

How technology readiness shapes guest loyalty in the hotel industry

Cómo la predisposición a la tecnología determina la fidelidad de los huéspedes en el sector hotelero

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Abstract

As technology adoption becomes crucial for hotel competitiveness, understanding its impact on guest loyalty is vital. This study explores how technology readiness (innovativeness and insecurity) influences revisit intention through the mediating roles of perceived emotional, epistemic, and social value. Data from 152 hotel guests were analyzed using partial least squares structural equation modeling (PLS-SEM). Results show that guest innovativeness positively impacts all three value dimensions. Emotional value emerges as the key driver of revisit intention, while technology readiness shows no direct effect. Theoretically, this study validates an integrated S-O-R/TRI model. Empirically, it advises managers to leverage technology for emotional engagement rather than just novelty. Future research should use larger samples and explore demographic moderators.

Keywords: Smart Hotels, Service Robots, Artificial Intelligence in Hospitality, Emotional Engagement, Technology Adoption in Tourism.

Resumen

Dado que la adopción de tecnología es crucial para la competitividad hotelera, es vital comprender su impacto en la fidelidad de los huéspedes. Este estudio explora cómo la predisposición tecnológica (innovación e inseguridad) influye en la intención de volver a visitar a través de los roles mediadores del valor percibido emocional, epistémico y social. Se analizaron datos de 152 huéspedes de hotel mediante el modelo de ecuaciones estructurales de mínimos cuadrados parciales (PLS-SEM). Los resultados muestran que la innovación del huésped impacta positivamente en las tres dimensiones de valor. El valor emocional emerge como el impulsor clave de la intención de volver a visitar, mientras que la predisposición tecnológica no muestra un efecto directo. Teóricamente, este estudio valida un modelo integrado S-O-R/TRI. Empíricamente, aconseja a los gerentes aprovechar la tecnología para el compromiso emocional en lugar de solo la novedad. Futuras investigaciones deberían usar muestras más grandes y explorar moderadores demográficos.

Palabras clave: hoteles inteligentes, robots de servicio, inteligencia artificial en la hostelería, compromiso emocional, adopción de tecnología en el turismo.

1 Introduction

The hospitality industry is undergoing a profound transformation, fueled by the rapid advancements of Industry 4.0 technologies. These technologies, ranging from the Internet of Things (IoT) and artificial intelligence (AI) to virtual reality (VR) and big data, are reshaping how hotels operate and how guests experience their stays. As predicted by Hansen and Owen over two decades ago, technology adoption has become a cornerstone for maintaining competitiveness in the modern hospitality landscape (Zhang et al., 2023).

These technologies are not merely futuristic concepts; they are actively shaping guest experiences and influencing hotel selection processes (Yang et al., 2023). This is particularly relevant for Portugal, a nation heavily reliant on tourism, with the sector contributing 12.2% of GDP in 2022, and hotels comprising nearly 70% of this contribution (INE, 2023). Embracing these technological advancements is not just an option; it's a necessity for staying competitive in this dynamic market.

Extensive research has explored guest preferences for hotel technologies (Bilgihan et al., 2016; Kim & Han, 2022) and their subsequent impact on satisfaction and behavior intention (Cobanoglu et al., 2011; Liu et al., 2022; Zhang et al., 2023). However, a crucial gap remains in understanding the relationship between a guest's technology readiness and their revisit intention. This research

aims to bridge this gap by proposing a novel framework that integrates the TRI with the S-O-R model. Building upon Parasuraman and Colby's (2015) TRI, this study acknowledges the influence of individual emotional responses on technology adoption. By incorporating the S-O-R model, this framework allows us to examine the influence of technology readiness (stimulus) on hotel revisit intention (response) through the mediating role of customer perceived value (organism).

To bridge this gap in the literature, this study is guided by a central research question: What is the role of multidimensional perceived value (emotional, social, and epistemic) in mediating the relationship between a guest's technology readiness and their revisit intention? Therefore, the main objective of this research is to propose and empirically test a novel framework that integrates the Technology Readiness Index (TRI) with the Stimulus-Organism-Response (S-O-R) model. Specifically, it aims to investigate the mediating effect of perceived value dimensions on the relationship between guest technology readiness (innovativeness and insecurity) and their intention to revisit a hotel.

This study's primary theoretical contribution lies in the successful integration of the S-O-R framework and the TRI to explain the complex mechanism linking guest characteristics to behavioral intentions in a technologically advanced hotel setting. By employing Parasuraman and Colby's (2015) TRI, our findings challenge the simplistic assumption that a guest's inherent readiness for technology (the stimulus) directly translates into loyalty (the response). Instead, our results reveal that the influence of TRI dimensions, such as innovativeness, is fully mediated by the guest's internal evaluation (the organism), specifically their perception of emotional, epistemic, and social value. This complements the TRI model by demonstrating that its predictive power in the hospitality context is not direct but operates through the affective and cognitive experiences technology facilitates. Practically, this means managers should not invest in technology for its own sake, assuming tech-savvy guests will automatically become loyal. Rather, they must strategically deploy technologies that demonstrably enhance the emotional and social dimensions of the guest experience, as these are the true drivers of revisit intention.

The main findings of this study reveal a nuanced relationship between technology readiness, perceived value, and guest loyalty. First, guest innovativeness was found to be a significant positive predictor of all three dimensions of perceived value: emotional, epistemic, and social. Second, and most critically, emotional value emerged as the strongest and most direct driver of revisit intention. In contrast, epistemic value only influenced guests' overall perception of value but not their intention to return, while social value directly impacted revisit intention but not overall value. Finally, and central to our model, the direct relationship between technology readiness dimensions (innovativeness and insecurity) and revisit intention was not statistically significant,

confirming that the influence of a guest's technological predisposition on their loyalty is fully mediated by their value perception during the hotel stay.

2 Literature Review

This study adopts an integrated theoretical framework combining the S-O-R model with the TRI to investigate the determinants of guest loyalty in technologically advanced hotels. The S-O-R model posits that external environmental cues (Stimulus) influence an individual's internal cognitive and affective states (Organism), which in turn drive their behavioral outcomes (Response). Within tourism and hospitality research, this model has proven effective in explaining how environmental factors shape consumer behavior (Ye et al., 2022). However, a general environmental stimulus, such as "hotel technology," is insufficient to explain varied guest reactions. To add precision, we conceptualize the "Stimulus" not merely as the technology itself, but as the guest's inherent predisposition toward it, as measured by the TRI. This integrated approach allows us to examine how a guest's personal traits related to technology serve as the initial stimulus that triggers their evaluative process.

Within this S-O-R framework, the key constructs are operationalized as follows. The Stimulus is represented by two core dimensions of technology readiness: innovativeness (a positive driver to adopt technology) and insecurity (an inhibitor reflecting distrust and safety concerns) (Blut & Wang, 2020). It is hypothesized that these personal traits will shape the guest's internal evaluation of their stay. This internal evaluation, or the Organism, is conceptualized as multidimensional perceived value, comprising emotional value (feelings or affective states evoked), social value (enhancement of social self-concept), and epistemic value (arousal of curiosity and knowledge acquisition) (Madinga et al., 2023). These value dimensions serve as the crucial mediators through which the stimulus is processed. Finally, the Response is the guest's revisit intention, a key indicator of behavioral loyalty (Zhang et al., 2023). Our hypotheses are thus articulated along this causal chain, proposing that the perceived value derived from the hotel experience mediates the relationship between a guest's technology readiness and their ultimate intention to return (c.f. Touni et al., 2022).

2.1 Technological amenities in the hospitality industry

In the hospitality industry, amenities have long played a crucial role in setting prices and establishing a competitive advantage (Yang et al., 2023). Understanding guest preferences for these amenities is essential for hotels to improve guest experience and satisfaction, ultimately leading to customer loyalty and increased revenue. Technology is rapidly transforming the amenity landscape, with smart hotels offering a growing array of innovative features. One of the

most fundamental and highly valued amenities is free high-speed Wi-Fi (Cobanoglu et al., 2011; Yang et al., 2021; Zhang et al., 2023), consistently ranked as a top priority for guests (Bilgihan et al., 2016). Beyond internet access, in-room technology is enhancing guest control and personalization. Touchscreen control panels allow guests to adjust lighting, temperature, curtains, and blinds with ease (Cobanoglu et al., 2011; Yang et al., 2021). Mobile apps further empower guests by enabling them to manage their entire stay from their smartphones and smart bathrooms are equipped with features like smart mirrors providing a customized experience. The rise of facial and voice recognition technology offers added convenience and security, and service robots are increasingly being deployed to handle tasks like information provision, room service, cleaning, and guest assistance. Virtual reality and augmented reality experiences are also finding their way into hotels, catering to guests seeking innovative entertainment options. Hotels are also actively integrating technologies like motion, infrared, and occupancy sensors to optimize energy savings and contribute to environmental sustainability (Yang et al., 2021). Lastly, self-service check-in and check-out kiosks are streamlining the guest experience by reducing waiting times (Zhang et al., 2023).

This industry faces a unique challenge: simply offering advanced technologies in hotels is not enough to guarantee repeat visits. Here is where the SOR model, developed by Pavlov in 1927 and further refined by Mehrabian and Russell in 1974, provides valuable insights. The SOR model's strength lies in its ability to explain how external factors influence internal perceptions, ultimately leading to behavioral responses. This framework transcends industries. For instance, in e-commerce, research by Sohaib, et al. (2022) investigates the impact of social media marketing activities (stimulus) on consumers online repurchase intentions. Chakraborty (2019) investigated the factors that make online reviews credible and ultimately influence people's hotel booking intentions. Similarly, within tourism, Kim and Park (2019) studied how self-service technologies at airports (stimulus) affect passenger perceptions of value, satisfaction, and ultimately, their intention to use it again. This aligns with Ye et al. (2022) and Yoon et al. (2021) findings about how environmental factors, including technologies, influence consumer emotions and subsequent behavior. By applying the SOR model to this study, it is examined how guests' technology readiness (stimulus) interacts with their perception of value derived from hotel technologies (organism). This understanding contributes to a deeper knowledge of the factors that truly influence guest revisit intentions in today's tech-driven hospitality landscape.

The hospitality and tourism industry, like many others, is undergoing a rapid technological transformation. As technology becomes ever more integrated into travel experiences, understanding guests' technology readiness (TR) is crucial. The Technology Readiness Index

(TRI), defined by Parasuraman and Colby (2015), serves as a valuable tool for measuring this complex concept. Technology readiness reflects an individual's willingness to accept and utilize new technologies. This inclination can vary depending on a person's overall perception of technology, encompassing both positive (optimism, innovativeness) and negative (discomfort, insecurity) views.

Optimistic individuals view technology favorably, believing it empowers them and enhances their efficiency. Research by Pham et al. (2020) suggests a positive correlation between optimism and satisfaction with technology and therefore positive behavioral intention. Innovativeness describes a person's natural tendency to be a technology adopter and even a discoverer (Parasuraman & Colby, 2015). Innovative guests are particularly interested in exploring the unique features of new technologies and are often eager to be among the first users. Conversely, discomfort arises from a sense of being overwhelmed or controlled by technology. Those experiencing discomfort tend to be apprehensive about new advancements and may find dealing with them anxiety-provoking. Insecurity, the other inhibitor, refers to a lack of trust in technology, stemming from anxieties about its potential downsides and suitability for certain uses (Parasuraman & Colby, 2015). Discomfort and insecurity can lead to anxiety, mistrust and ultimately dissatisfaction (Pham et al., 2020). These four dimensions function independently, each influencing a guest's openness to technology differently (Lu et al., 2012; Parasuraman & Colby, 2015).

Importantly, technology readiness significantly influences customer attitudes towards technology-based services (Bobbitt & Dabholkar, 2001). Studies show a positive correlation between technology readiness and willingness to pay for contactless services (Hao et al., 2023) and adoption of new technologies (Pham et al., 2018). Interestingly, Zeithaml (1988) found that experiences with technologies have minimal impact on the overall evaluation of low-TR guests, who do not value technology highly. Contrarily, high-TR guests, due to their comfort level, prior experience, and higher expectations, are less likely to encounter problems but may be more demanding if issues arise.

2.2 Hypotheses development

The concept of innovativeness within technology readiness holds particular significance in the hospitality industry. Studies by Lowe and Alpert (2015) demonstrate a direct link between a guest's perception of a service's innovativeness and their overall evaluation. When guests perceive a service as innovative, it suggests features like uniqueness, which can evoke emotional value, and a relative advantage that translates into functional and monetary value. Leckie et al. (2018) further reinforce this concept by highlighting the critical role of innovative services in driving customer engagement, loyalty, and ultimately, their overall perception of value. Shin et al.

(2021) and Pham et al. (2020) found that both innovativeness and optimism have a positive influence on a customer's perceived value and on individuals' intentions. Similarly, Kim and Han (2022) found that optimism and innovativeness positively influence a guest's motivation to use smart hotel technology. Wang et al. (2017) discovered a positive correlation between a museum visitor's perceived technological influence on their experience and their willingness to revisit, particularly for innovative individuals. This aligns with the natural tendency of innovative guests to seek out and utilize new technologies, suggesting a positive impact on the perceived value of such technologies. Given that, the following hypotheses are then proposed:

H1a: Innovativeness has a positive and significant effect on social value.

H1b: Innovativeness has a positive and significant effect on emotional value.

H1c: Innovativeness has a positive and significant effect on epistemic value.

In contrast to innovativeness, insecurity can lead to distrust and a perception that new technologies are not functional or useful (Lu et al., 2012). This dimension reflects a desire for reliability, fear of negative outcomes, and safety concerns (Blut & Wang, 2020; Bobbitt & Dabholkar, 2001). Guests feeling insecure about technology's safety and usefulness are unlikely to perceive its benefits. Even if the technology works well, anxiety can hinder a positive experience (Meuter et al., 2003). Shin et al. (2021) discovered that discomfort and insecurity had a negative impact on each person's ambitions and perceived value. Guests with a pessimistic view are less likely to accept technology-based services, and research by Pham et al. (2020) confirms insecurity's negative influence on perceived value. Building on this foundation, the study proposes the following hypotheses:

H2a: Insecurity has a negative and significant effect on social value.

H2b: Insecurity has a negative and significant effect on emotional value.

H2c: Insecurity has a negative and significant effect on epistemic value.

Technology is transforming tourism, aiming to enhance guest satisfaction, customer happiness and loyalty and encourage repeat visits. This includes advancements like artificial intelligence, hotel robots and city guide apps (Hadjielias et al., 2022; Shahid & Paul, 2022). However, simply offering technology is not enough. Understanding how guests perceive the value of these technologies is crucial. Perceived value is a complex concept with various definitions. One common definition by Zeithaml (1988) describes it as a customer's overall assessment based on what they receive (benefits) compared to what they give (costs). Essentially, it is about how much a guest feels they get out of an experience relative to what they put in (Madinga et al., 2023). This

value judgment is subjective and involves weighing the gains (positive aspects) and losses (sacrifices) associated with the experience (Nasution & Mavondo, 2008).

There are two main approaches to study customer perceived value: the single-dimensional and the multidimensional approach (Sánchez-Fernández & Iniesta-Bonillo, 2007; Williams & Soutar, 2009). The single-dimensional approach is criticized for being too simplistic and for lacking comprehensiveness, as it only considers a guest's overall impression of a product or service (utilitarian perspective). In contrast, the multidimensional approach acknowledges the complexity of perceived value by analyzing it through various aspects, providing a richer picture (Madinga et al., 2023).

The consumption value theory proposes that the complex consumer decision-making process—whether to purchase or not, which kind of goods or service to select, and which brand to choose— involves several types of value (Sánchez-Fernández & Iniesta-Bonillo, 2007). The core idea of that theory has been adapted by other researchers to fit specific contexts. For instance, Sweeney et al. (1996) focused on functional, social, and emotional dimensions, while Williams and Soutar (2000) applied a framework with functional, emotional, social, and epistemic value specifically in the tourism industry. By recognizing the multifaceted nature of perceived value, this study employs a multidimensional approach. It focuses on three key dimensions: social value, which explores how technology use impacts a guest's social standing or interactions; emotional value, examining how technology influences a guest's feelings and emotions; and epistemic value, investigating how technology use contributes to a guest's learning and knowledge acquisition. By analyzing these three dimensions, the research aims to gain a richer understanding of how guests perceive the value of hotel technologies and how this perception ultimately influences their decisions to return. The following sections provide an in-depth investigation of these dimensions.

Social value is becoming increasingly important in hospitality, influencing guests' overall perception of value. This dimension focuses on the perceived benefits derived from a product or service that connect guests to specific social groups (Madinga et al., 2023). In tourism, social value includes interacting with other tourists, forming relationships with guides, and even the prestige associated with travel experiences (Williams & Soutar, 2009). Çelik and Dedeoğlu (2019) concluded that guests who feel that a hotel or experience could enhance their social status, are more likely to return. Other authors presented a positive connection between social value and tourist behaviors like revisit intentions and loyalty (Çelik & Dedeoğlu, 2019; Rasoolimanesh et al., 2020). Therefore, hotels can leverage social value by creating experiences that foster connections, enhance guests' social status, and ultimately influence their decision to return. Based on this concept, this study proposes two hypotheses:

H3a: Social value has a positive and significant effect on guests' overall perceived value of the hotel.

H3b: Social value has a positive and significant effect on a guest's intention to revisit the hotel.

Emotional value, another crucial dimension of perceived value, focuses on the feelings and emotions a product or service evokes in a guest (Williams & Soutar, 2009). In the hospitality industry, guests often seek experiences that spark positive emotions like joy, excitement, or a sense of accomplishment. Emotional value plays a significant role in guest satisfaction and ultimately, their behavior, including revisit intentions (Madinga et al., 2023; Rasoolimanesh et al., 2020). Research suggests that emotional value can have an even stronger influence on guest satisfaction and behavioral intentions compared to functional value (Lee et al., 2011). Studies demonstrate that positive emotional experiences lead to higher customer satisfaction, stronger positive behavior, and ultimately, a greater likelihood of returning (Dedeoğlu et al., 2016; Rasoolimanesh et al., 2020; Waheed & Hassan, 2016). Based on this importance, this study proposes two hypotheses:

H4a: Emotional value has a positive and significant effect on guests' overall perceived value of the hotel.

H4b: Emotional value has a positive and significant effect on a guest's intention to revisit the hotel.

The human's natural curiosity to explore and learn fuels the concept of epistemic value. This dimension reflects the perceived benefit of an experience that satisfies the guest's thirst for knowledge and innovation (Madinga et al., 2023; Waheed & Hassan, 2016; Williams & Soutar, 2009). Travel inherently offers opportunities for personal growth through exposure to new social environments, cultures, and knowledge (Waheed & Hassan, 2016). This pursuit of novel experiences, including a willingness to take risks, contributes to fulfilling the desire for learning. In the context of hotels, epistemic value can be leveraged by offering unique experiences, such as access to cutting-edge technologies. By fostering a sense of curiosity and discovery, hotels can enhance guest satisfaction, guest perceived value and ultimately, influence their decision to return. Similarly to adventure tourism, where fresh and unique experiences are crucial, hotels that prioritize guest learning and unique experiences can stand out (Williams & Soutar, 2009). Therefore, this study proposes two hypotheses:

H5a: Epistemic value has a positive and significant effect on guests' overall perceived value of the hotel.

H5b: Epistemic value has a positive and significant effect on a guest's intention to revisit the hotel.

Behavioral intention refers to an individual's inclination to take a specific action in the future (Zhang et al., 2023). Revisit intention, a customer's desire to return, is a key indicator of both customer value and satisfaction in hospitality (Shahid & Paul, 2022; Zhang et al., 2023). A guest's willingness to revisit reflects the hotel's success in delivering exceptional value (Madinga et al., 2023; Nasution & Mavondo, 2008). Several studies show a strong link between perceived value and a guest's intention to return (Dedeoğlu et al., 2016; Lee et al., 2011; Madinga et al., 2023; Realino & Moko, 2021; Williams & Soutar, 2009; Zeithaml, 1988). When guests perceive they receive more value than what they give (money, time, effort), they are more likely to consider returning.

Several factors have also been identified as key drivers of revisit intention, including tourist satisfaction (Hwang & Hyun, 2016; Xu et al., 2023) and past experiences (Çelik & Dedeoğlu, 2019; Chen & Tsai, 2007; Gardiner et al., 2013; Lee et al., 2011). This study specifically focuses on perceived value as a mediator factor influencing the relationship between technology readiness and revisit intention.

The idea of perceived value as a mediator is supported by existing research. For instance, studies have shown that perceived value plays a role in the connection between customer engagement and brand loyalty (Touni et al., 2022) and between hotel features (physical environment and social interaction) and customer loyalty (Hussein et al., 2018). Similarly, research suggests that perceived value mediates the relationship between various factors like physical environment, service quality, and customer satisfaction on one hand, and customer retention on the other (Al-Gharaibah, 2020). Even in tourism contexts, perceived value has been shown to partially mediate the link between tour guide interpretation and a guest's intention to revisit (Cheng et al., 2019). Additionally, research by Pradhan et al. (2018) supports this concept into the context of smart devices, highlighting that both perceived benefits and perceived risks (both dimensions of perceived value) associated with technology, influence a user's intention to adopt those devices. Building on these findings, the following mediating hypotheses are developed:

H6a: Social value mediates the relation between innovativeness and overall value.

H6b: Social Value mediates the relation between innovativeness and revisit intentions.

H7a: Emotional value mediates the relation between innovativeness and overall value.

H7b: Emotional value mediates the relation between innovativeness and revisit intentions.

H8a: Epistemic value mediates the relation between innovativeness and overall value.

H8b: Epistemic value mediates the relation between innovativeness and revisit intentions.

H9a: Social value mediates the relation between insecurity and overall value.

H9b: Social Value mediates the relation between insecurity and revisit intentions.

H10a: Emotional value mediates the relation between insecurity and overall value.

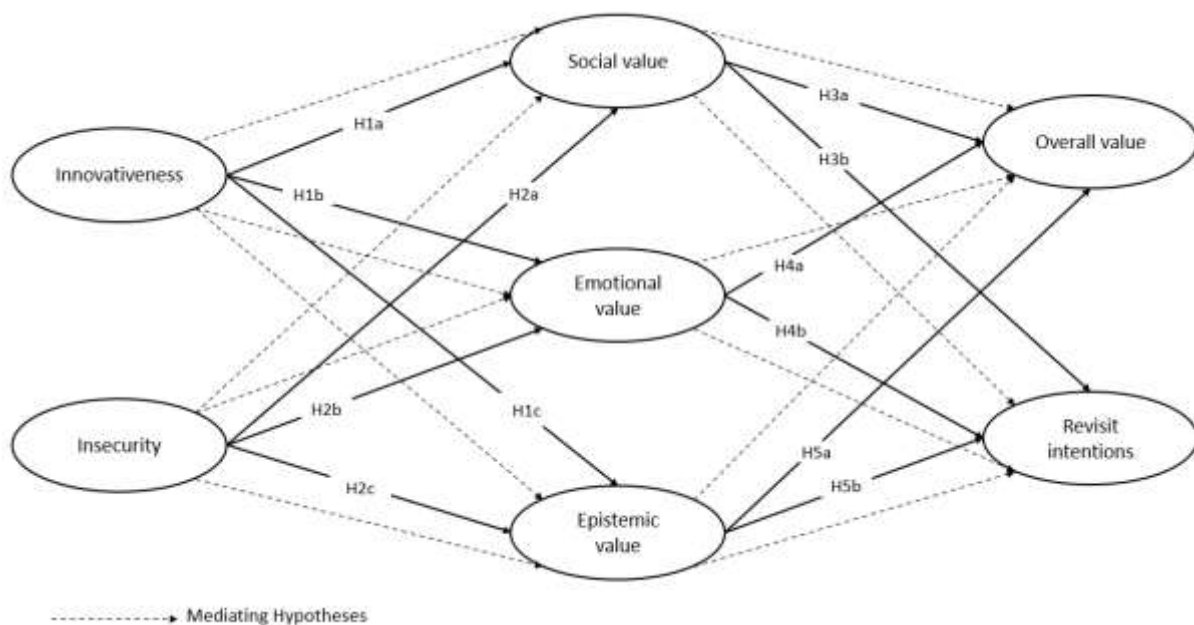
H10b: Emotional value mediates the relation between insecurity and revisit intentions.

H11a: Epistemic value mediates the relation between insecurity and overall value.

H11b: Epistemic value mediates the relation between insecurity and revisit intentions.

This study examines how guests' inherent openness to technology (innovativeness) and anxieties about it (insecurity) affect their decision to return to a hotel. The study is built upon ideas from two theories: the Stimulus-Organism-Response (SOR) model and the Technology Readiness Index (TRI). The SOR model helps to understand how external factors (like the hotel's technological features) influence a guest's decision (to revisit or not). The TRI helps to measure guests' openness and anxieties towards technology. There is an important middle step in this process: perceived value. This study investigates how the hotel's technology affects how guests perceive its value in three ways: social value, emotional value, and epistemic value. This process is presented above in figure 1.

Figure 1. Conceptual model



3 Methodology

To test the proposed conceptual model, this study employs PLS-SEM. This methodological choice is justified for several key reasons. Firstly, PLS-SEM is particularly well-suited for prediction-oriented research, which aligns with our primary objective of understanding the factors that predict guest revisit intention (Hair et al., 2019). Secondly, it is a robust technique for handling complex models with multiple mediating pathways and is effective even with non-normally distributed data and smaller sample sizes, which is characteristic of our dataset (Hair et al., 2020). Within our model, the independent variables are the two dimensions of technology readiness:

innovativeness and insecurity. The three dimensions of perceived value—social value, emotional value, and epistemic value—are specified as mediating variables, hypothesized to explain the mechanism through which technology readiness influences outcomes. Finally, the ultimate dependent variables of the study are overall value and revisit intention.

3.1 Data collection and sampling

This study focused on people who had stayed at least once in a hotel. Since it's difficult to get a complete list of everyone who meets this criterion (sampling frame), it was used a non-probability sampling method called purposive sampling. This approach targets individuals most likely to provide valuable information relevant to the research goals. Purposive sampling is ideal when specific groups hold unique perspectives on the topic. In this case, the aim and objectives of this study were to understand the viewpoints of people with hotel technological experiences (Campbell et al., 2020). Therefore, to collect the data, an online questionnaire was distributed through social media platforms like Facebook and research communities like Survey Circle and Survey Swap. Completing the questionnaire took roughly 6 minutes. 165 questionnaires in total were collected, and after checking for validity, 152 were usable for analysis. Data collection took place between October 2023 and January 2024.

3.2 Sample

The survey attracted 165 respondents, with a majority being female (126) compared to males (39). Most respondents (80.61%) were young adults between 18-27 years old. This age group also corresponded to the highest percentage (34%) with no reported monthly income. In terms of education, around 75% of the respondents held a bachelor's degree or higher, while only 4 had an elementary school education. Nationality-wise, the sample was predominantly Portuguese (50%), followed by other European countries (28%). Interestingly, 13 respondents had never stayed in a hotel before. Table 1. details this information.

Table 1. Respondents' sociodemographic information

Variable	Category	n	Percentage (%)
Age	18-27	133	80.61
	28-37	13	7.88
	38-47	10	6.06
	48-57	3	1.82
	58-67	3	1.82
	68 or more	3	1.82
Gender	Female	126	76.36
	Male	39	23.64
Nationality (continent)	African	5	3.03
	American	16	9.70
	Asian	12	7.27

	Oceania	2	1.21
	Other European countries	47	28.48
	Portuguese	83	50.30
Education	Elementary school	4	2.42
	High school	36	21.82
	Bachelor's degree	90	54.55
	Master's degree	33	20
	Doctoral degree	2	1.21
Monthly net income	None	56	33.94
	< 1000€	49	29.70
	1000€ - 1999€	39	23.64
	2000€ - 2999€	9	5.45
Nº time in hotels (per year)	Never stayed in a hotel	13	7.88
	1-3 per year	120	72.73
	4-6 per year	22	13.33
	> 7 per year	10	6.06
With whom	On my own	15	9.87
	With friends	28	18.42
	As a couple	61	40.13
	With family	44	28.95
	With work colleagues	3	1.97
	Other	1	0.66
How long (days)	1-3 days	92	60.53
	4-6 days	40	26.32
	> 7 days	20	13.16

3.3 Measures

This study drew upon existing research to develop the questionnaire's constructs, with minor adjustments to ensure they fit seamlessly within the research framework. The questionnaire was divided into three sections. The first section gathered demographic information from participants, including age, gender, nationality, education level, and net income. In the second section, respondents answered multiple-choice questions regarding their most recent hotel experience. This section also asked participants to identify the technologies available at the hotel they stayed in. The third and final section focused on the research variables, with each variable presented in its own subsection. Innovativeness and insecurity were measured using four items each, adapted from a scale by Parasuraman and Colby (2015). Perceived value was further divided into three dimensions: social, emotional, and epistemic. Social and emotional value were measured using four items each, adapted from various sources (Küveli & Özer, 2020; Sweeney & Soutar, 2001; Williams & Soutar, 2009). Epistemic value and overall value were also measured using four items each, adapted from Küveli and Özer (2020). Finally, revisit intention was assessed using four items from the study of Shahid & Paul (2022). All items used a five-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The constructs and items are presented in the appendix.

3.4 Procedures for Common method bias (CMB)

Common method bias (CMB) presents a potential threat to the validity of the findings of this study. CMB arises when a single survey measures both the independent and dependent variables (Jakobsen & Jensen, 2015). This reliance on self-reported data from the same source can introduce systematic errors, inflating the observed relationships between the variables. For instance, participants might unintentionally provide biased responses due to factors like limited topic knowledge or a desire to appear favorable (social desirability bias). To mitigate the risk of CMB, several strategies were implemented. First, it was prioritized careful survey design, as recommended by Jakobsen & Jensen (2015). This involved avoiding factors identified by MacKenzie and Podsakoff (2012) that can exacerbate CMB, such as complex questions, double-barreled items, and excessive survey length. It was also incorporated attention checks to ensure participants were engaged and comprehending the questions. Furthermore, this research sought to incorporate data from multiple sources whenever possible to strengthen the validity of the findings and reduce reliance on self-reported information. Finally, the questionnaire wording was meticulously crafted to avoid leading participants towards socially desirable responses. Additionally, Harman's single-factor test was conducted. If a single eigenvalue exceeds one, or if the first unrotated factor explains more than 50% of the variance in the items, it suggests the presence of substantial CMB. In this study, the highest eigenvalue explained only 33.5% of the variance, indicating no evidence of significant CMB (Baumgartner et al., 2021; Cohen & Ehrlich, 2019).

3.4 Data analysis

To best analyze the relationships of the conceptual model, particularly the impact of technology readiness on revisit intention, Partial Least Squares Structural Equation Modeling (PLS-SEM) was chosen. This choice aligns well with the study's objectives for two key reasons. Firstly, PLS-SEM excels in prediction-oriented research, which is precisely this study's goal: understanding and predicting how technology readiness influences revisit intention (Hair et al., 2020). Secondly, PLS-SEM is advantageous for studies with smaller sample sizes, like the one obtained in this research (n=165) through purposive sampling. Smart PLS 3 software was used to analyze the data. Following Hair et al. (2020), firstly the measurement model's reliability and validity was assessed. Subsequently, the structural model was evaluated to test the proposed hypotheses.

This study employs a reflective measurement model, where observed variables are considered to be caused by underlying latent constructs (Hair et al., 2020). This approach aligns with the study's goal to examine cause-and-effect relationships, particularly the mediating role of perceived value in the relationship between technology readiness and revisit intention. The model's quality was

assessed using reliability and validity indicators. Factor loadings, Cronbach's alpha, and composite reliability confirmed the model's reliability. Convergent validity was established through factor loadings and average variance extracted (AVE), while discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio. All indicators met or exceeded recommended thresholds, supporting the model's robustness for further analysis. As shown in table 2, all constructs are satisfied by this criterion.

Table 2. Reliability and construct validity

Construct	EMV	EPV	INN	INS	OVV	RVI	SV
Emotional value	0,853	0,697	0,566	0,157	0,570	0,658	0,418
Epistemic value	0,601	0,816	0,409	0,147	0,610	0,532	0,604
Innovativeness	0,499	0,354	0,828	0,239	0,261	0,778	0,437
Insecurity	0,032	0,103	0,074	0,843	0,200	0,198	0,258
Overall value	0,516	0,546	0,240	0,147	0,921	0,436	0,232
Revisit intention	0,600	0,477	0,640	0,041	0,442	0,812	0,451
Social Value	0,373	0,524	0,402	0,221	0,216	0,393	0,873

Note: The bolded numbers are the square roots of AVE; Above the diagonal are the HTMT values; Below the diagonal are the correlations between the constructs.

To ensure the statistical validity and robustness of the PLS-SEM results, specific diagnostic tests were essential. First, we assessed collinearity among the predictor variables by examining the Variance Inflation Factor (VIF) values. This step is crucial as high collinearity can artificially inflate the significance of the relationships between constructs, leading to misleading conclusions. All VIF values in our study were well below the recommended threshold of 3, confirming that multicollinearity was not an issue. Second, to enhance the explanatory power of our model, a multi-group analysis (MGA) was conducted. This test was employed to investigate the potential moderating effect of hotel type (high-tech vs. low-tech) on the model's structural paths. Using MGA allows us to move beyond a single, universal model and determine if the relationships between technology readiness, perceived value, and revisit intention significantly differ across these distinct hotel contexts.

4 Results

Prior to analyzing the relationships between the study's variables, it was essential to assess collinearity, which can artificially inflate the significance of relationships when variables are highly correlated. This was done by examining Variance Inflation Factor (VIF) values, which ideally should be below 3. In this study, VIF values ranged from 1.005 to 1.871, confirming the absence of significant collinearity issues.

The next step involved examining the model's ability to predict the behavior of the variables it explains (endogenous variables). A common measure for this is the R-squared (R^2) value, ranging from 0 to 1. Higher R^2 values indicate greater explanatory power. Interpreting R^2 can vary, but Hair et al. (2020) suggests considering values of 0.75, 0.50, and 0.25 as substantial, moderate, and weak, respectively. In this study, the endogenous variables ("emotional value," "epistemic value," "social value," "overall value," and "revisit intention") had R^2 values of 24.9%, 13.1%, 19.8%, 36.4%, and 39.9%, respectively. This means "revisit intention" has a moderate predictive power, while "emotional," "epistemic," and "social value" show a weak predictive power within the model.

The structural model assessment (Table 3.) revealed that innovativeness positively and significantly influences emotional, epistemic, and social value, thus supporting hypotheses H1a, H1b, and H1c. Insecurity did not significantly affect emotional or epistemic value (contrary to H2a and H2b), but surprisingly, it positively influenced social value (supporting H2c). Social value did not significantly impact overall value (not supporting H3a) but positively influenced revisit intention (supporting H3b). Emotional value positively affected both overall value and revisit intention (supporting H4a and H4b). Lastly, epistemic value positively influenced overall value (supporting H5a) but did not significantly affect revisit intention (contrary to H5b).

Table 3. Structural model assessment

Paths	Path coefficient (β)	T statistics	P values	Results
Emotional value - Overall value	0,306	3,368	0,001	Supported
Emotional value - Revisit intention	0,476	6,391	0,000	Supported
Epistemic value - Overall value	0,424	4,448	0,000	Supported
Epistemic value - Revisit intention	0,107	1,048	0,295	Not supported
Innovativeness - Emotional value	0,5	7,343	0,000	Supported
Innovativeness - Epistemic value	0,348	4,666	0,000	Supported
Innovativeness - Social value	0,388	6,426	0,000	Supported
Insecurity - Emotional value	-0,005	0,058	0,953	Not supported
Insecurity - Epistemic value	0,078	0,897	0,37	Not supported
Insecurity - Social value	0,192	2,304	0,021	Supported
Social Value - Overall value	-0,12	1,678	0,093	Not supported
Social value - Revisit intention	0,159	2,09	0,037	Supported

To investigate the proposed mediation effects (where a variable influence another through a mediating variable), this study utilized a bootstrapping procedure (Table 4 – supplementary material). The structural model assessment confirmed that innovativeness significantly and positively influences emotional, epistemic, and social value. In contrast, insecurity did not affect emotional or epistemic value but, unexpectedly, positively influenced social value. While social value did not impact overall value, it did positively influence revisit intention. Emotional value positively affected both overall value and revisit intention. Finally, epistemic value positively influenced overall value but not revisit intention.

To investigate the potential moderating effect of hotel type (high-tech vs. low-tech) on the relationships between technology readiness, perceived value, and revisit intention, a multi-group analysis (MGA) was conducted. While most variables did not exhibit significant moderation effects, social value emerged as an exception. In high-tech hotels, social value significantly and positively influenced revisit intention, suggesting that guests who perceive their stay as enhancing their social standing are more inclined to return. This finding aligns with previous research emphasizing the importance of social value in shaping guest behavior (c.f. Çelik and Dedeoğlu 2019; Rasoolimanesh et al. 2020).

To gain a deeper understanding of the interplay between technology readiness and guest behavior, this study employed a two-step approach. Initially, Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to identify the key factors influencing overall value and revisit intention. Subsequently, an Importance-Performance Map Analysis (IPMA) was conducted to assess the performance of each factor (Fig 2 and 3).

The IPMA revealed that emotional value was the most influential factor, accounting for nearly half of the overall value. This highlights the significance of technologies that evoke positive emotions in guests. Innovativeness also emerged as a crucial factor, indicating a preference for new and advanced technologies, particularly among younger generations. Conversely, security concerns (insecurity) were the least important factor, although the need for reliable and error-free technology was still emphasized.

Figure 2. Importance-performance map (variables)

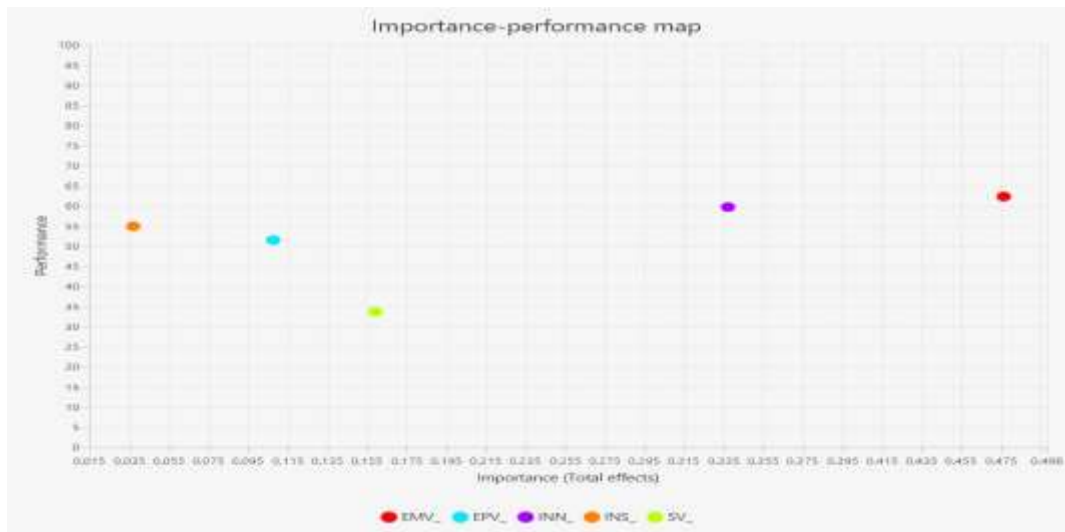


Figure 3. Importance-performance map (indicators)



5 Discussion

Firstly, the findings reveal a positive and significant relationship between guest innovativeness and perceived emotional value. In other words, guests who are more open to new technologies tend to experience greater enjoyment and satisfaction (emotional value) during their stay, being aligned with previous research (Pham et al., 2018; Pham et al., 2020). Additionally, emotional value has a positive impact on both overall perceived value and revisit intention, which is consistent with hospitality studies (Lee et al., 2011; Madinga et al., 2023). Therefore, being open to technologies (innovativeness) leads to a more enjoyable stay (emotional value), which ultimately increases a guest's overall perception of value and their likelihood to return (revisit intention). On the other hand, guest insecurity about using technologies does not significantly impact their emotional value. This implies that a guest's comfort level with technology does not necessarily affect their

enjoyment of the stay. Furthermore, the lack of a significant effect of emotional value on the relationship between insecurity and both overall value and revisit intention suggests that emotional value does not mediate these relationships.

Similarly to emotional value, guest innovativeness positively impacts epistemic value, aligning with past research (Pham et al., 2018; Pham et al., 2020). Put it differently, guests who felt they learned or gained new knowledge during their stay (epistemic value) tended to value their experience more overall (higher overall value). However, unlike emotional value, epistemic value did not significantly influence revisit intention. This finding is interesting as it differs from some studies in other contexts. Madinga et al. (2023) found no link between epistemic value and customer value, while Williams and Soutar (2009) showed a connection between customer value, satisfaction, and revisit intention. It suggests that in the hotel industry, learning or gaining knowledge is just one aspect of value, and may be less influential than enjoyment (emotional value) in driving repeat visits. Furthermore, epistemic value acts as a mediator between innovativeness and overall value, but not for the other relationships tested, innovativeness-revisit intention, insecurity-overall value and insecurity-revisit intention. In simpler terms, while learning increased perceived overall value, it did not necessarily translate to guest satisfaction strong enough to significantly influence their desire to return.

Like emotional and epistemic value, innovativeness positively impacts social value, aligning with past research (Pham et al., 2018; Pham et al., 2020). Interestingly, guest insecurity also has a significant positive effect on social value. This could suggest that guests who felt less confident using technology may have valued the social aspects of their stay more, perhaps seeking assistance or desiring social connection. The study also revealed a unique effect of social value. While it did not significantly influence overall perceived value, it did have a positive impact on revisit intention. The findings align with Dedeoğlu et al. (2016) who linked social value to revisit intentions, and Madinga et al. (2023) who found no connection between social value and overall value. Additionally, social value does not mediate the relationships between innovativeness, insecurity, and either overall value or revisit intention. Put in differently, feeling connected to others during the stay might not be a major factor in how much guests value the entire experience, but it can still be a crucial driver for their decision to return.

6 Conclusions

This study's central research question asked what role multidimensional perceived value plays in mediating the relationship between guest technology readiness and revisit intention. The findings provide a clear answer: perceived value serves as the essential and full mediator of this relationship. The results demonstrate that a guest's technology readiness (both innovativeness

and insecurity) has no direct effect on their intention to revisit. The influence is entirely indirect, flowing *through* the value perceptions. Guest innovativeness was found to positively impact all three value dimensions (supporting H1a, H1b, H1c). These value perceptions, in turn, become the actual drivers of loyalty. Specifically, emotional value emerged as the "key driver" of revisit intention (accepting H4b), and social value also showed a direct positive influence (accepting H3b). Conversely, epistemic value did not significantly impact the intention to return (rejecting H5b). Therefore, this study concludes that a guest's innovative predisposition only fosters loyalty *if* it is successfully converted into tangible emotional or social value during their stay.

6.1. Theoretical contributions

This study advances the understanding of technology's role in guest revisit intention within the hospitality sector by making several key theoretical contributions. This research fills a gap in the existing literature by explicitly examining the relationship between guest technology readiness and their intention to revisit a hotel. This study goes beyond merely acknowledging this relationship by incorporating perceived value as a mediating factor, thus providing a more detailed understanding of the underlying mechanisms.

The study introduces a novel conceptual model that merges the Stimulus-Organism-Response (S-O-R) framework with the Technology Readiness Index (TRI). This integration offers an innovative perspective on how external stimuli (hotel technologies) interact with individual characteristics (technology readiness) to shape internal responses (perceived value), ultimately influencing behavioral outcomes (revisit intention). As such, this study contributes to both S-O-R theory and technology readiness literature by demonstrating their applicability and relevance in the hospitality context.

The adoption of a multidimensional approach to perceived value provides a better understanding of customer value determinants in the hospitality industry. As such, this study extends the traditional, holistic view of perceived value and dissects it into its constituent dimensions: emotional, epistemic, and social.

6.2. Managerial implications

This study offers actionable insights for hotel managers seeking to harness technology to enhance guest experiences and foster loyalty. First, given the pivotal role of emotional value in driving guest satisfaction and revisit intention, hotels should strategically invest in technologies that evoke positive emotions, such as customizable in-room entertainment systems or digital concierge services that cater to individual preferences. Second, managers must recognize the growing preference for advanced technologies among hotel guests and prioritize modernizing their

infrastructure, namely self-service check-in kiosks, mobile room controls, or immersive virtual reality experiences that cater to tech-savvy travelers. Third, while guest insecurity about technology may not significantly impact emotional value, it can influence social value. To address this, hotels should strike a balance between automation and human interaction. Ensuring that staff is readily available to assist guests with technology or simply engage in conversation can foster a sense of connection and alleviate any anxieties associated with technology use. Fourth, while epistemic value (the desire for learning and knowledge) contributes to overall perceived value, it may not be the primary driver of revisit intention in the hotel context. Therefore, managers should focus on crafting holistic experiences that prioritize emotional engagement and social connection like offering unique cultural experiences, personalized recommendations, or opportunities for social interaction within the hotel premises.

6.3. Limitations and future research

While this study provides valuable insights into technology, perceived value, and revisit intentions in hotels, there are some areas for future research. One limitation is the number of participants (165) in the survey that might not fully capture the experiences of the entire target audience. A larger sample size would provide more robust results. Additionally, this study looked at a single point in time. To truly understand cause and effect, future research could follow guests over time to see how their technology comfort level (readiness), perceived value, and likelihood of returning change with experience. Furthermore, this study focused specifically on the hotel industry. Future research could explore how the importance of emotional, epistemic, and social aspects of value differs across various service sectors.

While the multi-group analysis did not provide conclusive evidence for a moderating effect of hotel type, further research might explore additional factors that could influence this relationship. This study also did not consider how guest characteristics like age, gender, or cultural background might influence their perception of technology, what aspects of the experience they value most, and ultimately, their decision to return. Future research could examine these potential moderating factors. Another important avenue for future research involves further clarifying the roles and importance of social and epistemic value in the guest experience. Lastly, future studies could investigate how guest insecurity interacts with different aspects of their hotel stay and potentially moderates the relationship between technology use and guest behavior.

Furthermore, this study was confined specifically to the hotel industry. Future research should replicate this model in other service sectors that are also undergoing significant technological transformation. For example, the airline industry (e.g., self-service check-in kiosks and biometric

boarding), financial services (e.g., mobile banking and AI-driven financial advice), and even healthcare (e.g., telehealth platforms) are prime contexts.

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Appendix – Constructs and items

Construct	Items	Loading s	CA	CR	AVE
Emotional value	EMV_1: The hotel made me want to stay there again.	0.779	0.874	0.914	0.728
	EMV_2: The hotel made me feel comfortable to use its technologies.	0.865			
	EMV_3: The hotel technologies made me feel good.	0.928			
	EMV_4: The hotel technologies gave me pleasure.	0.834			
Epistemic value	EPV_1: The hotel made me feel adventurous.	0.810	0.833	0.889	0.666
	EPV_2: The hotel satisfied my curiosity.	0.840			
	EPV_3: Staying at that hotel was an authentic experience.	0.849			
	EPV_4: The hotel offered a variety of amenities to use.	0.763			
Innovativeness	INN_1: I find new technologies to be mentally stimulating.	0.792	0.848	0.896	0.685
	INN_2: I enjoy the challenge of figuring out high-tech amenities.	0.760			
	INN_3: I keep up with the latest technological developments in your areas of interest.	0.845			
	INN_4: I prefer to use the most advanced technologies available.	0.905			
Insecurity	INS_1: Whenever something gets automated, I need to check carefully that the system is not making mistakes.	0.947	0.635	0.829	0.711
	INS_2: Too much technology distracts me to a point that is harmful.	0.725			
	INS_3: The human touch is very important when doing business with a company.	0.904			
	INS_4: Technology lowers the quality of relationships by reducing personal interaction.	0.945			
Overall Value	OVV_1: I felt that my last hotel-stay was worth the money and time I spent.	0.906	0.941	0.957	0.849
	OVV_2: Overall, my last hotel-stay was a good buy.	0.930			
	OVV_3: I valued my stay at this hotel because it met my needs and expectations for a reasonable price.	0.651			
	OVV_4: I think that given whole service features, my experience was a good value for the money, time, and effort I spent.	0.850			
Revisit intention	RVI_1: I would recommend the hotel to my friends or others.	0.873	0.827	0.885	0.660
	RVI_2: I will more frequently visit tech-oriented hotels in the future.	0.855			
	RVI_3: I intend to stay in a tech-oriented hotel on my next visit.	0.852			
	RVI_4: I am likely to stay at tech-oriented hotels when travelling for tourism/ business purposes next time.	0.878			
Social Value	SV_1: Staying at this hotel helped me to feel acceptable.	0.860	0.897	0.928	0.763

SV_2: It improved the way I am perceived.	0.903
SV_3: I made a good impression on other people by staying at this hotel.	0.779
SV_4: I am socially more approved by staying at this hotel.	0.865
