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# Innovative mobile technology in hotels and the use of gamification

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## Abstract

Innovations are often introduced to inspire people's motivation and help them develop beneficial behaviour, both individually and collectively, and gamification is currently considered to be one of the most promising in that respect. Whilst technology adoption studies have explored users' attitudes towards various technologies, scarce knowledge exists on users' behavioural intention to try new mobile gamified applications, particularly in the context of the hospitality industry. This paper examines users' motives for using a mobile hotel gamified application, by conducting two qualitative studies using gamers and hotel visitors as target groups. Findings reveal ten (10) important key user motivations that fuel both utilitarian and hedonic behaviours. Conclusion highlights that these motivations are critical to consider for the effectiveness of gamification in bridging the gap and fulfilling its dual role of being both a game and a marketing/customer service tool at the same time.

Keywords: Gamification, Mobile application, Hotels, Innovation, Games, Hedonic motivation, Utilitarian motivation

## Introduction

As competition increases in hospitality, innovation and product development are keys to success (Torabi Farsani et al., 2016). Innovation is a major factor for organizations in augmenting their capacity to transform, increasing their resilience and survival outlook (Bressan & Pedrini, 2020). Mobile technology is marking the start of another era of innovation in business, altering the way organizations conduct business and changing the relationships between companies, customers, suppliers and partners (Keen, 2001). One of the biggest changes in mobile technology has come through the implementation of mobile apps due to the popularity of smartphones (Layland et al., 2018). The industry with the biggest benefit from that evolution is seen by the gaming industry. Mobile gaming possibilities have changed since 2007 with the introduction of the first wave of smartphones, and the availability of broadband connections; gaming apps then became most popular, second only to social network apps (Feijoo et al., 2012). The evolution of mobile game applications suggests that there is room for gamified applications to proliferate as well. Technology innovations have changed consumer behaviour in hospitality in recent years (Law et al., 2014; Pappas et al, 2021), and it has become evident that establishing a website or a mobile application is not enough for increasing productivity, efficiency, or creating an advantage in competition. For the innovative enterprise to be successful, innovation should generate and maintain a unique competitive advantage in relation to competitors in the domestic market as well as in international trade (Torabi Farsani et al., 2016).

Innovative consumers typically expect high benefits from innovation and adopt new product and services more extensively and quickly than others, and in return they provide feedback and revenues to companies offering new products and services, making them a valuable market segment (Tussyadiah, 2016). Mobile devices have introduced both convenience and easiness to contemporary travellers making it possible to complete a variety of transactions including shopping on-the-go for travel-related products or services (Ozturk et al., 2016). Indeed, today's increasingly technology-savvy hotel guests travel with various devices, such as smartphones, mobile phones, tablets and laptops, and they use them to pre-check into their hotel rooms, browse the internet and purchase hotel products and services during their stays (DeFranco et al., 2017). The development of information and communication technology presents unprecedented challenges and opportunities for hospitality businesses (Law et al., 2020). The fast development of the internet in recent decades makes information broadcast and sharing much easier and faster (Zhou et al., 2017), greatly impacting the hospitality industry (Pestek & Sarvan, 2021).

During recent years, the enhancement of software via design features borrowed from video games has become a notable development in many software engineering projects (Morschheuser et al., 2018). However, there is often confusion between the terms of games and gamification (Post, 2014). Gamification is defined as the use of game mechanics and metaphors in a non-game context (Huotari & Hamari, 2012), triggering intrinsic motivations by using diverse characteristics of games in other domains outside the entertainment industry (da Silva et al., 2018), whereas games are defined as entertainment activities (McGuire & Jenkins, 2009), approached with a playful attitude (Schell, 2010). The primary purpose of games is to entertain, when gamification seeks to motivate people to change behaviours, develop new skills or engage in innovation (Post, 2014). Gaming is in its infancy in many industries (one of them being hospitality), hence very few successful examples have been established, mainly specialised treasure hunts and cultural heritage applications (Xu et al., 2016). Organizations are focusing on the obvious game mechanics, such as points, badges and leader boards, rather than the subtler and more important game design elements, such as balancing competition and collaboration, or defining a meaningful game economy (Parapanos & Michopoulou, 2021).

Studies have explored users' initial adoption of e-commerce (Aren et al., 2013; Sook Harn et al., 2014) and m-commerce (Agrebi & Jallais, 2015; Kim, & Preis, 2016; Ozturk et al., 2016), but little has been done about adoption intentions towards gamification (Yang et al., 2017; Yoo et al., 2017) and users' behavioural intention to try new mobile gamified applications in the context of tourism (Skinner, Sarpong and White, 2018) and hospitality industry (Parapanos & Michopoulou, 2022b). To address this gap in the literature, study examines hotel visitors' motives when using a mobile hotel gamified application and identifies the key characteristics of such innovation. Identifying hotel visitors' motives when using a mobile hotel gamified application will contribute towards better engagement between the user and the system, like the success mobile gaming industry achieved. The results of this study will help hotel gamified application developers with an understanding of users' expected behaviour so that they can attach the appropriate mechanics to create engagement with the user and effectively communicate their promotional strategies with their audience and increase the profitability through the technology. To succeed the aim, two qualitative studies have been designed contacting sample with different characteristics; study 1 sample as "gamers" and study 2

sample as “hotel visitors” to examine similarities and differences towards intention to use gamification in the context of hotels. Considering the complexity of the concept mobile gamified applications in the hospitality industry, this research starts by exploring whether gamers would use gamified applications and their motivations for using this technology and then explore whether hotel visitors would be driven by the same motives as gamers or other motives would be revealed.

## **Literature review**

### **Mobile technologies and apps**

The development of networks and the popularity of smartphones have brought a rapid development of e-commerce (Xiong & Zhang, 2018), and increased the popularity of m-commerce. M-commerce is defined as buying and selling of goods and services through wireless handheld devices such as mobile phones (Gay, Charlesworth & Esen, 2007) and it utilises all e-commerce advantages and combines them with the added benefit of enhanced flexibility and mobility, adding on further benefits for the hospitality industry (Christou, 2010). Smartphones have become the most popular mobile device among users around the world, and mobile technologies have become indispensable components of people’s daily lives, changing the way people communicate and interact with one another (Kim & Law, 2015). The major advantage of mobile technology is that it provides internet access to everyone, anytime and anywhere, using wireless devices (Laudon & Traver, 2008). The key technologies to do so are 3G (third generation wireless), 4G (fourth generation wireless), 5G (fifth generation wireless), Wi-Fi (wireless local area networks) and Bluetooth (short-range frequency web devices) (Laudon & Traver, 2018). Mobile technologies allow access to information fast and easy from anywhere, at any time, making possible to deliver information to many users (Yılmaz & Olgaç, 2016). Digital technology through digital social network connects people all over the world (Sooksatit, 2016) radically transforming the tourism landscape, leveraging on the ubiquitous growth of internet connectivity, affordability and browsing speeds (Tham & Wang, 2021). Since the 2000s, technological and communication changes linked to the Internet and mobile devices have provided tourists with a large amount of information, empowering them to freely organise their own travels without the need of travel agencies (Paulino et al., 2022) or delay choices until after they start their trip, and not having to plan everything beforehand (Douglas, 2019). Mobile apps play a key role from the distribution of the rooms, but also establishing and strengthening customer relationships and brand loyalty (Ozturk et al., 2016), and manipulating behaviour and affect tourism movement.

Mobile technologies enhance tourism experiences by enabling the collection and exchanging of useful information to in real time (Corrêa & Gosling, 2021). The usage of mobile devices to complete a variety of transactions including shopping on-the-go for travel related products and services have introduced both convenience and easiness to travellers (Ozturk et al., 2016). Smartphones enable tourists to instantly access travel websites to obtain several types of information such as the weather, accommodation, attractions and transportation wherever they are (Kim & Law, 2015), highlighting the importance of on-the-go functions for tourists. Innovations have made more and more consumers within the hotel industry turn to ‘on-the-go’ technology, looking at smartphones and their related apps to make hotel reservations from anywhere in the world (Lu, Ting & Hsu, 2017). First generation hotel mobile sites provided hotel information such as location, amenities and facilities, whereas new hotel mobile sites and

mobile applications (apps) also allow travellers to access hotel information (such as availability, star rating, free cancellation and prices) and services (such as all inclusive, bed and breakfast, and free Wi-Fi) to influence book their room on-the-go (Ozturk et al., 2016).

In the tourism and hospitality industry mobile technologies have introduced an effective channel of communication within the market (Li, H. et al., 2020). Until recently, tourism and hospitality organisations have been using television, radio, newspaper, magazines and flyers to promote products and services (Tan et al., 2018). The recent innovation of mobile technologies has changed the way these organisations promote their products and services, as applications (apps) are being designed specifically for tourism and hospitality (Castañeda et al., 2019). Hotels can now market complementary products (such as drinks and meals) and services (such as fitness centre, spa facilities and sporting facilities), through cross-selling, delivering information to motivate buying during the consumers' shopping process (Yılmaz & Olgaç, 2016). Innovative techniques, influence visitors experience by inducing positive emotions, thus increasing satisfaction and loyalty (Orea-Giner et al., 2021). Mobile applications have a central role in mobile technology, so understanding how consumers develop intentions to use hotel apps to access products, services and information in hotels becomes critical in developing superior m-commerce practices (Morosan & DeFranco, 2016).

Nevertheless, as more technologies become more accessible, adopting such innovations alone will not lead to a competitive advantage (Kim & Law, 2015). Hotel industry gains a lot from mobile apps, and therefore there is continual research on how these platforms can be utilised make promotional materials more efficient (Chun-Chi Lu et al., 2017). This is an important consideration for tourism and hospitality organisations who often invest in mobile marketing with the view of enhancing interaction and engagement with the customers (Bezova & Azara, 2021; Chun-Chi Lu et al., 2017; Morosan & DeFranco, 2016). One way to achieve this, is using gamification; a process which uses elements, mechanics and aesthetics derived from the gaming industry to create new strategies for user engagement. The mobile game industry has grown a fast pace, along with the increased accessibility of smartphone devices (Lee, J. et al., 2020); thus, it is important to examine the features that make mobile games so attractive and keep players coming back for more. Understanding gamers' behaviour, in terms of engagement with games, will be beneficial for building effective gamified applications for hotels, since they can follow similar pattern towards success.

## **Games**

Whilst mobile apps become increasingly available, they do not ensure continued use or engagement with the user (Kim et al., 2013). The advances in the digital era and the increased coverage of the internet help electronic games succeed and proliferate (da Silva Brito, Richard D'arc et al., 2018). The proliferation of smart phones and tablets has empowered mobile gaming and is changing the gaming experience (Xu et al., 2016). The mobile game market is one of the fastest growing sectors in software (Lee, H. et al., 2022). The popularity of video games in the past decade, empowered by the rapid development of smart mobile devices, has made gaming popular and attractive to a broader group of players (Xu et al., 2017). Mobile gaming had become the fastest growing and largest segment of the US\$138.7 billion global gaming industry in 2018, overtaking PC and console games for the first time in 2015 (Coe & Yang, 2022). Games represented 74% and 72% of all app store spending in 2018 and 2019, respectively, also accounting 33% of total global downloads in 2018 (Coe & Yang, 2022). Gamers invest their

time in gaming, but recently they have begun to invest money as well; for example, global players spent \$6 billion on mobile games in August 2020 (Wu & Andrizal, 2021).

Gaming can be very addictive as players are motivated to reach a higher goal, to score points against each other, and gain either material or non-material gains such as inclusion to a hall of honour (Xu et al., 2017). Positive expectancies such as pleasure and avoidance expectancies such as to escape from reality lead gamers to experience gratification and reinforce their motivation for using gaming applications (Chamarro et al., 2020). However, even though it is within human nature to like games, not everyone likes the same kind or style of games (Chamarro et al., 2020). In the same line of thought Marczewski (2014) adds that, although it is possible to design games, serious games or gamified systems without knowing who the target players and users are, it is more likely to create a more engaging experience when the target players are identified first. In the literature of games several theories emerged to understand the motives of gamers when playing different kind of games [see Bartle player types (Bartle, 2004); Marc LeBlanc eight pleasures (Schell & Schell, 2008); Yee's components (Yee, 2006)]. Despite the knowledge in relation to the motives of gamers, not all research about digital games can be applied directly to gamification (da Silva et al., 2018), since games are just for fun and entertainment, whereas gamification has a certain purpose even without any gameplay. Thus, it is possible to assume that these differences possibly lead to different profiles between gamers and gamification users as their motives may vary. Hence, motives of users for using gamified applications should be identified first, before designing gamified applications.

## **Gamification**

Gaming and gamification provide destination, tourism and hospitality marketers the opportunity to create informative and entertaining settings for successful interaction and communication (Xu et al., 2016). There are various objectives for implementing gamification in tourism and hospitality including raising brand awareness, enhancing tourist experiences, increasing their engagement, improving their loyalty, introducing entertainment and supporting employee management (Swacha, 2019). Gamification has the potential to be the innovation that influences hotel visitors experience and develop beneficial behaviours, both individually and collectively (da Silva et al., 2018).

Gamification was originally defined as the use of game mechanics and metaphors in a non-game context (Huotari & Hamari, 2012). However, the concept evolved and was enhanced to also include the use of game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning and solve problems (Kirsch, 2014). Gamification can trigger intrinsic motivations by using diverse characteristics of games in other domains outside the entertainment industry, such as education, marketing, public administration, politics and health (da Silva et al., 2018). From a service-marketing perspective, gamification is defined as a process that uses motivational stances to enhance services by creating experiences like those created by games (Bravo et al., 2021). To achieve this, gamification uses a range of elements found in games such as: points, leaderboards, badges, virtual currency, narratives and avatars. In the tourism context, it is described as a tool that uses technologies such as augmented reality, virtual reality and 3D technologies to create immersive and entertaining experiences of tourist attractions (Bravo et al., 2021). Gamification aims to increase users' motivations towards activities or use of technology, thereafter, increasing the quality and quantity of these activities (Morschheuser et al., 2018). However, there is a tendency of simplifying gamification in the

tourism industry by focusing on some game mechanics (i.e challenges and rewards addressing motives such as competitiveness and achievement), whilst ignoring users that respond to different mechanics (Chou, 2020). Tourism and hospitality organizations are often trying to engage individuals by rewarding them with points and badges, even though this is usually not enough to successfully keep individuals engaged (Al-Zaidy, 2012).

For example, InterContinental Hotels Group's (IHG) trivia game (Win It in a Minute) awards correct answers with free miles and capitalizes on the intrinsic motive of achievement and accomplishment. Even though results were impressive at the beginning reporting 100,000 game plays and offering more than 100 million Priority club points in the first two weeks, the engagement with the users gradually decreased. Jet off Geneva (JetoffGeneva.com) was a gamified system with an online gameplay allowing user to play and win by pumping the most litres of water and finishing first on a leaderboard. However, the system was lacking on crucial elements of gamification through intrinsic motivation and only focus on game mechanics such as points and leaderboards; and it terminated shortly after. Lastly, "Stockholm Sounds" (online mobile gaming application) launched to offer tourists unique experiences that usually could not be found in guidebooks. Tourists earned "points" by completing challenges, history quizzes or gaming sessions when discovering Stockholm through game missions, interactive experiences and visits to exciting places based on the sounds and music of the city. The application though is heavily focused on a single period of tourists' journey (during holidays) not showing good results for pre and post tourist activities.

Hence, the direct extrapolation and implementation of mechanics or gamer profiles from a gaming into a gamified system is not likely to be successful (Bartle, 2004). Marczewski (2013) suggested starting from the perspective of intrinsic motivation to look at a more gamification-specific taxonomy for user types. He proposed four motivations: Relatedness (the desire to socialise), Autonomy (the urge that an individual must direct his or her own life), Mastery (the desire to get better and better in something that matters) and Purpose (the force to do an activity in the service of something with bigger meaning). These four intrinsic motivations were used to describe four intrinsically motivated user types: Socialisers, Free Spirits, Achievers and Philanthropists, respectively. Afterwards, a fifth type was suggested; an extrinsically motivated type: The Player, who is motivated by the reward. Players are happy to "play" the game, where points and rewards are up for collection. Finally, and much later, a sixth type was included, the Disruptor. This group of users are motivated by change, and they will be looking to disrupt the system, either directly or through other users to force positive or negative change.

Marczewski's (2013) proposal of gamification taxonomy of users is based on the concept of intrinsic and extrinsic motivation as presented by the self-determination theory (Shen et al., 2020). Intrinsic motivation refers to an activity undertaken for the sake of the action itself rather than for its consequences whereas extrinsic motivation lies behind the action that is undertaken for its tangible consequences (Aguiar-Castillo et al., 2020). Players will play games even when they are not provided with any rewards because they feel positive emotions, such as a sense of surprise, a sense of achievement, excitement and fun (Shen et al., 2020), showing the intrinsic motivational value of games. Services which aim to fulfil objectives external to the service use itself, have been referred to as utilitarian while services used for entertainment purposes and for the sake of using the service itself are considered hedonic (Hamari & Koivisto, 2015). Experiences in the context of tourism are arguably different from other service experiences since they tend to be more hedonic (Luo et al, 2021), however, it is interesting to identify

whether the use of gamification applications are linked with utilitarian or hedonic technology motivations.

Since gamification involves motivational designs for persuading people to behave in a certain way, understanding users' motivations is important to explain the effects of gamification (Bulencea & Egger, 2015; Bravo et al., 2021). Yet, current understanding of the complex phenomenon of gamification is limited (Mullins & Sabherwal, 2020; Xu et al., 2016; Shen et al., 2020) particularly within the hospitality area. Table 1 presents some of the limited examples of literature on motives for using tourism and hospitality gamified systems. The literature review highlighted theoretical gaps in terms of understanding motivations of users to engage with gamified systems (Parapanos & Michopoulou, 2021; Bravo et al., 2021) and multiple calls have been made for further research in this area (Parapanos & Michopoulou, 2022a; Shen et al., 2020). This study responds to these calls by exploring both gamers and hotel visitors' intention to use a gamified application to reveal their underlying motivations that can inform system design.

*Table 1: Sample studies on motivations for using tourism and hospitality gamified systems*

Source	Topic	Key findings	Sample
Egger, R. & Paul B. (2015)	Gamification in Tourism: Designing Memorable Experiences.	Gamification is combined with experience design providing a comprehensive and novel approach on how to design such experiences	Case studies
Feifei X., Feng T., Buhalis, D., Weber J. & Zhang H. (2016)	Tourists as Mobile Gamers: Gamification for Tourism Marketing	Discusses gaming and tourism and explores what drives tourists to play games. The results suggest tourists' game playing motivation is multidimensional. Players tend to start with purposive information seeking, then move on to an intrinsic stimulation	Qualitative (focus groups)
Parapanos, D. and Michopoulou, E. (2022)	How to design hotel gamified applications effectively: Understanding the motives of users as hotel visitors	Enlightens existing gamification research by understanding the motives of users' continuance intention in adopting technology with gamification characteristics.	Qualitative (interviews)
Heather S., David S., Gareth R.T. W. (2018)	Meeting the needs of the Millennials and Generation Z: gamification in tourism through geocaching	Understanding of the principles of popular mobile-enabled games, indicating how organisations in the tourism sector could meet the needs of Millennials and Generation Z through engaging with the existing gamified location-based practice	Qualitative (conceptual framework)
Hamari, J. and Koivisto, J. (2015)	Why do people use gamification services?	Examine the relationship between utilitarian, hedonic and social motivations and continued use intention as well as attitude toward gamification.	Quantitative (survey)

## Methodology

Following the literature findings, the aim of this research is to explore motives for using a mobile hotel gamified application. The idea is that when the key motives of users are identified, then developers can configure the system to embed elements that enable digital marketing strategies to deliver meaningful engagement with users. This research focuses on gamified systems applied in the context of the hospitality industry, with the use of visual material as a



IA	23	M	CYPRriot	I1	25	F	AUSTRIAN
IB	20	M	CYPRriot	I2	24	F	ENGLISH
IC	33	F	ENGLISH	I3	24	M	CYPRriot
ID	22	F	ENGLISH	I4	24	F	CYPRriot
IE	25	F	ENGLISH	I5	24	M	CYPRriot
IF	19	M	GREEK	I6	24	F	CYPRriot
IG	19	F	CYPRriot	I7	27	F	ITALIAN
IH	50	F	CYPRriot	I8	57	F	CYPRriot
II	52	M	CYPRriot	I9	59	M	CYPRriot
IJ	32	M	ENGLISH	I10	26	M	ENGLISH
IK	21	M	CYPRriot	I11	26	F	ENGLISH
IL	25	F	CYPRriot	I12	32	F	GREEK
IM	22	F	ENGLISH	I13	26	M	ENGLISH
IN	22	M	AUSTRIAN	I14	35	F	ITALIAN
IO	34	M	ENGLISH	I15	24	M	ENGLISH
IP	39	M	CYPRriot	I16	27	M	ENGLISH
IQ	55	F	CYPRriot	I17	26	F	GREEK
IR	22	M	ENGLISH	I18	32	M	CYPRriot
IS	44	M	GREEK	I19	45	F	GREEK
IT	44	M	GREEK	I20	26	M	ENGLISH
IU	31	F	GREEK	I21	26	F	ENGLISH
IV	27	M	ITALIAN	I22	55	M	CYPRriot
IW	23	M	ITALIAN	I23	38	F	GREEK
IX	23	F	CYPRriot	I24	35	F	CYPRriot
IY	26	F	CYPRriot	I25	39	M	ITALIAN
IZ	31	M	ENGLISH				
IAA	45	M	ENGLISH				
IBA	47	F	ENGLISH				
ICA	25	M	ENGLISH				
IDA	20	M	AUSTRIAN				

## Study 1

The semi-structured interviews were designed to get an in-depth understanding of the motives to play games and use hotels' gamified applications based on the opinion of the expert "gamers". The following objective was explored through qualitative analysis:

- Motivation of gamers when they would use hotels' gamified application

Given that conversation was focused on visual material, it was considered important for the participants to have knowledge around games. There is evidence to suggest that in the US and the UK in 2021, in terms of age, most gamers (about half) are between their teen years and up to 35 years old, with a fairly good gender balance (Statista, 2022a; Statista, 2022b). For the purposes of this study, thirty (30) interviews were conducted. Most respondents were male (18) but there was a good representation from female gamers as well (12). Data saturation was achieved within the first twenty-five (25) interviews (Bryman & Bell, 2015), however a further

five (5) confirmatory interviews were carried out in case new information arose. The average length of gathered interviews was between 40-50 minutes.

## Study 2

This study follows similar sampling strategy as Study 1. However, data was not collected from gamers, but hotel visitors with experience in mobile booking instead, considering that the objective was to explore motives for using a mobile hotel gamified application. Additionally, snowball sampling was utilised to address the difficulty of identifying members of the desirable population (Saunders et al., 2015), in this case individuals who have been hotel visitors in hotels, particularly those who utilize mobile applications for their booking. The following objective was explored through qualitative analysis:

- To further understand the motivation towards usage of hotel’s gamified application from a hotel visitor’s perspective

For the purpose of this study twenty-five (25) interviews were conducted. Nineteen (19) interviews achieved data saturation, but six (6) more interviews were carried out in case new information arose. The average length of gathered interviews was between 35-50 minutes.

## Results

The presentation of the interview results will be divided into two parts based on the objectives of the research. Table 3 below presents the themes that emerged from the data collection.

*Table 3: Motives to use gamification*

Study 1	Study 2
Motivations of gamers when they would use hotels’ gamified application	Motivations of hotel visitors when they would use hotels’ gamified application
<ul style="list-style-type: none"> <li>• Perceived Enjoyment/Fun</li> <li>• Perceived Ease of use</li> <li>• Perceived Usefulness</li> <li>• Reward</li> <li>• Social Influence</li> <li>• Direct Feedback/Interactivity</li> <li>• Perceived Innovativeness</li> <li>• Trust</li> </ul>	<ul style="list-style-type: none"> <li>• Familiarity</li> <li>• Socializing</li> <li>• Perceived Informativeness</li> <li>• Perceived Enjoyment/Fun</li> <li>• Perceived Usefulness</li> <li>• Perceived Ease of use</li> <li>• Reward</li> <li>• Perceived Risk</li> </ul>

## Study 1

### *Perceived Enjoyment/Fun*

The most popular motivation to use hotels’ gamified applications has been the element of perceived enjoyment or fun.

*“I would definitely use it because it looks fun. I would prefer this one over any other application because it looks simpler and more fun and you are even more engaged” (Inter, I)*

Participants agreed that the element of fun is a motive that enhances intention to use hotels’ gamified applications. This finding is consistent with the literature suggesting that enjoyment

is an important factor to predict usage intention (Gurtner et al., 2014) intention to reuse (Chen, Chi-Wen, 2017) mobile shopping applications intention (Natarajan et al., 2017).

### *Perceived Ease of Use*

Participants agreed that ease of use the degree to which a person believes that using a particular system would be free of effort (Venkatesh et al., 2011) is important towards intention to use hotels' gamified applications.

*“This one seems to make things a bit simpler because every stage it gets explained to me by that avatar there, so it is making my life a bit easier” (Inter, R).*

The results show that a hotel's gamified application has to be perceived as easy to use to influence individuals' intention to use it. Previous research showed that perceived ease of use has a positive effect on intention to use technology in general (Venkatesh et al., 2011; Smith et al., 2013; Chinomona, 2013; Chen, Chia-Chen & Tsai, 2019), and gamification in particular (Yang et al., 2017; Yoo et al., 2017).

### *Perceived Usefulness*

Participants highlighted that perceived usefulness influenced their intention to use a hotel's gamified application. Users are more likely to sustain continued usage when such usage is perceived as useful.

*“I would personally use it for the fact that it shows me the nearby hotels, so I see it as useful by that. I would also like the possibility to show me more nearby restaurants” (Inter, F).*

Perceived usefulness is a core construct in all iterations of technology acceptance models to explain behavioural intention (Venkatesh et al., 2011), and is defined as the degree to which a person believes that using a particular technology will enhance his or her performance (Kim & Preis, 2016). Previous studies have shown a positive impact of perceived usefulness on intention to use mobile shopping applications (Sohn, 2017; Natarajan et al., 2017), intention to use mobile devices for tourism-related activities (Kim & Preis, 2016), and gamification (Parapanos & Michopoulou, 2022a; Yang et al., 2017; Yoo et al., 2017).

### *Reward*

Perhaps unsurprisingly, the element of reward shows to influence intention to use a hotel's gamified application.

*“I would follow it because I know that my money spending will be rewarded in some point in the future. I want the reward to be equal to my challenge and the more I progress the highest the challenge has to be” (Inter, F).*

Little research has been done on the significance of rewards towards intention to use, except for a study by (Lai, 2009) showing that rewards have a positive effect on intention to use Knowledge Management Systems. The results show that a hotel's gamified application has to be rewarding to influence individuals' intention to use it. Also, the findings show that the reward has to be representative to the level the user reached, hence the time and effort invested in the system.

### *Social Influence*

Participants agreed on the importance of social influence and socialising influencing their intention to use a hotel's gamified application.

*"I would use it to learn information related to the hotel if something is good or bad and I have the chance to ask someone who has already experience then yes, it is a good source of information" (Inter, S).*

Social influence occurs when an individual's behaviour is influenced by those around him or her, and it relates to being frequently rewarded for behaving in accordance with the attitudes, opinions and advice from social channels (Zhao et al., 2016). In the context of gamification, social influence is considered to be an important factor affecting attitudes and use intentions (Hamari & Koivisto, 2015). Positive effect of social influence on brand attitude is shown by (Yang et al., 2017) and (Hamari & Koivisto, 2015); however, they were not further associated with either intention of engagement or intentions to continue the use of the gamified service. This finding adds to the limited literature that social influence towards gamification.

#### *Direct Feedback/Interactivity*

The feature of direct feedback also appeared as a motive to use a hotel's gamified application.

*"I have direct contact with them and direct feedback because it tracks whatever I do any time and it tells me what I can earn from the activities" (Inter, E).*

This finding shows that the direct communication through technology is perceived as a meaningful feature for the user. Companies often try to improve the customer online experience and at the same time increase the firm's online productivity by increasing the interactivity and humanizing the website using an avatar. Still, there is a lack of research about the effect of the avatar's real-time interactivity with current and potential customers (Etemad-Sajadi, 2016). This finding also adds to the limited body of literature since it presents evidence that direct feedback and interactivity is well received by the users in the context of hotel gamified applications.

#### *Perceived Innovativeness*

Participants agreed on the importance of Innovativeness in influencing their intention to use a hotel's gamified application.

*"I like it because it is new and because it combines two different things, the gaming activity and the booking activity" (Inter, A).*

Studies have shown that a positive relationship exists between perceived innovativeness and intention to use new technology (Natarajan et al., 2017) and intention to shop online (Thakur & Srivastava, 2015). However, to the authors knowledge, no such evidence yet exists within the gamification literature.

#### *Trust*

Lastly, participants agreed on the importance of trust in using hotels' gamified applications. All participants concurred that the system should be developed by a well-known brand.

*“I do trust it as long as it is promoted by the hotel, and it is recommended to do it. I would probably trust them, but it also depends on the hotel. For example, it is important to be a well-known brand” (Inter, 1).*

Trust is defined as the belief that one party will reliably keep its word or promise and fulfil its obligations in an exchange relationship (Agag & El-Masry, 2016). Prior studies consider trust as a key factor of success in the online context (Agag & El-Masry, 2016) mobile social software (Chinomona, 2013) and online purchase intention (Bonsón Ponte et al., 2015). This result highlights the good faith users are willing to show in the system if the application is developed by a well-known brand, but also the importance of trustworthiness in users’ intention to use hotels’ gamified applications.

## **Study 2**

### *Familiarity*

Familiarity was revealed as the most important element to be included in hotels’ gamified applications.

*“I like the idea of familiarity because I see that the application is talking to me in first person and explains to me every single task which makes it more enjoyable” (Inter, 1).*

Familiarity is a broad construct where knowledge about the organization can be resourced from sources as varied as individuals’ prior visits to the destination, the media, word of mouth or publicity (Marinao Artigas et al., 2015). Even though studies (Gefen, 2000; Gefen & Straub, 2004) have examined the relationship of familiarity with trust in the e-commerce, there is a limited connection of familiarity with intention to use gamified applications, therefore this finding contributes to gamification literature.

### *Socialising*

Socialising was found as the second most important feature that should be included in hotels’ gamified applications as revealed by hotel visitors.

*“The socialising aspect is important in the point I could ask others about what I can see nearby. Where they have been and what they liked” (Inter, 3).*

The theme of Socialising as explained by the hotel visitors exhibited a similar meaning to the theme of Social Influence as explained by gamers. The concept of social influence describes an influence to accept information obtained from others as evidence about reality (Sook Harn et al., 2014).

### *Perceived Informativeness*

Informativeness was found as an important feature to be included in hotels’ gamified applications.

*“Perceived informativeness is something different but still important because it answers my questions around my holidays before they even arise if that makes sense. It seems that the application is being proactive trying to explain what is going on in the hotel” (Inter, 20).*

Participants’ quotes align with the definition of informativeness given by (Lin, 2007), as a measure of value perceived by a customer of the output produced by a website, with

characteristics such as being up-to-date, accurate, useful, complete and its presentation to be viewed as important determinants of perceived information quality. Information is a major benefit a consumer expects to gain from engaging with any media with positive effects towards intention to use (Gao & Wu, 2010) and reuse intention (Li, M. & Mao, 2015).

#### *Perceived Enjoyment/Fun*

Similar to gamers, hotel visitors mentioned that perceived enjoyment/fun is an important element to consider for the use of hotels' gamified applications.

*“It includes elements that make it fun such as the nice colours and tasks, so it is enjoyable. I like the fact that it speaks to me, and it is something that more and more brands do nowadays” (Inter, 21).*

The results agree with previous studies in similar contexts of intention to use technology (Tasci & Ko, 2016; Hamari & Koivisto, 2015) intention to reuse (Chen, 2017), intention to adopt (Rouibah et al., 2016) and use mobile phones for purchases intention (Agrebi & Jallais, 2015).

#### *Perceived Usefulness*

Hotel visitors agreed with gamers, that perceived usefulness is an important element to use when developing hotel gamified applications.

*“Overall, I would say that being useful is the most important element I would look for in this application. I do have a lot of applications on my phone but unless they are useful, they are not there” (Inter, 5).*

This result aligns with previous studies in the literature showing positive impact of perceived usefulness in intention to use mobile shopping applications (Sohn, 2017; Natarajan et al., 2017), intention to use mobile devices for tourism-related activities (Kim & Preis, 2016) and gamification (Yang et al., 2017; Yoo et al., 2017).

#### *Perceived Ease of use*

The element of perceived ease of use was another feature highlighted by hotel visitors similar to gamers.

*“I value ease of use a lot for using this application on a regular basis. It would be frustrating if an application like this takes time to use. When you want to make a booking for holidays you want it to be quick and move on with your daily routine” (Inter, 25).*

This finding supports extant literature that suggests a positive impact of perceived ease of use on technology usage intention (Chen & Tsai, 2019) and gamification (Yang et al., 2017; Yoo et al., 2017).

#### *Rewards*

Rewarding gamified applications are more likely to create engagement between the user and the system as stated by hotel visitors, similarly to gamers.

*“The reward is important especially as the first incentive to download the application. This is how people will start thinking the application as the first choice for choosing this hotel brand*

*over another in the future as they see that the money spent so far is acknowledged and we get something back” (Inter, 17).*

Little research has been done on the significance of rewards towards intention to use (Lai, 2009). Hotel visitors see a hotel’s gamified application as marketing tool, highlighting the importance for the brand to maintain a sustainable rewarding system for the user to influence future decisions. Also, it was found that the users are more likely to be influenced by an interactive task-based reward system rather than a points-collection system.

### *Perceived Risk*

Finally, perceived risk is an important feature that should be taken into consideration when designing hotels’ gamified applications.

*“Perceived risk is the number one in regard to using this application. I want to be able to trust this application, because I am sharing valuable information such as ID and most importantly things like bank accounts and financial details” (Inter, 9).*

Most of the participants agreed that the more recognized the brand is the more willing they are to trust the application (similar to gamers). Hospitality operators have turned their attention to branding, because brand names operate as a “shorthand” for quality by giving the guest important information about the product/service sight unseen (O’Neill & Mattila, 2004).

### **Discussion**

Findings reveal that certain elements in gamification systems will make the system more engaging to users. The idea of looking into the motives of users towards the system on different target groups (gamers and hotel visitors) has given the opportunity to get different points of view towards the system, revealing both similarities and difference in the usage of the innovation. The reasoning behind this strategy is the phenomenon of gamification itself – the complex idea of a system being both a game and a marketing tool. The table below summarises the results showing the similar elements in both studies and the differences.

*Table 4: Summary of motives to use gamification*

Motives of users when using gamification mobile applications for hotels		
Hybrid Motives	Hedonic Motives	Utilitarian Motives
Perceived Enjoyment/Fun	Direct Feedback/Interactivity	Familiarity
Perceived Usefulness	Perceived Innovativeness	Perceived Informativeness
Perceived Ease of use		
Perceived Risk/Trust		
Social Influence/Socialising		
Rewards		

There was a lot of commonalities in the motivations to use hotel gamified applications between gamers and hotel visitors. The elements of perceived enjoyment/fun, perceived usefulness, perceived ease of use, perceived risk/trust, social influence/socialising and rewards were found important for both gamers and hotel visitors. These motives, appearing in both studies will be described as hybrid motives considering they appeal to both samples. Gamers represent the

hedonic behaviour since they use games voluntarily and hotel visitors representing the utilitarian behaviour considering they are aiming for an external outcome of the activity.

Gamers revealed two unique elements: *direct feedback/interactivity* and *perceived innovativeness*. Direct feedback/interactivity is the degree in which users can select, classify, control, revise, establish and ignore information (Pai & Yeh, 2013), elements readily available in games. Innovativeness is explained as the degree of willingness of an individual to adopt new ideas in relation to other members of the social system (Natarajan et al., 2017), highlighting the voluntariness of the user towards the system. Considering that entertainment concepts such as games are related to hedonic behaviour (Lin, Hsin-Hui et al., 2012), these elements can be described as hedonic motives.

Hotel visitors highlighted *familiarity* and *perceived informativeness* as two key components for a hotel gamified application. Utilitarian behaviour pertains to the effectiveness and efficiency of a task or process that results from the utilization of a product/service (Kim, J. J. et al., 2021), which underlines the meaning of both elements as explained by hotel visitors. Hence familiarity and perceived informativeness are described as utilitarian motives (also given that they were not reported by gamers).

## **Conclusion**

In the context of tourism and hospitality, technology innovations have changed consumer behaviour in recent years, highlighting that establishing a website or a mobile application is not enough for creating an advantage in competition (Cavalheiro et al., 2020). The Covid-19 pandemic has brought about a paradigmatic shift in tourist behaviour and will force the industry toward transformation (Miao et al., 2021), with the popularity of smartphones in the centre of these significant trends. This research aims to explore hotel visitors' motivations for a hotel gamified application. To do so, this research started by exploring whether gamers would use gamified applications and their motivations for using this technology and then explore whether hotel visitors would be driven by the same motives as gamers or other motives would be revealed. Findings revealed 10 key motivations (see table 2) that should be taken into account when designing a hotel gamified application. The majority of the motivations are shared between gamers and hotel visitors (perceived enjoyment/fun, perceived usefulness, perceived ease of use, perceived risk/trust, social influence/socialising and rewards), and are considered hybrid motives; meaning that they can entail both utilitarian and hedonic elements. However, there were two hedonic motivations observed only in the gamer community (direct feedback/interactivity and perceived innovativeness) and two utilitarian motivations only evident in the hotel visitor group (familiarity and perceived informativeness). These are critical to consider for the effectiveness of gamification in bridging the gap and fulfilling its dual role of being both a game and a marketing/customer service tool at the same time.

### *Theoretical implications*

Considering that there is insufficient research into the identification of those motives influencing intention to use a hotel's gamified application (Parapanos & Michopoulou, 2019), this research tries to fill this gap and inform existing gamification research by investigating hotel visitors' motivations for using a hotel gamified application. Furthermore, existing studies focus on investigating key influencing factors of gamification (Yang et al., 2017; Hamari &

Koivisto, 2015), yet none of the existing studies investigate users' intention to use gamified systems particularly for hotels. This study addresses this gap by using visual material purposely designed to obtain data for a hotel gamified app. Furthermore, this research categorised ten motives as utilitarian, hedonic and hybrid showing that applications with gamified characteristics can be seen as hybrid technologies.

### *Managerial implications*

This research also has managerial implications. The attachment of the public with technologies during the pandemic has accelerated several technological trends changing the way tourism businesses market to travellers. Mobile devices through applications introduced both convenience and easiness to contemporary travellers showcasing that mobile technology, is possible to complete a variety of transactions such as shopping on-the-go for travel-related products or services. The present study provides hotel gamified application developers with an understanding of users' underpinning motivations. Hotel gamified application developers should focus on building an experience through their mobile application that equally satisfies users' hedonic and utilitarian needs through mimicking the experience of a gaming system. Gamification applications for hotels should be hybrid systems facilitating both hedonic and utilitarian motivations. Thus, developers should deploy a range of game mechanics to satisfy customers' both utilitarian and hedonic motives to use the system. This research has provided 6 hybrid motives (perceived enjoyment/fun, perceived usefulness, perceived ease of use, perceived risk/trust, social influence/socialising and rewards), 2 hedonic motives (direct feedback/interactivity and perceived innovativeness) and 2 utilitarian motives (familiarity and perceived informativeness) that should enable hoteliers and gamification developers to design and introduce engaging systems.

### *Limitations and future research*

The limited availability of hotel gamified applications led to the development of visual material for data collection (see appendix 2) and a discussion around them. Therefore, the sample's opinions regarding motives to use a system like that are based on the product in front of them, which is a creation of the researcher and not an existing product. Even though existing examples of gamification were used in this research, the limited examples of hotel gamified applications led to the decision of developing one from scratch, even on paper. The development of the visual material is a product of an extensive literature review around the concept of gamification and its best application to the context of hospitality and hotels. Still, further research should examine motives using a fully developed prototype to elicit requirements that may have not been captured yet. Further, the sample of both qualitative studies required participants to be experienced with games (study 1) and experience in mobile hotel bookings (study 2). However, as there were no exclusion criteria regarding the age of the participants, the sample primarily entailed college students. It is proposed that future research should explore the concepts within alternative populations and age groups. The sample is also fairly geographically confounded in Europe and future research should explore other geographic areas (such as the Americas, Asia and Africa). Additionally, the qualitative findings of the studies provide an insight into motives for using hotel gamified apps, though future studies should consider quantitative methodologies for generalisability. Lastly, further research should focus on the element of fun as it seems to be a multi-layered construct which

warrants further analysis to uncover the multiplicity of meanings as perceived by different users.

## References

- Agag, G., & El-Masry, A. (2016). Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and WOM: An integration of innovation diffusion theory and TAM with trust. *Computers in Human Behavior*, 60, 97-111. 10.1016/j.chb.2016.02.038
- Agrebi, S., & Jallais, J. (2015a). Explain the intention to use smartphones for mobile shopping. *Journal of Retailing and Consumer Services*, 22, 16-23. 10.1016/j.jretconser.2014.09.003
- Aguiar-Castillo, L., Hernández-López, L., De Saá-Pérez, P., & Pérez-Jiménez, R. (2020). Gamification as a motivation strategy for higher education students in tourism face-to-face learning. *The Journal of Hospitality, Leisure, Sport & Tourism Education*, 2710.1016/j.jhlste.2020.100267
- Al-Zaidy, Z. (2012). Gamification's march to ubiquity. *the Guardian*. <http://www.theguardian.com/media-network/media-network-blog/2012/apr/26/gamification-ubiquity>
- Aren, S., Güzel, M., Kabadayı, E., & Alpkan, L. (2013). Factors Affecting Repurchase Intention to Shop at the Same Website. *Procedia, Social and Behavioral Sciences*, 99, 536-544. 10.1016/j.sbspro.2013.10.523
- Bartle, R. A. (2004). *Designing virtual worlds*. New Riders.
- Bezova, K., & Azara, I. (2021). Generating and Sustaining Value Through Guided Tour Experiences' Co-Creation at Heritage Visitor Attractions. *Tourism Planning & Development*, 18(2), 226-244. 10.1080/21568316.2021.1879923
- Bonsón Ponte, E., Carvajal-Trujillo, E., & Escobar-Rodríguez, T. (2015). Influence of trust and perceived value on the intention to purchase travel online: Integrating the effects of assurance on trust antecedents. *Tourism Management* (1982), 47, 286-302. 10.1016/j.tourman.2014.10.009
- Bravo, R., Catalán, S., & Pina, J. M. (2021). Gamification in tourism and hospitality review platforms: How to R.A.M.P. up users' motivation to create content. *International Journal of Hospitality Management*, 9910.1016/j.ijhm.2021.103064
- Bressan, A., & Pedrini, M. (2020). Exploring Sustainable-Oriented Innovation within Micro and Small Tourism Firms. *Tourism Planning & Development*, 17(5), 497-514. 10.1080/21568316.2019.1673810
- Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford University Press.
- Bulencea, P. & Egger, R. (2015). *Gamification in Tourism: Designing Memorable Experiences*. Books on Demand Norderstedt.

- Castañeda, J., Martínez-Heredia, M., & Rodríguez-Molina, M. (2019). Explaining tourist behavioral loyalty toward mobile apps. *Journal of Hospitality and Tourism Technology*, 10(3), 415-430. 10.1108/JHTT-08-2017-0057
- Cavalheiro, M. B., Joia, L. A., & Cavalheiro, Gabriel Marcuzzo do Canto. (2020). Towards a Smart Tourism Destination Development Model: Promoting Environmental, Economic, Socio-cultural and Political Values. *Tourism Planning & Development*, 17(3), 237-259. 10.1080/21568316.2019.1597763
- Chamarro, A., Oberst, U., Cladellas, R., & Fuster, H. (2020). Effect of the Frustration of Psychological Needs on Addictive Behaviors in Mobile Videogamers-The Mediating Role of Use Expectancies and Time Spent Gaming. *International Journal of Environmental Research and Public Health; Int J Environ Res Public Health*, 17(17), 6429. 10.3390/ijerph17176429
- Chen, C. (2017). Five-star or thumbs-up? The influence of rating system types on users' perceptions of information quality, cognitive effort, enjoyment and continuance intention. *Internet Research*, 27(3), 478-494. 10.1108/IntR-08-2016-0243
- Chen, C., & Tsai, J. (2019). Determinants of behavioral intention to use the Personalized Location-based Mobile Tourism Application: An empirical study by integrating TAM with ISSM. *Future Generation Computer Systems*, 96, 628-638. 10.1016/j.future.2017.02.028
- Chinomona, R. (2013). The influence of perceived ease of use and perceived usefulness on trust and intention to use mobile social software: technology and innovation. *African Journal for Physical Health Education, Recreation, and Dance*, 19(2), 258-273.
- Christou, E. (2010) Investigating attitudes towards mobile commerce for travel products, Original Scientific Paper. Vol. 58, No. 1, Pp. 7-18.
- Chou, Y. (2020, -12-01T08:00:37+00:00). Octalysis: Complete Gamification Framework - Yukai Chou. <http://yukaichou.com/gamification-examples/octalysis-complete-gamification-framework/>
- Chun-Chi Lu, Yu-San Ting, & Yu-Lun Hsu. (2017). THE IMPACT OF MOBILE HOTEL BOOKING BY CUSTOMER REVIEWS AND EXPERIENCE. *International Journal of Organizational Innovation*, 9(4), 171-184.
- Coe, N. M., & Yang, C. (2022). Mobile Gaming Production Networks, Platform Business Groups, and the Market Power of China's Tencent. *Annals of the American Association of Geographers*, 112(2), 307-330. 10.1080/24694452.2021.1933887
- Collins, H. (2010). *Creative research the theory and practice of research for the creative industries*. AVA Pub. SA.
- Corrêa, S.,Cristina Hott, & Gosling, M. d. S. (2021). Travelers' Perception of Smart Tourism Experiences in Smart Tourism Destinations. *Tourism Planning & Development*, 18(4), 415-434. 10.1080/21568316.2020.1798689
- da Silva, B, D'arc,R., Contreras Pinochet, L. H., Luiz Lopes, E., & de Oliveira, M. A. (2018). Development of a gamification characteristics measurement scale for mobile application

- users. *Internext: Revista Eletrônica De Negócios Internacionais Da ESPM*, 13(1), 1-16.  
10.18568/1980-4865.1311-16
- DeFranco, A. L., Morosan, C., & Hua, N. (2017). Moderating the impact of e-commerce expenses on financial performance in US upper upscale hotels: The role of property size. *Tourism Economics: The Business and Finance of Tourism and Recreation*, 23(2), 429-447.  
10.5367/te.2015.0510
- Douglas, A. (2019). Mobile business travel application usage: Are South African men really from Mars and women from Venus? *Journal of Hospitality and Tourism Technology*, 10(3), 269-285. 10.1108/JHTT-01-2018-0002
- Egger, R. and Bulencea, P. (2015) Gamification in Tourism: Designing Memorable Experiences. *Business and Economics*.
- Etemad-Sajadi, R. (2016). The impact of online real-time interactivity on patronage intention: The use of avatars. *Computers in Human Behavior*, 61, 227-232. 10.1016/j.chb.2016.03.045
- Feijoo, C., Gómez-Barroso, J., Aguado, J., & Ramos, S. (2012). Mobile gaming: Industry challenges and policy implications. *Telecommunications Policy*, 36(3), 212-221.  
10.1016/j.telpol.2011.12.004
- Gao, Y., & Wu, X. (2010). A Cognitive Model of Trust In E-Commerce: Evidence From A Field Study In China. *Journal of Applied Business Research*, 26(1)10.19030/jabr.v26i1.275
- Gay, R., Charlsworth, A. and Esen, R. (2007) *Online marketing: a customer-led approach*. Oxford: Oxford University Press.
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega (Oxford)*, 28(6), 725-737. 10.1016/S0305-0483(00)00021-9
- Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services. *Omega (Oxford)*, 32(6), 407-424. 10.1016/j.omega.2004.01.006
- Gurtner, S., Reinhardt, R., & Soyeze, K. (2014). Designing mobile business applications for different age groups. *Technological Forecasting & Social Change*, 88, 177-188.  
10.1016/j.techfore.2014.06.020
- Hamari, J., & Koivisto, J. (2015). Why do people use gamification services? *International Journal of Information Management*, 35(4), 419-431. 10.1016/j.ijinfomgt.2015.04.006
- Huotari, K., & Hamari, J. (Oct 3, 2012). Defining gamification. Paper presented at the 17-22. 10.1145/2393132.2393137 <http://dl.acm.org/citation.cfm?id=2393137>
- Keen, P. G. W. (2001). Integrate for Wireless. *Computerworld; Computerworld*, 35(29), 40.
- Kim, H. H., & Law, R. (2015). Smartphones in Tourism and Hospitality Marketing: A Literature Review. *Journal of Travel & Tourism Marketing*, 32(6), 692-711.  
10.1080/10548408.2014.943458

- Kim, M. J., & Preis, M. W. (2016). Why Seniors use Mobile Devices: Applying an Extended Model of Goal-Directed Behavior. *Journal of Travel & Tourism Marketing*, 33(3), 404-423. 10.1080/10548408.2015.1064058
- Kim, Y. H., Kim, D. J., & Wachter, K. (2013). A study of mobile user engagement (MoEN): Engagement motivations, perceived value, satisfaction, and continued engagement intention. *Decision Support Systems*, 56, 361-370. 10.1016/j.dss.2013.07.002
- Kirsch, B. A. (2014). *Games in Libraries*. McFarland & Company, Incorporated Publishers.
- Lai, J. (2009). How reward, computer self-efficacy, and perceived power security affect knowledge management systems success: An empirical investigation in high-tech companies. *Journal of the American Society for Information Science and Technology; J.Am.Soc.Inf.Sci*, 51(2), 332-347. 10.1002/asi.20982
- Laudon, K. C., & Traver, C. G. (2018). *E-commerce (Fourteenth edition, global edition ed.)*. Pearson.
- Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 26(5), 727-750. 10.1108/IJCHM-08-2013-0367
- Law, R., Leung, D., & Chan, I. C. C. (2020). Progression and development of information and communication technology research in hospitality and tourism: A state-of-the-art review. *International Journal of Contemporary Hospitality Management*, 32(2), 511-534. 10.1108/IJCHM-07-2018-0586
- Layland, E. K., Stone, G. A., Mueller, J. T., & Hodge, C. J. (2018). Injustice in Mobile Leisure: A Conceptual Exploration of Pokémon Go. *Leisure Sciences; Leis Sci*, 40(4), 288-306. 10.1080/01490400.2018.1426064
- Lee, H., Zhang, P., & Mehta, M. R. (2022). Effect of Competitors' eWOM in the Mobile Game Market. *The Journal of Computer Information Systems*, 62(1), 196-204. 10.1080/08874417.2020.1768176
- Lee, J., Park, J. S., & Lee, J. (2020). The Impact of Multimarket Competition on Innovation Strategy: Evidence from the Korean Mobile Game Industry. *Journal of Open Innovation*, 6(1), 14. 10.3390/joitmc6010014
- Li, H., Liu, Y., Liang, S., & Zhou, Q. (2020). Tourism firm restructuring: Does the attention of individual investor matter? *Tourism Management* (1982), 80, 104126. 10.1016/j.tourman.2020.104126
- Li, M., & Mao, J. (2015). Hedonic or utilitarian? Exploring the impact of communication style alignment on user's perception of virtual health advisory services. *International Journal of Information Management*, 35(2), 229-243. 10.1016/j.ijinfomgt.2014.12.004
- Lin, H. (2007). The Impact of Website Quality Dimensions on Customer Satisfaction in the B2C E-commerce Context. *Total Quality Management & Business Excellence*, 18(4), 363-378. 10.1080/14783360701231302

- Luo, J. M., Lam, C. F., & Wang, H. (2021). Exploring the Relationship Between Hedonism, Tourist Experience, and Revisit Intention in Entertainment Destination. *SAGE Open*. <https://doi.org/10.1177/21582440211050390>
- Marczewski Andrezej. (2014). Marczewski's Gamification User Types. <https://elearningindustry.com/marczewski-gamification-user-types>
- Marinao Artigas, E., Vilches-Montero, S., & Chasco Yrigoyen, C. (2015). Antecedents of tourism destination reputation: The mediating role of familiarity. *Journal of Retailing and Consumer Services*, 26, 147-152. 10.1016/j.jretconser.2015.06.005
- McGuire, M. and Jenkins, O. C. (2009) *Creating Games: Mechanics, Content and Technology*. Wellesley: A K Peters, Ltd.
- Morosan, C., & DeFranco, A. (2016). Modeling guests' intentions to use mobile apps in hotels: The roles of personalization, privacy, and involvement. *International Journal of Contemporary Hospitality Management*, 28(9), 1968-1991. 10.1108/IJCHM-07-2015-0349
- Morschheuser, B., Hassan, L., Werder, K., & Hamari, J. (2018). How to design gamification? A method for engineering gamified software. *Information and Software Technology*, 95, 219-237. 10.1016/j.infsof.2017.10.015
- Mullins, J. K., & Sabherwal, R. (2020). Gamification: A cognitive-emotional view. *Journal of Business Research*, 106, 304-314. 10.1016/j.jbusres.2018.09.023
- Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2017). Understanding the intention to use mobile shopping applications and its influence on price sensitivity. *Journal of Retailing and Consumer Services*, 37, 8-22. 10.1016/j.jretconser.2017.02.010
- O'Neill, J.,W., & Mattila, A. S. (2004). Hotel Branding Strategy: Its Relationship to Guest Satisfaction and Room Revenue. *Journal of Hospitality & Tourism Research* (Washington, D.C.), 28(2), 156-165. 10.1177/1096348004264081
- Orea-Giner, A., De-Pablos-Heredero, C., & Vacas-Guerrero, T. (2021). The Role of Industry 4.0 Tools on Museum Attributes Identification: An Exploratory Study of Thyssen-Bornemisza National Museum (Madrid, Spain). *Tourism Planning & Development*, 18(2), 147-165. 10.1080/21568316.2021.1873831
- Ozturk, A. B., Bilgihan, A., Nusair, K., & Okumus, F. (2016). What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use, and perceived convenience. *International Journal of Information Management*, 36(6), 1350-1359. 10.1016/j.ijinfomgt.2016.04.005
- Pappas, N., Caputo, A., Pellegrini, M.M., Marzi, G., and Michopoulou, E. (2021) The complexity of decision-making processes and IoT adoption in accommodation SMEs, *Journal of Business Research*, Vol. 131, pp 573-583 <https://doi.org/10.1016/j.jbusres.2021.01.010>
- Parapanos, D., & Michopoulou, E. (2019). Understanding Key Motivations for Using a Hotel Gamified Application. In Pesonen, J., and Neidhardt, J. (eds.) *Information and Communication Technologies in Tourism 2019*, Vienna-New York: Springer (pp. 411-422) 10.1007/978-3-030-05940-8\_32

- Parapanos, D., & Michopoulou, E. (2021). Gamification, Game Mechanics, Game Thinking and Players' Profile and Life Cycle in Xu, F. and Buhalis, D. (eds) *Gamification for Tourism* (pp. 13-34). *Multilingual Matters*. 10.21832/9781845418236-004
- Parapanos, D., & Michopoulou, E. (2022a). Let's All Play Together: Motivations of Different Gamification User Types. In Bernardes, O., Amorim V., & Moreira, A. C., (Eds.), *Handbook of Research on Cross-Disciplinary Uses of Gamification in Organizations* (pp. 1-23). IGI Global. 10.4018/978-1-7998-9223-6.ch001
- Parapanos, D., & Michopoulou, E. (2022b). How to Design Hotel Gamified Applications Effectively: Understanding the Motives of Users as Hotel Visitors. In Stienmetz, J., Ferrer-Rosell, B. & Massimo, D. (eds.) *Information and Communication Technologies in Tourism 2022*, Vienna-New York: Springer, 463-472
- Paulino, I., Domènech, A., & Bassols, N. (2022). Do Visitors Visit What the Tours Industry Supplies? Sightseeing Tours Versus First-timers' Photos. *Routledge*. 10.1080/21568316.2021.2023206
- Pestek, A., & Sarvan, M. (2021). Virtual reality and modern tourism. *Journal of Tourism Futures*, 7(2), 245-250. 10.1108/JTF-01-2020-0004
- Post, R. (2014). Game on: could gamification help business change behaviour? *the Guardian*. <http://www.theguardian.com/sustainable-business/game-on-gamification-business-change-behavior>
- Rouibah, K., Lowry, P. B., & Hwang, Y. (2016). The effects of perceived enjoyment and perceived risks on trust formation and intentions to use online payment systems: New perspectives from an Arab country. *Electronic Commerce Research and Applications*, 19, 33-43. 10.1016/j.elerap.2016.07.001
- Saunders, M. N. K., Thornhill, A., & Lewis, P. (2015). *Research methods for business students*. Pearson Education.
- Schell, J. (2010) *The art of game design: A book of lenses*. Burlington: Morgan Kaufmann Publishers.
- Shen, Y. (., Choi, H. C., Joppe, M., & Yi, S. (2020). What motivates visitors to participate in a gamified trip? A player typology using Q methodology. *Tourism Management* (1982), 78, 104074. 10.1016/j.tourman.2019.104074
- Smith, R., Deitz, G., Royne, M. B., Hansen, J. D., Grünhagen, M., & Witte, C. (2013). Cross-cultural examination of online shopping behavior: A comparison of Norway, Germany, and the United States. *Journal of Business Research*, 66(3), 328-335. 10.1016/j.jbusres.2011.08.013
- Sohn, S. (2017). A contextual perspective on consumers' perceived usefulness: The case of mobile online shopping. *Journal of Retailing and Consumer Services*, 38, 22-33. 10.1016/j.jretconser.2017.05.002
- Sook Harn, T. C., Tanakinjal, G. H., Sondoh Jr, S. L., & Rizal, H. (2014). Determinants of Online Group Buying Behaviour: The Moderating Role of Informational Social Influence. *Jurnal Pengurusan*, 41, 133-143. 10.17576/pengurusan-2014-41-12

- Statista (2022a) 'Distribution of video gamers in the United States in 2021, by age group'. Available at <https://www.statista.com/statistics/189582/age-of-us-video-game-players/> Accessed on 24.3.2022
- Statista (2022b) 'Gaming penetration in the United Kingdom (UK) from 2013 to 2021, by age group and gender'. Available at <https://www.statista.com/statistics/300513/gaming-by-demographic-group-uk/> Accessed on 24.3.2022
- Swacha, J. (2019). Architecture of a Dispersed Gamification System for Tourist Attractions. *Information (Basel)*, 10(1), 33. 10.3390/info10010033
- Tan, G. W., Lee, V., Hew, J., Ooi, K., & Wong, L. (2018). The interactive mobile social media advertising: An imminent approach to advertise tourism products and services? *Telematics and Informatics*, 35(8), 2270-2288. 10.1016/j.tele.2018.09.005
- Tasci, A. D. A., & Ko, Y. J. (2016). A FUN-SCALE for Understanding the Hedonic Value of a Product: The Destination Context. *Journal of Travel & Tourism Marketing*, 33(2), 162-183. 10.1080/10548408.2015.1038421
- Thakur, R., & Srivastava, M. (2015). A study on the impact of consumer risk perception and innovativeness on online shopping in India. *International Journal of Retail & Distribution Management*, 43(2), 148-166. 10.1108/IJRDM-06-2013-0128
- Tham, A., & Wang, M. (2021). Revisiting Online Tourism Forums as Vehicles for Value Co-destruction. *Tourism Planning & Development*, 18(2), 125-146. 10.1080/21568316.2021.1873832
- Torabi Farsani, N., Sadeghi, R., Shafiei, Z., & Shahzamani Sichani, A. (2016). Measurement of Satisfaction with ICT Services Implementation and Innovation in Restaurants (Case Study: Isfahan, Iran). *Journal of Travel & Tourism Marketing*, 33(2), 250-262. 10.1080/10548408.2015.1050540
- Tussyadiah, I. P. (2016). The Influence of Innovativeness on On-Site Smartphone Use Among American Travelers: Implications for Context-Based Push Marketing. *Journal of Travel & Tourism Marketing*, 33(6), 806-823. 10.1080/10548408.2015.1068263
- Veal, A. J. (2011). *Research methods for leisure and tourism: a practical guide (4th ed.)*. Financial Times Prentice Hall.
- Venkatesh, V., Thong, J. Y. L., Chan, F. K. Y., Hu, P. J., & Brown, S. A. (2011). Extending the two-stage information systems continuance model: incorporating UTAUT predictors and the role of context. *Information Systems Journal (Oxford, England)*, 21(6), 527-555. 10.1111/j.1365-2575.2011.00373.x
- Wu, B., & Andrizal, K. (2021). Perceived value and willingness to consume in online mobile games. *Social Behavior and Personality*, 49(5), 1-10. 10.2224/sbp.10193
- Xiong, Y., & Zhang, Y. (2018). Analysis of influence factors of customer loyalty under e-commerce environment. *Journal of Discrete Mathematical Sciences & Cryptography*, 21(6), 1455-1460. 10.1080/09720529.2018.1527814

- Xu, F., Buhalis, D., & Weber, J. (2017). Serious games and the gamification of tourism. *Tourism Management* (1982), 60, 244-256. 10.1016/j.tourman.2016.11.020
- Xu, F., Tian, F., Buhalis, D., Weber, J., & Zhang, H. (2016). Tourists as Mobile Gamers: Gamification for Tourism Marketing. *Journal of Travel & Tourism Marketing*, 33(8), 1124-1142. 10.1080/10548408.2015.1093999
- Yang, Y., Asaad, Y., & Dwivedi, Y. (2017). Examining the impact of gamification on intention of engagement and brand attitude in the marketing context. *Computers in Human Behavior*, 73, 459-469. 10.1016/j.chb.2017.03.066
- Yılmaz, H., & Olgaç, S. (2016). *Mobile Communication and Applications in Tourism. e-Consumers in the Era of New Tourism* (pp. 13-33). Springer Singapore. 10.1007/978-981-10-0087-4\_2
- Yoo, C., Kwon, S., & Chang, B. (2017). Factors Affecting the Adoption of Gamified Smart Tourism Applications: An Integrative Approach. *Sustainability (Basel, Switzerland)*, 9(12), 2162. 10.3390/su9122162
- Zhao, Q., Chen, C., & Wang, J. (2016). The effects of psychological ownership and TAM on social media loyalty: An integrated model. *Telematics and Informatics*, 33(4), 959-972. 10.1016/j.tele.2016.02.007
- Zhou, X., Wang, M., & Li, D. (2017). From stay to play – A travel planning tool based on crowdsourcing user-generated contents. *Applied Geography (Sevenoaks)*, 78, 1-11. 10.1016/j.apgeog.2016.10.002

## Appendix 1: Semi-structure interview plan

Question	Probes	Follow Up	Dimensions
1. What kind of games do you play?	Can you give me more details about them?		Gaming background
2. Do you have any preference in a specific game?	Could you give me some examples?	Why this game?	Game motives
3. How often do you play this game?	Is it a routine for you?		Daily activity
4. What is so entertaining in this game?	Is it fun?		Fun
5. Have you ever used a hotel application before?	For what reason?	If not why not?	Technology knowledge
6. Do you know what Gamification is?	Any examples?		Introduction to the concept
7. Have you ever used a gamified application in the past?	What kind of gamified application have you used?	If not why not?	Past Experience
8. What do you think about this imaginative hotel gamified application	Do you like it?		General thoughts
9. Would you use it?	Why would you use it?		Motives
10. Do you find this application useful?	Can you give more details?	If not why not?	Perceived Usefulness
11. Do you find this application ease to use?	Can you give more details?	If not why not?	Perceived ease of use
12. Do you find this application interesting?	Would you say it is fun to use?	Why is that?	Fun
13. What elements would make this application more interesting/fun	Can you give more details?		Exploring the element of fun
14. How important is the element of gameplay for you in order to use this application	Why is that?		Gamification and gameplay
15. Is the reward the most important element in the decision making or the gameplay itself?	What is more important to make you use this application?	Why is that?	Intrinsic/ extrinsic motivation
16. Would you use that application before visiting the hotel? During the visit? After the visit?	In what stage is more likely to do so?	Why is that?	Applications lifecycle
17. Would you use that application to book a room in a hotel of the specific brand?	Can you give more details?		Intention to use
18. Is this application enough for you in order to visit the brand in the future	Can you give more details about this opinion?	If not why not?	Intention to return

## Appendix 2: Example of the visual material

