter.

1.3 Objective of thesis

As mentioned above, this thesis's main objective is to analyze how smart hotel apps influence the booking intention of a five-star hotel in the pre-trip phase along the customer journey. The customer travel journey is determined by three main phases: the pre, active, and post-trip phases. The pre-trip phase can be further divided into the dreaming, planning, and booking stage. The holiday experience itself dominates the active trip phase, while in the post-trip phase, the reflection starts. Usually, in the last trip phase, memories of the trip are shared and evaluated. Hence the travel experience grows over a long period which is shown in figure 1. (Benckendorff et al. , 2014)

FIGURE 1: CUSTOMER TRAVEL JOURNEY

SOURCE: AUTHOR, 2021

To reduce the thesis scope, the author focuses only on the pre-trip phase of the customer journey. Benckendorff et al. (2014) argued that the pre-trip phase is a crucial part of the travel journey as it is very special because this phase is experienced by the guest no matter if the trip will happen or not.

As mentioned above the overall goal of this thesis is to examine if the availability of smart hotel apps influence customer's booking intention in the pre-trip phase. It needs to be identified which factors drive the acceptance of smart hotel apps and ultimately affect the booking intention of a premium traveler. In the empirical study, the author wants to examine which factors influence the user's acceptance of smart hotel apps by using the user acceptance model (TAM) and extending it by other determinants such as price, age, and customer loyalty. The author wants to understand if modern luxury is associated with convenience and more robust technology-based control or if the concept of luxury still relies on human interaction with butlers and human concierge service in relation to price. Finally, it needs to be investigated which smart hotel app is for a traveler the most attractive in a luxury hotel room. In the literature review, the author covers both sides: the customer and hotel perspective of the advantages and disadvantages of smart hotel apps. In the empirical study, the author focuses on researching customer behavior towards smart hotel apps and if five–star hotel guests are willing to pay a higher room price if value-adding smart hotel apps are available in a five-star hotel room.

1.4 Thesis method (literature review & empirical study)

The author adopted a literature review approach to investigate all available propositions on the acceptance of smart hotel apps, including the purchase intention of a five-star hotel guest. In chapter 2, the author reviews the literature with the overall goal to summarize the available literature related to:

- the smart five-star hospitality industry
- smart technology including the smart hotel concept
- smart tourism behavior in the pre-trip phase
- and the influence of smart hotel apps on the booking intention

As mentioned in chapter 1.3, this thesis aims to contribute to the five-star hotel industry by analyzing how smart hotel app features can influence the booking intention of a hotel guest of a five-star hotel room. In chapter 2.7, the author presents the research model and hypothesis. This is followed by the research methodology of the empirical study in chapter 4 to prove his thesis with statistical analyses of a conducted field research. The author conducted a quantitative research model for empirically testing, using a survey methodology to test the phrased hypotheses. Based on his extensive literature review, the author developed a questionnaire with 17 questions that 302 participants answered. The questionnaire included demographic variables to identify hotel guest's profiles for a more representative result. The sample aims to equally present men and women and age generations. All questions were closed questions with response options ranging from strongly agree to strongly disagree and very likely to very unlikely. More on the empirical study can be found in chapter 4 and a detailed view of the questions in the appendix.

2 LITERATURE REVIEW

2.1 A smart world

Eat smart, think smart, or travel smart. Siegele (2010) mentioned in the Economist that the world is smart and so it is the five – star hospitality industry as well. Buhalis & Leung (2018) said that smart is a word with five letters but with a massive impact on the way individuals are used to live. Gretzel et al. (2015) argued that the buzzword smart has its origin in the English language and means clever, intelligent, ingenious, or slick. Kotler et al. (2007) explained that in a marketing context, smart stands for specific, measurable, achievable, realistic, and time bounded.

Since smart has become such a powerful term and is part of our daily lives, we can find many definitions, frameworks, and concept descriptions in the academic literature. The Oxford dictionary (2021) described smart in a technology context as an application with independent actions. Hope (2015) defined smart as a technology that works without human interaction. Derzko (2006) specified smart with six dimensions: adapting, sensing, inferring, learning, anticipating, and self–organizing. In contrast to Derzko, Debnath (2014) described the nature of smart as sensing, processing, controlling, communicating, and adds predicting, healing, and preventing. In a business context, Gretzel et al. (2015) used the term smart to describe resource optimization supported by technology. Marine Roig (2015) stated that a significant percentage of the population links smartness only with data and technology. However, smartness in its essence ensures that the right decisions are made by using the right technology and the latest data.

To establish a common understanding for this thesis, the author decided to use one of the most frequent definitions from Gretzel et al. (2015): smart is described in a technological context as a resource optimizing technology that is easy and intuitive to use and stands for the latest developments in information and communication technology. It heavily relies on open and big data, connectivity, and information sharing.

2.2 A smart five – star hospitality industry

Slattery (2002) described the traditional hospitality industry as an industry that looks after a customer's needs concerning food, beverage, and accommodation. The industry is known to be unique in its nature, complex, and service-oriented, which implies that this industry is strongly dependent on the human workforce in the service delivery processes.

In addition, according to the Five-Star Alliance (2021) the five-star hospitality industry, it is perceived as a very specific industry. A five-star hotel offers customers a high level of standards by providing

personalized services, a vast range of amenities, and luxury accommodation. In the available literature, five stars stand for exclusivity, luxury, high quality, and elegant materials with an integrated design.

Theoretical studies from Lickorish and Jenkins (1997) proved that the success of the five – star hospitality industry depends heavily on how the balance of supply and demand is managed, which means, in other words, that the hospitality industry heavily relies on the tourism product offered to satisfy a customer's need.

As regards the tourism industry, the UNWTO (2021) specified tourism as the moving of people from one location to another outside of their usual moving zone for leisure or business reasons. Aynalem (2016) explained that in general terms, tourism and the hospitality industry are very closely linked and together both sectors are responsible for economic growth, the balance of payments, low unemployment rate, and regional balance in almost all countries across the globe. Furthermore, he insisted that tourism is a worldwide crucial economic sector with a growing tendency.

In 1950, statistics from Aynalem (2016) reported 25 million international tourist arrivals, growing to 1.8 billion in 2030. Other research papers from Slattery (2002) stated that both sectors together account for 9% of the world's GDP. Breda et al. (2019) argued that lately, many factors heavily impact these industries, such as a demographic shift towards a longer aging population, technological advancements, terrorism, natural disasters, political uncertainty, or unpredictable pandemics such as Covid - 19. Gössling (2020) said that before Covid - 19, the world was traveling and heavily invested in the hospitality industry across the globe. Nowadays, all industries, especially the hospitality industry, need to prepare their business to be flexible enough to react much faster to changing consumer behavior triggered by any of the factors mentioned above of influence which can be supported by the latest communication and information technology. Therefore, the author wants to investigate if there are promising opportunities for five – star hotels to satisfy customer's needs with smart hotel app features.

Hunter et al. (2015) explained that smart tourism is a combination of the conventional model of tourism combined with the latest communication and information technologies. The latest advancements of communication infrastructure allow an efficient resource optimization which triggered smart tourism ecosystems.

In the literature of Gretzel et al. (2015) it is pointed out that a smart tourism ecosystem (STE) is a detailed way to explain the concept of smart tourism. Zhang, Li, & Liu (2012) tried to describe the concept of smart tourism by reviewing the origin of the latest developments. In 2014, both tried a new attempt and added to their first theory five elements: tourists, government, scenic zones, businesses, and information exchange center. The concept was overruled by a new version by Gretzel, Werthner, Koo, and Lamsfus (2015) with the elements of tourists, residents, suppliers from different

industries, the government, media, and technologies. The latest explanation was given by Perfetto & Vargas-Sánchez (2018) which said that the common elements of a smart tourism ecosystem of all definitions are technology, tourists, businesses, and a smart destination. Shen et al. (2020) revealed that like the smart city ecosystem, the smart tourism ecosystem is driven by cutting-edge technology to boost tourism activities. Gretzel et al. (2015) argued that a smart tourism ecosystem is created by a smart tourism destination combined with a smart business network and a smart technology infrastructure to create value. In essence, to create value means to access, exchange, and incorporate scarce resources.

Koo et al. (2015) said that the basic idea behind a smart tourism destination is to intensify a tourist's experience by using information and communication technology.

Boes et al. (2015) described four other dimensions that impact the development of smart tourism destinations. These four dimensions are leadership, innovation, social capital, and humans. The first dimension is leadership. What is meant by the dimension leadership is that each smart destination needs a central office to manage all stakeholders by creating a natural layer between an idea and the implementation to create a filter process that provides a sense of security to the citizens. The second dimension is innovation, which is driven by developments in information and communication technology. The third dimension is social capital. Social capital is explained as a set of shared values that allows individuals in a group to work together effectively to accomplish a common goal. Businesswise, we all know social capital can contribute to a company's success by building a shared understanding and pushing shared values and respect among employees. The fourth dimension is human capital. As already remarked above, many people associate smartness with using data and technology only. It is correct that information and communication technology and data are the backbone of smart concepts, but smart people are of equal importance. This means capturing, transferring, and analyzing data are the core activities to ensure a well-performing smart concept. However, the most underrated success factor for a smart working concept is humans. A smart tourism destination concept will only be successful if citizens are willing to adapt to the smart concept and are willing to use the technology in their daily lives.

In summary, Buhalis and Amaranggana (2014) described that a smart tourism destination as a convoluted system that is difficult to manage. The success of a smart tourism destination depends on the demand and supply side and the management of the 6 As. The six A's are attraction, accessibility, amenities, available package, activities, and ancillary services.

Boes et al. (2015) stressed about additional success dimensions such as government, mobility, environment, innovation, and economy, which also form the base for developing a smart tourism des-

tination. The research papers agreed that information and communication technology and the integrated link to human capital, leadership, social capital, entrepreneurship, and innovation can enhance a tourism experience in a smart tourism destination.

2.2.1 Trends shaping hospitality industry towards technology-based

According to the smart hotel technology guide (2019), the hospitality industry faces six trends that are impacting and shaping the hotel industry into a technology-based industry. There the first trend described is the “smart customer experience”, which means that smart travelers have extremely high expectations towards their hotel experience due to the availability of smart technology. The second trend is a “shift towards an authentic experience”. This means that travelers wish to have an authentic experience and want to feel at home. The hotel should offer an environment a consumer is used to and makes him or her feel comfortable from the first second onwards. The third trend is “increasing awareness of sustainability”. Another trend that the smart hotel technology guide highlights is that hotel guests are getting more “health and physical conscious” and are more willing to spend a higher amount of money on wellness facilities. The fifth trend is the “development of new business models” like Airbnb or the sharing economy. The last trend which the technology guide is foreseen is that the hospitality industry is “lacking capable workforce” due to too many working hours and relatively low wages. By automating business processes with smart technology, any industry but especially the hospitality industry can have less manpower-intensive processes. This can reduce or even eliminate non–added-value activities and can improve process efficiency. Lastly, as a very positive side effect, process automation can impact processes in a way to be more environmentally friendly. As already mentioned, the author will discuss the application of automat robot process briefly in chapter 6.2 future research.

Koutoulas (2014) described that the tourism product in its nature is quite complex and has very specific characteristics. Overall a tourism product is defined as physical and psychological satisfaction provided to tourists along the customer journey. On the one hand, the tourism product has tangible elements such as the hotel room or leisure facilities like a gym, spa, or pool. On the other hand, the tourism product has intangible characteristics such as the service quality that is delivered to customers. Moreover, the tourism product is described to be heterogeneous and singular, which means that the exact same experience can never be experienced twice due to changing external circumstances like different weather conditions. Lastly, a tourism experience, unlike a product is lacking ownership. Per se, a guest can only experience the service when he owns it, which means after a purchase.

The WKO (2020) defined that hotels, which account for the tangible element of the tourism product, are divided into star categories ranging from one to five stars and also mentioned superior grades

that are quality and marketing labels for premium establishments and do not represent a star category by itself.

Vagena (2021) described that most of the hotels in Europe, including Austria, follow a hotel classification that belongs to a standardized system called Hotelstars Union. The Hotelstar Union (2020) is an association consisting of 17 countries in Europe that formed a standardized criteria catalog for hotel classifications. The shared criteria catalog and the corresponding point system are revised according to market trends, and changing customer needs every five to six years. The latest edition is valid from 2020 to 2025. Among many different criteria, the most crucial criteria to be classified as a five-star hotel are a 24 - hour reception, personal concierge service, shuttle service, luggage service, personalized welcome card in the room, minibar including 24 - hour room service, safe, ironing service, and a turndown service in the evening.

Other criteria listed by the WKO (2020) are the quality of service like clothing, friendliness, and competence of staff. The facility itself must include a parking garage, a prominent entrance, external branding with signage and inhouse leisure activities.

After intense research, the author can conclude that most of the literature, including the Hotelstar Union, do not include as of now any smart technology applications such as self-check in and out, smart room control system or operational sustainability via smart hotel apps as mandatory criteria for a five- star hotel. (Hotelstar Union, 2020)

2.3 The birth of smart hotels

Even though the Hotelstar Union (2020) described that smart apps are not yet mandatory criteria, Jaremen et al (2016) identified that the use of information and communication technology paired with smart technology developments and the new species of tourists in smart destinations triggered the birth of smart hotels. As with any other buzzword, the literature uses slightly different concepts and frameworks to define a smart hotel. Ercan (2019) mentioned that all explanations have in common that they describe a smart hotel as a business model that uses the latest information and technology applications linked with smart applications to deliver a higher standard of service to its hotel guests. Dalgic and Birdir (2020) described a smart hotel as a hotel implementing smart technology to offer their customers a higher service quality based on technology. Meuter et al. (2000) stated that in smart hotels human workforce could be replaced with technology that can satisfy to a certain extend travelers' needs more efficiently.

Gretzel et al. (2015) noted that information and communication technology in smart hotels is seen as a holistic infrastructure. Barile (2017) mentioned that the holistic infrastructure can connect hardware and software systems as well as service providers. Service providers could be for example

tourist attractions, social media sites, governmental institutions, or payment services. This connection allows an efficient flow of information that can contribute to higher service quality.

Shen et al. (2020) described a smart concept conceptualizes various advanced computer and information technologies and ranges from accessing, processing, and transferring data. Noteworthy, advanced computer and information technologies for the hospitality industry, among others, are the world wide web, open and big data, internet of things, or wearable devices.

The worldwide web stands for internetworking and is a consolidation of millions of computers and networks across the globe. Bidgoli (2017) stated three web developments: web 1.0, web 2.0, and web 3.0. Web 1.0 connected people with information, while web 2.0 connected people with people. Web applications of web 2.0 are, for example, blogs, social networking sites, or video sharing sites. Web 3.0, better known as the semantic web, allows connecting information and people who are equipped with small mobile devices. The number of worldwide web users reached the 3.5 billion mark already in 2015, and researchers predicted that an individual would spend an average of 35 hours per month on the internet. (Kotler & Keller, 2006) Nowadays many services are available through the internet. One of the most popular services is the e-mail function. Bidgoli (2017) described that 80% of Europeans check their mails daily via their smartphones. Especially in the hospitality industry, the use of mails to confirm bookings or payments and share attractive information about the hotel is widespread and has reached great popularity.

The second backbone element of a smart concept is open and big data. As already discussed above, hospitality is about delivering the right services at the right time to the right guests. The access to data has enabled the tourism industry to improve service quality and identify additional potential to better satisfy their guest's needs. (Bidgoli, 2017) Hashem (2014) clearly showed that there is not one big data source that can fulfill all needs. Strozyna (2018) pointed out that the source needs to be accessible, relevant, accurate, reliable, time relevant, and comparable to generate quality data that can be processed and add value to the hospitality industry. Big data is considered an opportunity, a game-changer, and the oil of the tourism industry. The literature described that big data revolutionizes how companies are running their business and how companies can measure and monitor their performance. Big data, in its nature, is time-based and complex since it is derived from various sources. Leherer et al. (2018) described that big data is created by sensors, social media, or any web-based tools on a large scale with an exceptionally high speed in real-time with variability and a high level of veracity.

Thirdly, Internet of Things (IoT) is another significant development for the hospitality industry that connects devices with sensors and actuators used in our day-to-day hotel life. It allows that devices talk to each other via the internet and facilitates the exchange of relevant data. By linking various devices, data can be gathered from social media sites, wearable devices, and any device where a

sensor is installed in the hotel. By using IoT, the hospitality industry can guarantee a higher standard of service and better match desires or consumption needs. (Kaur & Kaur 2016) From an operational perspective, this means that by collecting real-time data of a five-star hotel guest, patterns like food preferences or preferred afternoon activities in a hotel can be precisely offered due to the positioning system. Additionally, a hotel can react much faster to complaints or lack of service qualities due to technological possibilities to receive immediate and implicit feedback. (Bodgoli, 2017) But all these positive features also come with disadvantages. Car et al (2019) cited researchers like Zeinab, Elmustafa or Malttern and Floerkemeier that addressed potential challenges of IoT in the hospitality industry, such as scalability, capability to self-organize, and the lack of dependency on humans or algorithmic interaction, the massive amount of data, and the interoperability of connected communication devices. From a hotel guest's point of view, theses disadvantages are not relevant and therefore will not be further discussed in this research paper.

Atembe (2015) said that the usage of a wearable device can facilitate all these above functions. Generally, wearable devices push the travel experience to another level and offer new opportunities to customize the holiday experience. The available literature argues that the sale of wearable devices with Wi-Fi access and apps is reaching its peak and has transformed the way of traveling. Compared to the available literature on ICT, the literature on wearable devices is limited, primarily focusing on applications in the five-star hospitality industry. Wang et al. (2012) described that wearable devices like notebooks, watches, smartphones, or tablets are shaping the new way of customized tourism. Wearable devices are known to be very convenient since they are carried around on the user's body and allow them to have both hands free for any other activities. One of the most well-known and most used wearable devices is the smartphone.

Torres (2018) stated that the development of a smartphone was a game-changer for many industries. Mobile devices with the ability to connect directly to the internet and the great variety of mobile phone applications have changed the way consumers perceive service and commitment. Clearly, the hype about smartphones also shaped specific trends of the premium hospitality industry. Consumers of every age, of all nationalities, and with different education levels use smartphones. The potential is impressive as apps can be used in all stages of the customer journey. Dickinson et al (2012) added for this reason the most important component of a smartphone is the ability to download of app.

Techterms (2018) defined that an app is a software that can be specifically used on a smartphone to serve an individual's needs. Ramos – Soler (2019) described in her research that apps can support a purchase decision in the hospitality industry and influence buying behavior as it facilitates communication between different parties. Furthermore, she described that apps play a significant role in the development of smart tourism. Useful components that support the gathering process of information are GPS functions, a camera, speakers, or social network apps. Apps can describe a

selected location, demonstrate pictures, reviews, or destination managers. (Techterms, 2018) Dickinson et al. (2012) mentioned that other smartphone features in the hospitality industry range from mobile-friendly websites, real-time availability offers to self–service apps and loyalty programs. In fact, apps can reduce the distance between the traveler and the location where information is shared. More app applications will be discussed in chapter 2.3.1

Research by Dinescu (2021) confirmed that today approximately 94% of business travelers and 80% of leisure travelers use their smartphones during their travel. Dinescu (2021) advised hotels to invest in technology to enhance the customer experience. Moreover, Dinescu's research found out that 71% of hotel guests accept sharing eating habits, and 64% share preferences for entertainment. Therefore, for the premium hospitality industry, the author can conclude that while offering the possibility to use apps along the customer journey, more personal preferences can be identified, which automatically leads to a higher satisfaction rate of a customer's needs.

Last but not least, Bidgoli (2017) described artificial intelligence as one of the key elements of advancements in information and communication technologies. It is highlighted that artificial intelligence aims to imitate human behavior like speaking, understanding, or cognitive abilities. In order for a technology to replicate such behavior in the first step, data need to be processed. In a second step, human behavior can be duplicated by involving technologies like robotics, intelligent agents, or genetic algorithms. As the implementation of artificial intelligence is foreseen for the future, this topic is not incorporated in the empirical study. Therefore, the author proposes in chapter 5.1, the most important aspects of artificial intelligence and the automated robot process and the influence on customer behavior as a future research topic.

Pencarelli et al. (2020) summarized, information and communication technology developments impacted the tourism industry enormously by providing various applications to improve a hotel guest's experience.

Car et al. (2019) stressed that tourism firms can act smarter by implementing information and communication technology and consequently enhance a traditional guest's experience while generating more revenue. Therefore, there are three core benefits of smart hotels, which are:

- increase tourism experience
- manage resource efficiently
- enlarge competitiveness and being sustainable

2.3.1 Categorization of smart technology in smart hotels

Scholars describe that smart technology in a smart hotel can be divided into two main categories. Figure 2 below demonstrated two different categories, which are the *operational-related* and *experience-related categories*. The *operational-related* category focuses on optimizing the running hotel business, while the *experience-related* category concentrates on enhancing the customer's experience. (Han et al. 2021)

Smart technologies	
operational – related	**experience – related**
• Revenue management	• Smart room control
• Property management	• Smart room key
• Computer reservation systems	• Smart parking
• Operational sustainability via smart hotel apps	• Automated check – in and check - out
• Information management systems	• Facial recognition
	• Digital communication features
	• Sustainable operation features

FIGURE 2: SMART TECHNOLOGY APPLICATIONS

SOURCE: AUTHOR, 2021

Leung (2019) divided the concept of smart technology in a smart hotel into three categories. The categories are *'traveler - focused'*, '*employee - focused'*, and *'manager – focused'*. *'Traveler–focused'* is all about enhancing the experience of hotel guests with smart technology, while '*employee-focused'* concentrates on facilitating employee tasks with smart technology more efficiently. The *'manager – focused'* category is all about boosting revenue while operating on minimum costs with the support of smart technology.

2.3.1.1 Operational-related smart technologies

As regards the *operational–related* category, information and communication technology has a great impact in driving the potential of digitalization and automatization of processes and therefore has become a fundamental part of the value-creating strategy of a hotel. Through ICT, various departments can make use of different information management systems. Innovative ICT solutions in the hospitality industry can be grouped into back-office ICTs, front office and housekeeping ICTs, food and beverage ICTs, and in-room ICTs. (Bidgoli, 2017)

2.3.1.1.1 Backoffice ICTs

Under **backoffice ICTs** falls the property management system, human resource systems, CSR systems or financial and accounting systems. The property management system supports the management of the running business by providing services on accounting and bookkeeping or by providing information on food and beverage orders, including pricing and payment information. A CRS system can not only manage central bookings but also functions as a customer relationship management (CRM) tool that provides the booking history of guests. The CRM allows, for example, automatic customer segmentation. For most hotels, a proper customer relationship management tool is considered the heart of a hotel. (Bidgoli, 2017)

2.3.1.1.2 Front office ICTs

ICTs for the **front office** are a hotel's website, check-in and check-out systems, or a customer database. Electronic point of sales systems, stock and inventory systems, and a table reservation system are covered by **food and beverages** ICTs. (Bidgoli, 2017)

2.3.1.1.3 In-room systems

The **in-room systems** are ranging from telephone systems to wake–up systems or entertainment systems. (Bidgoli, 2017) Further, Eskerod (2019) depicted one of the main drivers to reduce the running costs of a hotel is a proper energy management system which also contributes to many hotels' overall goal to operate more sustainably with the support of smart hotel features. Smart hotel features can help to control energy consumption by monitoring the movements of a hotel guest. This means that by knowing if a guest is in a respective hotel room, the hotel can regulate lights, TV, air-condition, or water consumption of any hotel room individually. From a hotel's perspective, the equation is simple. A hotel needs to ensure that all three variables, such as people, profit, and planet, are balanced. By investing in technological advancements such as IoT, which supports run operationally sustainable, a hotel needs to make an upfront investment. The literature argues that this upfront investment normally ends in the long run-up with an increase in profit.

2.3.1.1.4 Benefits of operational-related smart technologies

In summary, Jaremen et al. (2016) concluded that by implementing the above-described Information and communication systems, a hotel can benefit from the following advantages:

- Maximization of profit
- Creation of additional value for a hotel guest's experience
- Digitalization and automatization of hotel processes reduce the risk of human mistakes or errors
- Increased speed in reaction to customer requests

- Reduced operating costs though less manpower
- Long–term data storage
- Synergy creation between hotel chains

As the topic of *'operational related topics'* is too broad, the author decided to touch on the operational benefits only briefly and will mainly focus on the experience-related smart hotel features which directly can impact a hotel guest's behavior.

Shen et al. (2020) recapped that smart hotels have the possibility to offer better and more convenient service with smart technology, can reduce the risk of human mistakes and can faster react on any problems with the support of smart technologies.

2.3.1.2 Experience-related smart hotel app features

The literature of Shen et al. (2020) described various ways how a hotel room can be equipped with smart technology to make the stay of a hotel guest more pleasant. Scholars had identified that the availability of contactless technology even gained more importance and popularity in Q2 2020 when the Covid-19 pandemic has spread across the globe.

As described in the introduction chapter, Tuzunkan (2017) agreed that the benchmark regarding room configuration is set extremely high. With tangible products like a hairdryer, a minibar in the room, or scales in the bathroom, no premium hotel guest can be impressed or pleased. These listed tangible products are perceived as a minimum standard and are categorized as minimum equipment in a five-star hotel. By implementing the latest information and communication technologies, the management can upgrade the room settings to move to a technology-based facility that supports delivering a higher level of comfort and satisfaction.

Among others, Ercan (2019, pp. 529) illustrated that the most preferred smart hotel app features are smart room control, smart parking, automated check-in, and check-out, face recognition, smart room key, or virtual communication via smart apps. Therefore, the author picked three main features such as digital communication via smart hotel apps, smart room control features and sustainable operation via smart hotel apps which are described in the following sub – chapters

2.3.1.2.1 Digital communication features

Chen et al. (2021) pointed out that the first smart hotel application that can be used before the actual trip is **digital communication features**. Digital communication features allow to exchange information via an app without any human interaction. Mentioned digital communication channels are video conferences, push messages or webchats.

One example that is often described in the available literature in relation to the hospitality industry are chatbots. Presented studies from Ristova (2019) analyzed that offering a digital communication channel with potential hotel guests is one of the most efficient ways to connect and interact with travelers. One famous case study example comes from the Four Season Hotel in Las Vegas that implemented chatbots with a mix of artificial intelligence and human manpower. This combination ensures a human touch by offering 24/7 service. (Forbes, 2015)

Research from Talwar et al. (2020) indicated that half of the potential travelers visit a hotel website after seeing a hotel on online travel agencies (OTAs). OTA's are described to be the largest medium to book a trip by frequently offering trip packages on their sites to make it easier and more convenient for future customer to book a trip. The best renowned online travel agencies are Expedia or Booking.com, which register millions of visitors every month, pre-Covid-19. Research stated that one of the biggest benefits of using OTA for a consumer is that all choices and different supplier offers can be found in the same place, which also offers an easier comparison of different prices. On top of it, the consumer has the possibility to use a filter function, so a reduced choice customized to the needs of the traveler is displayed. Another mentioned advantage is the easy handling of OTAs, no matter which device is used. Summarized, convenience, wider choice, reviews, and price competitiveness are the main drivers why customers are using these websites to book a trip. However, price competitiveness seems to be a mythos because OTA's are not always offering a better price than the hotel itself. The mentioned possible downsides are the missing customer support, the possibility to personalize packages according to needs or preferences, and possible hidden fees.

Addressing these disadvantages can be facilitated by the implementation of digital communication via smart hotel apps. By implementing digital communication via smart hotel apps, the hotel has the possibility to react to customer's queries immediately. Further, it can help to navigate through the booking process to minimize the risk that a potential traveler stops his booking during the process. In return the customer feels better treated due to customized offers and immediate reaction on any query. (eHotelier, 2015)

2.3.1.2.2 Smart room control features

Endra et al. (2019) researched about the second smart hotel app feature that can be used before the actual trip are smart room control app features such as automated **check-in, automated welcoming process, smart room key, or audio control functions.** Smart room control features allow customers to control in – room settings via an app on the phone.

The first smart room control feature described by Kabadayi (2019) is the automated check -in. Kabadayi (2019) researched guest's experience in a hotel with smart technology and understood waiting patiently for several minutes at the reception to check-in is not what premium hotel guests want. By using the smart hotel features, the waiting time for a traveler can be reduced through either pre-

register or automated check-in. Through pre-registering and sharing sensitive personal information, a guest's experience can be customized or personalized even on the first visit of the hotel or based on previous data. With the remote check-in application, the guest can be notified when the room is ready for him to move in and can receive the room key on his smartphone before arrival.

Another example is the **welcoming process**. With the old technology, hotels were limited to an anonymous standard welcoming process while new technologies facilitate a personalized welcoming process by knowing on arrival a hotel guest's name, due to a face recognition application or by sending upfront welcoming greets. (Friedmann & Sen, 2019) Hayes et al. (2016), confirmed that directly greeting a five-star hotel guest by name gives recognition and convey courtesy.

Ristova (2019) described the smart room key as another smart hotel app feature. Having access to the room key via the smartphone is called "smart room key". The smart room key is a relatively new opportunity to maximize the experience without waiting at the front desk and to enter the room immediately. The literature describes a rising upward trend of smart room keys in the entire hospitality industry.

Lamsfus et al (2015, pp. 365 - 75), explained this by various benefits a smart room key offer:

1. Locking and opening the room with an app on a smartphone increases safety and security.
2. It is more environmentally friendly because RFID technology replaces plastic keycards, which are harming the environment.
3. The hotel reduces the hassle of managing keycard inventory, as many keycards are lost during the active holiday experience.
4. The smart key app also allows remote check-in, reservation, and reward programs by saving in an intelligent way personal guest's information.
5. Hotel guests cannot forget room key in the room to open the door.

For the hotel, the remote check-in or check-out application can be much more beneficial since it can allow for more efficient staffing at the reception, which ultimately impacts labor costs. In general, the smart key card concept is described as simple. (Lamsfus et al. 2015)

On the day of arrival, the guest gets a notification to check in when the room is ready via an app. The hotel guest needs to download the app and enroll by following the instruction displayed on his phone as a first step. Pre-arrival, when remotely checking in, the guest needs to fill in all his passport information, including key facts of his travel partner. Once all information is saved, the guest receives an encrypted file with his room number and the mobile key. From a technical point of view, the hotel needs to ensure that the door's lock system is compatible with smart technology. A key asset is the RFID radio-frequency identification technology which enables the user to identify objects on the network. (Torres, 2018, pp. 103-12) Lamsfus et al. (2015, pp. 363 -75) argued that recent

studies by Starwood explained that mobile keys could boost the guest's satisfaction and increase the likelihood of a customer re-booking a room through the hotel's app or website. Starwood, as one of the big players in the hotel industry, is using the described smart room key solution with an additional phone app. Research states that on a positive side note, the app encourages guests to book through Starwood's smart app rather than using an online travel agency website.

The process of preregistering also grants access to an application called **smart parking**, which means to reserve a parking lot online. Especially in the premium five-star hospitality industry, it is prevalent that travelers arrive with premium cars. Clearly, a + 100.000 Euro car owner does not want to leave his car parked outside where it is exposed to rain, sun, bird dirt, or even hail. Therefore, the smart reserved parking application is used quite intensively in luxury hotels. With sensors and an app, a hotel can provide a traveler with the option to pre-book a parking lot, which on the one hand, secures a safe parking lot and, on the other hand, offers to have a parking space already assigned before arrival. This application also affects labor costs from a hotel perspective since parking inventory does not need to be managed by the workforce anymore. (Ciorreview, 2021)

In addition, the process of pre-register also allows smart room control before entering the hotel room. Before arriving in the room or during the active holiday experience, a guest can maximize his comfort by modifying and customizing his room with light or air-condition settings according to his own needs and wishes via an app on his phone. Customized system control has gained substantial popularity in the past decades. Via an **audio control application,** the guest can set pre-arrival settings in the room, like playing the most favorite song at the right volume. Siri, Alexa, and Google Home are currently the benchmarks in audio control systems and have a revolutionary impact on the hospitality industry. (Ciorreview, 2021)

Last but not least, Forbes (2015) demonstrated the latest smart technology from the famous Marriott chain, which integrated **smart shower doors** in the bathroom that allows their business customers to note down any ideas they might have while taking a shower. Smart shower doors are worth mentioning due to its innovativeness but are certainly part of the active trip phase.

2.3.1.2.3 Sustainable operation features

The third smart hotel app feature is the sustainable operation via smart hotel apps. Pereira et al. (2021) described that hotel facilities, in general, are ranked among the top five energy consumers in the service sector and produce a substantial number of greenhouse gas emissions. These researchers believed that a large amount of energy is without any reason wasted. Concrete examples that are listed by research are, among others, turned-on TV or AC even though the room is empty for hours. Kang et al. (2012) claimed that with sustainable initiatives via smart hotel apps, unnecessary energy consumption or waste can be reduced. The trend of travelers that are becoming much

more conscious about the environment and environmentally friendly services and facilities encourages many hotels to operate more sustainably. Incorporating sustainable initiatives in their processes and facilities can make the hotel more competitive and increases the loyalty of customers.

As regards the correlation between room rate and operational sustainability, the author found many contradictory studies. Gustin and Weaver (1996, cited by Choi et al., 2006) examined in the USA in 1996 the relationship between purchase intention and traveler's attitude towards sustainable initiatives from hotels in the USA. The study revealed that there is no positive correlation between sustainable awareness of hotel guests and their willingness to pay a higher hotel price. Becker – Olsen (2016, cited by Choi et al, 2006) supported this statement and described the phenomena of a negative correlation which happens when the customer has the impression that the green initiatives of a hotel are mainly for the self–interest of the hotel. A similar study to the above-described case did Choi and Parsa (2006) and found out that travelers are not willing to pay a higher price for a hotel room when the hotel is operation sustainable. These arguments were disproved by other authors such as Strahilevitz and Myers (1993) who investigated in their research that travelers' acceptance to pay a higher room price for hotels that operate sustainably depends on the hotel type and segment, which they call affect-based complementarity. Other research done by Folkes and Kamins (1999) concluded that for luxury hotel facilities such as four or five-star hotels, travelers tend more to accept a higher room price when the hotel operates green and more environmentally conscious. Kang (2012) explained the reason for accepting a higher price by the fact that paying more for green initiatives increases' a traveler's self-esteem. Thus, it is more important for high segment travelers than for budget travelers. Surprisingly is that there is hardly a research paper to find that investigates the willingness of paying a higher room price if the hotel runs operationally sustainable via smart hotel apps. Floricic (2020) concluded in her research paper "Sustainable solutions in the hospitality industry and competitiveness context of "Green Hotels" that besides the big advantage of running more operational sustainability via smart hotel apps, hotels should also focus on the promotional benefit of their green initiatives. However, this comes with the caveat that at this point in time, these initiatives might need to be covered by smart pricing strategies and not only with the room price.

Therefore, the author will test in his empirical research if five-star hotel guests are willing to spend more on the room price when the hotel is operating in a sustainable way supported by smart apps.

Neuhofer et al. (2015), described that in the pre-trip phase travelers are keen to use smart technology to find information, select a certain location and to complete booking tasks to enjoy the holiday from the first second onwards. In general, research papers inform that from a traveler's perspective smart hotel app features bring an added value to the traveler in the booking stage. Benefits that are listed are a tourist has more flexibility, convenience, speed, and involvement including personalization with his chosen hotel environment.

Ristova (2019) described in his article that smart rooms with integrated smart hotel app features will be the future of each and every hotel room which cannot be denied and asks for a revised business model.

2.4 Tourism behavior in the pre – trip phase of the travel journey

Pizam & Mansfeld (2009) described that tourism behavior along the customer travel journey is an intensively researched topic with wide-ranging literature available.

Most tourism behavior models describe the relationship of factors that are influencing a consumption decision.(Cohen, 2014) In his theoretical frameworks, Kotler et al. (2007) highlighted that once a company understands its customer behavior, the firm can predict how a customer will react to any changes of product characteristics such as price and competitive advantage. (Kotler & Keller, 2006) According to Buttle 1991, the goal of numerous studies on tourism behavior or consumer behavior models is to better direct or control tourists 'consumption patterns. Patterns can range from motivational factors to factors that influence the decision-making process or any actions a guest takes to satisfy needs or wishes in the pre- or actual trip phase.(Breda, 2019) Swarbrooke (2007), argued that understanding the purchasing decision-making process of a traveler is challenging due to his intangible characteristic.

One of the first research models on tourism behavior was shared by Andreason (1965). Andreason (1965 cited by Swarbrooke, 2007) stressed the importance of information in the decision-making process. Nicosia (1966) explained the significance of two-side communication from a company perspective. The most popular model in the literature is the Howard -Sheth model from 1969, which defines all crucial elements of inputs of an individual to make a consumption decision. (Jacob & Ajith, 2017) Overall, the literature states that motivation is the most significant factor in a tourist's behavior, especially in the pre-trip phase. Motivators can differ in the way how they influence a tourist to buy a certain holiday experience. The literature addresses numerous different motivators as well as types that are all different in nature. Motivators can be physical, such as the need for relaxation, cultural interest like the desire to experience a new culture to boost knowledge, or emotional and status factors. Especially the status motivator such as exclusivity can be the primary driver for choosing a five-star hotel vacation. It can be summarized that motivators are complex and can vary depending on the phase of the travel journey a tourist is in, the lifestyle, gender, age, or cultural background. (Swarbrooke, 2007)

When talking about a tourist 's motivational factors, it is essential first to understand a traveler's needs. Maslow (1970), with his need's hierarchy, was the first to put a certain level of importance on human needs. In the beginning, Maslow's hierarchy was mainly used for clinical psychology. With time many researchers understood the value of applying Maslow's hierarchy also in the context of

tourism. Lately, the theory has proved valid in tourism and is now entirely accepted, primarily because of its simplicity. Maslow (1970) explained that once one level of need is satisfied, an individual moves up one level. In practice, this means, for example, when all psychological needs are satisfied, an individual's needs move up to the safety need level. Some researchers argue that Maslow excluded essential needs from his frameworks, such as dominance or play, that cannot be ignored. Mathieson and Wall (1982, cited by Pizam et al., 2009) described the linear model of a decision-making process, which identifies a need or a wish to travel, followed by an information collection phase, the decision processes, the travel preparation, the travel experience, and at the end, the travel satisfaction. Mountinho (1993) wrote about the social and psychological influences of an individual in his travel behavior. Dimanche and Havitz (1994) researched ego concept, loyalty, family decision making, and novelty–seeking. Marray (1993, cited by Pizam et al., 2009) described in his framework, in a more precise way the needs of a tourist. Marray (1993, cited by Pizam et al., 2009) identified 14 physiological and 30 psychological needs that impact a tourist's decision to go on a trip. Unfortunately, because of its complexity, it never gained popularity. In a new attempt, Damn (1981) identified pull and push factors that influence the buying decision of a traveler. Push factors can push an individual to travel, while pull factors are affecting the holiday location decision. The literature analysis showed that Damn's theory (1981) with pull and push factors in the tourism industry gained high popularity with the adaption of the framework by Crompton (1979) or Plog (1967). Plog's framework (1967) is among the most frequently cited. In his framework, he grouped travelers according to two aspects. The first aspect is allocentric, and the second aspect is psychocentric. Allocentric travelers prefer exotic experiences, while psychotic travelers prefer family stays. Other researchers argued that the intensive information flow and the power of influencing decisions are considered the foundation of tourist consumer behavior. In 1989 Haywood described that a consumer of a tourist experience itself has the power on the one side to advice and on the other side to influence. (Pizam & Mansfeld, 2009, pp. 47)

Pinto and Castro (2019) outlined that other determinants can also influence a guest to make a buying decision for a specific holiday. Similar to motivators, other determinants are also very complex, diverse, and show personal and external traits. Circumstances like the health situation, income level, work or family commitments, knowledge of a certain location, hobbies, a new partner, or loss leader prices can influence buying decisions.

All the models mentioned above analyze, evaluate, rate, and classify consumer behavior according to a generation guests belong to. (Cox, 2009)

A generation is defined as a group of people that were born in the same period. There are various studies on satisfaction values for guests in a five-star hotel according to different generations ranging from Silent Generation and Baby Boomers to Generation X, Millennials and Generation Z. It is assumed that people of a certain generation share similar values and believes. The Silent group is a

demographic cohort born between 1928 and 1946, followed by the Baby Boomers born between 1946 and 1964. Generation X, Millennials, and Generation Z are the youngest generations, with Generation X having been born between 1965 – 1980, Millennials between 1981 and 1996, and Generation Z between 2001 and 2020. Figure 3 below shows the years in which the different generations were born. (Gobe, 2013)

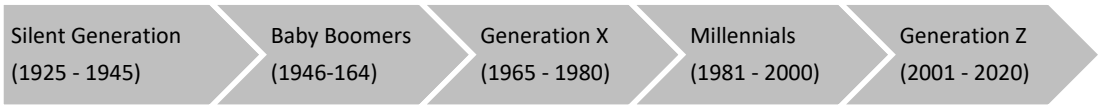


FIGURE 3 TRAVEL GENERATIONS

Source: Gobe, 2013

2.4.1 Smart tourist behavior in the pre – trip phase of the travel journey

Over the past years, tourist behavior and mindset have been observed and described by different research papers. Scholars confirmed that the tourist's consumer behavior changed significantly in the past years, with the above described information and communication technology advancements. The new developments in information and communication technology triggered the birth of a new generation of tourists. Poon (1993) analyzed the new tourists that show characteristics such as experienced, instinctive, and looking for more authenticity. Breda et al. (2019) described that the new tourist has become much more independent, is better informed, and is eager to shape his travel experience along the customer journey. Buhalis and Law (2008) called the new species smart tourists. Research showed that smart tourists show preferences for customized travel schedules or better quality for money ratio. Additionally, they are better informed about their trip, tend to book more online and rely on online communities' vacation ratings. Sevrani and Elmazi (2008) supported the argumentation of Buhalis. They stated that in the era of smart technology, a smart tourist has become much more informed on any travel details due to the easy access of information through the internet. Dwityas and Brianana (2017) however, said that the smarter traveler has become much more informed and is more demanding for better service. He is more critical and appears to be more price-sensitive, as he relies more on self–service tools via smart technology such as smart hotel apps.

Shen et al. (2020) summarized that in the pre-trip phase, a tourist uses smart technology to collect all the information related to his trip. The activities in this phase where smart technology is applied range from collection and gathering of data like hotel room prices, flight offers, transportation costs, or weather conditions and ends with the booking of the trip and completing all pre – travel tasks via a smart device, most likely via a smartphone or a laptop. This allows the assumption of Ercan (2019) that a tourist intends to use smart technology to communicate, get real–time accurate information, and get efficiently all tasks done in the booking stage. Endra et al. (2019) concluded that in essence, by using smart hotel app features in the pre–trip phase, the traveler has the advantage that he can immediately enjoy his travel experience when arriving in the desired location, which ultimately influences his satisfaction or dissatisfaction due to his expectations of the level of service.

Torres described (2014) that hotel guest satisfaction is one of the critical factors that need to be monitored closely as it is correlated with loyalty and brand image. Even though Msallam (2015, citated by Reichheld, 1994) clearly analyzed that satisfied customers are not automatically loyal. Kotler and Keller (2006) described that a customer is satisfied when his experience is better than he expected it to be. A customer is dissatisfied when the experience is below his expectations. Many studies from researchers like Kotler, Torres or Ham are available to investigate the correlation between smart rooms and customer satisfaction that presented different results. A study from Korea conducted by Han (2015) revealed no positive relationship between smart rooms and the satisfaction of customers, while a study from Thailand from Prayukvong (2007) found a positive correlation

between both variables. A research paper from Cobanogl et al. (2011) illustrated in his conclusion after studying the impact of technology amenities on hotel guest's overall satisfaction that smart technology can influence a traveler's satisfaction.

2.4.2 Critical review of smart technology in the hotel industry

Overall, Gretzel et al. (2015) stated the positive aspects of smart tourism from a consumer point of view. Looking behind the scenes and finding research papers that also see smart tourism with critical eyes leads to the conclusion that privacy issues and strong dependency on technology are present concerns in smart tourism. Ironically, a tourist heavily relies on information while on holiday. Gretzel et al. (2015) found out that travelers are more willing to share their information and point out that this willingness to share data makes a tourist on the downside very vulnerable. For instance, location-based services are one of the most widely used applications by tourists but leave a detailed digital footprint similar to a private interest record book. Any security risks a tourist can face by using smart hotel app features will be discussed in chapter 2.5.3.

2.5 Technological acceptance of smart tourists

Han et al. (2021) raised awareness that the rise in usage of smart hotel apps for any processes related to the pre and active trip phase caused critical noise about the usefulness of usage, the ease of usage, or even raised the topic of security issues of these applications in the tourism industry. In addition, Han et al. (2021) described in one of his latest research papers that these concerns are core influence factors of a positive attitude towards smart hotel apps and decide whether smart hotel apps are accepted or rejected by travelers.

2.5.1 Perceived usefulness of usage

Agag et al. (2016) explained that 'perceived usefulness of smart hotel apps' is determined to which extend the usage of a smart technology facilitates to make a booking task more efficient. Davis (1992) described that the terminology perceived usefulness is the feeling an individual has towards a certain technology that can support to complete a task related to his upcoming trip. In this thesis, the author follows the description of Han et al. (2021), that described usefulness as the level of satisfaction a traveler can get by using a smart hotel app to facilitate complete travel tasks faster.

Relevant research was conducted about the perceived usefulness in the banking sector by Pikkarainen (2004). The researcher figured out that perceived usefulness can be explained by user–friendly technology that gives an individual the possibility to conduct any transactions related to banking by himself with the use of technology which makes the individuum independent from human support.

Ramos and Castro (2017) pointed out that the higher individuals perceive the usefulness of technology, the greater is their acceptance of technology. Therefore, the author tested in his empirical study the following hypothesis:

Hypothesis 1: A five-star hotel guests' perceived usefulness of smart hotel apps positively affects acceptance of it

- **1a. hypothesis**: The perceived usefulness of digital communication received via a smart hotel app positively affects acceptance of it
- **1b. hypothesis:** The perceived usefulness of smart room control features positively affects acceptance of it
- **1c. hypothesis**: The perceived usefulness of sustainable operations via a smart hotel app positively affects acceptance of it

2.5.2 Perceived ease of usage

Han et al. (2021) interpreted the perceived ease of usage as, how simple or challenging it is for an individual to use a smart application, or how much effort is needed to take advantage of a technological system that core intention is to facilitate a travel task. Jahangir & Begum (2018) used a slightly different interpretation of perceived easiness. They concluded that technology is only perceived as easy to use if it is free of cost for an individual. With cost in this case the author meant effort. Another definition was set by Rogers (1983) that stated that easiness can be translated with not complicated to use. Consult (2002) presented another explanation and said that perceived ease of usage is that individuals can handle technology and take advantage of the technology without using too much energy. The author describes with perceived ease of usage in his study the level of technological know-how a traveler needs to have to complete a pre-trip task in the pre-trip phase. Han et al. (2021) concluded that individuals are more eager to use a certain technology that is easy to use rather than working with a technology that asks for a lot of effort and capability to be used. Similar to the perceived usefulness of usage, many different argumentations can be found in the literature. Even though the definitions can vary slightly, all of them conclude that besides the perceived usefulness, the perceived ease heavily influences the acceptance of new technology. (Jahangir & Begum, 2018) Accordingly, the author hypothesized that:

Hypothesis 2: A five-star hotel guests' perceived ease of usage of smart hotel apps positively affects acceptance of it

- **2a. hypothesis**: A five-star hotel guests' perceived ease of usage of a digital communication received via a smart hotel app positively affects acceptance of it
- **2b. hypothesis**: A five-star hotel guests' perceived ease of usage of smart room control features positively affects acceptance of it

- **2c. hypothesis**: A five-star hotel guests' perceived ease of usage of sustainable operations via a smart hotel app positively affects acceptance of it

2.5.3 Perceived security of usage

Jaghangir and Begum (2008) illustrated that online services are gaining popularity and so it also affects the hospitality industry. However, these advantages do not come without concerns about security, privacy, and ethical aspects. According to Mercan (2020), a technology is perceived as secure if the technology shows a high level of integrity, confidentiality, and availability. By confidentiality, a traveler understands that private information is not shared with a third party. Integrity means that the accuracy and trustworthiness of data are constantly guaranteed, and availability stands for an uninterrupted service also during hacking attacks. For sure, security is one of the main influencing factors that decides if smart hotel apps are used. The internet is full of news of hacker attacks in almost every industry. Mercan (2020) added that the most common security risks in the literature are physical attacks or the lack of security software solutions.

The hospitality technology website (2018) which main intention is to inform hotels about services that could be improved with technology, published a study completed in the US that reveals 75% of travelers have privacy concerns with smart hotel applications. However, the study also outlined that almost half of the travelers would still book their next stay via a smart hotel app. It is argued that the convenience factor is more important than the perceived security issue. Surprisingly is that 52% of the interviewees answered that they have the highest security concerns with the smart room key and opted to have the least security concerns with smart room control apps. (Ziegeldort, 2014)

Furthermore, Mercan (2020) described privacy as another concern as the right of an individual to decide what is happening with the shared private data. Well-known privacy attacks are tracking, profiling or linkage. Toch et al (2012) supplemented that in many cases, the traveler is not aware when his private information is tracked and therefore loses control of his information.

Last but not least, Mercan (2020) addressed the topic of ethical concerns. It is well known that ethical considerations are very present as often privacy and security regulation are not implemented fast enough. Therefore, technology owners need to ensure that sensitive data is ethically restricted and can exclusively be used for shared purposes. Christin et al. (2020) described that such ethical, security or privacy risks can influence why travelers refuse to use smart hotel features. Thus, the author posited that:

Hypothesis 3: A five-star hotel guests' perceived security of smart hotel apps positively affects acceptance of it

- **3a. hypothesis**: A five-star hotel guests' perceived security of digital communication received via a smart hotel app positively affects acceptance of it
- **3b. hypothesis:** A five-star hotel guests' perceived security of smart hotel room control features positively affects acceptance of it
- **3c. hypothesis:** A five-star hotel guests' perceived security of sustainable operations via a smart hotel app positively affects acceptance of it

2.5.4 **Demographic 'age'**

Puška et al. (2018), depicted that the demographic testing characteristic has become of great value for customer behavior studies. Most of the studies aim to understand the correlation between age and technical affinity to apply smart technology in the travel journey. Therefore, the author applied the same principle and investigated the relationship between age, sex, and customer behavior towards smart hotel app features in a five-star hotel.

Kim et al. (2021) specified clearly, that the most crucial demographic factor in understanding the use patterns of search engines in the pre-trip phase is **age**. In reality, most studies conclude that younger generations show a higher level of tech – affinity while the older generation often rejects smart technology. One example came from Cornell University by Cobanogl et al. (2011) that researched the TRI model (technology readiness index) of the influence of technological features and the level of satisfaction and outlined that travelers of different ages accept technology differently.

Hence, the author assumed that demographic age impacts the way five-star hotel guests accept smart hotel apps

Hypothesis 4: Age impacts the way smart hotel apps are accepted by five-star hotel guests

2.6 Booking intention of a smart traveler

Last but not least Han et al. (2021) complemented that ultimately the acceptance of smart technology can influence the booking intention of a smart traveler. The author hypothesized:

Hypothesis 5: Consumer's acceptance of smart hotel apps in five-star hotels positively influence the booking intention of a five-star hotel guest

- **5a. hypothesis:** Acceptance of digital communication received via a smart hotel app positively influences a five-star hotel guest's booking intention
- **5b. hypothesis:** Acceptance of smart room control features via a smart hotel app positively influences a five-star hotel guest's booking intention
- **5c. hypothesis:** Acceptance of sustainable operations via a smart hotel app positively influences a five-star hotel guest's booking intention

2.6.1 Price

Lockyer (2005) as well as numerous other researchers focus on various dimensions that influence the purchase decision of a hotel. Kwun and Oh (2014) defined in their research paper that price next to brand name has a significant influence on the quality judgment.

Kim (2008) described price as the money consumers need to pay to be able to enjoy a certain product or service. Price could be either perceived as monetary or as a quality signal for a specific product or service. Dolnicar and Otter (2003) analyzed more than 20 articles and identified raffle 170 attributes that influence the purchase decision of a traveler. Attributes that were extracted among many others are, for example, cleanliness, hotel room, security, perceived value, or price. Callan (1998) described in his study that cleanliness by far is the most important influencing factor for making a buying decision. Lockery confirmed 2000 this statement and summarized that room price or room rate is not an influencing factor for travelers to make a buying decision. However, Kim (2008) argued based on her research, that price is a key influencing factor for a purchasing decision. With the development of web 2.0, consumers can easily compare prices online on different websites offering different prices. She even gets one step further and described, based on her research, that price affects perceived value. She explained that a traveler most likely perceives a reasonable room price as a great value. This means, in other words, that price as a key influence factor can positively influence the perceived value of service.

2.6.2 Loyalty

According to Oliver (1997) loyalty is a measure of the extent to which an individual is willing to repurchase a certain product or service in the future due to a past great experience. The most important thing about loyal travelers is that they are known to accept higher prices and usually are great for word-of-mouth marketing. Reichheld and Sasser (1990) conducted a relevant study on traveler's loyalty and figured out that if a hotel can win a few travelers as loyal customers, the profitability is incrementally increasing. Their research revealed that it is more difficult and expensive to attract new customers than to plan marketing activities to keep loyal customers. Overall, Garcia de Leaniz (2015) summarized that loyalty is a primary influencing factor of a booking intention. Therefore, the author tested the hypothesis:

Hypothesis 6: There is a direct and encouraging relation between brand loyalty and the purchase intention of a customer.

- **6a. hypothesis:** Brand loyalty has a considerable positive direct effect on purchase intention.

2.7 Research model and hypothesis

Based on the literature review, the author concludes that many studies adopt the TAM model to explain the acceptance of travelers of technology and the TRI to understand the readiness of technology implemented in hotels. (Lai et al. 2020) Porter and Donthu (2006) described in their paper these two research models and explained the technological acceptance or resistance of an individual. The first one is the technology acceptance model (TAM). Han et al. (2021) describe in their research paper that TAM was initially developed to understand the computer acceptance behavior of employees better and was in a second step further developed to explain user acceptance of technology. Goh et al (2020) specifies that this model focuses on system-specific dimensions such as perceived usefulness, ease of use, intention to use, and attitude towards technology. With the help of this model, the *ease of its use* as well as the actual adoption rate and the *perceived usefulness* of an application can be described.

Lai et al. (2020) mentioned that the second model is the technology readiness index (TRI) model that focuses on the people side and explains the *willingness* to use a new technological application. During the research, the author identified four dimensions that describe the readiness of an individual to adapt to new technology. Jarrara et al. (2020) outlined that these four dimensions are optimism, innovativeness, discomfort, and insecurity. It is said that those four dimensions are independent of each other and impact the individual's use of technology in different ways.

- **Optimism** in technology means that an individual favors technological application and understands that these applications can have a significant impact on ease and flexibility in their lives.
- **Innovativeness** with technology means that an individual is a pioneer and is eager to pick up new technologies.
- **Discomfort** in technology means that an individual does not feel comfortable in applying new technologies and therefore cannot see the added value of these applications
- **Insecurity** with technology means that an individual has significant concerns about using technology and does not trust the processes in the background. (Jarrara et al. 2020)

Parasuraman (2020), detailed that a tendency to rank optimism and innovativeness with a high score states that an individual is eager to use new technology. In contrast, a high score in discomfort and insecurity has the opposite effect and reveals that an individual is less likely to use and adapt to new technologies.

Lin et al. (2005), merged both (TAM and TRI) models and came up with TRAM, which stands for technology readiness and acceptance model, and is in the position to give a holistic view. This com-

bined model can explain how personal dimensions drive the acceptance and use of new technological applications of an individual while also focusing on system-specific characteristics. Godoe and Johansen (2012), argued that there will always be a fast and slow adopter of new technology. If an application is perceived as not useful or the ease of use is not given, the application will be rejected.

Kim et al. (2021), agreed to what is said above that most of the researchers use for their studies the technology acceptance model (TAM) to interpret traveler's acceptance of smart technology and to draw a conclusion of the influence. McFarland and Hamilton (2006), flagged the fact that the well-known TAM model is ignoring the influence of how the readiness of using a technology of an individual can be tested with the readiness model (TR).

Despite its criticism, the author decided to adopt the TAM research model for his study. As it is still known to be a powerful tool for the hospitality industry to assess the acceptance of smart technology of travelers. The author complemented the base of the TAM model with the external variable perceived security. Therefore, the author proposes the below demonstrated research model in figure 5.

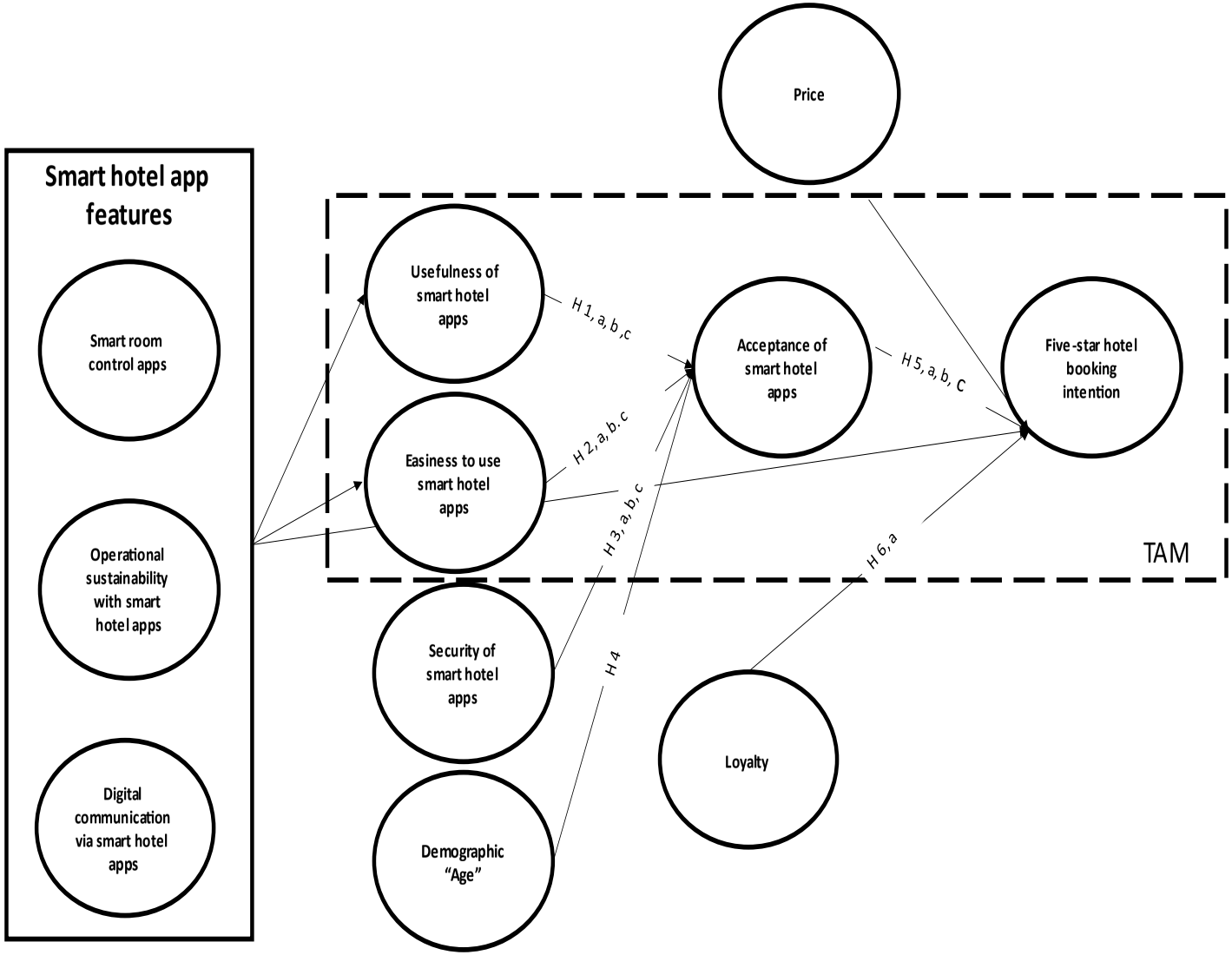

Smart hotel app features
Smart room control apps
Operational sustainability with smart hotel apps
Digital communication via smart hotel apps
Price
Usefulness of smart hotel apps
Easiness to use smart hotel apps
Security of smart hotel apps
Demographic "Age"
Acceptance of smart hotel apps
Loyalty
Five-star hotel booking intention
TAM
H1, a, b, c
H2, a, b. c
H3, a, b, c
H4
H5, a, b, c
H6, a

FIGURE 4: RESEARCH MODEL

SOURCE: AUTHOR, 2021

Based on the research model the author developed the following hypothesis. The hypothesis 1 – 6 are attempting to test the correlation between the above demonstrated variables and the five-star booking intention with the influence of smart hotel features.

3 RESEARCH METHODOLOGY

During the research process for the literature review, it turned out that the most significant part of the literature is focusing on how smart technology can influence customer behavior in the actual trip phase. Only a limited amount of literature focuses on customer behavior changes due to smart technology and, in particular, smart hotel apps during the pre-trip phase.

Therefore, to fulfill the objectives of this thesis and to understand how smart hotel apps influence customer booking intention and how sensitive five–star hotel guests are regarding room price, primary data needed to be collected. In addition, the author aimed to analyze behavioral patterns of different smart hotel app features.

To get an understanding of the price sensitivity towards smart hotel app features of five-star hotel guests, the author experimented with six different scenarios. The author used the two by two factorial design for designing the experiment of the six scenarios, as two dependent variables were tested. (Crump et al, 2018) The scenarios were followed by a questionnaire which consists of two parts. The first part was about to get a detailed understanding of the guest's smart hotel app opinion and the second part covered demographic questions. Questions can be seen in the Appendix.

To conduct the experiment the developed six scenarios followed the same structure. The scenarios only differ in price, and the tested smart hotel app feature. The scenarios followed the sequence as demonstrated in table 1 below.

Scenario Matrix				
Scenarios		**Smart room control feature**	**Digital communication feature**	**Sustainable operations feature**
Price	High	HxRC *(Scenario 1)*	HxDC *(Scenario 3)*	HxSO *(Scenario 5)*
	Average	AxRC *(Scenario 2)*	AxDC *(Scenario 4)*	AxSO *(Scenario 6)*

TABLE 1: SCENARIO MATRIX

SOURCE: AUTHOR, 2021

The first two scenarios aimed to test the smart room control features with both a high and an average room price. Scenario three and four intended to assess digital communication via a smart app feature with a high and average room price. The fifth and sixth scenario's objective was to research the sustainable operation feature via a smart app with a high and average room price.

In the first part of the empirical study the experiment, all participants were randomly assigned to a scenario. Interviewed travelers or hotel guests were asked to imagine planning their stay in the five-star hotel in the near future. The participants needed to answer their given scenario (price and given smart hotel app) by voting how likely they would book a hotel room in the. The price sensitivity in relation to a smart hotel app was tested with a 5–point Likert scale ranging from very likely, likely, neither likely nor unlikely, unlikely to very unlikely. With this approach, the author wanted to understand whether travelers are willing to pay a higher room price for using smart hotel app features or not. Also, this variable was used in further descriptive statistical analysis.

In the second part of the questionnaire, the participants were asked some general questions about their smart hotel app opinion. The questions were phrased clear and simply. According to Nunkoo (2018) a questionnaire is the most preferred research technique for the tourism industry. The reason is that questionnaires are known to be the easiest and quickest and most efficient research method in this field to understand a customer's emotion, opinion, feelings, or mood. Indeed, the research depends on the trustful statements of the interviewed people.

Therefore, the author created 17 closed questions (attached in the appendix) based on the research model, to find an answer to the research thesis. Also, these variables were tested with a 5-point Likert scale ranging from strongly agree, agree, neither agree nor disagree, disagree to strongly disagree. Finstad (2010) mentioned that Likert scale are known to be a great methodology to rate variables in a quick and efficient way.

The third and last part of the questionnaire covered demographic questions such as age and gender. According to Hughes et al. (2016) in their guidance chapter, age is one of the fastest and obvious demographics to be tested to improve descriptions of research samples. As regards gender, the author used a closed question with answer possibilities male or female. He also suggested adding the word currently to the gender questions as the gender could change during an individual's lifetime. However, the author decided to leave the answer possibilities male and female.

3.1 Measurement variables

The author decided to use the quantitative research method, which aims to analyze the correlation between variables with the help of statistical and mathematical approaches. According to Saunders et al. (2019), the particularity of quantitative research methods is that the results can be generalized, which means that they can be reused under certain circumstances for other studies.

All variables chosen to test the hypothesis which were used for the author's empirical study were derived from existing studies that measure the influence of smart hotel app features on customer booking intention which can be seen in table 2. However, all the variables were adjusted to meet

the goal of the author's empirical study. The variables to describe the acceptance of smart technology were used from Han et al. (2021) and Walczuch et al. (2007). Items to understand the relevance of the security of smart hotel apps were derived and adjusted from Pradhan (2018), Agag et al. (2016) and Han et al. (2021). While for getting clarity on the variable loyalty for smart hotels, Azzari et al. (2020) was cited. The usefulness and easiness of smart hotel apps usage were abstracted from Han (2021) and Walczuch (2007). Demographic variables came from Breda et al. (2019). Table 2 below shows an overview of the variables, questions, and citations used for the questionnaire.

Variable	**Acronyms**	**Question**	**Citation**
Booking Intention	BI1	I want to book this hotel room in the Steirerschloessl	Azzari et al. (2020)
Loyalty	L1	The Steriereschloessl would be my first choice	Azzari et al. (2020)
	L2	I am committed to the Steirerschloessl	Azzari et al. (2020)
Acceptance	Acc1	I would be generally open to using the described smart hotel app	Han et al. (2021) / Walczuch et al. (2007)
	Acc2	It would be much better for me to use the smart hotel app to receive better service	
	Acc3	Using the smart hotel app would enhance the effectiveness of hotel service delivery	
Perceived usefulness of usage	PUOU1	Using the smart hotel app would provide convenience for me	Han et al. (2021)
	PUOU2	The smart hotel app would give me more control in planning my stay in a five-star hotel	Walczuch et al. (2007)
Perceived ease of usage	PEOU1	I could figure out how to use the smart hotel app without contacting the hotel staff	Walczuch et al. (2007)
	PEOU2	The smart hotel app would be easy and clear for me to understand	Han et al. (2021)
Perceived security of usage	PS1	Using the smart hotel app would involve security risks	Pradhan et al. (2018)
	PS2	I would be concerned about the security of my private data if I conducted a transaction via a smart hotel app.	Agag et al. (2016)
	PS3	Using the smart hotel app would be safe	Han et al. (2021)
Demographics		In which year were you born?	Breda et al. (2019)
		Which gender are you?	

TABLE 2: MEASUREMENT VARIABLES

SOURCE: AUTHOR, 2021)

3.2 Data collection

Figure 5 below describes the data collection process which consists of three phases. The first step was as described above the literature review and the development of the research model in parallel which happened in the month of July. Based on the research model the author created a questionnaire by using the SurveyMonkey tool. The survey tool was allowing to download a summary of the responses in pdf, excel and spv which is needed for SPSS. In the second phase, the author conducted a pilot test with five volunteers to ensure that the questionnaire flow works and will provide meaningful results. For pilot testing the questionnaire, the author used the first week of August 2021. After reviewing the feedback of the five volunteers, the author slightly adapted and reduced the number of questions in the questionnaire. The third step started in the second week of August 2021, when the author started to roll out the survey. The questionnaire was only distributed in English. In a first stage the author shared the survey with hotel guests from the small boutique hotel next to Red Bull Ring, who stayed at the hotel for at least one night in the past two years. The author assumed that two years are a realistic time frame for a meaningful evaluation because, on the one hand, it considers the short period of open doors during summer 2020 when the pandemic forced a break. On the other hand, two years ago, the hotel facility had a renovation. So, with this time frame, the author ensured that all guests enjoyed a similar experience. However, the response rate via mail was very low. To ensure to collect enough data to have a representative study the author decided to collect primary data by sharing the questionnaire link via What's app as well as distributing paper-based questionnaires at events of the hotel. Events were a horse race and a wedding that took place in summer in the hotel. Last but not least the survey was also forwarded to friends, family, and fellow students via What's app link. The author was able to collect 61 questionnaires via What's app link and 241 via the paper-based survey. Those recipients contacted via What's app received a link to the survey that could be easily filled out using smartphones or computers. 20 questionnaires were started but were not completed online. In general, to fill out the survey, the author assumed an average of approximately 5–10 minutes for completing all survey questions. The average response rate online was 4 minutes and 45 seconds. The fieldwork was conducted from August 8th to August 25th. In detail the author was able to collect the majority of the questionnaires between August 19th and 22nd as on these 4 days the special events such as the horse race and the wedding took place at the hotel. Nutty and Dulcan (2008) explained that in general paper-based surveys have a higher response rate than online surveys. In addition, Dommeyer et al. (2002) researched that paper – based surveys are perceived to be more anonymous than online surveys. In return Watt et all (2002) mentioned that the paper surveys are highly resource intense as regards the data entry which is automatically generated in online surveys. In order to have all filled out questionnaires stored in one location; the author had to transfer all collected paper-based questionnaires into the survey tool manually.

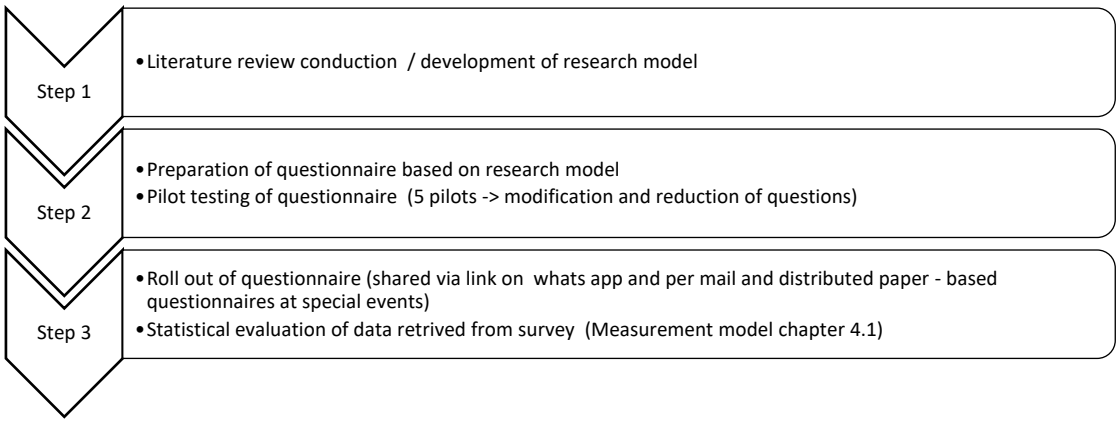


FIGURE 5: DATA COLLECTION PROCESS

SOURCE: AUTHOR, 2021

4 DATA ANALYSIS AND DISCUSSION

4.1 Measurement model

Firstly, the author used basic descriptive statistics to analyze important variables for the study. Secondly, the author tested the reliability through a Cronbach alpha test to understand and test the validity and consistency of the question items. According to Ercan et al. (2007) the Cronbach alpha test is a great method and appropriate for studies with Likert scale. By using the Cronbach alpha method to measure consistency a value of .7 or above is considered as an acceptable reliability. (Taber, 2018) Thirdly, the author applied the simple linear regression analysis technique to test the six phrased hypotheses. The author decided to run the regression analysis wit SPSS 27 software and ensured that all assumptions are met for regression. The level of significance was set $p < .05$. Regression analysis is a technique that is used in the statistics to analyze the relationship between dependent and independent variables. (Uyanik & Güler, 2013) In a first step the author tested the dependent variable acceptance of the smart hotel app features with the independent variables' usefulness of usage, ease of usage, security of usage, age, and gender. In the second step the author tested the dependent variable the five-star hotel guest's booking intention with three independent variables price, acceptance of smart hotel apps and loyalty. To assess the six scenarios with smart app feature and high and average price, the author applied an ANOVA which is a further development of the simple linear regression. (Tabachnick & Fidell, 1996)

4.2 Measurement model assessment

4.2.1 Basic descriptive statistic

The author performed basic descriptive statistical analysis to identify the characteristics of participant's responses to each variable relevant for the study. In total the author achieved 302 fully filled out questionnaires. Even though the aim was to distribute the questionnaire evenly between male and female hotel guests, the response rate from women was 52,32%, while 47,48% men responded to the questionnaire. Most of the interviewed people belong to the demographic group of Millennials with 44,37%, followed by Generation X with 22,52%. The participation among the Baby Boomers generation amounted to 17,22%, Generation Z to 12,91%, and last but least, the response rate from the silent generation was only 2.98%. The small sample size of the silent group can be explained by the fact that during summer, the days were very hot, and the older generation did not come to visit any events or choose to stay in the hotel for a weekend getaway. The high participation rate of Millennials also does not come by surprise as most hotel guests are Millennials and Generation Z. These assumptions and observations have also been seen in the booking records of the hotel. The table 3 below reflects the demographic picture of the sample.

Demographics	Category	Percentage (%)
Gender	Female	52.3%
	Male	47.7%
	Total	**100%**
Age	Generation Z	12.9%
	Millennials	44.4%
	Generation X	22.5%
	Baby Boomers	17.2%
	Silent Generation	3.0%
	Total	**100%**

TABLE 3: DEMOGRAPHIC PICTURE OF 302 SURVEYS

SOURCE: SURVEYMONKEY, 2021

In a next step the author calculated the mean value and standard deviation of all 13 variables that are demonstrated in table 4 below with acronyms explained in table 2.

Variables	Mean Value	Standard Deviation
BI1	2.29	1.14
L1	2.59	1.12
L2	2.67	1.15
Acc1	2.00	0.93
ACC2	2.17	1.04
ACC3	2.20	1.05
PUOU1	2.22	1.05

PUOU2	2,38	1.10
PEOU1	2.30	1.09
PEOU2	2.46	1.17
PS1	3.21	1.24
PS2	3.10	1.24
PS3	2.50	1.07

TABLE 4: DESCRIPTIVE STATISTICS (ALL ACRONYMS ARE EXPLAINED IN TABLE2)

SOURCE: DATABASE OF SPSS, 2021

4.2.2 Reliability test

As mentioned above the second step to determine whether the items constructed for the survey instrument also result in reliable measurements, a reliability analysis with Cronbach`s Alpha was carried out for the respective items or scales. For this analysis the aggregated variables were taken. The respective characteristic values for the scales or constructs are summarized in table 5. It can be seen from the key figures in the Cronbach Alpha column, only the scale for the perceived usefulness of smart hotel apps and perceived security of smart hotel apps were slightly too low but still acceptable.

Variables	Mean Value (aggregated)	Standard Deviation (aggregated	Cronbach Alpha
Acceptance of smart room hotel app features	2.13	0.85	0.79
Perceived usefulness of smart room hotel app usage	2.30	0.91	0.60
Perceived ease of smart room hotel app usage	2.38	1.02	0.77
Perceived security of smart room hotel app usage	2.94	0.92	0.69
Brand loyalty	2.63	1.03	0.79

TABLE 5: RELIABILITY TEST

SOURCE: DATABASE OF SPSS, 2021

4.2.3 Hypothesis testing

4.2.3.1 ANOVA

First, to consider the relationship between the scenarios and the booking intention, the author calculated a factorial ANOVA analysis with the independent variables price and app feature and the dependent variable booking Intention. Table 6 shows the average values and standard deviations of the booking intention according to the different app features and the presented price category.

Booking intention per scenario	Mean Value	Standard Deviation	Participants
Smart room control features	2.26	2.26	109
Digital communication features	2.31	1.09	93
Sustainable operation features	2.32	1.17	99

High price	2.32	1.09	148
Average price	2.28	1.22	153

TABLE 6: BOOKING INTENTION PER SCENARIO

SOURCE: DATABASE OF SPSS, 2021

The result showed that the app feature is not significant on the booking intention F(2.29)=.11, p=.90. And also, in the price no significant differences in the reported booking intention could be observed, between those in the group of the high price and those from the group of the average price F(1. 29)=.06, p=.80.

Figure 7 illustrates the exact average values of the booking intention according to app features and price.

FIGURE 6: BOOKING INTENTION PER APP FEATURE AND PRICE FROM SCENARIOS

SOURCE: DATABASE OF SPSS, 2021

Also, here was no significant main effect of the independent variable scenario F(2.29)=0.11, p=.90. The price showed when looking at the mean values according to the different groups no noticeable

differences. Again, there was also no statistically significant difference: The reported booking intention did not differ between average price (M= 2.28, SD=1.22) and high price (M= 2.31, SD=1.07), t(299)=-0.22, p=.82.

4.2.3.2 Linear regression on acceptance of smart hotel apps features

In the following, hypotheses (1-6) derived from the research question are statistically tested by using a liner regression method and the corresponding results are presented. Also, for this analysis the aggregated variables were used.

Predictor	R^2	*Beta*	*T*	*p*
Perceived usefulness of usage	.52	0.45	8.85	<.01
Perceived ease of usage		0.17	3.43	<.01
Perceived security of usage		0.15	3.29	<.01
Smart hotel app features		-0.45	-1.08	.27
Baby Boomer		-0.00	-0.05	.95
Generation X		-0.16	-1.50	.14
Millennials		-0.19	-1.55	.12
Generation Z		-0.18	-2.06	.04
Gender		-0.71	-1.74	.82

TABLE 7: LINEAR REGRESSION OF ACCEPTANCE OF SMART HOTEL APP FEATURES

SOURCE: DATABASE OF SPSS, 2021

To check whether perceived usefulness of usage **hypothesis 1** a -c according to app feature has an influence on the acceptance of smart hotel apps, a regressions analysis with the aggregated variable perceived usefulness of usage with the dependent variable acceptance were calculated.

The perceived usefulness of usage proved to be a statistically significant predictor of acceptance R^2=.52, F(9.28)=35.34, p<.01 which is shown in table 7. Overall, the perceived usefulness of usage

of all three smart hotel app features showed a positive influence on the acceptance of all three smart hotel app features.

As part of the second **hypothesis 2 a-c** the significance of the perceived ease of usage per app feature on acceptance was tested. Here, again a simple regression analysis on the dependent variable acceptance of smart hotel apps was calculated. The perceived ease of usage showed a significant influence on acceptance R^2=.52, F(9.28)=35.34, p<.01 as demonstrated in table 7. Overall, perceived ease of usage is considered to positively influence the acceptance of smart hotel apps. The assumption is confirmed.

Hypothesis 3 examined the relationship between perceived security of usage per app feature and the acceptance of smart hotel apps. To test the variable security a recording of question 10 and 11 had to be carried out by the author. Question number 10 and 11 were phrased in a way to ask for the perceived risk and not for the perceived security. Therefore, to ensure to calculate the right average for the variable security, the author recoded question number 10 and 11 in SPSS. In detail within the third hypothesis, the influence of perceived security on the dependent variable acceptance of smart hotel apps were investigated. It showed a significant influence of the perceived security on the acceptance R^2=.52, F(9.28)=35.34, p<.01. Table 7 again summarizes the values of the predictors. By adopting the linear regression method, hypothesis 3 a-c were accepted. A five-star hotel guests' perceived security of smart hotel apps does positively affect acceptance of smart hotel app features.

Hypothesis 4 concerns the relationship between age and the acceptance of smart hotel apps. The assumption was that age impacts the way smart hotel apps are accepted by five-star hotel guests. Also, in this case the author calculated a liner regression from the independent variable age to the dependent variable acceptance of smart hotel apps. In this case only Baby Boomers, Generation X, Millennials and Generation Z were tested. The Silent Generation was excluded as the significance of the above-mentioned generations was calculated against the Silent Generation. The statistical verification demonstrated a significant influence for the Generation Z which means the hypothesis is partially accepted. R^2=.52, F(9.28)=35.34, p<.01. Therefore, only generation Z has a significant influence on the acceptance of smart hotel apps. The Generation X, Millennials and Baby Boomers are not significant. The negative value demonstrates that there is a tendency that with increasing age the acceptance is reduced.

The statistical evaluation also demonstrated that **gender** is not playing a significant role in the acceptance of smart hotel apps R^2=.52, F(9.28)=35.34, p=.82. A separate hypothesis for the variable gender has not been phrased.

4.2.3.3 Linear regression on intention to book

Furthermore, the author performed a linear regression on the dependent variable intention to book with the independent variables' acceptance of smart hotel apps, loyalty, and price.

Predictor	R^2	*Beta*	*T*	*p*
Acceptance of smart hotel apps	.19	0.26	5.10	<.01
Loyalty		0.31	2.65	<.01
Price		0.01	6.00	.85

TABLE 8: LINEAR REGRESSION ON INTENTION TO BOOK

SOURCE: DATABASE OF SPSS, 2021

As a next step as demonstrated in the research model, the author wanted to measure travelers' acceptance of smart hotel apps on the booking intention **hypothesis 5 a – c**. Therefore, to investigate the influence of the acceptance on the booking intention, the respective information with the aggregated variable acceptance was regressed to the dependent variable booking intention. It turned out that acceptance of smart hotel apps is significant predictor of the booking intention R^2=.19, F(3.29)=23.58, p<.01. Table 8 gives the exact values of the predictors. The acceptance smart hotel app features show a positive influence on the booking intention.

In order to investigate the assumption recorded in **hypothesis 6** that brand loyalty has a positive influence on the booking intention, a simple linear regression was also calculated here. In this case, the independent variable represented the brand loyalty and the dependent variable the booking intention. There was a statistically significant influence R^2=.19, F(3.29)=3.58, p<.01.

Also, for the variable **price** no separate hypothesis was phrased. The variable price was used and necessary for the ANOVA and which can be seen in figure 7. The study outcome confirmed that the variable price is not significant on the intention to book R^2=.19, F(3.29)=23.58, p=.85.

4.2.3.4 Results

In table 9 a summary overview of the tested hypothesis and their results can be seen. Overall, the author can conclude that five-star hotel guest's intention to book is influenced by loyalty and acceptance of smart hotel apps while loyalty demonstrated a greater influence than acceptance. The variables price, age and gender are not significant which means that they are not influencing booking intention of a five – star hotel guest. The acceptance of smart hotel apps is influenced by usefulness, ease, and security of usage as well as Generation Z. Baby Boomers, Generation X, Millennials, and gender are not significant influencing the acceptance of smart hotel app features.

#	Hypothesis	Result
1	A five-star hotel guests' perceived usefulness of smart hotel apps positively affects acceptance of it	Accepted
1a	The perceived usefulness of digital communication received via a smart hotel app positively affects acceptance of it	Accepted
1b	The perceived usefulness of smart room control features positively affects acceptance of it	Accepted
1c	The perceived usefulness of sustainable operations via a smart hotel app positively affects acceptance of it	Accepted
2	A five-star hotel guests' perceived ease of usage of smart hotel apps positively affects acceptance of it	Accepted
2a	A five-star hotel guests' perceived ease of usage of a digital communication received via a smart hotel app positively affects acceptance of it	Accepted
2b	A five-star hotel guests' perceived ease of usage of smart room control features positively affects acceptance of it	Accepted
2c	A five-star hotel guests' perceived ease of usage of sustainable operations via a smart hotel app positively affects acceptance of it	Accepted
3	A five-star hotel guests' perceived security of smart hotel apps positively affects acceptance of it	Accepted
3a	A five-star hotel guests' perceived security of digital communication received via a smart hotel app positively affects acceptance of it	Accepted
3b	A five-star hotel guests' perceived security of smart hotel room control features positively affects acceptance of it	Accepted
3c	A five-star hotel guests' perceived security of sustainable operations via a smart hotel app positively affects acceptance of it	Accepted
4	Age impacts the way smart hotel apps are accepted by five-star hotel guests	Partially accepted
5	Consumer's acceptance of smart hotel apps in five-star hotels positively influence the booking intention of a five-star hotel guest	Accepted
5a	Acceptance of digital communication received via a smart hotel app positively influences a five-star hotel guest's booking intention	Accepted
5b	Acceptance of smart room control features via a smart hotel app positively influences a five-star hotel guest's booking intention	Accepted

5c	Acceptance of sustainable operations via a smart hotel app positively influences a five-star hotel guest's booking intention.	Accepted
6	There is a direct and encouraging relation between brand loyalty and the purchase intention of a customer.	Accepted
6a	Brand loyalty has a considerable positive direct effect on purchase intention	Accepted

TABLE 9: RESULTS OF HYPOTHESIS TESTING

SOURCE: DATABASE AUTHOR, 2021

5 IMPLICATIONS

5.1 Theoretical Implications

The author's research with the specific target group revealed that the booking intention of a five-star hotel guest is not significant influenced by price and smart hotel app features. According to Bilgihan et al. (2010) smart hotel app features are gaining increasingly importance and technological progress is very quick. Beldona and Cobanoglu (2007) described that more and more hoteliers understand the benefits of smart technology and started to offer smart hotel apps as amenities. Cobanoglu et al. (2011) stated that state-of-the-art technological features impacts positively a guest's level of satisfaction which ultimately impacts guest's behavior and booking intention. As mentioned above the results of the author's empirical study confirm the statement of Cobanoglu et al. 2011.

Still, for the sample of the author's quantitative research, the loyalty has been identified as the main driving factor for the five-star hotel's guest booking intention. The author believed that this result is driven by the selected target group of the survey which are considered long-term repeat guests of the hotel. Another explanation could be that the strong brand reputation of the investigated hotel in the local tourism community. (Garcia de Leaniz, 2015)

The acceptance of smart hotel app features has been identified as the second strongest influence factor on the booking intention. That the younger generations have shown a higher significance leads to the conclusion that smart hotel app features will be more important for the future booking intention of five-star hotel guests. (Vogles, 2018) Also, as highlighted by a study from Vogles (2018) the expectation on the easiness and usefulness of smart hotel app features will increase in the future driven by more digitally affine generations.

As said, also price did not show a significant value on the booking intention in the empirical study. As previously shown by Yu & Timmermann (2014) also from the result of the author's research one can conclude that emotionally engaged and loyal customers are less price sensitive.

To understand if the hotel guests are willing to use the smart hotel app features the acceptance had to be tested separately. The author concluded that the acceptance of smart hotel app features is positively influenced by usefulness, easiness, and security of usage and by the Generation Z. The different generations have different pattern of smart hotel app acceptance and usage patterns and technology acceptance decreases with increasing age. (Kim et al. 2021) The research agreed with Singh and Dangemi (2016) that described Generation Z with a high level of technology affinity in their DNA as they are born and raced with these technological advancements. They even go on step further and give the Generation Z the name Generation I which stands for digital natives. According to the literature Millennials are also very familiar with technology as they have grown up in a digital

age. (Price & Vivion, 2016) Controversially to the study Price and Vivion (2016) mentioned that Millennials are also keen to use smart hotel apps due to their experience with technology though their entire lifetime and seek for an experience in a hotel rather than only accommodation. Furthermore, the study revealed that Generation X are also not significant. Generation X are bridging behavioral patterns from Millennials and the Baby Boomers. As they are between forty and fifty years old, they still have capability to accept smart hotel apps and can learn how to use these smart apps. (Fishback, 2019) Fishback (2019) clearly stated that this generation is mainly using these smart apps for purpose rather than for entertainment and added that Millennials the Baby Boomers are about to retire, and their purchasing power is decreasing. This group travel for relaxation and enjoyment and are less willing to use technology in tasks related to their trip.

From the results and conclusion of the research, the author deduced in line with Huong (2020) that there are multiple, connected factors to be considered that influence a hotel guest's booking intention positively or negatively. Loyalty and acceptance of smart hotel apps are positively influencing the booking intention in this research. Thus, in the following paragraph managerial implication the author advised hoteliers a set of actions to minimize the negative effect and to further enhance the positives.

5.2 Managerial Implications

The author is of the opinion that the below-listed recommendations are specifically for the investigated hotel and any other five-star hotels for this specific region. The author realized during his empirical research that the respondents of the questionnaire are demonstrating very similar behaviors and share similar travel patterns. He based this opinion on the fact that the study was conducted mainly in "the Murtal area" where most respondents are located. "The Murtal area" in its nature a very special area as it is a very small rural industrial area in Styria. It attracts travelers who are either big fans of the motor race sport disciplines or work in the rural industrial area and want to relax in an excellent five-star facility for a weekend. Apart from the famous racetrack, the area is not offering too many tourist activities.

Overall, the findings of the research are in line with the available literature on the market. The empirical study confirmed a vast interest from five-star hotel guests to use smart hotel apps. Additionally, it supports the perspective of Bilgihan et al. (2016) which stated that premium leading hotels need to start integrating smart hotel apps into their everyday business to keep attracting and satisfying five-star hotel guests' needs. Gössling (2020) explained that this shift in mindset has most likely been accelerated by the latest Covid-19 pandemic, which asks for new business processes to ensure health and safety.

Five-star travelers independent of gender or generation group develop with time a better understanding of the benefits of smart technologies. It turned out that not only operational efficiency can

be enhanced with smart hotel apps, but also smart hotel apps are an opportunity to enhance customer's experience by delivering better service and is perceived to be more convenient for the hotel guest's and supportive in the trip planning.(Fathy et al. 2018)

Kim et al. (2021) highlighted that smart hotel apps act as an interface between guests and hotel staff to satisfy needs of hotel guests more efficiently, personalized and with more speed.

However, the empirical study revealed that travelers believe that smart hotel apps involve security risks and are even more concerned about the security of their private data while conduction a transaction via a smart hotel app. The research demonstrated a concern that individual private data can be put at risk by using smart hotel apps. No matter if it is about unauthorized access of a third party, secondary usage, or errors. Smart hotel apps such as the smart room control features or the digital communication features add another layer for disclosing private information such as habits, wishes, needs, or preferences for individual room settings or a tracking record of a guest's activities during a stay in a hotel.(Kim et al. 2021)

According to Kaushik (2021) the standards regarding cyber security in the tourism industry are relatively low compared to other industries. Therefore, the author would advise taking measures to give the hotel guests a better feeling while conducting any transactions via smart hotel apps. Diogenes et al. (2019) advised that a simple but powerful solution is to install a wireless connection that is only accessible for hotel guests and limited staff, including a trustworthy software solution. In addition, all devices need to be set up with a credential login to ensure unauthorized users do not have access to the data storage.

Finally, Max from the online blog Cybersmart (2021) a blog regarding cyber security in the hospitality industry highlighted the importance of trained staff. It is argued that the best software solution cannot fix any unethical data treatment of hotel staff. Therefore, the author consults the hotel to ensure that their staff is properly trained and certified with compliance topics regarding the treatment of sensitive customer data. The author would advise showcasing these certifications in the reception area, so they will be visible to all customers immediately when entering the hotel facility. Wainstein (2021) would also recommend to send a push message when opening the smart hotel app for the first time to users that advice all hotel guests on the security standards and the compliance certification of the hotel to convey to the guests a safe and good feeling by using the smart features the hotel is offering.

Another interesting finding of the study was that almost one third of the participants feel insecure with the handling of smart hotel apps. To reduce the number of potential users that demonstrated a certain degree of insecurity with the handling of smart hotel apps, the author would advise the five-star hotel to put more effort into educating hotel guests on how to use these smart hotel apps. Additional education efforts can reduce discomfort or insecurity. The hotel could display education

brochures in all hotel rooms and in public areas to make the information easily accessible for each and everyone. Also, short demonstration videos on “how to use for dummies” could help to reduce the obstacle for travelers to start using a smart hotel app for the first time. (Haselmayr, 2015)

Regarding the loyalty of hotel guests, the author knows as an experienced hotelier that driving satisfaction of hotel guests, which leads to loyalty, is one of the most challenging processes of the hotel business. Knowing a hotel guests’ preference based on data of previous experiences opens an opportunity to make the hotel experience unique and have a competitive advantage over other hotels. (Akunja, 2010) Of course, smart hotel apps can bring customized services to another level due to historical data availability. Reitknecht (2020) considered the possibility to boost loyalty through digital communication via smart hotel apps by listening to feedback. With this feature, the hotel can actively listen to the hotel guest, as they are able to write anonymous feedback. The author agrees with Reitknecht (2020) and strongly believes that while listening to a customer’s needs, wishes or concerns, loyalty can be boosted, and the digital communication feature offers a great platform to address these personal wishes.

As loyalty is according to the survey the strongest influence factor the author took a close look at it in his literature review. Yoo et al. (2017) voiced that another possibility to boost loyalty would be gamification via smart hotel apps. Their research proved that gamification concedes having fun and allowing customers to engage and interact with the hotel emotionally and ultimately can shape the guest’s behavior. As said in the introduction, the tourism industry shows an intangible character (Koutlas, 2014), and therefore, this physical interaction of gamification via smart hotel apps can even be more powerful. Big hotel chains such as Hilton or Marriott have used a kind of gamification for already a long time by letting the customers collect points through loyalty programs. (Corrêaa & Kitano, 2015)

However, gamification not only can boost loyalty. Negrusa et al. (2015) researched a strong correlation between gamification and sustainability. They argued that gamification in relation to sustainability in the hospitality industry can boost loyalty, impact social positioning, and reduce unnecessary waste of scarce resources such as water or energy consumption.

Therefore, the author sees gamification via smart hotel apps as a great opportunity to raise awareness and influence tourist’s booking intention for a more efficient operation sustainability. He pointed out that gamification can be more effective for changing tourist behavior but is less effective for maintaining tourist behavior. This means that the shift towards an operational sustainable awareness can better be encouraged by gamification than maintaining operational behavior. Additionally, these games need to have a sophisticated and well-advanced design or layout as travelers who are willing to use smart apps usually have high expectations of design and entertainment factors. (Smalls, 2021)

Pereira et al (2021) explained that to draw tourist's attention to environmental issues and the benefits of sustainable apps, hotel managers are advised to distribute booklets in public areas. The idea is similar as described above with the booklets that should explain how to use the available apps. However, in this case the booklets should cover environmental issues the hospitality industry is confronted with and should explain countermeasures taken by the hotel via smart apps to operate greener. This action will ensure that the same messages will be spread, and travelers will start to understand better the usefulness of this respective app feature.

Regarding the hospitality industry, Han et al. (2021) highlighted that smart hotels should first focus on guests who are open and willing to use new technological applications. Especially during the testing phase of the technology, a hotel should start with a group that is eager to use new applications, as using these technologies is voluntary for them and not needed to enjoy a holiday or get better service in a five-star hotel.

Overall, the author learned from the literature review and the empirical study that five-star travelers are interested in premium service. (Karunaratne & Jayawardena, 2010) Additionally in the research from the author it turned out that room price is not influencing the booking intention. In accordance with (Lockery, 2000) in this study for the five-star hotel guests' price is not a major influence factor for the booking intention. This could be explained that five-star travelers expect for a higher room price better service quality, better competence of staff, more luxury furnishing, and personal concierge service. (Karunaratne & Jayawardena, 2010) Additionally, a great majority also sees a great benefit in smart hotel apps and is eager to use and share their personal data upfront to help the hotel to offer a much better customized service with higher quality standards. (Gretzel et al. 2015)

Bilgihan et al. (2016) concluded, for sure, it will take time for smart hotel apps to be treated as a standard requirement for a five-star hotel. But what clearly can be concluded is that these technological advancements are the future of the hospitality industry. Not investing in these technological advancements is not a sustainable business case. The digital concierge is on the rise, even though it will take time until human beings can be replaced by machinery in service-related industries. It is not a change from now to tomorrow. But it is around the corner.

6 CONCLUSION

This paper was written to achieve a detailed understanding of the influence of smart hotel apps on a five-star hotel guest booking intention. The pre-trip phase was selected to be analyzed in detail as this phase is the most challenging phase for the hotel to engage with the customer due to the physical distance of both sides. (Pabel et al. 2016)

Gretzel et al. (2015) described that smart hotel app features are technological advancements that shaped smart tourism. Smart tourism, in its nature, links the digital world with the physical tourism industry and promises its customers a customized experience with enhanced service quality.

Therefore, the author created a research model to investigate the influence of smart hotel apps on customers booking intention based on the technology acceptance model (TAM) by using the simple linear regression model for analyzing and testing the hypothesis.

The outcome of the author's empirical study led to the conclusion that smart hotel app features and price do not have a significant impact on the booking intention of five-star hotel guests but outlines that the experience of an individual can be enhanced. The main finding of the author's research is that so far for this leading hotel in the 'Murtal area' loyalty is the main driving factor of a five-star hotel guest's booking intention. Again, the availability of smart hotel app features is not yet influencing a purchasing decision even though smart hotel app features are a great platform to also boost loyalty programs. (Elsayed & Abed 2020) Last but not least the acceptance of smart hotel apps is besides loyalty influencing the booking intention.

6.1 Limitation

The author wants to specifically draw attention to the fact that the sample of this survey is not broad enough to generalize any recommendations as it is only conducted in one single location. As already explained in the data collection part, for collecting primary data, the main target group of participants to get feedback on the questionnaire were hotel guests that stayed in the small leading hotel close to Red Bull Ring. Even though the author expanded the target group to daytime hotel guests such as guests that came to have dinner or breakfast or visitors that came to participate in events from the hotel or wedding guests, the majority of the hotel guests demonstrated very similar demographics. Also, it needs to be noted that the investigated hotel is mainly hosting leisure guests. Therefore, the needs of business guests to design a business stay in the most efficient way with smart hotel app features usage was not clearly considered. In addition, categorically excluded from the survey were VIP guests of the small leading hotel to avoid that these premium guests are bothered with unnecessary advertising material. For this thesis and the needed statistical evaluation, the

sample size is big enough, but the author would advise to extend the sample size to draw more detailed conclusions for the entire five-star hospitality industry.

6.2 Future research

Future studies on the influence of smart hotel app features on the booking intention could be extended to all hotel categories. (Kitsios et al. 2021) As regards the five-star hospitality industry, it is perceived as a very specific industry. According to The Five-star Alliance (2020) a five-star hotel offers customers a high level of standards by providing personalized services, a vast range of amenities, and luxury accommodation. In the available literature, five stars stand for exclusivity, luxury, high quality, and elegant materials with an integrated design and not yet for digital innovative facilities. (Five-star Alliance, 2020) Therefore, the author would advise to conduct more research on the influence of smart hotel app features on the booking intention in low budget as well as average ranged hotel facilities. (Kitsios et al. 2021)

The author agrees with Citak et al. (2021) and is of the opinion that by including different hotel categories in the future research promising data on determining factors affecting the smart hotel app adoption in general could be generated. Future research in different hotel categories would also allow to measure to which extend a customer experience in different hotel categories via smart hotel apps can be enhanced. It could also be interesting to see which different benefits or risks in different hotel categories can be identified. (Citak et al. 2021) Lastly, by extending the research to different hotel categories a larger sample size can be achieved as well as the disadvantage of a single location survey can be weeded out. The sample size extension could bring the advantages of a higher validity of the survey. (Han et al. 2021) It may be also useful to apply a mix of quantitative as well qualitative research methods. Expert interviews can allow to understand a different perspective of smart hotel app's influence on the booking intention. (Giousmpasoglou & Hua 2020)

Another future research focus could be on the automatic robot process. Lastly Mingotto et al. (2020) mentioned that automatic robot process is seen as the voice of the future and will revolutionize the hospitality industry one more time based on the advancements of smart hotel apps. However, the automatic robot process is not addressed in this literature review and excluded from the empirical study. Therefore, future research on the impact of the automatic robot process can be of added value to understand better to which extend the pre - trip phase of an individual traveler can be affected one more time.

The smart hotel technology guide (2019) stated that in theory the automatic robot process promises that hotels will be equipped with additional helping hands in everyday operations. It is argued that robots are becoming very prominent vehicles to streamline processes and to replace manpower

with robotic butlers, robotic receptionists, robotic arms as bar tender or a virtual robotic agent functioning as a tourist information touchpoint. The academic literature supported the argument with the rationale that processes can be optimized if their transactional tasks are simple, sequential, repetitive, and not too complex. The statement is supported by the fact that processes executed by a robotic are performed much faster and demonstrate an error rate close to 0 and last but not least robots can work longer working hours because they are not restricted by law. Some Asian academic literature argues that robots are also perceived as an entertaining element in the five-star hospitality industry.

Kilichan and Yilmaz (2020) specified that from a hotel perspective, it is clear that an automated process robotic can help to reduce SG&A costs, can increase revenue of a hotel, allows the hotel to be more environmentally friendly and ultimately can boost premium hotel guest's satisfaction since a staff can focus on more value – adding activities.

According to the literature from Drexler and Beckman Lapre (2019) the acceptance timeline to have robots as a day to day gadget in the five-star hospitality industry ranges from 50% like hood within forty-five years to 9% acceptance rate within the next nine years. It can be summarized that the Asian market will adapt much faster to the robotic trend. Therefore, future research should also investigate to which extent also robotic process automation can influence hotel guest booking intention of a premium traveler in the five-star hospitality industry.

7 BIBLIOGRAPHY

Books

Benckendorff, P., Xian, Z. and Sheldon, P. (2014). 'Tourism Information Technology.' 3rd Edition: CABBI Publishing.

Bidgoli, H. (2017). 'MIS 7 (Management Information Systems).' Boston: Cengage Learning.

Boes, K., Buhalis, D. and Inversini, A. (2015). Conceptualizing Smart Tourism Destination Dimensions. In 'Information and Communication Technologies in Tourism' (pp. 391 – 403). Switzerland: Springer International Publishing.

Buhalis, D. and Amaranggana, A. (2014). Smart Tourism Destinations. In 'Information and Communication Technologies in Tourism' (pp. 553 – 564). Lugano: Springer International.

Crump, M., Price, P., Jhangian, R., Chian, I. and Leighton, D., (2018). 'Research Methods for Psychology.' Brooklyn:The Brooklyn College Edition.

Dalgic, A. and Birdir, K. (2020). Smart Hotels and Technological Applications. In: Celtek, E. 'Handbook of Research on Smart Technology Applications in the Tourism Industry.' (pp. 323 – 343). USA: IGI Global.

Diogenes, Y. and Ozkaya, E. (2019). 'Cybersecurity – Attack and Defense Strategies.' United Kingdom: Packt.

Ercan, F. (2019). Smart Tourism Technologies: Applications in Hotel Business. In Krystev, V., Efe, R. and Atasoy, E., 'Theory and Practice in Social Sciences.' (pp. 528 – 546). Sofia: St. Kliment Ohridski University Press.

Garcia de Leaniz, P. (2015). Explaining Consumer Behavior in the Hospitality Industry: CSR Associations and Corporate Image. In: Camillo, A. 'Handbook of Research on Global Hospitality and Tourism Management.' USA: Business Science Reference.

Gobe, M. (2013). Recipes for Emotional Branding Strategies. In 'Emotional Branding.' (pp. 273-286). USA: Allworth Press.

Gretzel, U. and Yoo, K. (2013). Premises and Promises of Social Media Marketing in Tourism. In 'The Routledge Handbook of Tourism Marketing.' (pp. 491 – 504). London: Routledge.

Hayes, D., Ninemeier, J. and Miller, A. (2016). 'Hotel Operations Management.' USA: Pearson Educ.

Kotler, P. and Keller, K. (2006). 'Grundlagen des Marketings.' UB Heidelberg: Person Education.

Kotler, P., Keller, K. and Bliemel, F. (2007). 'Marketing-Management: Strategien für wertschaffendes Handeln.' München: Addison-Wesley Verlag.

Lamsfus, C., Martın Del Canto, D., Alzua-Sorzabal., A. and Torres – Manzanera, E. (2015). Smart Tourism Destinations: An Extended Conception of Smart Cities Focusing on Human Mobility. In 'Information and Communication Technologies in Tourism.' (pp. 363 – 375). Lugano: Springer International.

Maslow, A. (1970). 'Motivation and Personality.' New York: Harper and Row.

Nunkoo, R. (2018). The State of Research Methods in Tourism and Hospitality. In 'Handbook of Research Methods for Tourism and Hospitality Management.' (pp. 4 – 17).UK: Edward Elgar Publishing.

Oliver, R. (1997). 'Satisfaction: A Behavioral Perspective on the Consumer.' New York: MCGrawHill.

Pizam, A. and Mansfeld, Y. (2009). 'Consumer Behavior in Travel and Tourism.' London: Routledge Taylor & Francis Group.

Plog, S. (1967). Understanding Psychographics in Tourism Research. In: 'Travel, Tourism and Hospitality Research.' (pp: 203-213). New York: Willey.

Poon, A. (1993). 'Tourism, Technology and Competitive Strategies.' New York: C.A.B. International.

Rogers EM. (1983). 'Diffusion of Innovations.' (4th ed.) New York: The Free Press.

Saunders, M., Lewis, P. and Thornhill, A. (2019).' Research Methods for Business Students.' United Kingdom: Pearson Education Limited.

Sigala, M., Rahimi, R. and Thelwall, M. (2019). Big Data for Measuring the Impact of Tourism Economic Development Programmes: A Process and Quality Criteria Framework for Using Big Data. In 'Big Data and Innovation in Tourism, Travel and Hospitality.' (pp. 57 – 73). United Kingdom: Springer Verlag.

Swarbrooke, J. (2007). 'Consumer Behavior in Tourism.' Burlington: Butterworth.

Tabachnick, G. and Fidell S. (1996). 'Using Multivariate Statistics.' New York: Harper Collins College Publisher.

Journal

Agag, G. and El – Masry, A. (2016) 'Understanding the Determinants of Hotel Booking Intentions and Moderating Role of Habit.' International Journal of Hospitality Management 54 pp. 52-67.

Akunja, L. (2020) 'Effects of Customer Satisfaction on Customer Loyalty in Selected Hotels in Nairobi, Kenya.' Saudi Journal of Business and Management Studies 5 (6) pp. 334 – 342.

Atembe, R. (2015) 'The Use of Smart Technology in Tourism: Evidence from Wearable Devices.' Journal of Tourism and Hospitality Management 3 pp. 224 – 234.

Aynalem, S, Birhanu, K. and Tesefay, S. (2016) 'Employment Opportunities and Challenges in Tourism and Hospitality Sectors.' Journal of Tourism and Hospitality 5 (6).

Barile, S., Ciasullo M.V., Troiso O. and Sarno D. (2017), 'The Role of Technology and Institutions in Tourism Service Ecosystems: Findings from a Case Study.' The TQM journal 29 (6) pp. 811-833.

Beldona, S. and Cobanoglu, C. (2007) 'Importance-Performance Analysis of Guest Technologies in the Lodging Industry.' Cornell Hotel and Restaurant Administration Quarterly 48 (3) pp. 299-312.

Bethapudi, A. (2013) 'The role of ICT in Tourism Industry.' Journal of Applied Economics and Business 1 (4) pp. 67 – 79.

Bilgihan, A. and Cobanoglu, C. and Miller, B.L. (2010) 'Importance-Performance Analysis of Guest Entertainment Technology Amenities in the Lodging Industry.' FIU Hospitality Review 28 (3), pp. 84-108.

Bilgihan, A., Scoot, S., Ricci, P. and Bujisic, M., (2016) 'Hotel Guest Preferences of – in – room Technology Amenities.' Journal of Hospitality and Tourism Technology 7 (2).

Breda, Z., Pacheco, C. and Dinis, G. (2019) ‘Future trends in the hospitality industry: an analysis form customers point of view.’ Tourism in Southern and Eastern Europe 5 pp. 139 – 162.

Brown, W. (1910) ‘Some Experimental Results in the Correlation of Mental Abilities.’ British Journal of Psychology 3 pp. 296–322.

Buhalis, D. and Law, R. (2008) ‘Progress in Information Technology and Tourism Management: 20 Years on and 10 Years after the Internet the State of eTourism Research.’ Tourism Management 29 pp. 609 – 623.

Buhalis, D. and Leung, R. (2018) ‘Smart Hospitality – Interconnectivity and Interoperability towards an Ecosystem.’ International Journal of Hospitality Management 71 pp. 41 – 50.

Buhi, E., Goodson, P. and Neilands, T. (2007) ‘Structural Equation Modeling: A Primer for Health Behavior Researchers.’ Journal Health Behavior 31 (1) pp. 74–85.

Callan, R.J. (1998) ‘Attributional Analysis of Customers' Hotel Selection Criteria by U.K. Grading Scheme Categories.’ Journal of Travel Research 36 pp. 20-34.

Car, T., Stifanich, L. and Slimunic, M. (2019) ‘Internet of things (IOT) in Tourism and Hospitality: Opportunities and Challenges.’ Tourism in Southern and Eastern Europe 5 pp. 163 – 175.

Chen, S., Law, R., Zhang, M. and Si, Y. (2021) ‘Mobile Communications for Tourism and Hospitality: A Review of Historical Evolution, Present Status and Future Trends.’ Electronics 10.

Choi, G. and Parsa, H. (2006) ‘Green Practice II: Measuring Restaurant Manager’s Psychological Attributes and their Willingness to charge for the ‘Green’ Practices.’ Journal of Foodservice Business Research 9 (4) pp. 41 – 63.

Choi, S., Letho, XY. and Morrison, AM. (2007) ‘Destination Image Representation on the Web.’ Content analysis of Macau Travel Relates Website.’ Tourism Manage 28 (1) pp. 118 – 129.

Choi, TM., Chan, HK. and Yue, X. (2017) 'Recent Development in Big Data Analytics for Business Operations and Risk Management.' IEET 47 (1) pp. 81 – 92.

Christin, D., Reinhardt, A., Kanhere, SS. and Hollick, M. (2011). 'A Survey on Privacy in Mobile Participatory Sensing Applications.' Journal of Systems and Software 84 (11) pp. 1928 – 1946.

Cobanoglu, C., Berezina, K., Kasavana, M.L. and Erdem, M. (2011) 'The Impact of Technology Amenities on Hotel Guest Overall Satisfaction.' Journal of Quality Assurance in Hospitality & Tourism 12 (4) pp. 272-288.

Cohen, S. (2014) 'Consumer Behavior in Tourism: Concepts, Influences and Opportunities.' Current Issues in Tourism 17 (10).

Corrêaa, C. and Kitano, C. (2015) Gamification in Tourism: Analysis of Brazil Quest Game.' Tourism Research 6 pp. 1-5.

Cox, C., Burggess, S., Sellitto, C. and Buultjens, J. (2009) 'The Role of User – Generated Content in Tourists' Travel Planning Behavior.' Journal of Hospitality and Marketing & Management, 18 (8) pp. 674 – 743.

Crompton, J.L., (1979). 'Motivations for Pleasure Vacation.' Annals of Tourism Research 6 (4) pp. 408-424.

Damn, G. (1981) 'Tourism Motivation: An Appraisal.' Annals of Tourism Research 8 (2) pp. 187 – 219.

Davis, FD. (1992). 'Extrinsic and Intrinsic Motivation to Use Computers in the Workplace.' J. Appl. Soc. Psychol. 22 (14) pp.1109 – 1130.

Debnath, A. K., Chin, H. C., Haque, M. M. and Yuen, B. (2014) 'A Methodological Framework for Benchmarking Smart Transport Cities.' Cities, 37 pp 47–56.

Dickinson, J., Ghali, K. and Cherrett, T. (2012) 'Tourism and the Smartphone app: Capabilities, Emerging Practice and Scope in the Travel Domain.' Current Issues in Tourism 17 (1) pp. 1 – 18.

Dimanche, F. and Havitz, M. E. (1995) 'Consumer Behavior and Tourism: Review and Extension of Four Study Areas.' Journal of Travel & Tourism Marketing 3(3) pp. 37–57.

Dommeyer, C., Baum, K. and Chapman, H. (2002) 'Attitudes of Business Faculty Towards Two methods of Collecting Teaching Evaluations: Paper vs. Online.' Assessment and Evaluation in Higher Education 27 (5) pp. 455–462.

Drexler, N., Beckman, H. and Lapre, V. (2019) 'For Better or for Worse: Shaping the Hospitality Industry through Robotics and Artificial Intelligence' Research in Hospitality Management 9 (2) pp. 117–120.

Dwityas, N. A. and Brianana, R. (2017) 'Social Media in Travel Decision Making Process.' International Journal of Humanities and Social Science 7 (7).

Elsyaed, S. and Abed, M. (2018) 'Studying the Effectiveness of Using Smartphone's Apps on Raising Hotels' Occupancy and Operation's Efficiency.' Journal of Association of Arab Universities for Tourism and Hospitality 15 pp. 1-10.

Endra, R., Cucus, A. and Affandi, F. (2019) 'The Concept of Implementation of Smart Room Using Internet of Things (IoT) for Cost Efficiency and Room Security.' Journal of Physics 1381.

Ercan, I., Yazici, B. and Sigirli, D. (2007) 'Examining Cronbach alpha, theta, Omega, Reliability Coefficients According to Sample Size.' Journal of Modern Applied Statistical Methods 6 (1).

Eskerod, P., Hollensen. S., Morales – Contreras, M. and Arteaga- Ortiz, J. (2019) 'Drivers for Pursuing Sustainability through IoT Technology within High-End Hotels—An Exploratory Study.' Sustainability 11.

Fathy, S., Abd, E. and Abed, E. (2018) 'Studying the Effectiveness of Using Smartphone's apps on Raising Hotels' Occupancy and Operation's Efficiency.' Journal of Association of Arab Universities for Tourism and Hospitality pp. 1-10.

Finstad, K. (2010) 'Response Interpolation and Scale Sensitivity: Evidence against 5-Point Scales.' Journal Usability Study 5 pp. 104–110.

Floričić, T., (2020) 'Sustainable Solutions in the Hospitality Industry and Competitiveness Context of "Green" Hotels.' Civil Engineering Journal 6 (6).

Folkes, V.S. and Kamins, M. (1999) 'Effects of Information about Firm's Ethical and Unethical Actions on Consumer Attitude.' Journal of Consumer Psychology 8 (3) pp. 243 – 259.

Gajdosik, T. (2018) 'Smart tourism: Concepts and Insights from Central Europe.' Czech Journal of Tourism 7 (1) pp. 25-44.

Gefen, D. (2000) 'E-commerce: The Role of Familiarity and Trust.' The International Journal of Management Science 28 pp. 725–737.

Ghada, A. and Shimaa, A. (2020) 'Smart Technology Application in Tourism and Hospitality Industry of the New Administrative Capital, Egypt.' Journal of Association of Arab Universities for Tourism and Hospitality 19 (2) pp. 102 – 129.

Giousmpasoglou, C. and Hua, T. (2020) 'The Use of Self – service Technologies in Budget hotels: The Case of Bournemouth.' Sciendo 10 (3) pp. 251 -261.

Godoe, P. and Johansen,T. (2012) 'Understanding Adoption of New Technologies: Technology Readiness and Technology Acceptance as an Integrated Concept.' Journal of European Psychology Students 3 (1) pp. 38 – 52.

Goh, E. and Wen, J. (2020) 'Applying the Technology Acceptance Model to Understand Hospitality Management Students' Intention to Use Electroni Discussion Boards as a Learning Tool.' Journal of Teaching in Travel and Tourism 21 (2) pp. 142 – 154.

Gössling, S. (2020) 'Pandemics, Tourism and Global Change: A Rapid Assessment of COVID-19.' Journal of Sustainable Tourism 29 (1).

Gössling, S. (2021) 'Technology, ICT and Tourism: from Big Data to the Big Picture.' Journal of Sustainable Tourism 29 (5).

Gretzel, U. and Jamal, T. (2009) 'Conceptualizing the Creative Tourist Class: Technology, Mobility, and Tourism Experiences.' Tourism Analysis 14 (4) pp. 471 – 480.

Gretzel, U., Koo, C., Sigala, M. and Xiang, Z. (2015) 'Special Issue on Smart Tourism: Convergence of Information Technologies, Experiences, and Theories.' Electronic Markets 25 (3).

Gretzel, U., Reino, S., Kopera, S. and Koo, C. (2015) 'Smart Tourism Challenges.' Journal of Tourism 16 (1).

Gretzel, U., Sigala, M., Xiang, Z. and Koo, C. (2015) 'Smart Tourism: Foundations and Developments.' Electron Markets 25 pp. 179 – 188.

Gretzel, U., Werthner, H., Koo, C. and Lamsfus, C. (2015) 'Conceptual Foundation for Understanding Smart Tourism Ecosystems.' Computers in Human Behavior 50 pp. 558-563.

Han, D., Hou, H., Wu, H. and Lai, J. (2021) 'Modelling Tourists' Acceptance of Hotel Experience-Enhancement Smart Technologies.' Sustainability 13.

Hashem, I., Yaqoob, I., Anuar, N., Mokhtar, S., Gani, A. and Khan, S. (2014) 'The Rise of "Big Data" on Cloud Computing: Review and Open Research Issues.' Information Systems 47 pp. 98 – 115.

Hughes, J., Camden, A. and Yangchen, T. (2016) 'Rethinking and Updating Demographic Questions: Guidance to Improve Descriptions of Research Samples.' The International Honor Society in Psychology 21 (3).

Hunter, W., Chung, N., Gretzel. U. and Koo, C. (2015) 'Constructive Research in Smart Tourism.' Asia Pacific Journal of Information Systems 25 (1).

Huong, N. (2020) 'The Effects of Perceived Usefulness, Positive Online Customer Review, Brand Image, Price and Purchase Intention: The Case of Online Hotel Booking.' International Journal of Management 11 (6) pp. 1012-1018.

Jacob. J. and Ajith, P. (2017) 'A Model on Factors Affecting Customer Behavior in a Tourism Industry.' International Journal of Recent Engineering Research and Development 2 (6) pp. 39 – 44.

Jahangir, N. and Begum N. (2008) 'The Role of Perceived Usefulness, Perceived Ease of Use, Security and Privacy, and Customer Attitude to Engender Customer Adaptation in the Context of Electronic Banking.' African Journal of Business Management 2 (1) pp. 32 -40.

Jaremen, D., Jedrasiak, M. and Rapacz, M., (2016) 'The Concept of Smart Hotels as an Innovation on the Hospitality Industry Market – Case Study of Puro Hotel in Wroclaw.' Economic Problems of Tourism 4 pp. 65 – 75.

Jarrara, Y., Olalekan Awobamiseb and Sigaud Sellos, P. (2020) 'Technology readiness index (TRI) and the Intention to Use Smartphone Apps for Tourism: A Focus on in Dubai Mobile Tourism App.' International Journal of Data and Network Science 4 pp. 1- 8.

Kabadayi, S., Ali, F., Choi, H., Joosten, H., and Lu, C. (2019). 'Smart Service Experience in Hospitality and Tourism Services: A Conceptualization and Future Research Agenda.' Journal of Service Management 30 (3) pp. 326 – 348.

Kang, K., Stein, L., Heo, C. and Lee, S. (2012) 'Consumers' Willingness to Pay for Green Initiatives of the Hotel Industry.' International Journal of Hospitality Management 31 pp. 564 – 572.

Karunaratne, W. and Jayawardena. L. (2010) 'Assessment of Customer Satisfaction in a Five-star Hotel – A case study.' Tropical Agricultural Research 21 (3) pp. 258-265.

Kaur, K. and Kaur, R., (2016) 'Internet of things to Promote tourism: An Insight into Smart Tourism.' International Journal of Recent Trends in Engineering & Research 2 (4).

Kilichan R. and Yilmaz, M. (2020) 'Artificial Intelligence and Robotic Technologies in Tourism and Hospitality Industry.' Eruesosbilder 3 pp. 353 – 380.

Kim, D.J. (2008) 'A trust-based Consumer Decision-Making Model in Electronic Commerce: The role of Trust, Perceived Risk, and their Antecedents.' Decis. Support Syst. 44 pp. 544–564.

Kim, J., Montes, A. and Han, H. (2021) 'The Role of Expected Benefits towards Smart Hotels in Shaping Customer Behavior: Comparison by Age and Gender.' Sustainability 13.

Kitsios, F., Kamariotou, M., Karanikolas, P. and Grigorousdis, E., (2021) 'Digital Marketing Platforms and Customer Satisfaction: Identifying eWOM Using Big Data and Text Mining.' Applied Science 11.

Koo, C., Shin, S., Gretzel, U., Hunter, W. and Chung, N. (2016) 'Conceptualization of Smart Tourism Destination Competitiveness.' Asia Pacific Journal of Information Systems 26 (4).

Kwun, J. and Oh, H. (2014) 'Effects of Brand, Price, and Risk on Customer's Value Perceptions and Behavioral Intentions in the Restaurant Industry.' Journal of Hospitality & Leisure Marketing 11 (1) pp. 31-45.

Lai, Y. and Lee, J. (2020) 'Integration of technology readiness index (TRI) into the technology acceptance model (TAM) for explaining behavior in adoption of BIM.' Asian education studies 5 (2).

Lehrer, C., Wieneke, A., Brocke, L., Jung, R. and Seidel, S. (2018) 'How Big Data Analytics Enables Service Innovation: Materiality, Affordance, and the Individualization of Service.' Journal of Managing Information System 35 (2) pp. 424 – 460.

Leung, R. (2019) 'Smart hospitality: Taiwan Hotel Stakeholder Perspective.' Tourism Review 74 (1) pp. 50-62.

Lickorish, L., Jenkins, C. (1997) 'An Introduction to Travel and Tourism.' Journal of Travel Research 4 pp. 56 – 57.

Lin, C.-H., Shih, H.-Y. and Sher, P. J. (2007) 'Integrating technology Readiness into Technology Acceptance: The TRAM Model.' Psychology & Marketing 24 pp. 641 – 657.

Lockyer, T. (2005) 'The Perceived Importance of Price as one Hotel Selection Dimension.' Tourisms Management 26 pp. 529–537.

Marine-Roig, E and Clave, S. (2015) 'Tourism Analytics with Massive User-Generated content: A Case Study of Barcelona.' Journal of Destination Marketing & Management 4 (3) pp. 162-172.

McFarland, D.J. and Hamilton, D. (2006) 'Adding Contextual Specificity to the Technology Acceptance Model.' Computers in Human Behavior 22 (3) pp. 427-447.

Meuter, M, Ostrom, M. and Roundtree, R. (2000). 'Self-service Technologies: Understanding Customer Satisfaction with Technology-based service Encounters.' Journal of Marketing 64 (3) pp. 50–64.

Mingotto, E., Montaguti, F. and Tamma, M. (2020) 'Challenges in Re-designing Operations and Jobs to Embody AI and Robotics in Services. Findings from A Case in the Hospitality Industry.' Electonic Markets 31 pp. 493-450.

Mountinho, L. (1993) 'Consumer Behavior in Tourism.' European Journal of Marketing, 21(10) pp. 5-44.

Msallam, S. (2015) 'Customer Satisfaction and Brand Loyalty in the Hospitality Industry.' International Journal of Management Sciences Business Research 4 (9).

Negrusa, A.L.; Toader, V.; Sofică, A. and Tutunea, M.F. (2015) 'Exploring Gamification Techniques and Applications for Sustainable Tourism.' Sustainability 7.

Neuhofer, B., Buhalis, D. and Ladkin, A. (2012) 'Conceptualizing Technology Enhanced Destination Experiences.' Journal of Destination and Marketing & Management 1 pp. 36 – 46.

Neuhofer, B., Buhalis, D. and Ladkin, A. (2015) 'Smart Technologies for Personalized Experiences: A Case Study in the Hospitality Domain.' Electron. Mark. 25 pp. 243 – 254.

Oke, A. (2007) 'Innovation Types and Innovation Management Practices in Service Companies.' International Operational Production Manager 27 (6) pp. 564-587.

Pabel, A. and Prideaus, B. (2016) 'Social Media Use in Pre – trip Planning by Tourists Visiting a Small Regional Leisure Destination:' Journal of Vacation Marketing 22 (4) pp. 335 – 348.

Parasuraman, A. (2000) 'Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies.' Journal of Service Research 2 pp. 307 – 320.

Pencarelli, T., Gabbianelli, L. and Savelli, E. (2020) 'The Tourist Experience in the Digital Era: The Case of Italian Millennials.' Italian Journal of Management 38 (3) pp. 165 – 190.

Pereira, V., Silva, G. and Dias, A. (2021) 'Sustainability Practices in Hospitality: Case Study of a Luxury Hotel in Arrabida Natural Park.' Sustainability 13.

Perfetto, M. C. and Vargas-Sánchez, A. (2018) 'Towards a Smart Tourism Business Ecosystem based on Industrial Heritage: Research Perspectives from the Mining Region of Rio Tinto, Spain.' Journal of Heritage Tourism pp- 1–22.

Pikkarainen, T., Pikkarainen K, Karjaluoto H and Pahnila S. (2004) 'Consumer Acceptance of Online Banking: An Extension of the Technology Acceptance Model.' Internet Research: Electron. Netw. Appl. Policy 14 (3) pp. 224 – 235.

Pinto, I and Castro, C. (2019) 'Online Travel Agencies: Factors Influencing Tourist's Purchase Decision.' Tourism and Management Studies 15 (2) pp. 7-20.

Porter, C.E. and Donthu, N. (2006) 'Using the Technology Acceptance Model to Explain How Attitudes Determine Internet Use. The Role of Perceived Access Barriers and Demographics.' Journal of Business Research 59 pp. 999 – 1007.

Prabhu, A. (2019) 'Conditions and Influencers of Hotel Room Purchases in the Digital Era.' International Journal of Research and Analytical Reviews 6 (2).

Pradhan, M., Oh, J. and Lee, H. (2018) 'Understanding Travelers' Behavior for Sustainable Smart Tourism: A Technology Readiness Perspective.' Sustainability 10.

Prayukvong, W., Sophon, J., Hongpukdee, S. and Charupas, T. (2007) 'Customers' Satisfaction with Hotel Guestrooms: A Case Study in Ubon Rachathani Province.' Thailand. Asia Pacific Journal of Tourism Research 12(2) pp. 119–126.

Puška, A., Stojanović, I. Šadić, S. and Bečić H. (2018) 'The Influence of Demographic Characteristics of Consumer on Decisions to Purchase Technical Products.' The European Journal of Applied Economics 15 (2) pp. 1-16.

Ramos- Soler, I. and Martinet- Sala, A., Campillo-Alhama, C., (2019) 'ICT and the Sustainability of World Heritage Sites. Analysis of Senior Citizens' use of Tourism Apps.' Sustainability 11.

Ramos, Y. and Castro, A. (2017) 'Point of Sales system in Food and Beverage Industry: Efficient Technology and its User Acceptance.' Journal of Information Sciences and Computing Technologies 6 (1).

Reichheld, F. and Sasser, E. W. (1990) 'Zero Defections: Quality Comes to Services.' Harvard Business Review 68 (5) pp. 105 – 116.

Ristova, C. (2019) 'Digitalization in the Hospitality Industry: Trends that Might Shape the Next Stay of Guests.' International Journal of Information Business and Management 11 (3).

Sevrani, K. and Elmazi, L. (2008) 'ICT and the Changing Landscape of Tourism Distribution: A New Dimension of Tourism in the Global Conditions.' Revista de Turism Studii si Cercetari in Tourism 6 pp. 22 – 29.

Shen, S., Sotiriadis, M. and Zhang, Y. (2020). 'The Influence of smart technologies on customer journey in tourist attractions within the smart tourism management framework.' Sustainability 12.

Singh, A. and Dangemi, J. (2016) 'Understanding the Generation Z: The Future Workforce.' South -Asian Journal of Multidisciplinary Studies 3 (3).

Slattery, P. (2002) 'Finding the Hospitality Industry.' Journal of Hospitality, Leisure, Sport & Tourism Education 1 (1) pp. 19-28.

Spoladore, D., Arlati, S., Carciotti, S. and Nolich, M. (2018) 'Room Fort: An Ontology-based Comfort Management Application for Hotels.' Electonics 7 (12).

Strahilevitz, M. and Myers, J. (1998) 'Donations to Charity as Purchase Incentives: How Well they Work May Depend on What You are Trying to Sell.' Journal of Consumer Research 24 (4) pp. 434 – 446.

Strozyna, M. (2018) 'A Framework for the Quality – based Selection and Retrieval of Open Data- a Use Case from the Maritime Domain.' Electron Markets 28 (2) pp. 2019 – 2033.

Taber, S. (2018) 'The use of Cronbach Alpha when Developing and Reporting Research Instruments in Science Education.' Research in Science Education 48 pp. 1273-1296.

Talwar, S., Dhir, A., Kaur, P and Mäntymäki, M. (2020) 'Why Do People Purchase from Online Travel Agencies (OTAs)? A Consumption Values Perspective.' International Journal of Hospitality Management 88.

Toch, E., Wang, Y. and Cranor, LF., (2012) 'Personalization and Privacy: A Survey of Privacy Risks and Remedies in Personalization-based Systems.' User Modeling and User-Adapted Interaction 22 (1) pp. 203 – 220.

Torres, A. M. (2018) 'Using A Smartphone Application as A Digital Key for Hotel Guest Room and Its Other App Features.' International Journal of Advanced Science and Technology 113 pp. 103-112.

Torres, E. (2014) 'Deconstructing Service Quality and Customer Satisfaction: Challenges and Directions for Future Research:' Journal of Hospitality Marketing & Management 23 (6) pp. 652 – 677.

Tuzunkan, D. (2017) 'The Relationship Between Innovation and Tourism: The Case of Smart Tourism.' International Journal of Applied Engineering Research 12 (23) pp: 14861 – 14867.

Tyagi, H. and Patveka, A., (2019) 'The Concept of Smart Rooms in Hotel.' International Journal of Trend in Scientific Research and Development 3 (3).

Uyanik, G.and Güler, N. (2013) ‘A Study on Multiple Linear Regression Analysis.’ Social and Behavioral Science 106 pp. 234-240.

Uysal, S., Şahin, K., Çeting, G. and Dincer, F. (2015) ‘Career Management in Hospitality: The case of Four- and Five-star Hotels in Istanbul.’ Ekonometri ve İstatistik Sayı 22 pp 1 – 13.

Vagena, A. (2021) ‘Current Approaches in Science and Technology Research.’ International Journal of Scientific Research and Innovative Technology 8 (1) pp. 41-56.

Walczuch, R.; Lemmink, J. and Streukens, S. (2007) ’The Effect of Service Employees’ Technology Readiness on Technology Acceptance.’ Inf. 44 pp. 206 – 215.

Wang, D., Park, S. and Fesenmaier, D. R. (2012) ‘The Role of Smartphones in Mediating the Touristic Experience.’ Journal of Travel Research 51(4) pp. 371-387.

Watt, S., Simpson, C. McKillop, C. and Nunn, V. (2002) ‘Electronic Course Surveys: Does Automating Feedback and Reporting Give Better Results?’ Assessment & Evaluation in Higher Education 27 (4) pp.325–337.

Weber, K. (2008) ‘Travel and Tourism Education in a Global Marketplace.’ Journal of Teaching in Travel and Tourism 6 (2).

Xiang, Z., Kim, H. and Fesenmaier, D.R. (2015) ‘Use of the Internet for Trip Planning: A Generation Analysis.’ Journal of Travel & Tourism Marketing 32 (3) pp. 276 – 289.

Yoo, K., Kwon, S., Na, Y. and Chang, B. (2017) ‘Factors Affecting the Adoption of Gamified Smart Tourism Applications: An Integrative Approach.’ Sustainability 9.

Yu, D. and Timmerman, J. (2014) ’From Economy to Luxury, What Matters Most to Hotel guests.’ Business Journal Gallup.

Yuli, C. and Yasa, N. (2021) 'Application of Theory of Planned Behavior to Study Online Booking Behavior.' International Journal of Data and Network Science 5 pp. 331-340.

Zhang, L., Li, N. and Liu, M. (2012) 'On the Basic Concept of Smarter Tourism and its Theoretical System.' Tourism Tribune 27(5) pp. 66–73.

Ziegeldort, J., Morchon, O. and Wehrle, K. (2014) 'Privacy in the Internet of Things: Threats and Challenges.' Security and Communication Networks 7 (12) pp. 2728 – 2742.

Dissertations

Dolnicar, S., Otter, T., (2003) 'Which Hotel Attributes Matter? A Review of Previous and a Framework for Further Research.' Published Dissertation. South Wales: University of Wollongong.

Koutoulas, D. (2014) 'Understanding the Tourist Product.' Published Dissertation. Mytilini: University of the Aegean.

Articles from the Internet

Armeding, T. (2019) 'Mobile Apps: Insecure by Default.' Available: https://www.synopsys.com/blogs/software-security/mobile-app-security/ - retrieved on: 9 Sep. 2021.

Ciorreview (2021) 'How is Technology Helping Hotels Solve Parking Issues.' Available: www.cioreview.com /news/how-is-technology-helping-hotels-solve-parking-issues-nid-30795-cid-40.html - retrieved on: 1 May 2021.

Consult AN (2002) 'China Online Banking Study.' Available: http://estore.chinaonline. com/chinonlbanstu.html - retrieved on: 07 Jul. 2021.

Derzko, W. (2006) 'Smart Technologies in the New Smart Economy.' Available: http://www2.vtt.fi/liitetiedostot/cluster6_rakentaminen_yhdyskuntate-kniikka/smart%20_technologies_derzko.pdf - retrieved on: 17 Jan. 2021.

Dinescu, L. (2021) 'The Rise of Oracle Analytics Mobile.' Available: www.blog-oracle.com - retrieved on: 20 Jun. 2021.

EHotelier (2015) 'Five Ways Hotels Can Use Technology for a Better Guest Experience.' Available: https://insights.ehotelier.com/insights/2015/07/20/5-ways-hotels-can-use-technology-for-a-better-guest-experience/#_ftnref5%20(30.05.21)- retrieved on: 28 Jun. 2021.

Fishback (2019) 'Demographic Targeting: How Different Generations Use Mobile Apps.' Available: https://www.marketingdive.com/news/demographic-targeting-how-different-generations-use-mobile-apps/553572/- retrieved on: 28 Jun. 2021.

Five Star Alliance (2020) 'What is a Five-star Hotel?' Available: https://www.fivestaralliance.com/article/what-5-star-hotel - retrieved on: 12 Dec. 2020.

Friedmann, M. and Sen, S. (2019) ‘Hospitality in the Digital Era.’ Available: https://www.cognizant.com/whitepapers/hospitality-in-the-digital-era-codex2543.pdf - retrieved on: 15 Jul. 2021.

Haselmayr, M. (2015) ’65 Simple Ways to Promote Your Mobileapp.’ Available: https://www.forbes.com/sites/allbusiness/2015/11/07/65-simple-ways-to-promote-your-mobile-app/?sh=5c2c00ba48c4 - retrieved on: 31 Aug. 2021.

Hope, C. (2015) ‘Smart. Accessed Online.’ Available: http://www.computerhope.com/jargon/s/smart.htm - retrieved on: 3 Mar. 2021.

Kaushik, K. (2021) ‘Cybersecurity in Tourism Industry: Past, Present and Future.’ Available: https://hospitality.economictimes.indiatimes.com/news/speaking-heads/cybersecurity-in-tourism-industry-past-present-future/80046149 - retrieved on: 23 Aug. .2022.

Max. S, (2021) ‘Cybersecurity in Hospitality – A Growing Issue.’ Available: www.cybersmart.co.uk/blog/cybersecurity-in-hospitality-a-growing-issue - retrieved on: 23 Aug. 2021.

Mercan, S. (2020) ’Security, Privacy, and Ethical Concerns of IoT Implementations in Hospitality Domain.’ Available: https://www.researchgate.net/publication/346445204_Integration_of_Technology_Readiness_Index_TRI_Into_the_Technology_Acceptance_Model_TAM_for_Explaining_Behavior_in_Adoption_of_BIM - retrieved on: 20 Aug. 2021.

NN (2018) ‘Survey: 75% of Travelers have Trust Issues with Smart Hotel Technology but 44% want it anyways.’ Available: https://hospitalitytech.com/survey-75-travelers-have-trust-issues-smart-hotel-technology-44-want-it-anyway - retrieved on: 23 Aug. 2021.

NN (2019) ‘Smart Technology Guide.’ Available: https://www.stb.gov.sg/content/dam/stb/documents/industries/hotel/Smart%20Hotel%20Technology%20Guide%202019.pdf - retrieved on: 20 Feb. 2021.

Nulty, D. and Duncan D. (2008) ‘The Adequacy of Response Rates to Online and Paper Surveys: What Can Be Done?’ Assessment & Evaluation in Higher Education: 33 (3) Available: https://www.uaf.edu/files/uafgov/fsadmin-nulty5-19-10.pdf – retrieved on 23 Aug. 2021.

Oxford Dictionary (2021) ‘Smart.’ Available: www.oxfordlearnersdictionaries.com/us/definition/english/smart_1 - retrieved on: 8 Apr. 2021.

Price, W. (2016) ‘Millennial Travel Trends: A Look at the Largest Generations’ Habits, Internet Marketing. ‘Available: https://www. internetmarketinginc.com/blog/millennial-travel-trends - retrieved on: 18 Aug. 2021.

Reitknecht, R. (2020) ‘The Rise of Chatbots in Hospitality for Revamping the Guest Experience.’ Available: https://www.hospitalitynet.org/opinion/4097986.html. retrieved on - 31 Aug. 2021.

Siegele, L. (2010) ‘It’s a Smart World. ‘Available: https://www.economist.com/special-report/2010/11/06/its-a-smart-world - retrieved on: 19 Sep. 2021.

Smalls, M. (2021) ‘The Problem with Gamification.’ Available: www.destinationcrm.com/Articles/Web-Exclusives/Viewpoints/The-Problem-with-Gamification-87770.aspx - retrieved on:23 Aug. 2021.

Techterms (2018) ‘App.’ Available: www.techterms.com/definition/app - retrieved on: 28 Jun. 2021.

UNTWO (2020) ‘Tourism.’ Available: www.unwto.org/glossary-tourism - retrieved on: 17 Jan. 2021.

Vogles, E. (2018) ‘Millennials Stand out for their Technology Use, but Older Generations also Embrace Digital Life.’ Available: https://www.pewresearch.org/fact-tank/2019/09/09/us-generations-technology-use/ - retrieved on: 9 Sep. 2021.

Wainstein, L. (2021) ‘Data security in Hospitality: Risks and best Practice.’ Available: https://hospitalityinsights.ehl.edu/data-security-in-hospitality-best-practices - retrieved on: 31 Aug. 2021.

WKO (2020) ‘Hotelklassifizierung.’ Available: www.wko.at.hotelsterne.hotelklassifizierung - retrieved on: 4 Apr. 2021.

APPENDIX

MODUL UNIVERSITY
PRIVATE UNIVERSITY VIENNA

The influence of smart hotel app features on five - star hotel guests booking intention.

Introduction:

You are invited to participate in our survey 'The influence of smart hotel app features on five - star hotel guests booking intension.' It will take approximately 5 to 10 minutes to complete the questionnaire.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this questionnaire. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point.

Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have any questions about the survey, please contact me by email at felice07@gmx.at

I am a student from Modul University Vienna, and I am under the supervision of Dr. Jason Stienmetz (jason.stienmetz@modul.ac.at).

Thank you very much for your time and support.

Please start with the survey now by clicking on the "OK" button below.

Many thanks,

Felix Fischer

MODUL UNIVERSITY
PRIVATE UNIVERSITY VIENNA

The influence of smart hotel app features on five - star hotel guests booking intention.

The first part of this survey asks you to imagine that you are planning to stay in the five-star hotel Steirerschloessl in the near future.

The Steirerschloessl is a luxury resort in Austria, which belongs to a renowned and experienced Austrian businessperson. The hotel considers itself as an exceptional destination with warm hospitality, cherished traditions, an incomparable location, and the offer of culinary delights. The hotel has received many awards for being a state-of-the-art hotel with an elegant appearance and individual guest service with professionality on the highest level.

Please read the description below and indicate how likely you would be to book the hotel as described.

1.

A 16.65% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes smart room control features. Smart room control features allow you as a guest to conveniently control your in-room settings such as light, blends, TV, or air condition via an app on your phone. The room will cost you 320 € per night including breakfast.

B 16.67% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes smart room control features. Smart room control features allow you as a guest to conveniently control your in-room settings such as light, blends, TV, or air condition via an app on your phone. The room will cost you 220 € per night including breakfast.

C 16.67% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes digital communication features. Digital communication features allow you to exchange information via an app on your phone without any human interaction. By using

digital communication features, you as a guest are able to communicate with the hotel 24 hours. You can conveniently send requests such as clean-my-room, do-not-disturb, or book a massage slot via an app on your smartphone. The room will cost you 320 € per night, including breakfast.

D 16.67% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes digital communication features. Digital communication features allow you to exchange information via an app on your phone without any human interaction. By using digital communication features, you as a guest are able to communicate with the hotel 24 hours. You can conveniently send requests such as clean-my-room, do-not-disturb, or book a massage slot via an app on your smartphone. The room will cost you 220 € per night, including breakfast.

E 16.67% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes sustainable operation feature s. Using sustainable operation features, a hotel can operate more energy-efficient and resilient by regulating AC, water consumption, or energy supply of any hotel room via an app. Therefore, the hotel follows the ‘green’ concept. The room will cost you 320 € per night, including breakfast.

F 16.67% You can book one of the eleven exquisite suites in Steirerschloessel which are between 25 and 110 square meters in size and equipped with high-quality marble bathrooms, dark wood furniture which offers a special ambience that invites you to linger. Of course, every suite is equipped with complimentary Wi-Fi, a modern flat-screen TV, telephone, air condition and a room safe. Included services are, a lavish breakfast, free bicycle rentals and complementary parking. In addition, the room also features a smartphone app. The smart hotel app includes sustainable operations. Using sustainable operation features, a hotel can operate more energy-efficient and resilient by regulating AC, water consumption, or energy supply of any hotel room via an app. Therefore, the hotel follows the ‘green’ concept. The room will cost you 220 € per night, including breakfast.

- Very likely
- Likely
- Neither likely nor unlikely
- Unlikely
- Very unlikely

A 16.65% Use this for each of the six scenarios

B 16.67% Use this 2

C 16.67% copy from above

D 16.67% copy from above

E 16.67% copy from above

F 16.67% copy from above

MODUL UNIVERSITY
PRIVATE UNIVERSITY VIENNA

The influence of smart hotel app features on five - star hotel guests booking intention.

2. Intention to book

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

3. The Steirerschlöessl would be my first choice.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

4. I am committed to the Steirerschloessl

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

MODUL UNIVERSITY
PRIVATE UNIVERSITY VIENNA

The influence of smart hotel app features on five - star hotel guests booking intention.

The next section asks you about your opinions of the smart hotel app

5. I would be generally open to using the described smart hotel app.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

6. It would be much better for me to use the smart hotel app to receive better service

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

7. Using the smart hotel app would enhance the effectiveness of hotel service delivery

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

8. Using the smart hotel app would involve security risks

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

9. I would be concerned about the security of my private data if I conducted a transaction via a smart hotel app.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

10. Using the smart hotel app would be safe

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

11. Using the smart hotel app would provide convenience for me

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

12. The smart hotel app would give me more control in planning my stay in a five – star hotel

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

13. I could figure out how to use the smart hotel app without contacting the hotel staff

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

14. The smart hotel app would be easy and clear for me to understand

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

MODUL UNIVERSITY
PRIVATE UNIVERSITY VIENNA

The influence of smart hotel app features on five - star hotel guests booking intention.

This last section asks a few questions about you

15. In which year were you born?

- 1925 - 1945 (Silent Generation)
- 1946 - 1964 (Baby Boomers)
- 1965 - 1980 (Generation X)
- 1981 - 2000 (Millenials)
- 2001 - 2020 (Generation Z)

16. Which gender are you?

- Female
- Male

Thank you so much for completing the survey