THE MEDIATING EFFECT OF PRIVACY CONCERN ON INTENTION TO USE SELF SERVICE TECHNOLOGY IN HOTEL

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Abstract*: Self-service technology is an innovation that requires communication over the internet. In the hotel business, it has become more widespread as customers' interactions with service workers and technology have changed. Self-service technologies are increasingly valued by customers for their convenience, consistency, and control. Self-service technologies (SSTs) help hotels to improve service standards, and the wide range of technological applications available allows hotels to choose the application that best matches the needs of their guests as well as the hotel's needs. Despite their increasing popularity, some might have doubts about using the technology as this may involve confidentiality and privacy details. In the contact of Malaysian hotels, some have yet to fully integrate self-service technologies into their daily operations. The study proposes a research framework to suggest the direct and moderating roles of Privacy towards Intention to use SST. Extant research from various research streams is reviewed, resulting in 7 hypotheses. Data collected from customers with SST experiences are examined through PLS-SEM and hierarchical moderated regression analysis. Results indicate that customer privacy enhances perceived usefulness and perceived ease of use towards intention to use SST.*

Keywords*: Privacy concern, Self Service Technology (SST), Intention to Use*
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Introduction

Advanced technology may refer to the latest innovations that have potential to transform society and improve our lives in countless ways. Hotels are intrigued by the perceived benefits of these technologies – primarily reduced labor costs and improved customer satisfaction – and are therefore expected to adopt such innovations widely to attract business and enhance profitability (Brochado, Rita, & Margarido, 2016; Yu, 2019). Traditional service delivery can no longer meet customer demand, and thus service providers now offer unique and satisfactory experiences using innovative technology, including self-service technology (M. Lee et al., 2019). In the hospitality and tourism industry, SST may include check-in/out, ticketing, and ordering menu kiosks (Shiwen et al, 2022). These technological interfaces allow service operators to furnish required services in absence of direct encounter by service employees (Mueter et al, 2000). At the same time, it may enhance customer experience in using the software or application as SST facilitates responding to customer needs more quickly and comfortably (Suksutdhi T, 2022).

Advancement of different software and the application has enabled hotels to explore onto adoption of relevant SST that furnishes a positive avenue for hotels to improve the service standard that is most applicable for hotel guests and business (Ong L, 2010). Few research studies on SST implementation in the hospitality industry have been done to support the usage and benefit of this innovation technology (Myra et al., 2020). According to Yu (2019) Hotels are intrigued by the perceived benefits of these technologies – primarily reduced labor costs and improved customer satisfaction – and are therefore expected to adopt such innovations widely to attract business and enhance profitability. The SST implementation in the hospitality industry allows customers and service providers to exchange information or service resources for purchasing goods and services online such as tablets, kiosks, and smartphones without direct interaction with employees or service providers (Huang et al., 2019). In the context of Malaysia hotels, numbers of hotels and the growth in hotel sectors were extensive however the adoption of SST among the hotels is relatively minimal (Hakim & Ibrahim, 2022). Although customer acceptance is certainly a key factor, hotels must consider other factors such as hotel's condition (e.g., type, grade, and budget) and environmental context when making decisions on technology adoption (Baker, 2011). Beyond the decision whether to adopt SSTs, organizations must determine how to deploy these technologies, monitor customer acceptance, and make strategic adjustments accordingly (Liu et al, 2020).

In many previous studies, one of the key customer concerns using the SST is related to privacy. According to Parasuraman et al (2005), privacy is defined as the degree to which the customer thinks that his personal information stored on system is protected. This is very important as privacy preservation plays a major role in providing security (Jawahar and Sabari, 2020). This paper has therefore aimed to explore the influence of privacy concern towards intention to use self-service technology (SSTs) at hotels as primary objective of the research study. This study contributes to the literature by outlining the perceived usefulness and ease of use of the SST which lead to privacy concern in using the software or application in hotel. Provided with relevant findings, hoteliers can make more rational decisions concerning SST adoption to satisfy customers' needs and enhance financial performance of the hotel business.

Literature review

Many models have been proposed in the literature on information technology and information science to describe how people use and accept innovation (Aslam et al., 2017; George & Sunny, 2021). In the hotel business, some customers or hotel guests might prefer to choose self-service

technology (SST) as it may influence convenience and is less distracting. Kasavana (2008) found that customers who have earlier had less satisfactory experiences such as long waiting queues, operational delays, etc. now prefer to interact using the latest technologies such as SSTs. Thus, there are reasons to believe that more people are accepting the importance of technology. Furthermore, the technology adoption places a high emphasis on perceived usability, ease of use, attitude, quality, achievement of system capabilities, high level of efficiency, and privacy (Suksutdhi, T, 2022).

Intention to Use

Everyone will have different perceptions related to technological innovation. Using SST in hotel operations and services requires customers or hotel guests to adapt with the different service delivery. They may have to change the nature of their behavior/interaction with an organization (Riegger et al., 2021). Some individuals may welcome innovative technologies and feel excited about how technology revolution enhances their experience, whereas others are not interested in and repelled by new technology-powered products/services (Kim et al, 2022).

In theory, the perceived ease of use and perceived usefulness of novel technology-based offerings were posited as antecedents which influence individual attitude, and consequently affect use intentions and actual usage (Davis, 1989). The technology acceptance model who was created by Davis (1989) has been extensively employed in the hospitality context and it was validated with the strong predicting power of consumers' behavioral intentions towards cutting-edge technologies (Sun et al, 2019).

The technology adoption might not happen if the users find the technology useless, difficult to understand, unaware, never used it, and unfamiliar with the technology (Infante-Moro et al., 2021). This will relate back to individuals' behavioral intentions depending on how a person evaluates a specific behavior, how one wants to comply with the technology (Kim et al, 2022). Numerous scholars have addressed the importance of technology readiness (TR) in influencing the intention to use SST and emphasized that hotel operators should consider how consumers feel toward innovative technology to predict their acceptance (Verma et al,2007; Kim et al 2022).

Perceived Usefulness Towards Intention to Use

The adoption of SST by hotel operators has seen a great increase in recent years. Even so, it is important for hotels to consider and weigh the advantages and disadvantages towards its operations and hotel guests prior to adoption and implementation (Meuter et al, 2000). The decision to adopt and implement SST in hotels should seriously take into consideration on the impact of hotel guests being the consumers of technologies, the differences among consumers in attitude and behavioral intention on the usage of SST (Dabholkar & Baggozzi, 2002).

Perceived usefulness refers to the degree to which a person believes that using a particular system will improve their performance (Davis, 1989). Past studies have demonstrated that usefulness perception also transfers from one entity to the other (Aslam Wajeeha et al.,2023).

The study by Hakim & Ibrahim (2022) pointed out that the relationship between perceived usefulness and intention to use SSTs is significant as expected in hotel operations. It has seen that the advantages of SST have influence more customer or hotel guest to support this implementation that may contribute positively towards interaction and intention to use the

technologies in the aspect of flexibility and time saving in utilizing the hotel facilities and services (Hakim & Ibrahim, 2022). This can be seen that most customers nowadays have greater autonomy to search and survey their preferred hotel and services using the available technological devices.

H1: Perceived usefulness (PU) affects intention to use (INT).

Perceived Usefulness towards Privacy Concern

Numerous studies have looked at antecedents of perceived benefits to explain how individuals observe the incentives to accept, adopt, or use a specific technology or system (Ma et al,2021). Referring to hotel business, most customers or hotel guests nowadays prefer to reserve their rooms and restaurants using the available application due to its conveniences. The payment methods in online hotel booking, the perceived use-fulness of the payment method (how quick, convenient, and safe it is) generates positive attitudes, which in turn increase consumers' intentions to book hotels through an online travel agency's mobile app (Sun et al., 2021).

However, a big issue for many users is the general fear and mistrust of unethical businesses who may gain access to personal information for which they are not authorized (Geebren and Jabbar, 2021). This may raise the concern on the privacy and security of personal information in using the technology. There have been numerous examples where unethical organizations gain access to private data and sell this to third parties for profit, in many cases without the knowledge or permission of the data owners or holders (Raddatz et al., 2021).

H3: Perceived Usefulness (U) towards privacy.

Perceived Ease of Use towards Intention to Use

Ease of use on the SST is regarded as the main criteria for the functional of SST that supersedes the performance and reliance on service staff (Hakim & Ibrahim, 2022; Lu, Chou & Ling, 2009). The adoption of innovative technologies should be deemed as an enjoyment as expected by consumers (Curran et al, 2003); this intrinsic enjoyment derived from the ease and fun of usage being the extrinsic motivators would in return contributed to intention to use (Chang & Yang, 2008; Rangarajan et al, 2007)

The understanding of ease of use can likewise be portrayed as an individual's recognition about the utilization of innovation such that it would be without mental pressure while utilizing the innovation (Aslam et al., 2017). Past studies have shown a positive impact of ease of use on the adoption of different innovations in SST software and applications. This has been supported by Hakim & Ibrahim (2022), pointed out that the relationship between ease of use and intention to use has a significant impact on SST implementation in hotel business.

H2: Perceived ease of use (PEOU) affects intention to use (INT).

Perceived Ease of Use towards Privacy

Several authors have argued that security and privacy are two fundamental requirements for online trust (Flavián & Guinalíu, 2006). When it comes to privacy in hotels, perceived ease of use can play a role in how guests perceive and interact with privacy-related features and services. Hotels often provide various privacy-related amenities and services, such as secure access to rooms, privacy settings for in-room technologies, and protection of personal information.

Nevertheless, there is always a need to balance privacy and creating easy to use, secure systems against illegal access and tampering (Auer and B̈ohme, 2020). Convenience is one crucial

component which can be significantly supplemented with ease of use in creating a positive experience. It is proposed that the investigation of both convenience and ease of use can enhance the willingness of individuals to disclose personal information. (Jabbar et al, 2023).
H4: Perceived ease of use (PEOU) towards privacy.

Privacy Concern towards Intention to Use

When it comes to privacy concerns, some potential or existing users might have doubts about using the technology as this may involve confidentiality details. Having their details recorded may be one of the major reasoning concerns. Previous studies have mentioned that trust, perceived risk, privacy and security, assurances, integrity, competence, credibility, confidence, and reliability have been regarded as important matters in the context of SSTs (Le, Hill & Troshani, 2020; Tiwari & Tiwari, 2020).

Data security and privacy of personal information are critical issues as it concerns SST usage among the consumers (Phelps, D'Souza, & Nowak, 2001; Sheehan & Hoy, 2000). The feeling of discomfort illustrates the status of being overwhelmed by emerging technology or having insufficient control over technology, and insecurity about the technology and its capability to work appropriately (Kim et al, 2022). However, a study conducted by Hakim & Ibrahim (2022), revealed that more than 50% of hotel guests choose to use self-check-in kiosk at hotel to protect their privacy during registration process. As a result, this can be described that the option for SST is of greater preference due to priority in protection of privacy on personal information among hotel guests.
H5: Privacy (P) affects intention to use (INT).

### Mediating role of Privacy concern

Privacy concern can play a mediating role in the hotel industry, affecting various aspects of the customer experience, trust, and satisfaction. Pavlou and Fygenson (2006) discovered that online transactions and technologies are the relationship between intention and behaviour that assume people are trying to make rational decisions based on existing information (eWOM for example).

Customers who choose an online website to shop depend on what the previous user-generated content called reviews to make a purchase decision each time (Roy, Datta & Basu 2017). Most customers nowadays do prefer to reserve room through online booking via online travel agent and direct website. Basically, customers' intentions to buy online rely on previous reviews or eWOM results. (Roy, Datta & Basu 2017). Based on the above hypotheses, we also assume that PU and PEOU may indirectly impact passive usage intentions through the mediating effects of privacy concerns. Accordingly, H6 and H7 are proposed:
H6: Privacy (P) mediates the effect of perceived usefulness (PU) on intention to use (INT).
H7: Privacy (P) mediates the effect of perceived ease of use (PEOU) on intention to use (INT).

This study is finally able to organize the research model shown in figure 1.
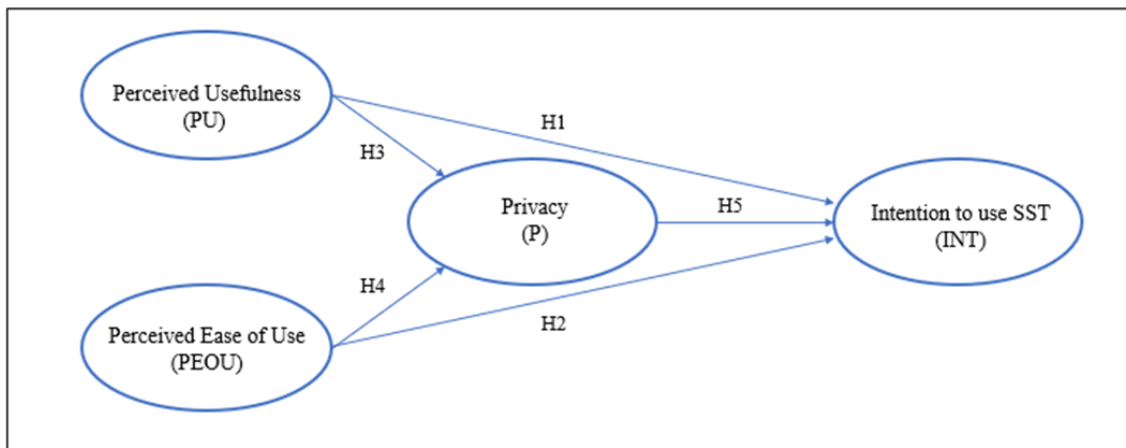
Figure 1: Research Model

Methodology

Sampling and data collection

The survey's instrument was a self-completion questionnaire, which was a quantitative method. Because the questions were always framed the same manner for all respondents, self-completion surveys had the advantage of being a highly standardized measuring tool (Sapsford, 2007). The survey's questions were all about Malaysian customers' perceptions, which were divided into two groups. Part one was created on a nominal scale and focused on the respondent's demographic profile, which included six connected elements that were important influencers of the questions answered, covering the qualities that would fulfil the desired objectives. Part two of the questionnaire in this study is intended to assess four (4) areas of consumer impression of self-service technology adoption in hotels. Ease of Use, Privacy, Perceived Usefulness, and Intention to Use SSTs are the four dimensions.

Purposive sampling is an approach that acknowledges that researchers use their own judgment and expertise to choose participants (Zickar & Keith, 2023). An online survey, emails, and social media, as well as a purposive sample technique, were used to collect data. The researchers select the respondents based on their experience using SST in hotels. There were 208 total respondents, with 120 (57.7 percent) females and 88 (42.3 percent) males. Most of the respondents had bachelor's degree with 42.3%, followed by master's or Doctorate (30.8%), diploma (23.1%) and ATPL (3.8%). Most responders were between the ages of 31 and 40. A high percentage of respondents (57.7%) were single, whereas around 38.5 percent were married. Furthermore, 104 (50%) respondents had used SST once to three times in hotels, and 46.2 percent of respondents had used SST at a grocery shop or retail location.

After acquiring the data, statistical analysis was used to assess the hypothesized link in the intended model. The results of this study have significant management and practical implications for figuring out how customers feel about using SSTs.

Research design

Multiple linear regression, mediated regression analysis, and bivariate (Pearson) correlation were used in this study. To determine whether there were any significant linear relationships between PU, PEOU, P, and INT, the bivariate correlation was performed. To examine the significant effects of two predictors (PU and PEOU) when predicting INT, multiple linear regression was also conducted. Additionally, the significant mediating effect of P between (PU

and PEOU) (IV) and INT (DV) was examined using mediated regression analysis. The confidence level was calculated using an alpha level of .05 for all statistical analyses.

Approaches Towards Mediation Analysis

The Bootstrap Method

Preacher and Hayes' (2004, 2008) bootstrap approach are a non-parametric resampling test. This test's key advantage is that it does not rely on the assumption of normality, making it suitable for smaller sample sizes (Hair et al., 2014; Pardo & Roman, 2013). In this approach, bootstrapping can be used twice: once without mediation and once with mediation. It should be highlighted that there is no mediating effect if the direct path is not substantial (Wong, 2015; Hair et al., 2014).

We evaluate the relevance of the direct path according to the guidelines: if the direct effect is not considerable, there is no mediation. If the direct path is statistically significant, we incorporate the mediating variable and repeat the bootstrapping method. There is no mediation if the indirect path is not significant after bootstrapping; if it is significant, we calculate the variance accounted for (VAF). A VAF number greater than 80% indicates full mediation, a value between 20% and 80% indicates partial mediation, and a value less than 20% indicates no mediation.

Result And Finding

Measurement Models

Internal consistency reliability was evaluated by assessing composite reliability, outer loading, convergent validity, and discriminant validity to demonstrate the measurement model's reliability and validity (Hair et al., 2011). Internal consistency components are frequently associated with highly linked indicators. All constructs have exceptional inter-item consistency, as shown in Table 1, with Cronbach's alpha values ranging from 0.718 to 0.962. In addition, composite reliability (CR) was good, falling between 0.848 and 0.975. According to Hair et al. (2017), the AVE must be at least 0.5 and the outer loadings must be larger than 0.70 to establish that a latent variable can explain the variance of its indicators. According to the table, AVE was validated at a suitable level of greater than 0.5, ranging between 0.741 and 0.951. As indicated in Table 1, all outer loadings exceeded the threshold of 0.7, and only a few items that did not meet the benchmark were removed from the construct.

Table 1: The measurement model results.

Constructs	Items	Loading	AVE	Cronbach's Alpha	CR
Intention to use SST (INT)	INT1	0.976	0.741	0.718	0.848
	INT2	0.728			
Perceived usefulness (PU)	PU1	0.942	0.828	0.896	0.935
	PU2	0.903			
	PU3	0.883			
Perceived Ease of use (PEOU)	PEOU2	0.972	0.951	0.839	0.975
	PEOU3	0.978			
Privacy Concern (P)	P1	0.895	0.898	0.962	0.972
	P2	0.975			
	P3	0.970			
	P4	0.949			

Discriminant validity was assessed via the Fornel-Lacker criterion. Table 2 shows the square root of AVE of reflective construct Ease of Use, Privacy, Perceived Usefulness, and Intention to use SSTs. is larger than the corresponding latent variables correlations (LVC).

Table 2 Discriminant validity – Fornell-Larcker criterion

	INT	P	PEOU	PU
INT	0.864			
P	0.064	0.948		
PEOU	0.281	0.756	0.873	
PU	0.349	0.726	0.789	0.91

Note: Perceived Ease of Use (PEOU), Intention (INT), Perceived Usefulness (PU), Privacy (P)

Evaluation of the structural model

The measurement models show that the constructs measures utilised in this investigation are reliable and valid. The following phase in PLS-SEM is an evaluation of the structural model. Before proceeding, it is critical to examine the structural model's level of collinearity (Hair et al., 2014). We must assess collinearity when inspecting the structural model since the s of independent variables may be biased due to a high level of collinearity among predictor constructs. Because SmartPLS does not generate VIF and tolerance values, SPSS was used for collinearity assessment.

Table 3 Assessment of multicollinearity

Intention to use SSTs as dependent variable			Privacy as dependent variable		
Construct	Tolerance	VIF	Construct	Tolerance	VIF
Perceived usefulness (PU)	0.675	2.96	Perceived usefulness (PU)	0.564	2.65
Perceived Ease of use (PEOU)	0.553	3.26	Perceived Ease of use (PEOU)	0.564	2.65
Privacy Concern (P)	0.589	2.61			

Table 3 indicates that there are no multicollinearity problems, as the values of tolerance are above the 0.2 threshold, and all values of VIF are below the threshold of 5.

Hypotheses Testing

To test hypotheses 1, 2, 3, 4and 5, the direct path model was calculated using bootstrapping without the involvement of a mediator. All direct paths are statistically significant, according to the results in table 4. This result is consistent with previous findings that address the positive relationship between perceived value, perceived ease of use and privacy towards intention to use SSTs (Hakim & Ibrahim, 2022). Our results regarding behavioral intention also somewhat support the findings from Auer and B¨ohme,(2020) arguing that balance privacy and creating easy to use, secure systems against illegal access and tampering.

As a result, including privacy as a mediator is significant. We need indirect channels to prove that privacy mediates the relationship between perceived value and intention to use SSTs, as well as between perceived ease of use and intention to use SSTs. To obtain the t value of the indirect paths, we computed the standard deviation. The t value of the indirect path (PU→ P→

INT) is 3.781, with a p value of 0.000. It can be concluded that privacy mediates the relationship between perceived value and intention to use SSTs. This study also found that privacy concerns are positively related to intention to use SSTs. The t value of the indirect path (PEOU → P → INT) is 2.340, with a p value of 0.0015, significant at 5%. It is possible to conclude that privacy acts as a mediator between perceived ease of use and intention to use SSTs.

Finally, it is important to find out the strength of mediation. The strength of mediation is computed via variance accounted for (VAF), as suggested by Hair et al. (2014). Table 4 reveals that 78.8% of the effect of perceived value and intention to use SSTs is explained via Privacy. Since the value of VAF is between 20% and 80%, privacy is partially mediating the relationship between perceived value and intention to use SSTs. Table 4 also shows that 69% of the effect of perceived ease of use on intention to use SSTs is explained via Privacy. Since the value of VAF is between 20% and 80%, privacy partially mediates the relationship between perceived ease of use and intention to use SSTs.

Table 4 Hypothesis Testing and Mediation analysis in PLS-SEM

Effect	Path	Coefficient	Indirect effect	Standard deviation	Total effect	VAF	t	P value	Decision
Direct without mediator	PU -> INT	0.500	Not Applicable					0.000	Accepted
Indirect with mediator	PU -> INT	0.511	Not Applicable		0.239	78.8%	3.781	0.000	Accepted
	PU-> P	0.477	0.241	0.064					
	P -> INT	-0.505							
Direct without mediator	PEOU -> INT	0.261	Not Applicable					0.000	Accepted
Indirect with mediator	PEOU -> INT	0.263	Not Applicable		0.192	69%	2.430	0.015	Accepted
	PEOU-> P	0.477	0.178	0.073					
	P -> INT	-0.505							

Implication, Conclusion And Future Research

Privacy concern is a significant topic in discussing the intentions to use Self-service technologies (SSTs). The evolution of communication technologies has made it easier for hoteliers and owners to make sales and reach their clients. Unlike traditional physical retail techniques, digital or virtual retail on websites offers flexibility and the ability to reach a large number of people. The advent of applications, check-in kiosks, and in-room tablets simplifies hotel check-in. Therefore, it is crucial for hoteliers and owners to research consumer behaviour regarding their intents to use self-service technologies. The association between perceived value and perceived ease of use and intention to use SSTs (INT) is examined in this study. This study furthers the development of conceptual models that depict the relationship between perceived value and perceived ease of use to intention to use SSTs by examining the function

of privacy as a mediator in the interactions. This study anticipates having significant ramifications for future research and practise because all the assumptions were confirmed and revealed good connections.

The study acknowledges the following management implications considering the findings. In the beginning, it educates hoteliers and owners on the significance of adopting consumer behaviour as a tactic in lowering the risk that users confront throughout the online check-in process. A thoughtful hotelier or owner must take action to strengthen their efforts in creating a dynamic and competitive online check-in. Additionally, hotel guests should provide numerous advantages to potential clients, including cost savings, adaptability, brand recovery, and a larger market reach. Future study can therefore incorporate larger sample sizes and additional items on the variables to get a better grasp of this issue. Future research can focus on a study on the relationship between age groups and computer literacy. This study can possibly be broadened by including customer behaviour related to customer from other countries.

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