Customers' acceptance towards self-service technologies and the impact on usage intention using the example of receptionless hotels

Prof. (FH) Dr. Doris Berger-Grabner, MA & Magdalena Nake, MA

IMC Krems, Am Campus, 3500 Krems (Austria)
Phone: +43 2732 802 667
Email: doris.grabner@imc.ac.at

The Covid-19 pandemic was a major driver for digitalization in the services industry as customers desired to reduce human contact. Thereby, the pandemic led to a change in demand, which enhanced the need for self-service-technologies (SSTs). To fill a research gap this study focuses on testing customers' acceptance towards SSTs in receptionless hotels and its influence on their booking intention. Data was collected with quota sampling through an online self-completion questionnaire and analysed with bivariate and multivariate regression analyses. Sample selection was limited to travellers from the European Schengen Area and aged 18 to 64 years (n= 200). The findings show that the usage intention of SSTs has a significant impact on the booking intention of a receptionless hotel. SSTs (self-check-in, self-check-out, digital room key and guest information provided via a mobile application) in the receptionless hotel are accepted, when the customers perceive the SSTs as useful. In addition, perceived usefulness is partly driven by technology readiness and perception of ease of use.

Introduction

The hotel industry is a well-known market with a worldwide size of 1.47 trillion U.S. dollars in the year 2019, which suddenly dropped to 0.61 trillion U.S. dollars in 2020, because of the Covid-19 pandemic (Lock, 2021b). The hospitality and travel industry were perhaps from beginning on, one of the most suffering industries due to the outbreak of Covid-19 (Nicola, et al., 2020, p. 189). This significant and rapid drop forced hotel managers to change as well as make modification in order to adapt with the pandemic (Le & Phi, 2021, p. 4; Visentin, Reis, Cappiello, & Casoli, 2021, p. 8) and boost travellers' confidence again (Jiang & Wen, 2020, p. 10). More than 60 percent of respondents of a global survey in July 2020 believed that new technologies can make their stay in accommodations safer for them again (Lock, 2021c).

One way to increase digitalization in the service industry is by using Self-Service-Technologies (SSTs). SSTs are increasingly applied to supplement or reduce traditional services (Kokkinou & Cranage, 2015, p. 1182). Meuter et al. (2000, S.50) define SSTs as "technological interfaces that enable customers to produce a service independent of direct service employee involvement." SSTs are rather new to the hotel industry but have proven to be successful in other industries such as banks, airlines, supermarkets, ticket stations, etc. (Gupta & Sharma, 2021, p. 237). When implementing or considering implementing SSTs in the hotel, it has to be paid high attention of what are the customer preferences and desires (Wei, Torres, & Hua, 2016, p. 113). However, if done correctly, and the implementation of SSTs is not only for accomplishing tasks but also brings an enjoyable experience to the customer, consumer commitment will be obtained (Wei, Torres, & Hua, 2016, p. 113).

Self-check-in and self-check-out are two of the many opportunities to digitalize service, and thereby, reduce human contact to make customers' feel safer (Hao, Xiao, & Chon, 2020, pp. 9-10). In addition, it improves the hotels operational efficiency as well as can lead to a significant cost reduction (Hao, Xiao, & Chon, 2020, p. 10). Many hotels already started to implement contactless check-in, check-out, contactless payments and digital room keys as response to the Covid-19 pandemic. Even though the implementation of SSTs requires a big investment (Liu & Yang, 2021, p. 2917), the literature is rather coherent about the positive advantages it can bring within the organization (Gupta & Sharma, 2021; Hao, Xiao, & Chon, 2020; Liu & Yang, 2021; Shin & Kang, 2020). Although SSTs in the hotel industry appear to have gotten a lot of attention from academic researchers in the last two years, customers' acceptance towards SSTs in a complete receptionless hotel and its impact on their intention to book receptionless hotels still seems not further researched yet. Therefore, this study tries to answer the following research question: How can customers' acceptance towards self-service technologies in receptionless hotels be explained and how does this acceptance influence their booking intention? and aims to provide insights in creating adaptable service models for potential future disruptions, especially post-pandemic service transformation concepts.

Research model

The purpose of this study is to test customers' acceptance towards SSTs in receptionless hotels and explain the relationship between technology acceptance and online booking

intention. In order to answer the research question, the proposed research model shown in Figure 1 was used.

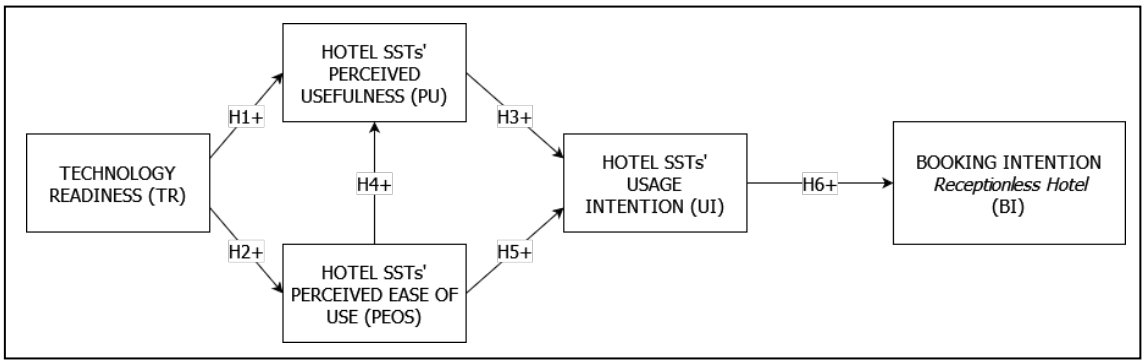


Figure 1 - Research Model

Technology readiness is said to have a significant positive impact on hotel SST's perceived usefulness as well as hotel SSTs' perceived ease of use. Furthermore, both, perceived usefulness and perceived ease of use should impact the usage intention, whereas perceived ease of use should also have a significant positive impact on the perceived usefulness. Thereby, Hypothesis 1 until Hypothesis 5 derive from the TRAM, whereas booking intention is added and should be significant positive impacted by usage intention.

Method

Sample and procedure

Data for this study were collected from travellers from the European Schengen Area, aged between 18 to 65 years by an online self-completion questionnaire (n= 200). (which includes European Union (EU) countries plus Iceland, Liechtenstein, Norway, and Switzerland) are chosen. This limitation was made to avoid that people would not be able to book the hotel due to barriers, such as the required visa. Within 22 days (01.02.-22.02.2022) 260 completed questionnaires were collected. However, 27 were reduced due to not meeting the sample criteria and from the remaining 233 responses, 33 had to be eliminated to stick with the before calculated quotes. Parasuraman's (2000) study was used for creating the statements for technology readiness, and Yang et al. (2019) study for perceived usefulness, perceived ease of use and usage intention. All statements were closed questions and had a 7-point-likert scale applied. After removing the outliers as well as the item PEOU4, all variables showed an acceptable cronbach's alpha value and

were between 0.763 and 0.941, whereas Technology Readiness is the lowest with 0,763, and the others had very good values being over 0.8 but still under 0.95.

Results

Descriptive Statistics

All items included a 7-point-likert scale, hence, 1 was the lowest and 7 the highest possible answer. The lowest mean can be seen for TR5 with 3,75. TR5 questioned whether the respondents were among the first in their circle of friends to acquire new technology when it appears. The highest mean was identified at PEOU5 with 6,29, which is connect to the statement, that participants believe that they can check-out themselves, using the Self-Check-Out system. For all other items the means vary between those two values. The standard deviation showed only values < 1 for PEOU1, PEOU3, PEOU5, PEOU6. Thereby, these four items have a small standard deviation, and the responses can be considered to be very consistent (Hair, Page, & Brunsveld, 2020, pp. 347-348). All other standard deviation values vary between 1,040 and1,908 which still indicates rather consistent answers. To understand the shape of the distribution, skewness and kurtosis are used. Only TR5 shows a positive skewness value, which is only 0,028. For the other items the tail stretches to the left, with the maximum value being -1,420. The standard deviation for the skewness is 0,172. All kurtosis values are between -2 and +2, whereas the positive values indicate a peaked curve and the negative values a flat curve (Hair, Page, & Brunsveld, 2020, p. 348). The flattest curve can be seen in UI3 with -1,169 and the most peaked curve has PEOU5 with 1,894. The standard error for the kurtosis is 0,343.

Hypotheses Verdict

From the six constructed hypotheses based on the literature, five hypotheses could be accepted. Hypothesis 5 was failed to be rejected or accepted. The other five all included a statistical significance value within the accepted $\alpha \leq 0.05$ siginifcance level.

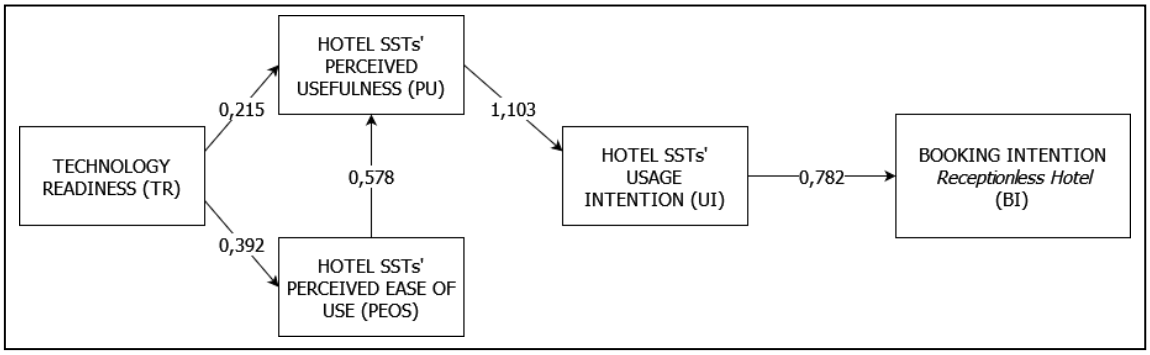
Table 1 - Hypotheses Verdict

Hypothesis	B-/beta-Value	P-Value	Verdict
H1: Technology Readiness has a significant positive impact on Perceived Usefulness of Hotel's SSTs.	(beta-value) 0,215	< 0,001	Accepted

H2: Technology Readiness has a significant positive impact on the Perceived Ease of Use of Hotel's SSTs.	(B-value) 0,392	< 0,001	Accepted
H3: Perceived Usefulness has a significant positive impact on the Intention to Use the Hotel's SSTs.	(B-value) 1,103	< 0,001	Accepted
H4: Perceived Ease of Use has a significant positive impact on the Perceived Usefulness of Hotel's SSTs.	(beta-value) 0,578	< 0,001	Accepted
H5: Perceived Ease of Use has a significant positive impact on the Intention to Use the Hotel's SSTs.	Failed to accept or reject		
H6: Usage Intention of SSTs has a significant positive impact on the Booking Intention of a Receptionless Hotel.	(B-value) 0,782	< 0,001	Accepted

Figure 2 - Revised Research Model presents the revised research model based on the hypotheses verdict and includes the various B- and beta-values. Thereby, hypothesis 5 was removed, however, the other hypotheses could be confirmed.

Figure 2 - Revised Research Model



Conclusion

The industry faced crucial challenges in becoming more digital and sustainable before the Covid-19 pandemic outbreak, however, the Covid-19 pandemic and its great impact on the service industry, forced businesses to think beyond their existing strategies and adapt to the "new-normal" tourism world in order to survive. One crucial opportunity is to apply SSTs, such as contactless check-in, check-out systems as well as digital key systems, in order to reduce the social contact. However, the implementation has to be done carefully to meet customers' expectations and their desires. Technology acceptance was tested with its four factors: technology readiness, perceived usefulness, perceived ease of use and usage intention. Further, the relationship between usage intention and booking intention of a receptionless hotel was tested. Based on the results its can be concluded that the common applied SSTs (self-check-in, self-check-out, digital room key and guest

information provided via a mobile application) in the receptionless hotel were rather accepted. The results indicated that it is very important for customers to perceive the SSTs as useful in order to use it. In addition, perceived usefulness is partly driven by technology readiness and perception of the ease of use. However, it could be found that usage intention has a positive impact on the booking intention of a receptionless hotel. To conclude, this paper provides insights in creating adaptable service models for potential future disruptions, especially post-pandemic service transformation concepts.

Practical implications

The results show strategic insights for hospitality managers and offer evidence-based guidance on investment decisions for Self-Service Technologies, design principles for technology-driven service models by integrating health safety considerations and balancing technological efficiency with customer comfort, and a general understanding of customer readiness for radical service innovations.

In detail, the results indicate that the implementation of SSTs should be done carefully as well as in consideration with the customers and their expectations and desires. There are several critics about SSTs in hotels due to many guests preferring to be greeted and wanting to get personal information. In order for new technologies to be successful and used, service provider as well as service receiver have to accept and be satisfied with it. However, if done correctly, the implementation of SSTs can have multiple advantages. In addition to "eliminate human errors, increase service efficiency, stabilize service quality, and thus enhance customer satisfaction and improve hotel performance" (Hao, Xiao, & Chon, 2020, p. 9), it also enhances the hotels operational efficiency as well as can lead to a significant cost reduction. When considering implementing SSTs it is important to have a good understanding about the target group of the hotel. The usage intention has a crucial impact on the booking intention of a receptionless hotel. Therefore, it is recommended to test beforehand whether customers are willing to use it, before "forcing SSTs on them in a receptionless hotel", to develop robust customer feedback mechanisms and to invest in continuous staff training and technology education.

To summarize, SSTs have the potential to reduce operational costs and creating flexible service models adaptable to future disruptions, but its important to maintain emotional connection despite reduced human interaction and address customer anxieties about fully

automated services.

Limitations

Due to multicollinearity the relationship between perceived ease of use and usage intention could not be measured. For further research it is advised to use another analysis technique, such as structural equation model (SEM) for the analysis to avoid this risk. According to previous studies, the implementation of SSTs, should further make customer's feel safer and the booking intention be increased . Even though this study is based on the change in the consumer behavior due to Covid-19, only control questions covered the topic. With the pandemic existing for three years further research should not only consider the perceived health risk (in connection to Covid-19), but also the role of the perceived safety and security feeling in a receptionless hotel. Last but not least, this study only tested the intention to use or book the hotel and the findings have sector-specific limitations. For future research it would be recommended to contribute to service innovation literature by analyzing how radical service transformations (like receptionless hotels) are perceived and continue research on understanding customer adaptation to extreme service format changes, especially by exploring the psychological mechanisms behind accepting highly digitalized service encounters.

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