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Redefining Luxury Service with Technology Implementation: The Impact of Technology on Guest Satisfaction and Loyalty in a Luxury Hotel

Hyejo Hailey Shin, Ph.D.*
Assistant Professor
School of Hotel and Tourism Management
Hong Kong Polytechnic University
Kowloon, Hong Kong
hailey.shin@polyu.edu.hk
Tel: +852 3400 2177
Fax: +852 3400 9362

and

Miyoung Jeong, Ph.D.
Professor
School of Hotel, Restaurant, and Tourism Management
University of South Carolina
Columbia, SC
U.S.A
jeongm@mailbox.sc.edu
Tel: +1 803 777 9472
Fax: +1 803 777 1224

* Corresponding author

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Purpose:
To explore the impact of luxury hotel brands' technologies on guests' perceived value enhancement and its consequences, this study examines how task-technology fit (TTF) and luxury-technology fit (LTF) affect luxury hotel guests' perceived value enhancement, satisfaction, and brand loyalty.

Design/methodology/approach:
A scenario-based online survey was conducted with existing and potential luxury hotel guests. The relationships among TTF, LTF, value enhancement, satisfaction, and loyalty were examined using PLS-SEM. Moreover, the respondents were asked their preferred service agent (human staff vs. technology) in a luxury hotel to further understand luxury hotel guests' perception toward technological services in a luxury hotel setting.

Findings:
The results reveal that both TTF and LTF have significant impacts on the luxury hotel's value enhancement, and the impacts of TTF and LTF on value enhancement are moderated by the guests' technology optimism. The findings of this study suggest that the luxury hotel brands must consider the fit between the image of their brand and the technology to increase guests' perceived value enhancement, satisfaction, and loyalty.

Research Implications:
Applying categorization theory, this study extended the concept of brand extension to technology implementation. The findings advance the current understanding of how technology affects luxury hotel consumers' perceived value enhancement, and how consumers' optimism influences the impacts of TTF and LTF on value enhancement.

Practical Implications:
By examining the effects of TTF and LTF on luxury hotel guests' perceived value enhancement, this study would shed light on luxury hotel brands' technology implementation strategies. By understanding how TTF and LTF affect consumers' perceived value enhancement, luxury hotel brands will be able to better design their technology implementation plans.

Originality:
Even though luxury hotel brands are well-known for offering high-level and personalized services through interpersonal interactions between employees and consumers, they have been actively implementing a variety of technologies to enhance guest experience and satisfaction. This study investigates the role of technological innovations in a luxury hotel setting. Particularly, this study examines how technologies improve guests' perceived value of a luxury hotel and lead to satisfaction and loyalty.

Keywords: Luxury Hotel, Task-Technology Fit, Luxury-Technology Fit, Value Enhancement, Satisfaction

Introduction

Luxury hospitality products/services are expensive, exclusive, and non-essential hospitality products/services with high quality that give consumers prestigious and symbolic values (Tynan *et al*., 2010). Despite the concept of luxury implies exclusivity, the luxury hospitality market has shown growing popularity among the general population, including younger generation (Vale, 2021). Global spending on luxury travel accounts for approximately 20% of the total travel spending (Messe Berlin GmbH, 2018). Considering that luxury travel constitutes only seven percent of all international travels, the economic impact of the luxury travel market is remarkable (Messe Berlin GmbH, 2018). In 2018, the luxury travel was one of the fastest growing market segments in the tourism industry (Allied Market Research, 2019). With the growing luxury travel market, luxury hotel brands have been experiencing the similar upward trends (Peng and Chen, 2019). Many researchers and industry professionals have shown a deep interest in luxury hotel consumer behavior, focusing on their motivation to stay at luxury hotel brands (e.g., Jang and Moutinho, 2019), factors affecting guest satisfaction (e.g., VO *et al.*, 2020), and their preferred services and amenities during their stay at luxury hotel brands (e.g., Padma and Ahn, 2020). While the baby boomers have been the key target segment for the luxury travel market, the Millennials are expected to become the next frontier in the luxury market as they accounted for the half of all international luxury travel in 2018 (Allied Market Research, 2019). Responding to current and upcoming market trends, luxury hotel brands have started to cater to the younger generation by offering different social platforms and cutting-edge technologies.

Luxury hotel brands' use of technology is becoming a norm in a way to satisfy their key target markets and enrich guest experience (SGEI International, 2020). Luxury hotel brands have launched advanced technologies to offer more reliable, guest-centered, and personalized services at their convenience, thereby achieving their operational goals and

retaining their customers (Glion, 2018). For example, Marriott Hotels launched artificial intelligent voice assistant technology in their guestrooms for guests to control their rooms easily and efficiently (Iribarren, 2018). AI-based chatbots are one of the most common technologies that many luxury hotel brands have implemented for enhancing guests' experience. Four Seasons Hotel and Resorts have offered instant chat services 24/7 via chatbot (Glion, 2018). Both augmented reality (AR) and virtual reality (VR) are also commonly adopted technologies in luxury hotel brands (Revfine, 2020). To create memorable in-room experiences for guests, Marriott Hotels allowed their guests to use their smart devices to personalize their room with AR art gallery featured with artwork from 18 artists (Butler, 2019). Marriott Caribbean & Latin America Resorts made an AR application for guests to explore their properties with their mobile devices and preview of facilities, such as pools and spas (Marriott International, 2018). Marriott Hotels Irvine even extended their technology embedment into their bathrooms by installing smart glass in their showers (Hughes, 2020).

As many luxury hotel brands started implementing advanced technologies to improve guest experience, the luxury hotel brands have transformed into tech-savvy places, where guests can enhance their experiences using technology (Glion, 2018). Despite luxury hotel brands' diverse technological efforts made to further enhance guest experience, studies on hotel guests' perceptions of technology have often neglected to identify the distinctive characteristics of luxury hotel guests. For this reason, the mechanism of how hotel guests' psychological and behavioral outcomes are affected by technology embedment in a luxury hotel setting has been under-explored. Even though many hospitality and tourism researchers assessed the overall impacts of technology on customers' satisfaction and their behavior intention, not many studies (e.g., Brochado *et al.*, 2016) have been devoted to identifying how guests perceive technology in conjunction with the concept of luxury in the luxury hotel,

resulting in critical questions unanswered. Particularly, in the hospitality context, luxury is often associated with highly personalized and exclusive services (Padma and Ahn, 2020). On the other hand, technology is generally perceived as functional rather than exclusive and prestigious services that conflict with the notion of luxury. In other words, technology is primarily provided to allow guests to do what they want. For example, the primary reason hotel guests use technology such as a service robot would be to request services they want (i.e., tasks). Therefore, it has not been proven whether the technology fits into the exclusive and elegant service environment in the context of a luxury hotel, extending the boundaries of luxury services from human services to technology-mediated services. Also, the unique characteristics of luxury hotel guests raise the question of whether technology is perceived as a vital tool for their experience, just as average hotel guests see it as an essential tool to facilitate their task and enrich their experience during their stay (Ruiz-Molina *et al.,* 2018). Hence, it is not evident whether technology implementation is imperative to improve the value of the luxury hotel (Audita and Marck, 2017). Luxury hotel brands need to understand how technology implementation affects luxury hotel guests' holistic assessment of the products/services, compared to their investment. While the adoption of advanced technology requires luxury hotels to invest substantial capital, luxury hotel guests may not perceive technology as a meaningful part of their luxury hotel stay. In the worst-case scenario, when luxury hotel guests perceive that digitalized services are insufficient, their perceived value will decrease compared to the value paid for the luxury hotel, resulting in dissatisfaction.

Thus, immediate attention should be paid to investigate the mechanism of how various aspects of technology influence luxury hotel guests' perceived value enhancement, satisfaction, and brand loyalty. Particularly, it is crucial to identify the main roles of technology in luxury hotel brands by answering following questions: (1) is technology just a tool for facilitating guests' task performance? (2) is technology an extension of symbolic and

prestigious brand extension? and/or (3) is technology considered imperative for luxury hotel guests' stay? Therefore, this study examines the impact of technology on the psychological and behavioral outcomes of luxury hotel guests and investigates the perception of technology from two perspectives: the degree to which technology facilitates guest tasks (i.e., Task-Technology Fit) and the extent to which technology supports a hotel's luxury brand image (i.e., Luxury-Technology Fit). Hence, in order to address the gap in the literature, this study aims to investigate the impacts of task-technology fit and luxury-technology fit on luxury hotel guests' perceived value enhancement, satisfaction, and loyalty.

Review of Literature

Luxury Hotels and Their Technological Innovations

As the hotel industry started recognizing the importance of technology adoption, many hotel brands have introduced advanced technologies in order to ensure their competitive edge by providing quality services (Parr, 2020). Luxury hotel brands are not an exception of technology embedment. While one of the key characteristics of luxury hotel brands is superior interpersonal service (Padma and Ahn, 2020), luxury hotel brands have launched digitalized services using advanced technologies with the goal of capturing the growing demand from guests for technology and enriching the guest experience. As younger generation becomes a key market for the luxury hotel industry, technology has been a necessity even in luxury hotels (Delporte, 2018), and more advanced technologies are needed to enhance the guest experience (Nath, 2019). For example, in-room voice-assistants (e.g., Alexa) offer efficient services as well as convenience, enhancing the guest experience (Glion, 2018).

With the increasing availability of smartphones (O'Dea, 2020), many luxury hotel brands established services utilizing guests' smart devices to provide higher security and a

seamless check-in experience for their guests. Four Seasons and Ritz-Carlton are using mobile applications to facilitate a broad range of guest services so that guests can easily access various services and amenities via their smart devices (Relevance International, 2016). To magnify the guest experience with greater accessibility and security, Woodmark Hotel & Spa, a four-diamond award-winning luxury hotel, launched a keyless room entry service via guests' mobile devices (Hertzfeld, 2018). InterContinental and Hilton Hotels also turned their rooms into smart rooms by adding voice-assistant technology available through guests' smartphones or in-room technologies for greater convenience and comfortableness (MOF Team, 2019).

Luxury hotel brands have also implemented more diverse technologies with smart devices. Marriott Hotels have embedded touch-sensitive technology in their shower doors that transmit data to guests' tablets to help them capture and permanently store their creative ideas (MOF Team, 2019). Seattle's Hotel 1000 equipped doorbells with temperature sensors to notify employees of the room status (Parr, 2020). Several luxury hotel brands offer the most satisfying atmosphere in their guestrooms by installing an automatic temperature detect system to maintain the most pleasant temperature settings for their guests (Hughes, 2020). Ecclestone Square Hotel in the U.K. applied cutting-edge technologies, such as touch sensors, digital concierge services, and smart glass technology to the bathroom to change the shower booth from opaque to transparent with the click of a button (Levius, 2016).

While many luxury hotel brands have adopted different types of technology ranged from very basic (e.g., high-speed Wi-Fi) to advanced (e.g., voice assistant), not much has been discovered how luxury hotel guests perceive various technologies adopted in luxury hotels. In particular, compared to the amount of research investigating the intentions of luxury hotel guests to adopt technology, few studies have been conducted on factors influencing guests' perceived value enhancement, satisfaction, and loyalty. Although some

studies (e.g., Li *et al.*, 2021) have demonstrated the positive influence of technology on consumers' perceived value from the post-evaluation perspectives, their approach was more general rather than focusing on a specific segment of the hotel industry. However, guests' perceptions and expectations of luxury hotel brands are slightly different from lower-end hotels as they expect both functional and experiential aspects (Shin and Jeong, 2020). Specifically, studies (e.g., Walls *et al*., 2011) have demonstrated that human interactions, including employees' attitude, professionalism, and proactive services, are key components of the luxury hotel experience. While previous literature (e.g., Walls *et al*., 2011) suggested the importance of employees' attitudinal and behavioral aspects as the key components of the luxury hotel experience, technologies are unable to display proactive and professional attitudes toward guests to enhance their perceived value. Accordingly, it is difficult for luxury hotel brands to gauge whether the implementation of technology actually increases guests' perceived value, and which features of the technology critically enhance guests' perceived value. As a calibrating approach to the luxury market would yield higher value and loyal consumers (Singh, 2019), it is essential to examine the factors of technology that affect guests' perceived value enhancement. Luxury hotel guests' perceived value enhancement would lead to positive dissonance, which in turn improving their satisfaction and loyalty (Lai, 2015). In other words, as luxury hotels focus their approach to the luxury market to create higher value and more loyal customers, it is imperative to examine the factors of technology that affect guests' perceived value enhancement, since the luxury hotels would generate higher value and loyal customers by focusing their approach to the luxury market (Singh, 2019). Luxury hotel guests' perceived value enhancement would improve their satisfaction and loyalty (Šerić and Gil-Saura, 2019). Particularly, increasing luxury customers' loyalty is more substantial to generate revenues because their spending is much higher than other segments of hotel customers (Frankenberry, 2020). Thus, this study seeks to examine how

luxury hotel guests' perceived value enhancement, satisfaction, and loyalty are influenced by two technology-related factors: the degree to which technology helps guests' performance (i.e., task-technology fit) and the degree to which technology supports the luxury image of the hotel brand (i.e., luxury-technology fit).

Task-Technology Fit (TTF)

Task-technology fit (TTF) refers to the extent to which technology supports humans to perform tasks. (Goodhue and Thompson, 1995). TTF suggests that individuals' performance is significantly increased when the facilitating technology is a good fit for the tasks (Erskine *et al.*, 2019). Due to the positive impact of TTF on performance, previous studies (e.g., Howard and Rose, 2019; Issac *et al.*, 2019) have employed TTF to explore the potential good fits between different technologies and tasks (e.g., online learning technology and higher education). Researchers (e.g., Chen, 2019; Xu and Huang, 2018) considered TTF as an extension of technology acceptance model (TAM) (Davis, 1989), thus employing both TTF and TAM to understand consumers' intentions to adopt technologies. Chang *et al.* (2016) employed both TTF and TAM to examine the mechanism of how consumers' perceived TTF, perceived usefulness, and perceived ease of use affect their intentions to adopt wearable devices. The positive relationships among TTF, perceived ease of use, attitude, and continuance intention to use were found in the use of gamification in the higher education (Vanduhe *et al.*, 2020). TTF has also been used to understand how consumers' perceived performance is enhanced when the task and the available technologies have a good fit (Lin *et al.*, 2020).

Studies on TTF found that individuals' perceived TTF had a significantly positive effect on future behavioral outcomes (e.g., Ratna *et al.,* 2018). As advanced technologies became available in the hospitality and tourism industry, researchers also examined how

consumers' perceived TTF of AR affected their adoption intentions (Paulo *et al.*, 2018). Despite researchers' tremendous efforts to understand the consequences of TTF, most of the studies have focused on aspects of the pre-experience, such as adoption intention. Hence, it is important for luxury hotel brands to understand how TTF affects hotel guests' perceived value enhancement in a luxury hotel setting. Based on the discussion above, the following hypothesis was developed.

H_1: Perceived task-technology fit positively influences luxury hotel guests' perceived value enhancement.

Luxury-Technology Fit (LTF)

According to Boush and Loken (1991), when individuals are informed about a new product/service as an extension of a particular entity, they tend to assess the new product/service based on its consistency with the business entity. In other words, consumers evaluate whether a new product/service matches a company's current brand category (e.g., aspirational, luxurious). For example, if a luxury brand launches a new product, consumers judge whether the new product matches the luxury brand image. Accordingly, companies must stably express their products/services and their brand image, which are the criteria for consumers' evaluation (Loken *et al.,* 2008). When consumers' perceptions toward the parent brand is favorable, their evaluation of the extension would be positive if they have a good fit. However, researchers found that the image of the extension can affect their parent brand in both positive and negative ways (Votola and Unnava, 2006). Particularly, the fit between parent brand and the extension would be critical for luxury brands because the prestigious, exclusive, and unique image of the luxury brands is a key motivator for consumers to buy products and services (Choo *et al.*, 2012). Walls *et al*. (2011) found that consumers' attitudes

toward a luxury hotel were negatively affected by the incongruence between the hotel's overall brand image and physical attributes of their products. Moon and Sprott (2016) found that the good fit between the luxury brand and ingredient brand had a positive impact on consumers' purchase intentions and suggested that luxury brands need to consider their partnership brands carefully in terms of their image fit.

Although researchers (e.g., Breves *et al.*, 2019) have investigated consumers' perceived fit from different contexts (e.g., brand extension), not much has been examined the hotel guests' perceived fit between the hotel brand and their ancillary products/services, such as technologies available at the hotel. When a luxury hotel brand is perceived as a parent brand (core), technologies available at the hotel can be extension of the brand's product/service (ancillary). As previous consumer research demonstrated that the most crucial factor affecting a success in brand extension is the fit between the parent brand and the extension (Moon and Sprott, 2016), the fit between luxury hotel brand and technology would be vital to enhance their value as a luxury hotel. Luxury hotel guests have higher expectations than regular hotel guests because of the prestigious and symbolic nature of the luxury products/services (Padma and Ahn, 2020). Particularly, whether the technology supports the luxurious image of a hotel is crucial in shaping the perceived value of hotel guests because of the experiential nature of luxury hotel services. The image similarity between the luxury hotel brand and technology would be evidence of their luxurious and distinctive services. On the other hand, the incompatibility of technologies with the exclusive brand image of a luxury hotel might harm guests' perceived value of the products/services provided by the luxury hotel. In other words, the misfit between the brand image and technology might bring a negative cognitive dissonance, which in turn leads to disappointment at and dissatisfaction with the hotel brand (Padma and Ahn, 2020). Thus, in this study, luxury-technology fit (LTF) is defined as the degree to which technologies of a

luxury hotel match the hotel brand image. In other words, LTF indicates the consistency between the luxury hotel brand's image and perception toward technologies available at the hotel. Therefore, based on the preceding discussions, the following hypothesis was developed.

H_2: Perceived luxury-technology fit positively influences luxury hotel guests' perceived value enhancement.

Relationships of Value Enhancement with Brand Satisfaction and Loyalty

Value is a multi-dimensional concept that encompasses various aspects, such as hedonic, utilitarian, and social-psychological dimensions (Kim *et al.*, 2015). Previous studies suggested that value is a consumer's holistic assessment, comparing what was given and what was received or the sum of all benefits. Value in this study is defined as a luxury hotel guest's overall evaluation of the products/services based on their perceptions of what they received and what they paid (Chen *et al.*, 2015). Since the purpose of this study is to examine the impact of TTF and LTF on guests' perceived value enhancement, value enhancement refers to the degree of value perceived by luxury hotel guests using technology in luxury hotel brands (Chen *et al.*, 2015). According to the balance theory (Heider, 1946), individuals change or reinforce their perceptions in order to have consistency. For example, if a person has a positive attitude toward his/her experience, s/he tends to keep his/her positive attitude toward the related objects in order to reduce contradiction (Jeong and Shin, 2019). Previous studies (e.g., Kim *et al.*, 2015) found that individuals' perceived value enhancement has a positive impact on satisfaction. In the context of the luxury market, consumers' perceived value was found to be a significant antecedent of brand relationship and future behavior (Choo *et al.*, 2012). The positive effect of perceived value on purchase intention was found in

the context of luxury hospitality services, such as luxury hotels and restaurants (Yang and Mattila, 2016). Luxury hotel guests' perceived quality of the services positively influenced their attitudes and future behavioral intentions (Liu *et al.*, 2017).

Satisfaction refers to an individual's positive assessment of his/her experience and occurs when the perceived value of a product/service exceeds his/her expectation (Jeong and Shin, 2019). Loyalty is defined as a consumer's favorable attitude toward an organization and has been studied to understand consumers' intentions to purchase repeatedly and recommend to others (Lai, 2019). Consumers try to maintain a balanced attitude (Chung *et al*., 2018). When consumers are satisfied with a particular service (e.g., technology), they tend to have a positive attitude toward the brand, which provides the service that keeps them in balance. Researchers (e.g., Han and Hyun, 2018) have suggested that satisfaction is a key antecedent of loyalty in the hospitality and tourism context. As customer loyalty has been recognized as a key component of an organization's long-term success, various studies have been conducted to investigate factors affecting loyalty in the hotel industry (e.g., Gallarza *et al.*, 2019; Koo *et al.*, 2020). As previous research demonstrated, hotel guests' loyalty is positively associated with satisfaction and perceived value. Thus, based on the discussion above, the following hypotheses were developed.

H_3: Perceived value enhancement positively influences luxury hotel guests' satisfaction with the luxury hotel brand.

H_4: Luxury hotel guests' satisfaction with the luxury hotel brand positively influences their loyalty to the brand.

Moderating Effect of Technology Optimism

Previous research has found that a consumer's technology readiness (TR) significantly influenced his/her adoption of technologies and post-evaluation (Blut and Wang, 2020). For example, Pham *et al*. (2020) found the significant impacts of TR on consumers' satisfaction with luxury hotel services. Furthermore, TR has been recognized as a significant moderator in the relationships between hospitality technologies and post-evaluations (Shin *et al.,* 2021). As demonstrated in previous studies (e.g., Bogicevic *et al.*, 2021; Wang *et al.*, 2017), all four dimensions (i.e., optimism, innovativeness, discomfort, insecurity) are key aspects of an individual's technology readiness. Although consumer TR has been demonstrated to be multifaceted, measuring all dimensions of TR is too long and inconvenient (Parasuraman and Colby, 2015), and is critical for measuring TR from a practical point of view because two motivators/inhibitors often exhibited empirically similar outcomes (Liljander *et al*., 2006). Thus, this study focused on one dimension of TR, optimism, which refers to a consumer's positive perspective toward technology that would provide him/her with increased efficiency of performance (Parasuraman and Colby, 2015).

Among four dimensions of TR, optimism was selected since there have been corroborated findings on innovativeness as a determinant of technology acceptance due to its exploratory power in consumers' adoption of technology (e.g., Bogicevic *et al.*, 2021). On the other hand, research on the moderating effect of optimism has been relatively limited, calling for further attention. Previous studies (e.g., Fatima *et al.*, 2017) found that the impact of innovativeness on post-experience assessment (e.g., satisfaction) was insignificant or smaller than that of optimism. Particularly, Lu *et al.* (2012) identified that optimism positively influenced trust in online shopping platforms, thereby leading to satisfaction. However, they were not able to detect the significant impact of innovativeness on trust and satisfaction. Chung *et al.* (2019) found that optimism moderated the impact of AR

applications' usefulness on satisfaction. In contrast, innovativeness did not play a role as a moderator in the relationship between usefulness and satisfaction with AR. Thus, the following hypotheses were developed in examining the moderating effect of optimism in the relationship between TTF and LTF with value enhancement.

H_5. Luxury hotel guests' degree of technology optimism moderates the relationship between TTF and value enhancement.

H_6. Luxury hotel guests' degree of technology optimism moderates the relationship between LTF and value enhancement.

Based on the literature review, a conceptual framework was developed to examine the impacts of TTF and LTF on luxury hotel guests' perceived value enhancement, brand satisfaction, and loyalty.

[Figure 1]

Methodology

Data Collection and Instrument

This study employed an online self-administered survey method. The survey was developed on Qualtrics and Amazon Mechanical Turk (MTurk) was contacted to recruit potential respondents in the U.S. The survey consisted of six sections. The first section contained a brief study description and a consent form. The second section began with a question asking respondents to give three keywords to describe luxury in order to understand their perceptions of luxury. Then, this study provided respondents with definitions of luxury and luxury hotel brands as well as exemplary hotel brands (e.g., Four Seasons,

InterContinental, Ritz Carlton) to ensure that respondents' perceptions of luxury hotel brands were consistent with previous literature (see Appendix A). Then, respondents were asked a series of questions to ensure their qualification (see Appendix B). Specifically, respondents were first asked whether they have stayed at a luxury hotel brand in 2019. Those respondents who had stayed at a luxury hotel within a year were asked to select the luxury hotel brand they stayed from the given list of luxury hotel brands adopted from STR Chain Scale (2018). If a respondent chose a hotel brand that is not a luxury hotel chain, he/she was directed to exit the survey in order to ensure the sample was the actual luxury travel market consumers. If respondents had not stayed at a luxury hotel recently, they were given another question asking whether they were planning to stay at a luxury hotel brand in the near future. To enhance respondents' immersion into the survey, respondents were asked to choose one luxury hotel brand located in the U.S., based on STR Chain Scale (2018). If respondents were not willing to stay at a luxury hotel in the near future, or chose a non-luxury hotel brand, they were directed to the end of the survey and considered missing (see Appendix B). The second section ended with a question asking respondents' generation to properly reflect the luxury travel market composition. Particularly, rather than using a certain criterion (e.g., wealth) to classify the validity of the sample, self-categorization was used to identify whether the respondents were luxury travelers as wealthy people are not necessarily luxury travelers and staying at a luxury hotel is often considered as affordable luxury (Zhang, 2019). The third section included questions asking respondents' motivations to stay at a luxury hotel and their preferred service agent during their stay at the luxury hotel brand and the reasons. The fourth section contained a scenario asking respondents to imagine they were staying at the selected luxury hotel brand and they were about to use technologies (i.e., service robot, AR, voice assistant for smart room control, and mobile guest services). The four technologies were particularly selected for several reasons. First of all, the four technologies have been actually

utilized by luxury hotel brands. More specifically, the service robot scenario was developed based on the introduction of service robots in Sofitel Singapore City Centre (Doling, 2018), whereas voice assistant for smart room description was created based on InterContinental and Hilton Hotels (MOF Team, 2019). The mobile guest services scenario was based on multiple hotels, such as Four Seasons and Ritz-Carlton (Relevance International, 2016). Then, the respondents were asked whether they perceived the selected brand as a luxury hotel brand and which technology they used in the scenario. Although there were other technologies commonly used in luxury hotels, those technologies were not included in the scenarios because consumers do not use them as much during their stay (e.g., the hotel's social media) or because they are unfamiliar with the technology (e.g., Internet of Things). The measurement items of the constructs of interest were in the fifth section. Furthermore, considering the current industry trends of implementing various technologies for guest services, it would be critical to understand whether the industry investment in technology is worthwhile. Thus, the fifth section also asked the respondents which service agent they prefer in the luxury hotel setting: technology vs human. The sixth section consisted of questions asking respondents' socio-demographic information.

All constructs were measured with multiple items adopted from previous studies and modified to fit in the context of this study. Task-technology fit was measured with three items from Isaac *et al.* (2019). Luxury-technology fit and value enhancement were measured with three items, respectively, from Moon and Sprott (2016). Three items from Lin and Hsieh (2007) were used to measure satisfaction with the luxury hotel brand. Loyalty was measured with three items from Mathis *et al.* (2016). Technology optimism was measured with four items from Parasuraman and Colby (2015). All constructs were measured on a 7-point Likert scale. Two pilot tests were undertaken to ensure the clarity of wordings and content validity of the survey questions. Once the results from the pilot tests showed satisfactory reliability

and validity, the main survey was conducted with the panel of MTurk database. Those who participated in the pilot tests were not allowed to participate in the main survey.

Data Analysis

Data were analyzed by following the two-step approach suggested by Anderson and Gerbing (1988) using *R 3.6.2.* and *seminr* package. The partial least square structural equation modeling (PLS-SEM) method was used because of the exploratory nature of the current study (Hair et al., 2011; Hair *et al*., 2019). The measurement model was tested to demonstrate the adequacy of measurement. A component-based path estimation with bootstrapping technique (N = 5,000) was conducted to test the proposed hypotheses. Specifically, path coefficients and path significance were examined. In order to assess the predictive accuracy of the research framework, PLSpredict was conducted using SmartPLS 3.3.3. To measure the moderation effect of optimism, two-stage approach was used. Once the moderation effect was found, the sample was divided into two groups using median split. Then, multi-group analysis (MGA) was conducted to see the difference between the groups.

Results

Respondents Profile

This study collected 312 complete responses during two weeks from July 28, 2020 to August 10, 2020. Table 1 illustrates the respondents' socio-demographic information. Approximately 63% of the respondents were male. According to Grand View Research (2019), the Baby Boomers (43%) held the largest market share of the luxury market, followed by Generation X (26%) and Millennials (21%). As we set the quota for age, the distribution of generation was consistent with the composition of the luxury travel market. Specifically, about 40% of respondents were the Baby Boomers, followed by Generation X (33.7%) and

Millennials (23.4%). Most of the respondents were highly educated. Greater than 70% of respondents (71.2%) hold Bachelor's degree, reflecting that luxury travel is preferred by highly educated populations (Pieter and Hanine, 2019). About three-quarters of respondents (74.7%) were Caucasian. More than four-fifths (81.1%) of respondents were full-time employees. About 81% of the respondents categorized themselves as regular luxury market consumers. Furthermore, the other 19% of the respondents answered they visited a luxury hotel chain in 2019 or were willing to visit a luxury hotel in the near future, indicating the sample was representative of the population of interest.

When respondents were asked to provide keywords that represent the meaning of 'luxury', terms related to opulence (e.g., rich, expensive) was the most frequently mentioned, followed by terms about sophisticated and high-quality services (e.g., elegance, grandness) and exclusivity (e.g., royal, exclusive). The top motivation to stay at a luxury hotel was benefits, such as sophisticated products and exceptional services, followed by aesthetic, appealing, and self-indulgence. More than two-thirds of respondents (67.6%) preferred human staff to technology (22.8%) while staying at luxury hotel brands because they feel more cared and respected. On the other hand, most (40.8%) of the respondents who chose technology in luxury hotel brands preferred technology due to its high performance, including efficiency and accuracy. Some of the respondents (15.5%) stated that they did not want unnecessary human interactions due to personal reasons or emotional labor. Interestingly, some respondents (7%) thought using technology at luxury hotel brands looked luxury, unique, and trendy.

[Table 1]

Measurement Model Test

The skewness of data fell within the absolute value of 1.5 and kurtosis ranged from .206 to 2.844, showing the data were normally distributed (Kim, 2013). To achieve the study's goals, manipulation check questions were developed to ensure the correspondence of the study setting. The manipulation items were measured on a 7-point Likert scale (1 = Economy, 4 = Upper-midscale, 7 = Luxury). As four- and five-star hotels are considered luxury hotels by consumers (Gaille, 2018), the sample mean of manipulation check items should be higher than the population mean of 4 (upper-midscale) for a successful manipulation. The results of one-tail *t*-test revealed that respondents' perception toward the hotel in the scenario was luxury hotel ($M_{Luxury} = 5.95$ vs. $\mu_{Upper\text{-}Midscale} = 4.00$, $t = 38.22$, $p < .001$). The majority of respondents chose the right type of technology in the scenario for the question. The respondents' perceived realism was high ($M_{Realism} = 6.04$).

Standardized factor loading ranged from .683 to .862. While the standardized factor loadings greater .70 is commonly recommended for item retention, the item below .70 was not deleted since the loading was significant and the deletion of the item did not lead to a significant increase in composite reliability and AVE (Hair *et al.*, 2016). The average variance explained (AVE) for constructs was equal to or greater than .568, illustrating the manifested construct shared more variance than error variance (Fornell and Larker, 1981). Thus, sufficient convergent validity was established. The bivariate correlation between any two constructs was less than the square root of AVE, showing there was a sufficient discriminant validity (Fornell and Larcker, 1981). Heterotrait-monotrait ratio of correlations (HTMT) values were less than 1.0, demonstrating discriminant validity was established (Ringle *et al*., 2015). Composite reliability was equal to or greater than .834, showing sufficient internal consistency. In order to assess the predictive relevance of the model, PLSpredict was conducted with 10 folds and 10 repetitions (Shmueli *et al*., 2019). All

indicators except one item of value enhancement had PLS-SEM values greater than linear model (LM) values, indicating there was a medium-high predictive power (Shmueli *et al*., 2019). As this study employed a self-administered survey method, common method bias was tested. The variance explained by a single factor when all variables loaded onto one factor without any rotation was .42. As the variance explained by a single factor was less than the threshold of .50, there was no presence of common method bias (Eichhorn, 2014).

[Tables 2 & 3]

Structural Model Test

The adjusted R^2 was .617 for value enhancement, .356 for brand satisfaction, and .436 for loyalty, representing a substantial amount of variance was explained by the proposed research model. The Q^2 was .606 (value enhancement), .431 (brand satisfaction), and .297 (loyalty), illustrating medium-large predictive relevance for loyalty and large predictive relevance for value enhancement and brand satisfaction (Hair *et al*., 2016). As shown in Table 4, TTF had a significantly positive impact on luxury hotel guests' perceived value enhancement ($\beta = .344$, $t = 3.947$, $p < .001$, $f^2 = .156$), supporting hypothesis 1. Particularly, the effect size ($f^2 = .156$) indicated TTF had a medium effect on value enhancement (Hair *et al.*, 2016). Luxury hotel guests' perceived value was largely ($f^2 = .359$) enhanced, when they thought the technology available at the luxury hotel brand was suitable for the image of the hotel (i.e., good LTF) ($\beta = .509$, $t = 6.847$, $p < .001$), showing hypothesis 2 was supported. If hotel guests perceived that the technology available at a luxury hotel brand was consistent with the hotel's brand image, their perceived value was enhanced. In other words, when the image of technology supported the brand image of the luxury hotel, hotel guests' perceived value enhancement of the luxury brand escalated. When the impacts of TTF and LTF on value enhancement were compared, the effect size of LTF was higher than that of TTF,

indicating luxury hotel guests weighted the image of technology more than the functionality of the technology. Perceived value enhancement was a significant predictor of luxury hotel guests' satisfaction with the brand ($\beta = .599$, $t = 12.445$, $p < .001$), indicating hypothesis 3 was supported. Especially, the effect of value enhancement on brand satisfaction was noteworthy ($f^2 = .558$) (Hair *et al.*, 2016). Luxury hotel guests were satisfied with the hotel brand when they thought their experience had been enriched with the brand. The significantly positive effect of brand satisfaction on loyalty to the luxury hotel brand ($\beta = .664$, $t = 17.731$, $p < .001$, $f^2 = .779$) was found, demonstrating hypothesis 4 was supported. In other words, the more satisfied the luxury hotel guests are with the brand, the more loyal they are. Optimism marginally moderated the relationship between TTF and value enhancement ($\beta = .201$, $t = 1.895$, $p < .10$ $f^2 = .048$), with small effect (Hair *et al.*, 2016). On the other hand, the relationship between LTF and value enhancement was significantly moderated by optimism ($\beta = -.247$, $t = -2.657$, $p < .01$, $f^2 = .070$), with small-medium effect size (Hair *et al.*, 2016).

To further examine the moderating effects of technology optimism, MGA was conducted. The results revealed that luxury hotel guests' technology optimism moderates the relationship between TTF and value enhancement ($Difference_{High-Low} = .316$, $z = 25.473$, $p < .001$), and the relationship between LTF and value enhancement ($Difference_{High-Low} = -.267$, $z = -24.118$, $p < .001$). More specifically, the impact of TTF on value enhancement was significant only for high optimistic group ($\beta = .497$, $t = 6.528$, $p < .001$), whereas TTF had no significant impact for low optimistic group ($\beta = .181$, $t = 1.312$, $p = .190$). This finding suggested that good TTF had a positive impact on value enhancement only when the luxury hotel guests had optimistic attitudes toward technology. However, luxury hotel guests who were not optimistic about technology thought that TTF did not enhance the luxury hotels' value. The positive effect of LTF on value enhancement was significant for both groups. Interestingly, the influence of LTF on value enhancement was stronger for low optimistic

group (β = .610, t = 5.577, p < .001) than high optimistic group (β = .343, t = 4.409, p < .001). Specifically, the effect size was large (f^2 = .492) for low optimistic group, whereas it was medium (f^2 = .187) for high optimistic group. This finding suggested that the degree of technology supporting the luxury hotel brand image was more important in enhancing guests' perceived value when they were less optimistic about technology.

Since this study employed four different technologies in the scenario (i.e., service robot, AR, voice assistant for smart room control, and mobile guest services), once the measurement invariance test results allowed the comparison of standardized path coefficients (Chaeh *et al*., 2020), MGA was conducted to assess the path significance differences among the four different technologies given in the scenarios. The positive effect of LTF on value enhancement was significant for all four technologies. While the impact of TTF on value enhancement was significant only for those respondents who were given AR (β = .504, t = 2.807, p < .01) and Service Robot (β = .427, t = 3.412, p < .01) scenarios, and marginally significant for respondents who were given voice assistant for smart room control scenario (β = .228, t = 1.787, p = .07). Interestingly, the impact of TTF on value enhancement was not significant for those who were asked to imagine using mobile guest services in the scenario even though mobile guest services were one of the most commonly used technologies in the hotel industry. This finding might be resulted from the respondents' perceived TTF and LTF when using different technologies. Therefore, whether the type of technology affects the respondents' perceived TTF and LTF was explored by performing one-way analysis of variance (ANOVA), followed by Tukey's HSD procedure to perform all pairwise comparisons (Maxwell *et al.*, 2017). The results showed that there were no notable differences among the technologies in terms of respondents' perceived LTF (F = 1.77, p = .15). The most commonly available technologies at luxury hotels were supporting the exclusive and unique images of luxury hotel brands (M_{Robot} = 5.16, M_{AR} = 5.43, M_{VA} = 5.25,

M_{MGS} = 5.46). Overall, luxury hotel guests perceived the technology was suitable for the task they had (M_{Robot} = 5.27, M_{AR} = 5.59, M_{VA} = 5.31, M_{MGS} = 5.63). While the results of ANOVA showed a significant difference in TTF among the four different technologies (F = 2.93, p = .03), Tukey's pairwise comparison did not show any significant difference between the technologies (adjusted $p \geq .09$). However, the slightly higher TTF for AR and mobile guest services might be related to the insignificant impact of TTF on value enhancement.

[Table 4]

Conclusions

As consumers' demand for technology increases, hotels have implemented different technologies to cater to guests' needs and enhance their experience. Thus, researchers' attention has been given to examine consumers' perception of technology and its impacts. However, their focuses have been on the general consumers' psychological behavior, not on the specific needs and/or characteristics of consumer market segments. In particular, while many hospitality researchers identified the significant impact of TTF on consumers' technology adoption intention and performance, most study settings were general tourists, hotel guests, and stakeholders of the hospitality industry rather than a specific segment of the market although consumers' perceived value would be different by their characteristics and contexts (Smith and Colgate, 2007). Accordingly, it is difficult for marketers to satisfy different market segments' interests in technology with general approaches. The luxury hotel market, in particular, has struggled with identifying whether their use of new technology for guest services would enhance guests' perceived value due to their target market's unique characteristics and motivations. Therefore, in this study, the researchers attempted to provide an in-depth understanding of how luxury hotel guests' perceived value could be enhanced by

TTF and LTF, strengthening their satisfaction and loyalty. The findings of this study answered the research questions by illustrating that technology in a luxury hotel is not only the tool for facilitating consumers' task performance, but also an extension of their prestigious brand image. However, the results also suggested that the luxury hotel should offer best in-person services to enhance the guest experience, making technology available for those who need.

Theoretical Implications

The findings of this study provide theoretical contributions. First and foremost, to the authors' best knowledge, this is the first attempt to investigate how the fit between luxury hotel brand image and technology affects luxury hotel guests' perceived value enhancement. By applying categorization theory to technologies, which are ancillary products, this study further extends the boundary of brand extension from organization levels to product levels. Second, this is the first study that included both TTF and LTF to assess target consumers' perceived value enhancement. Previously, hospitality studies (e.g., Kim *et al*., 2010) have utilized TTF primarily to understand employees' technology adoption behaviors. While there has been research employing TTF to understand consumers' technology adoption intention and performance, most of them (e.g., Ratna *et al*., 2018) were in a general setting rather than a specific segment of the hotel market (e.g., luxury market). Thus, it has been difficult for luxury hotel executives to understand the outcomes of their target consumers' behavior toward the technologies available at luxury hotel brands. Furthermore, building upon previous studies that support a significantly positive impact of TTF on consumers' intention to adopt technology or performance, this study extended the population of interest from general consumers to luxury market consumers, who have unique characteristics, such as different motivations and values. Therefore, the application of TTF to luxury hotel consumers

extends the boundary of TTF from employee technology adoption or general consumers to specific segment of the hotel industry, which in turn establishes a potential foundation for future research to apply TTF to specific segments of the hospitality industry, not limited to employees.

The findings illustrated that the majority of luxury hotel guests prefer human staff to technology, expecting interpersonal and exclusive service from the hotel, which supports previous literature on luxury (e.g., Padma and Ahn, 2020). While this study further strengthened the concept of luxury by examining how luxury consumers define the term luxury and their preferred service agents in the luxury hotel setting, the findings showed that both TTF and LTF directly influenced value enhancement with medium effect size (f^2). While the moderately positive impact of TTF on value enhancement looks contradicting the general perception that technology conflicts the concept of luxury (e.g., exclusive, prestigious, interpersonal services), the luxury concept was found to be more critical factor in enhancing consumers' perceived value of a luxury hotel because LTF had a relatively stronger impact on value enhancement than TTF. Thus, the results explained how complex a consumer's value assessment is.

By employing task-technology fit (Goodhue and Thompson, 1995), categorization theory in brand extension (Boush and Loken, 1991), and balance theory (Heider, 1946), this study helps researchers understand the mechanism of how consumers' perceived TTF influences value enhancement, satisfaction, and loyalty from technology-human interactions. Particularly, only a few studies used TTF to predict individuals' intention to adopt technologies in the hospitality and tourism context. Therefore, the application of TTF from the post-experience aspect would help researchers better understand consumer behavior related to technology. Moreover, this study employed the actual technologies that are commonly adopted in luxury hotel brands, increasing the relevancy and realism of the

findings. Therefore, this study contributes to luxury brand and technology research. Consistent with previous studies applying the balance theory, the findings of this study showed strong and positive relationships among value enhancement, satisfaction, and loyalty, illustrating the boundary of the balance theory includes the luxury hotel market. Specifically, the findings lend corroborative support that consumers tend to maintain consistent attitude. Lastly, the word 'luxury' has been continuously overused without a universal definition. Thus, the meaning of the term 'luxury' might be demolished. Respondents of this study were asked to give three keywords that come up in their minds when thinking about the word 'luxury'. Those keywords from respondents would help researchers understand the term 'luxury' from a consumer's perspective in this rapid changing world.

Practical Implications

One of the practical contributions of this study is realism of this study. This study developed several scenarios with the technologies that were currently employed in luxury hotel brands, such as mobile guest service, a voice assistant for smart room control, AR, and service robots. The real-world examples help the industry understand how they are doing with their technology implementation. The results showed that LTF has a relatively bigger effect on luxury hotel guests' perceived value enhancement. Taking the findings about the effect of LTF and consumers' definition of luxury together, technologies in luxury hotels should be something unique and high-end that adds value, thereby representing the exclusive image of luxury hotels. This finding suggests that the luxury hotel market needs to consider whether the new technology has a consistent image with their luxury brand image in order to increase guests' perceived value, thereby leading to satisfaction and loyalty. In other words, the results proposed that technology plays as an assistant to facilitate guests' tasks as well as a service extension of the brand representing the exclusive and symbolic image of the brand.

Accordingly, luxury hotel brands might need to design the technologies to fit their brand image to increase consumers' perceived value enhancement. For instance, if a luxury hotel brand has a modern and contemporary image, more advanced technologies, such as face recognition or smart room, would be a good fit for increasing their value. Such hotels with a modern and stylish luxury image as W hotels might want to implement cutting-edge technologies (e.g., smart room with automatic control system personalized for the guest) to match their brand image. On the other hand, if a luxury hotel brand has a very traditional and human-oriented image, the latest technology would not be appropriate to enrich guests' perceived value enhancement due to the misfit between their image and technology. Therefore, luxury hotel brand executives can create higher value by first identifying their brand image and designing technology that fits their brand image. However, it should be noted that most luxury hotel guests prefer a human-staff interaction over technology-enabled services because they receive more attention and respect when served by human staff.

The findings of this study also strongly recommend luxury hotels to ensure that the technologies are well-lined up with the tasks that consumers want to perform to increase their value enhancement. When a new technology is introduced to a luxury hotel, it needs to be designed to enable consumers to perform their tasks. For example, when updating their brand mobile app, rather than focusing only on design esthetics that align with their brand image, the app should include all the key functions customers want to perform with the app. The results also indicated that consumers' perceived value enhancement positively influences their satisfaction with the luxury hotel brand, which in turn affects their loyalty. Thus, luxury hotels are highly encouraged to find ways to enhance their value to increase satisfaction and loyalty. Lastly, the moderating effects of optimism in the relationship among TTF, LTF, and value enhancement were found, indicating consumers' technology optimism can be a key factor affecting their perceived value enhancement. Therefore, luxury hotels are encouraged

to consider consumers' technology optimism when they conduct marketing analysis such as segmentation, targeting, and positioning.

Limitations and Future Studies

Based on the findings of the current study, the researchers recognize several limitations and provide suggestions for future studies in this field. When designing scenarios, this study only used the technologies that were available in luxury hotel brands to ensure the realism of the study. In other words, technologies in the scenarios might be considered as advanced technologies as they were mostly available at luxury hotel brands. Accordingly, it was difficult to investigate guests' perceived value enhancement when the technologies did not match the image of the luxury hotel brand. Future research is highly encouraged to incorporate more diverse types of technology from basic (e.g., Wi-Fi) to advanced ones. Furthermore, the greater number of technologies with different level of advancement would provide insights for technology implementation for researchers and industry practitioners to understand which type of technology is accepted to match the image of luxury hotel brands. In addition, the use of branded examples of technology (e.g., Alexa) might have caused confounding brand effects. While specific brands for the technology helped participants understand the technology in the scenario, future studies are recommended to use generic brand technology to minimize potential confounding brand effects.

This study used scenarios to understand the existing and potential guests' perceived value enhancement affected by TTF and LTF. Due to the study design, the difference between pre-experience and post-experience evaluation was not available. Future studies are encouraged to collaborate with luxury hotel brands to conduct a field experiment that demonstrates the causal relationships between technology and value enhancement. Third, it would be interesting to examine whether there is any difference in guests' perception of TTF

and LTF between different generation groups. This study used the proportional sampling method to represent the luxury market share by generation groups, which results in a relatively higher number of respondents from older generations (i.e., born before 1977). As the Millennials are expected to be one of the largest markets in the hospitality and tourism industry, future studies are recommended to focus on the younger generation so that the luxury hotel market can prepare the next frontiers of the market. Lastly, the survey was conducted at the very beginning stage of the COVID-19. While the respondents' perception might not be significantly affected by the COVID-19 because it was an early stage of the COVID-19 pandemic. However, the prolonged pandemic may have changed consumers' perceptions, and the results are difficult to replicate Thus, future research is encouraged to do the same post-pandemic study to investigate the possibility of generalizability over time.

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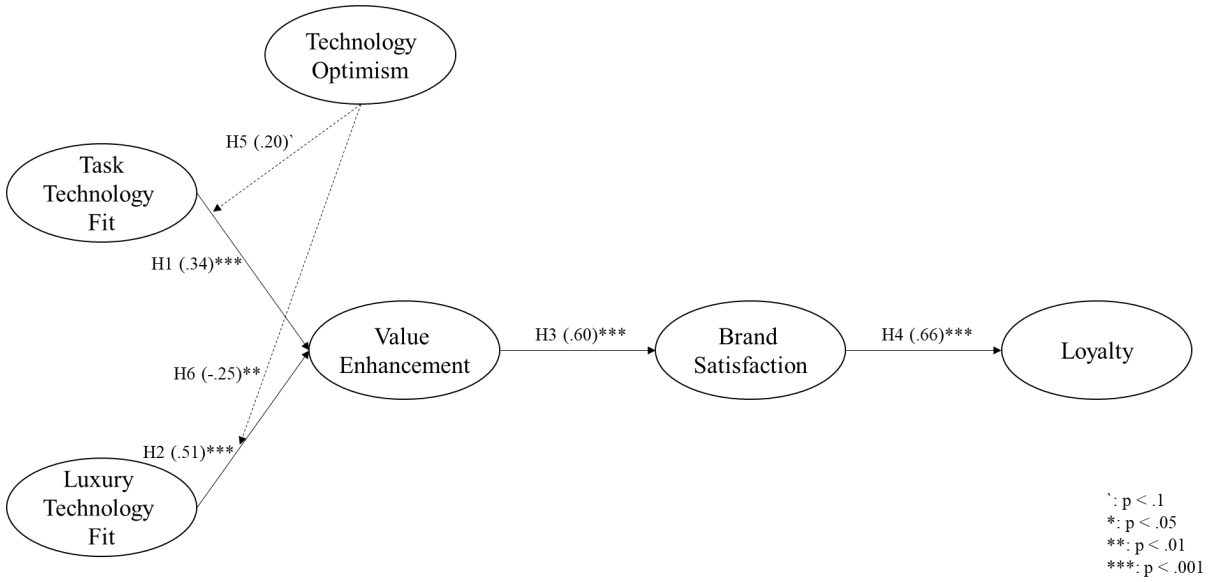
Figure

Figure 1. Proposed Research Framework



Tables

Table 1. Respondent Profile

Demographic Information (N = 312)	N	%
Gender		
Male	197	63.1%
Female	115	36.9%
Age Generation		
Generation Y	73	23.4%
Generation X	105	33.7%
Baby Boomers	125	40.1%
Silver Hair	9	2.9%
Education Level		
High school	11	3.5%
Associate degree	15	4.8%
Bachelor's degree	222	71.2%
Postgraduate Degree	61	19.6%
Other	3	1.0%
Employment Status		
Employed full time	253	81.1%
Employed part time	33	10.6%
Self-employed	18	5.8%
Unemployed	5	1.6%
Retired	2	0.6%
Student	1	0.3%
Annual Household Income		
Less than $30,000	40	12.8%
$30,000 to $50,000	88	28.2%
$50,001 to $70,000	72	23.1%
$70,001 to $90,000	47	15.1%
$90,001 to $110,000	34	10.9%
More than $110,001	31	9.9%
Ethnicity		
Caucasian	233	74.7%
Hispanic	15	4.8%
African American	38	12.2%
American Indian or Alaska Native	10	3.2%
Asian	16	5.1%

Table 2. Measurement Items

Construct/Items	Mean	Std	Std. Loading	α	CR	AVE
Task Technology Fit (TTF)				.700	.834	.629
[Technology] fit the task I wanted to do at [Brand].	5.362	1.208	.862			
[Technology] was suitable for the task I wanted to do at [Brand].	5.538	1.223	.683			
[Technology] was appropriate for the task I wanted to do at [Brand].	5.436	1.201	.822			
Luxury Technology Fit (LTF)				.759	.862	.676
[Technology] supported the brand image of [Brand].	5.170	1.276	.837			
[Technology] was appropriate technology for the brand [Brand].	5.362	1.145	.830			
The image of [Technology] was matching with the brand image of [Brand].	5.426	1.091	.798			
Value Enhancement (Adjusted R^2 = .617)				.761	.863	.678
[Technology] made a difference in appreciating my experience at [Brand].	5.587	1.252	.827			
[Technology] was very helpful to enrich the overall experience at [Brand].	5.571	1.254	.785			
[Technology] enhanced my experience with [Brand].	5.611	1.262	.854			
Brand Satisfaction (Adjusted R^2 = .356)				.741	.853	.660
Overall, I would be satisfied with [Brand].	5.122	1.175	.827			
My experience at [Brand] would exceed my expectations.	5.263	1.129	.819			
My experience at [Brand] would be close to my ideal experience.	5.324	1.094	.788			
Loyalty (Adjusted R^2 = .436)				.738	.850	.654
[Brand] would be one of my favorite brands.	5.240	1.223	.862			
I consider myself to be loyal to [Brand].	5.282	1.130	.812			
[Brand] remains a regular choice for me whenever I need to travel.	5.381	1.108	.746			
Technology Optimism				.746	.840	.568
New technologies contribute to a better quality of life.	5.282	1.087	.731			
Technology gives me more freedom of mobility.	5.442	1.095	.759			
Technology gives people more control over their daily lives.	5.694	1.187	.742			
Technology makes me more productive in my personal life.	5.442	1.098	.779			

Note. All items were measured on 7-point Likert scale.

[Brand] indicates the luxury hotel brand that each respondent had stayed in 2019 and/or he/she would like to stay in the near future.

[Technology] indicates the technology in the square bracket was the technology illustrated in the scenario.

The second item for TTF was retained despite its relatively low loading because of its loading significance ($p < .01$, $t = 13.51$) (Hair et al., 2016).

Table 3. Fornell & Larker Criteria for Discriminant Validity

	TTF	LTF	OPT	VE	BS	LYT
Task Technology Fit (TTF)	.792					
Luxury Technology Fit (LTF)	.693	.822				
Technology Optimism (OPT)	.593	.648	.753			
Value Enhancement (VE)	.695	.746	.605	.823		
Brand Satisfaction (BS)	.654	.644	.709	.598	.811	
Loyalty (LYT)	.541	.627	.666	.587	.661	.808

Table 4. Hypotheses Testing

Hypothesis (Bootstrap N = 5000)				β	*S.E*	*t*	*p*	f^2	Result
H1	Task Technology Fit	→	Value Enhancement	.344	.086	3.947	p < .001	.156	Supported
H2	Luxury Technology Fit	→	Value Enhancement	.509	.075	6.847	p < .001	.359	Supported
H3	Value Enhancement	→	Brand Satisfaction	.599	.048	12.445	p < .001	.558	Supported
H4	Brand Satisfaction	→	Brand Loyalty	.664	.037	17.731	p < .001	.779	Supported
H5	TTF * Optimism	→	Value Enhancement	.201	.106	1.895	p < .10	.048	Marginally Supported
H6	LTF * Optimism	→	Value Enhancement	-.247	.093	-2.657	p < .01	.070	Supported

Table 5. Multi-Group Analysis

Hypotheses				β		*S.E*		Difference	*z*	*p*
				High	Low	High	Low	(High - Low)		
H5	TTF * Optimism	→	Value Enhancement	.497	.181	.077	.130	.316	25.473	p < .001
H6	LTF * Optimism	→	Value Enhancement	.343	.610	.078	.111	-.267	-24.118	p < .001

Appendix

Appendix A. Luxury Concept Explanation Provided to Survey Respondents

Please read the followings in order for your clear understanding of the concept of luxury and luxury hotels.

- ***Luxury*** refers to anything that is desirable and more than necessary and ordinary (Heine, 2012).
- ***Luxury products/services*** tend to deliver unique benefits primarily in the forms of experiential enjoyment and symbolic value.
- ***Luxury hospitality products/services*** refer to "high quality, expensive and non-essential products and services that appear to be rare, exclusive, prestigious, authentic and offer high levels of symbolic and emotional/hedonic values through customer experiences" (Tynan, McKechnie, & Chhuon, 2010).
- ***Luxury hotel*** refers to a hotel that provides a luxurious accommodation experience to the guests (Kucukusta et al., 2014).
- ***Conrad, Four Seasons, InterContinental, JW Marriott, Park Hyatt, Ritz-Carlton, St Regis, W Hotel, and Waldorf Astoria*** are popular examples of luxury hotels.

Appendix B. Respondents Validation for Luxury Travel Market

Q. Which hotels in the given list did you stay in 2019

- Options for Selection: Chain hotels available from STR Chain Scale (2018)

Only respondents who selected the following hotels were directed to the next question: Conrad, Four Seasons, InterContinental, JW Marriott, Park Hyatt, Ritz-Carlton, St Regis, W Hotel, and Waldorf Astoria

Appendix C. Scenario Example

Please read the following scenario carefully and answer the questions accordingly.

Assume that you have stayed at the [Luxury hotel brand] for your 3-day vacation.
As you were too tired traveling, you wanted to set your room with your favorite music and your preferred temperature.
Since the [Luxury hotel brand] provides a *virtual voice assistant, Alexa*, to control the room settings to create a guest-centric experience, you used the *virtual voice assistant, Alexa,* to play music and control the room settings by voice.

Note. The luxury hotel brand in the square bracket was the brand that was chosen by each respondent as a luxury hotel brand they had stayed during the past 12 months or a luxury hotel they would like to stay in the near future.