

Research paper

Tourist behaviour towards self-service hotel technology adoption: Trust and subjective norm as key antecedents



Arun Kumar Kaushik^{a,*}, Amit Kumar Agrawal^a, Zillur Rahman^b

^a Research Scholars, Department of Management Studies, Indian Institute of Technology, Roorkee, Haridwar, Uttarakhand, India

^b Indian Institute of Technology, Roorkee, Haridwar, Uttarakhand, India

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ABSTRACT

The hospitality industry is expanding with an ever evolving technology adoption process and novel possibilities of adoption of new technologies are constantly being explored. Over the years, several research perspectives have offered different adoption models for the implementation of such technologies. The current study extends the utility of technology acceptance model (TAM) through analysis of additional antecedent beliefs in order to predict tourists' attitude towards self-service technologies (SSTs) in the offline hospitality context. The paper further examines the impact of trust and subjective norm on consumers' (1) attitude and (2) behavioural intention towards adopting self-service hotel technologies (SSHTs). Results indicate that trust has a more significant impact on tourists' attitude, though both trust and subjective norm considerably affect tourists' behavioural intention towards adopting new technologies. Conclusion includes managerial and theoretical contributions of the study, its limitations and future research directions.

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1. Introduction

In earlier decades, majority of the innovations and related theories primarily focused on development of products rather than services (Khan & Khan, 2009); the major emphasis was on product development because of its economic impact. However, over the past few years, adoption theories have been successfully applied to the service contexts (Park & Kim, 2014; Chong, Ooi, Lin, & Bao, 2012). With an increase in the prominence of services, emphasis has shifted from product development towards service development. As a result, new technologies are being implemented in the service sector, and self-service technologies (SSTs) are increasing being applied in the service delivery processes. SST is one of the most frequent used and widely accepted technological interfaces (Rust & Espinoza, 2006). Being part of the service industry, hotels constantly invest in SSTs for improving their service quality and reducing overall cost (Kim & Qu, 2014; Lam, Cho, & Qu, 2007). With technological advancement in the service delivery processes, 'high-touch and low-tech' method has been replaced with 'high-tech and low-touch' method.

The proliferation of SSTs has led to an overall improvement in the traditional service delivery process. The majority of consumers of the service industry are now valuing new technology because of its convenience. Also, the control given by new technology provides more

freedom to these customers. Increased technological adoption in the service industry (Kim, Christodoulidou, & Brewer, 2012) is the reason behind the introduction of a number of SSTs such as airport self-check-in kiosks, electronic tourist guides, tourism information kiosks, self-service systems in dining facilities, hotel self-check-in, and automated hotel check-out (Kincaid & Baloglu, 2005; Riebeck, Stark, Modsching, & Kawalek, 2008). The selection of any SST depends on several factors such as degree of complexity (Rogers, 1995), nature of the service to be delivered (Ong, 2010), size of the service firm, perception of staff members (Lam et al., 2007), and the type of service customers (Epstein, Pacini, Denes-Raj, & Heier, 1996).

Several studies have investigated customer attitude towards adoption of SSTs (Curran & Meuter, 2005; Dabholkar, 2000). The attitude construct is measured through adoption of different innovation characteristics such as usefulness, ease of use, relative advantages, and complexity (Arts, Frambach, & Bijmolt, 2011) along with adopters' characteristics that include their age, income, education, involvement, opinion leadership etc. (Kaushik & Rahman, 2014). Majority of these studies have focused on innovation adoption in the online context (Kaushik & Rahman, 2015b,c). Thus, there is a lack of empirical studies that examine the impact of new variables on customers' adoption behaviour towards SSTs in an offline environment, creating a major gap in extant literature.

To address this gap, we propose an extended version of technology acceptance model (TAM) for examining tourists' adoption behaviour towards SSTs in the hospitality industry in the northern part of India. Our paper proposes a conceptual model by extending the TAM with two

* Corresponding author.

E-mail addresses: arunkaushik.iitr@gmail.com, arunkddm@iitr.ac.in (A.K. Kaushik), zrahman786@gmail.com (Z. Rahman).

additional external variables (need for interaction and perceived performance risk). Further, two more exogenous variables (trust and subjective norm) which have been observed to be crucial in an offline environment, are also examined. This extended model will guide policy makers and managers in formulating and implementing effective strategies for successful and speedy customer adoption of SSTs. The article is organized as follows: Primarily, an extensive review of extant literature is done to present research opportunities that need to be explored. Subsequently, hypotheses are proposed and a conceptual model is presented to provide a framework for measuring consumers' adoption of SSTs. Next, the methodology used in this paper is defined along with a description of the data collection process and data analysis. Results of the study are then discussed, and conclusions drawn. Finally, limitations of the study and future research directions are provided.

2. Theoretical background

2.1. Self-service technology

The growth of IT has completely transformed the way business is carried out today. Further, it has provided crucial opportunities for creating more engaging customer experiences (Kang & Gretzel, 2012; Rahman, 2004). Service industries such as the hospitality industry are witnessing new technological innovations and these industries are integrating modern practises with traditional service delivery processes. Service customers who have earlier had less than satisfactory experiences such as long waiting queues, operational delays, etc. now prefer to interact using latest technologies such as SSTs (Kasavana, 2008). Increased acceptance of newer SSTs has encouraged more hotels to implement SSTs for enhancing service quality standards, operational efficiencies, and most importantly, overall customer satisfaction (Cunningham, Young, & Gerlach, 2009). The evolution of ICT applications has led to the appearance of a variety of SSTs in the marketplace. According to Kasavana (2008), hospitality firms must implement user-friendly machines with clear and easy instructions for successful implementation of SSTs. A few basic types of SSTs are discussed below.

2.1.1. Self-service kiosks

Self-service kiosks (SSKs) are the most widely used applications in the offline hospitality context. However, a number of problems were faced by customers during the introduction of SSKs in the Hilton hotels. These problems ranged from non-functionality of SSKs to glitches in the delivery of various services, resulting in increased customer frustration. Role conflict between employees and customers also emanated because of increased technology interface (Griffy-Brown, Chun, & Machen, 2008).

The challenges and failures experienced during the use of various SSKs have been a source of valuable learning to the hotel industry. The failures of SSKs could be attributed to the unrealistic expectations of hotels, unnecessary utilization of a few SSKs, inappropriate positioning of kiosks, etc. It has been observed that the widespread popularity of airline self-service check-in kiosks made customers more familiar with, and led to the adoption of SSTs in other areas too (Ostrowski, 2010). Self check-in and check-out kiosks are the prominently used hotel services. For increasing the acceptance rate of SSTs, a few hotels like Hilton group provide kiosk facility that can print restaurant coupons on one side and airline boarding passes on the other while a customer checks out from the hotel (Ostrowski, 2010; Shaw, 2004).

2.1.2. Internet based self-services

The internet has emerged in the recent past as a dynamic medium for channelling transactions between customers and firms in the virtual marketplace (Rahman, 2003). In addition, it provides an extended range of self-service opportunities. For instance, customers now can interact directly with service firms for requisite information by asking questions on different issues and contacting employees online. Products can directly be sold to customers without any constraints. In hotels, internet

is effectively used for fulfilling customers' needs (Jeong & Lambert, 2001). Law and Hsu (2006) investigated the usefulness of the different characteristics of hotel websites from users' perspectives and observed that website users were more interested in information on bookings, reservations, facilities, etc. Successful internet based self-services require easy accessibility of information on the websites (Kasavana, 2008).

2.1.3. Mobile-commerce

Mobile-commerce (also known as M-commerce) differs from e-commerce as it allows customers access to real time information by letting them avail information at their fingertips and providing them complete control over it (Kim, Park, and Morrison, 2008). A market research firm, In-Stat, forecasted an increase in smart phone usage from 161.4 million units in 2009 to 415.9 million units by 2014. Smart phones are the most preferred device related to voice, data, and video transferability, and storage capabilities (Nessler, 2010). The huge demand of mobile phones has additionally benefited the hotel industry in business promotions and operations. A majority of the hotels have started using the mobile network system for delivering services such as check-in and check-out facilities. Some hotels have introduced Apple iPad rental services for offering similar services to guests who do not have smart phones (Lombardi, 2010).

3. Conceptual model and hypotheses development

3.1. Technology acceptance model

The basic TAM (Davis, 1989) primarily examines the various attitudinal determinants that have evolved from the fundamental construct of Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1975). This model consists of the basic determinants of behaviour and explains relationships among beliefs, attitude, subjective norms, intentions, and behaviour (Igarria, Parasuraman, & Baroudi, 1996). The model even influences an individual's decision to adopt a new technology (Poku & Vlosky, 2004). It was observed that extant literature contains 10 different types of relationships among TAM constructs (reported in Tables 1 and 2). However, no study has incorporated all these relationships. Interestingly though, each one of the relationships has been examined in at least one study (see Table 2). A close examination indicates a majority of positive significant relationships in almost all cases. Therefore, we also hypothesize positive significant relationships among TAM constructs.

As shown in Table 2, perceived ease of use (PEOU) and perceived usefulness (PU) are the two central constructs of TAM, and have been extensively researched (Kim & Qu, 2014; Zhu, Lin, & Hsu, 2012) to determine their influence on customers' attitude (Yu, Ha, Choi, & Rho, 2005; Van der Heijden, 2003) and behavioural intention (Chang, Chen, Hsu, & Kuo, 2012; Lu, Liu, Yu, & Wang, 2008) towards new technological adoption. PEOU and PU of any new technology directly affect consumers' attitude towards adopting the technology, which in turn directly influences their intentions to use the technology.

In basic TAM, PU directly affects consumers' intention towards adoption (e.g., Shyu & Huang, 2011), while PEOU directly and indirectly (through PU) affects consumers' intention towards adoption (Van der Heijden, 2003, 2004). Furthermore, attitude towards adopting technology directly affects the behavioural intention of consumers (San-Martin, López-Catalán, & Ramón-Jerónimo, 2013). Similarly, behavioural intention significantly affects actual use of the technology (Venkatesh & Davis, 2000). There are a few exceptions though: Taylor and Todd (1995a) found a non-significant relationship between the attitude and intention constructs. Likewise, Dishaw and Strong (1999) reported a non-significant relationship between intention and actual use of IT. The favourable results obtained from the above mentioned studies highlight the key variables and their mutual relationships in an online environment. Although, owing to the inconsistencies in the findings of these studies, the argument that these variables will be sufficient to

Table 1
Types of relations found in TAM and related studies.

Study (Year)	PEOU-PU	PU-AT	PEOU-AT	PU-BI	PEOU-BI	AT-BI	AT-U	BI-U	PEOU-U	PU-U
Agarwal and Prasad (1999)	✓	✓	✓				✓			✓
Bajaj and Nidumolu (1998)	χ	R	✓				✓			χ
Chang et al. (2012)	✓	✓	✓	✓	✓	✓				
Chau (1996)	✓								✓	✓
Davis et al. (1989)										
<i>Post training</i>	✓	✓	χ	✓	✓	✓		✓		
<i>End semester</i>	✓	✓	✓	✓	✓	✓		✓		
Davis (1989)	✓	✓	✓				✓			✓
Dishaw and Strong (1999)	✓	✓		χ		✓		χ		χ
Gefen and Keil (1998)	✓								χ	✓
Hong, Thong, Wong, and Tam (2001)	✓			✓	✓					
Hu, Chau, Liu Sheng, and Yan Tam (1999)	χ	✓	χ	✓		✓				
Igbaria et al. (1996)	✓								✓	✓
Jackson, Chow, and Leitch (1997)	χ	χ	✓	χ	✓	χ				
Karahanna, Straub, and Chervany (1999)										
<i>Potential adopters</i>		✓	✓			✓				
<i>Actual users</i>		✓	✓			✓				
Keil, Beranek, and Konsynski (1995)	✓								χ	✓
Kim and Qu (2014)	✓	✓	✓	✓		✓				
Lucas and Spittler (1999)	✓			χ	χ				χ	χ
Mathieson (1991)	✓	✓	✓	✓		✓				
Polancic, Hericko, and Rozman (2010)	✓			✓	✓					
Saade (2007)										
<i>Extrinsic motivation</i>	✓	✓		χ						
<i>Intrinsic motivation</i>	✓	✓	χ	✓						
San-Martin et al. (2013)	✓	✓	χ			✓				
Shin (2009)		χ		✓		✓				
Shyu and Huang (2011)	✓	✓		✓		✓		✓		
Subramanian (1994)										
<i>Voice mail</i>	χ			✓	χ					
<i>Customer dial-up</i>	χ			✓	χ					
Szajna (1996)										
<i>Pre-implementation</i>	✓			✓	✓			✓	χ	χ
<i>Post-implementation</i>	✓			✓	✓			✓	χ	χ
Taylor and Todd (1995a,b)	✓	✓	✓	✓		χ		✓		
Thong, Hong, and Tam (2006)	✓			✓	✓					
Van der Heijden (2003)	✓	✓	✓	✓	✓	✓		✓		
Van der Heijden (2004)	✓			✓	✓					
Venkatesh and Davis (2000)	✓			✓	✓			✓		
Venkatesh and Morris (2000)	✓			✓	✓					
Lu et al. (2008)	✓			✓	✓					
Yu et al. (2005)	✓	✓	✓	✓		✓				
Zhu et al. (2012)	✓	✓	✓	✓		✓				

✓denotes Yes (Relationship exists), χ denotes No (Relationship doesn't exist), R denotes reverse relationship exists.

predict SST adoption in an offline environment cannot be necessarily defended. Thus, we propose:

- H1.** PEOU is positively associated with PU.
- H2.** PU of SSTs is positively associated with attitude towards SSTs.
- H3.** PEOU of SSTs is positively associated with attitude towards SSTs.
- H4.** PU of SSTs is positively associated with behavioural intention towards SSTs.

3.2. Need for interaction and perceived performance risk as predictors of attitude

Need for interaction (NI) between service providers and consumers is a pre-requisite for delivering quality services (Seth, Deshmukh, &

Vrat, 2005). Usually, mutual interactions foster interpersonal relationships between customers and service employees (Kaushik & Rahman, 2015c), but this interaction and interpersonal relationships are absent during SST usage. However, this interaction is quite necessary for understanding the technicalities of service delivery through SSTs (Seth et al., 2005). In the absence of required interaction, customers might ignore the usefulness of SSTs and perceive the overall quality of services differently. The reason behind this may be that the use of SSTs causes a lack of interaction between customers and employees, resulting in lower interpersonal relations.

Relationship building is a valued aspect to a specific customer base that consumes employee-based services rather than SST-based services (Dabholkar, 2000). In fact, few customers examine particular SSTs based on their interaction with employees, therefore interaction must be infused into the service transaction process (Cunningham et al., 2009). Though using SSTs without such interactions might be less effective in

Table 2
Number of relationships.

Type of relationship	PEOU-PU	PU-AT	PEOU-AT	PU-BI	PEOU-BI	AT-BI	AT-U	BI-U	PEOU-U	PU-U
Positively significant relationship	30	19	14	24	14	15	3	8	2	6
Non-significant relationship	5	2	4	4	3	2	0	1	5	5
Negatively significant relationship	0	1	0	0	0	0	0	0	0	0
Not tested	3	16	19	10	21	21	35	29	31	27

the case of a few customers, others might perceive the same situation differently. Studies in the past have mentioned that a different customer base may opt to adopt SSTs rather than interact with service personnel (Ojiako, 2012). However, there is no sufficient evidence to confirm this assumption (Hilton, Hughes, Little, & Marandi, 2013; Kallweit, Spreer, & Toporowski, 2014). To examine the issue further, we hypothesize:

H5. Need for interaction with service personnel is negatively related to attitude towards SSTs.

Perceived performance risk (PR) is another antecedent belief used for predicting attitude towards SSTs. PR has also been researched extensively, and is observed to be negatively associated with attitude of the potential adopter (Dabholkar, 1996; Meuter & Bitner, 1998). Past research commonly emphasizes on customers' attitude towards SST adoption, while overlooking their attitude towards crucial changes in the service delivery system. Despite offering several benefits to service providers and their firms, SST adoption requires crucial changes in customer perception towards, and execution of certain tasks during SST use (due to increased human-machine interaction) (Curran, Meuter, & Surprenant, 2003; Cunningham et al., 2009). Further, SST adoption would represent co-production of services if consumers are encouraged to accomplish a few service related tasks themselves (Meuter, Bitner, Ostrom, & Brown, 2005). Our objective is to analyse whether the impact of PR on consumers' attitude towards co-production of services (Eastlick, Ratto, Lotz, & Mishra, 2012) is negative in the hospitality context.

Murray (1991) mentioned that customers will seek sufficient information in order to decrease PR, when required to co-produce services. Many past studies on technological framework have discussed the concept of risk in relation with factors such as reliability (Dabholkar, 1996), accuracy and recovery (Meuter & Bitner, 1998), etc. However, past research has not investigated the relationship between PR and attitude towards co-production of hospitality services using an SST. Therefore, we propose:

H6. PR of adopting or using SSTs is negatively related to attitude towards SSTs.

3.3. Attitude and behavioural intention

Despite of various definitions available, scholars have been unable to reach a valid definition of attitude. However, attitude has been referred to as a positive or negative evaluation of people, objects, events, activities, ideas, or environment. Eagly and Chaiken (1993, p. 1) define attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour." Fewer studies have explored the role that attitude plays in influencing behavioural intention towards adopting or using new technologies (Fishbein & Ajzen, 1975). The TAM based studies observe that attitude towards technology is one of the key antecedents that influence intentions to adopt (Adams, Nelson, & Todd, 1992; Dabholkar, 1996; Davis, Bagozzi, & Warshaw, 1989). Thus, we propose that:

H7. Attitude towards a specific SST affects behavioural intention to adopt or use that SST.

According to Blackhall et al. (1999), it is hard to measure the attitude of people towards technology, as it keeps changing due to continuous advancements in technology. However, attitude of people can be measured for a specific technology (Daamen, van der Lans, & Midden, 1990). Curran and Meuter (2005) also mentioned that people show distinguishable attitudes towards distinct SSTs. Technology used by an individual in one context (e.g., retail industry) may vary in another (e.g., hospitality industry). For instance, self-check-in technologies of airline services will be different from those of check-in facilities of hotels. Therefore, attitude towards similar yet distinct technologies will

also be different. Similarly, technologies that may be adopted by an individual may vary from one service to another within the same industry, therefore, it becomes crucial to examine the different ways in which people think about distinct SSTs. Thus, we propose:

H7 (a). Attitude towards different SSTs differs from one SST to another.

The theory of diffusion of innovation (Rogers, 1995) suggests that highly adopted innovation is usually perceived as more beneficial than poorly adopted ones. In the banking industry for example, ATMs are the most widely adopted SSTs while phone banking has not received much attention (Kaushik & Rahman, 2015a; Curran & Meuter, 2005). Banks have thus started designing and implementing similar SSTs with additional services (e.g., cash-deposit kiosks, passbook printing kiosks, etc.) for increasing customer participation. It seems crucial to examine whether the adopter's attitude varies from highly adopted technologies to poorly adopted ones. For comparing three different types of SSTs (SSKs, internet-based SSTs and mobile phone-based SSTs), we propose the following hypothesis:

H7 (b). Attitude towards highly adopted SSTs is more positive than those poorly adopted.

3.4. Trust and subjective norm as external antecedents

Trust (TR, i.e., a group of beliefs held by a person derived from his or her perceptions about certain attributes) is another key variable that affects adopters' attitude and intention towards adoption of IT products (Flavián, Guinaliú, & Gurrea, 2006; Lin & Wang, 2006; Lu et al., 2008; Wang, Lin, & Luarn, 2006). Generally speaking, trust refers to reliance on another person or entity. Trust has been considered a crucial antecedent of 'PEOU' and 'PU' in previous adoption studies (Pavlou, 2003; Sun & Han, 2002). Moreover, Kim, Lee, and Law (2008) argued that 'PEOU' directly and positively influenced trust of customers by creating a sense of customer loyalty. In transaction services (e.g., banking and hotel registration), security and privacy of personal information is a top priority. Surveys conducted show that 59 to 68% of consumers chose SST kiosks to protect their privacy when registering at hotels (Hospitality Technology, 2009; Smith & Rowinski, 2007). Data security and privacy issues become more crucial when financial transactions are carried out with the help of technology (Horne & Horne, 1997; Milne, 2000; Phelps, D'souza, & Nowak, 2001; Sheehan & Hoy, 2000). Consumers' purchase behaviour is negatively related to the degree of privacy required during online transactions (Phelps et al., 2001). Consumers need to provide certain personal information before adopting and using any transaction service. Trust should be maintained to ensure that SSTs will not misuse their information. To ensure customer trust, SSTs must handle data security and privacy issues with extreme care. Trust plays a crucial role in establishing consumers' willingness to adopt a technology. However, previous research has not examined the direct relationship of trust with consumers' attitude and behavioural intention towards adoption of new technologies, especially in the offline environment of hospitality industry. This study considers trust as an imperative variable in our extended TAM, and proposes the following hypotheses:

H8. Trust has a positive impact on consumers' attitude towards adoption of SSTs.

H9. Trust has a positive impact on consumers' intention towards adoption of SSTs.

Fishbein and Ajzen (1975) introduced the concept of subjective norm (SN) from rational behavioural theory. Subjective norm refers to people's expectations regarding the performance of a particular behaviour (Kim, Shin, & Kim, 2011; Alsajjan & Dennis, 2010; Casalò, Flavián, & Guinaliú, 2010; Lee & Chen, 2010; Lee, 2009). It explicates to what

extent an individual may be affected by the perception of his or her family members, friends, and others. In other words, it is one's perception of social normative pressures or peers' beliefs on which one's attitude towards performance of a particular behaviour or following a common practise depends. In Ajzen's (1991), subjective norm is considered a crucial variable affecting the following constructs: 'intention to adopt', 'attitude' and 'perceived behavioural control' (Casalò et al., 2010). In Unified Theory of Acceptance and Usage of Technology (UTAUT, Venkatesh, Morris, Davis, & Davis, 2003), social influence derived from subjective norm is treated as a crucial determinant of behavioural intention.

Previous research shows that subjective norm plays a significant role in the early stages of innovation adoption (Taylor & Todd, 1995a,b). With the passage of time and accumulation of knowledge, it was perceived that the role of subjective norm started getting complex and dependent on contingent contextual influences (Venkatesh et al., 2003). In addition, it was found to significantly affect users' intention when purchasing online (Pavlou & Fygenonson, 2006), playing online games (Hsu & Lu, 2004), adopting blogs (Hsu & Lin, 2008), and using advanced mobile services (Lopez-Nicolas, Molina-Castillo, & Bouwman, 2008). Li, Hess, and Valacich (2008) suggested that subjective norm significantly affects trust of users. Subjective norm has extensively been studied for expanding TAM (Hsu & Lu, 2004, 2008; Venkatesh & Davis, 2000) in different service contexts. In majority of studies, subjective norm was found to have a positive impact on consumers' intentions. Further research is required to confirm the critical role of subjective norm on innovation adoption (Venkatesh, Thong, & Xu, 2012; Jalilvand & Samiei, 2012). Thus, we propose:

H10. Subjective norm has a positive impact on consumers' intention towards adoption of SSTs.

3.5. Development of a conceptual model

For understanding the adoption of SSTs in the hotel industry, the present study offers a model (as shown in Fig. 1) based on the proposed hypotheses. In this model, there are four antecedent beliefs that act as predictors of an individual's attitude towards SSTs. As discussed in a previous section, both PEOU and PU are integral parts of TAM (Davis, 1989). The other two antecedent beliefs included in the present study - NI and PR, are expected to extend TAM studies. Furthermore, individuals' attitude towards SSTs is assumed to affect their intention of adopting those SSTs. This model will be tested for all the three SSTs (SSKs, internet-based SSTs and mobile phone-based SSTs) in the offline hospitality context, thus increasing the robustness of our testing.

4. Research methodology

The study was conducted through a self-administrated questionnaire in more than a hundred hotels of different grades and sizes located in the northern part of India. The first section of the questionnaire asked tourists for socio-demographic information such as their frequency of travel in a year, experience towards SSTs available in hotels they visited, etc. The next section presented 26 questions on different items with focus on examining tourists' perspectives regarding the adoption of SSTs in hotels. All items assessing tourists' perception about SSTs were measured on a seven-point Likert scale where 1 denotes 'strongly disagree' and 7 denotes 'strongly agree' (see Appendix A). The third and last section of the questionnaire sought basic demographic information such as age, income, education, etc. (see Table 3).

For understanding the target population more clearly, we followed a statistical report entitled 'India Tourism Statistics' published in the year 2011. This report indicated the total number of domestic and foreign tourists visiting different parts of India across the years as well as the split of visitors across major cities of India. Furthermore, the report

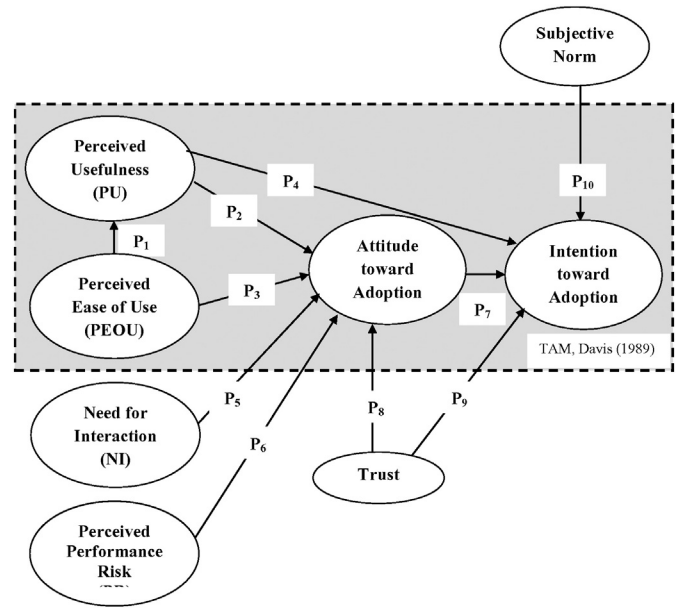


Fig. 1. The hypotheses-based conceptual model.

indicated that the number of domestic tourists during 2011 was 850.86 million as compared to 747.70 million in 2010, with a growth rate of 13.8%. On the basis of the statistical facts, we targeted hotels located in a few famous destinations with a relatively high tourist density in northern India. In addition, we targeted domestic travellers whose contact information was publicly available. For this, we contacted many public transport service providers and hotel staff members. This was done to reach a larger number of respondents inexpensively and secure a wider range of replies (Cook, Heath, & Thompson, 2000).

Before the final data collection, 50 frequent domestic travellers were selected for pilot testing and all the necessary issues regarding question statements, clarity, flow, and the overall layout of the questionnaire were addressed considering their recommendations. It was found that domestic and international travellers had different core motivations behind their travel (Mody, Day, Sydnor, Jaffe, & Lehto, 2014). Further, domestic tourists across the country were found to have similar experiences with hospitality self-services. Thus, they were selected as target respondents for final data collection. The Cronbach's alpha coefficient confirms the internal consistency of scale items. All the values of item-

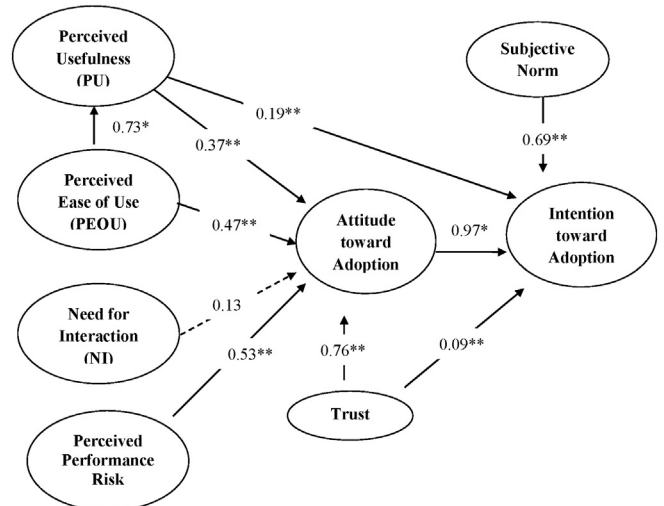


Fig. 2. Standardized model with path coefficients (*: p < 0.01; **: p < 0.05).

Table 3
Descriptive statistics of respondents' characteristics.

Categories	Frequency	Percent
<i>Gender</i>		
Male	186	55%
Female	152	45%
<i>Age (Years)</i>		
Male (Average age)	27.4	-
Female (Average age)	24.5	-
<i>Education</i>		
Higher secondary or less	12	3.5%
Senior secondary or less	19	5.6%
Diploma (ITI, Polytechnic, etc.)	62	18.3%
UG degree	98	29.1%
PG degree or above	147	43.5%
<i>Occupation</i>		
Service class	157	46.5%
Business class	147	43.5%
Agriculture	13	3.8%
Student or others	21	6.2%
<i>Annual household income</i>		
Less than 2, 00, 000	22	6.5%
Between 2 and 3, 00, 000	38	11.2%
Between 3 and 4, 00, 000	52	15.4%
Between 4 and 5, 00, 000	86	25.5%
More than 5, 00, 000	140	41.4%
<i>Travelling frequency per year</i>		
Once in a year	07	2.1%
Two to three times in a year	44	13%
Four to five times in a year	112	33.1%
More than five times in a year	175	51.8%
<i>Hotel reservation method</i>		
Through hotel Website/third party	176	52.1%
Through a travel agent	68	20.1%
Through phone book	57	16.9%
Through any known/relatives	10	2.9%
Any other	27	8%
<i>SSTs Awareness</i>		
Yes	291	86.1%
No	47	13.9%
<i>SSTs usage/adoption</i>		
Newer	121	35.8%
Hardly once or twice	23	6.8%
Sometimes	75	22.2%
Often	73	21.6%
Always	46	13.6%

Total number of respondents = 338; Age is measured as a continuous variable.

to-total correlations exceeded 0.50 and Cronbach's alpha values ranged from 0.81 to 0.91, which is more than the minimum threshold value of 0.70 (Churchill, 1979).

While targeting respondents online, all the necessary information such as title of the study, name(s) of investigator(s) with their affiliation and contact information, exact purpose of the study, instructions to fill in the responses, expected time to complete the survey, respondents' rights and assurance of confidentiality of information, and an online survey link was provided carefully. In tourism research, neither pure online surveys nor pure paper-based field surveys are unbiased (Dolnicar, Laesser, & Matus, 2009), therefore the survey was conducted both offline as well as online thereby allowing respondents to choose their preferred way to respond. Also, information from a few respondents was gathered telephonically. This multi-mode survey approach is considered most reliable in tourism research at present (Dolnicar et al., 2009). Convenience sampling method was applied to get an adequate number of responses. Initially, 2780 e-mail invitations was sent out and total 129 responses were received. Majority of e-mails sent were undelivered because of wrong email addresses and people's tendency

of frequently changing e-mail addresses. The online survey provided a response rate of 4.64%, which is comparable with similar studies that have an average online survey response rate of 3.2% (Sheehan, 2001). The field survey provided 213 responses collected from various locations. Following a careful examination of both online and offline responses, a total of 338 usable responses were finalized after eliminating four incomplete questionnaires. All these responses were collected during March 2014 to June 2014.

In the present study, structural equation modelling (SEM) analysis was used with AMOS 20.0 for analysing the various hypotheses. Before the final analysis, the primary data collected were carefully analysed for normality, outliers, skewness, and kurtosis. A moderate level of missing data was evident, therefore, missing data were assumed to be random. We expected that Maximum Likelihood Estimation may decrease biasness (Little & Rubin, 2002). Outliers were identified and then eliminated from the analysis through the estimation of univariate normality. Furthermore, in the present study, the values of skewness and kurtosis for all variables were included, the multivariate normality of data was examined and observed to be satisfactory through the normality checks (West, Finch, & Curran, 1995).

5. Results

5.1. Profile of respondents

Of total 338 respondents, 186 (55%) respondents were male and the remaining 152 were female. The average age of females was 24.5 years as compared to male participants whose average age was 27.4 years. The majority of our sample was highly educated as the respondents (72.5%) had at least an undergraduate or postgraduate degree from a recognized college or University. We observed that there were an equal proportion of service and business class respondents, whose household income was over INR 5, 000, 00 (41.4%) per annum. According to their socio-demographic profile, a majority (51.8%) of the respondents travelled more than five times in a financial year, and 33.1% travelled nearly four to five times yearly. Approximately 52.1% of the total respondents usually made their hotel reservations online either directly through a hotel website or with the help of a third party. Interestingly, 86.1% were aware about the different SSTs available in hotels at various locations, and 64.2% had used those facilities at least once.

5.2. Model fit

For examining and validating our scale in the present context, different estimates for construct validity, composite reliability (CR) and average variance extracted (AVE) are estimated and reported in Table 4. We observed that all the CR indices are more than the threshold limit of 0.70 (Bagozzi, 1980), and all AVE scores are greater than the cut-off value of 0.50 (Fornell & Larcker, 1981). These findings indicate the internal consistency of our measures. Additionally, all standardized factor loadings for all sets of indicators in the measurement model are also significant at 0.05 levels (Gefen, Straub, & Boudreau, 2000). Thus, the measurement model fitted well, and a good-fitting measurement model is required before interpreting the causal paths of the structural model (Kenny, 2014). Overall, the scale used in our extended model seemed reliable and valid.

We analysed the proposed relations among different exogenous and endogenous variables. Results indicated that the overall model is acceptable and fitted with a significant χ^2 value of 786.29 ($p < 0.001$), a comparative fit index (CFI) value of 0.926 (> 0.9), normed fit index (NFI) value of 0.917, and root mean square error of approximation (RMSEA) value of 0.067 (> 0.05). Browne and Cudeck (1993, pp. 144) suggested that "a value of the RMSEA of about 0.05 or less would indicate a close fit of the model in relation to the degrees of freedom," and that "the value of about 0.08 or less for the RMSEA would indicate a

Table 4
The results of the measurement model.

Construct and Indicators	Std. Loadings	t-value	CR	AVE
<i>Perceived Usefulness (PU)</i>			.91	.97
PU1	2.76	28.67		
PU2	2.13	25.56		
PU3	1.78	19.54		
<i>Perceived ease of use (PEOU)</i>			.93	.99
PEOU1	2.13	17.76		
PEOU2	1.76	14.43		
PEOU3	1.28	10.23		
<i>Need for Interaction (NI)</i>			.89	.91
NI1	2.74	38.34		
NI2	0.97	14.67		
NI3	1.07	23.16		
<i>Perceived Performance Risk (PR)</i>			.97	.98
PR1	1.03	13.23		
PR2	1.56	21.18		
PR3	1.91	26.64		
<i>Trust (TR)</i>			.92	.83
TR1	3.07	31.23		
TR2	2.68	23.28		
TR3	2.13	19.97		
<i>Subjective Norm (SN)</i>			.87	.83
SN1	2.98	43.13		
SN2	1.63	23.27		
SN3	2.07	27.08		
<i>Attitude (AT)</i>			.93	.79
AT1	3.16	26.63		
AT2	2.82	23.14		
AT3	2.17	19.34		
<i>Behavioural Intention (BI)</i>			.84	.93
BI1	2.38	33.13		
BI2	2.13	26.62		
BI3	1.96	21.67		

CR = Composite reliability; AVE = Average variance extracted; All Factor loadings are significant at 0.05.

reasonable error of approximation and would not want to employ a model with a RMSEA greater than 0.1." However, Browne and Cudeck (1993) mentioned that such cut-off points are only subjective measures and can vary depending upon the research problems. Similarly, Maccallum, Browne, and Sugawara (1996), while analysing their research hypotheses, used 0.01, 0.05, and 0.08 to specify excellent, good, and average model fit respectively. Hu and Bentler (1998) suggested that the cut-off value of RMSEA be more than 0.05 (or 0.06) for a small sample size. A few other researchers such as Hayduk and Glaser (2000) indicated that these cut-off points for RMSEA might not be taken very seriously. Other indices, such as Goodness of Fit Index (GFI = 0.965), Adjusted Goodness of Fit Index (AGFI = 0.951) and Non-normed Fit Index (NNFI = 0.954, also known as the Tucker-Lewis index) were larger than 0.9 and signified a good fit. The parsimony goodness-of-fit indices (PGFI) range from 0 to 1 and are usually preferable for comparing two separate models. PGFI alone is not a useful indicator of a single model fit. Moreover, it is clear from the correlation values that multicollinearity is not a major issue (Pedhazur, 1982).

Table 5
Descriptive statistics and correlation estimates.

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. PU	4.98	0.98	1.00*							
2. PEOU	5.76	1.32	0.73*							
3. NI	4.16	0.78	-0.67*							
4. PR	5.12	1.05	-0.54*							
5. TR	5.98	1.56	0.56*	-0.53*						
6. SN	5.27	0.89	0.61*	-0.57*	-0.49*					
7. AT	5.73	1.43	0.59*	0.52*	0.67*	0.69*				
8. BI	5.32	1.02	0.60*	0.49*	0.58*	0.59*	0.60*			
				0.47*	0.56*	0.61*	0.48*	0.56*		
					0.62*	0.60*	0.51*	0.61*	0.60*	1.00*

N = 338, * p = 0.01.

Table 5 reports mean, standard deviation, and correlations among all variables included in the study.

5.3. Hypotheses testing

In the present study, we analysed the relationship between six exogenous variables (PU, PEOU, NI, PR, TR and SN) of our extended TAM and two endogenous variables (tourists' attitude towards adopting SSTs, and their behavioural intention to adopt above SSTs). The results of hypotheses testing are given in Table 6.

As shown in Table 6, PU is significantly affected by PEOU ($\beta = 0.73$, $p < 0.01$) thereby supporting our first hypothesis (H_1). Tourists' attitude towards adopting SSHTs was significantly affected by PU ($\beta = 0.37$, $p < 0.05$) as well as PEOU ($\beta = 0.47$, $p < 0.05$), thus supporting both H_2 and H_3 . BI is also significantly affected by PU ($\beta = 0.19$, $p < 0.05$), which supports H_4 . The findings of our study indicate that need for interaction is not significantly associated with tourists' attitude towards adoption ($\beta = 0.13$, $p > 0.05$), while PR significantly affects attitude ($\beta = 0.53$, $p > 0.05$). Thus, H_5 is not empirically supported, whereas H_6 is supported with empirical evidence. Tourists' behavioural intention to adopt SSHTs is significantly predicted by their attitude towards adopting these SSTs ($\beta = 0.97$, $p > 0.01$). Thus H_7 is supported. Interestingly, trust was found to be significantly related to both tourists' attitude ($\beta = 0.76$, $p = 0.05$) and behavioural intention towards adopting SSHTs ($\beta = 0.09$, $p = 0.05$), thereby supporting both H_8 and H_9 . Subjective norm was also found to be significant in predicting tourists' behavioural intention to adopt numerous SSTs ($\beta = 0.69$, $p = 0.05$) (see Fig. 2).

Table 6 reports the direct and indirect effects of all variables included in the study. PEOU directly affects PU, and both (PEOU and PU) directly as well as indirectly affect tourists' attitude towards adopting SSHTs. PU directly affects BI and tourists' attitude, but its effect on attitude is both direct and indirect. Similarly, the other constructs (PR and TR with the exception of NI) directly affect the attitude construct. Additionally, TR both directly and indirectly affects BI while SN directly influences BI. In terms of total effects, AT greatly impacts BI (0.97) as compared to TR (0.09) and SN (0.69).

In order to test $H_{7(a)}$ and $H_{7(b)}$, different scores of all three attitude items for three different SSHTs were included in our study. Thus, total nine items were included in the instrument to measure attitude towards all the distinct SSHTs. The principle component exploratory factor analysis (EFA) with varimax rotation of the complete set of all nine attitude items reflects three distinct factors in accordance with each individual technology (see Table 7). The factor loadings for all SSHTs were much higher than the minimum acceptable value (0.50). These values of factor loadings for each SSHT ranged from 0.769 to 0.923 (see Table 7).

The correlations among all variables were also measured by applying SEM, and the overall correlation indicated an acceptable overall fit of the model ($\chi^2 = 786.29$; $p < 0.001$, = 0.926, NFI = 0.917, and RMSEA = 0.067). The average variance extracted for each construct ranges from 0.79 to 0.99 for all three attitude constructs across the

Table 6
Structural model estimates.

Structural Path	Direct Effect	Indirect effect	Standardized Estimates Total Effect (β)	t-values
PEOU → PU	0.73	-	0.73	17.37*
PU → AT	0.37	0.28	0.65	3.41**
PEOU → AT	0.47	0.22	0.69	5.73**
PU → BI	0.19	-	0.19	2.07**
NI → AT	0.13	-	0.13	0.87
PR → AT	0.53	-	0.53	7.86**
AT → BI	0.97	-	0.97	5.23*
TR → AT	0.76	-	0.76	3.84**
TR → BI	0.09	0.15	0.24	2.19**
SN → BI	0.69	-	0.69	3.37**

Significance level *p = .01; ** p = .05.

different SSHTs. The average variance extracted for each construct was observed to be higher than the square of the correlation between the constructs, demonstrating discriminant validity (Chaudhuri & Holbrook, 2001; Fornell & Larcker, 1981). In the context of this study, for each case in the measurement model, the lowest average variance extracted is 0.79, which is way higher than the highest squared correlation. It therefore, confirms discriminant validity among all constructs included in the present study. The overall results from factor analysis and correlation analysis of SEM provide evidence for three separate and distinct attitudes towards each of the SSHTs, thereby supporting hypothesis H_{7(a)}.

The average sum scores of attitude towards each of SSHTs were analysed and then compared in Table 8. The evaluation of the attitude construct was carried out on a seven-point differential scale with endpoints ranging from the most negative (1) to the most positive attitude (7). The mean values of the attitude construct for first, second, and third SST were 5.76, 3.53, and 4.92, respectively, which indicate that SST₁ (i.e., self-service kiosk) is the most preferred SST, followed by SST₃ (i.e., mobile phone-based SST), and SST₂ (Internet-based SST). Results supported the fact that people who participated in our study had different attitudes towards different types of SSTs and revealed that people were more familiar with kiosks (self-service check-in and check-out kiosks, and self-service payment kiosk) that facilitated performance of self-services (Kim et al., 2012). The next most common SST was mobile-commerce. It was found to be more popular among travellers, which might be the reason behind the wide adoption of mobile-based SSTs as compared to internet-based SSTs.

For analysing the significant differences in attitude towards adoption of the three SSHTs, all these scores were further compared through the application of paired-sample t-test. The t-test depicted significant differences (p < 0.001) between each of the possible pairs of all three SSHTs as reported in Table 8. While comparing t-values with average mean scores, it was observed that the maximum paired difference in attitude existed between SST₁ and SST₂, and between SST₂ and SST₃. The t-values in both cases were found to be highest (47.532 and 31.023 respectively), while the t-value between SST₁ and SST₃ was

Table 7
Results of EFA for Attitude Construct.

SSTs	Items to measure Attitude	Factor 1	Factor 2	Factor 3
SST ₁	Like/Dislike	0.913		
	Pleasant/Unpleasant	0.892		
	Good/Bad	0.837		
SST ₃	Like/Dislike		0.923	
	Pleasant/Unpleasant		0.869	
	Good/Bad		0.813	
SST ₂	Like/Dislike			0.919
	Pleasant/Unpleasant			0.817
	Good/Bad			0.769

Where, SST₁ = SSKs, SST₂ = Internet-based SSTs, and SST₃ = Mobile phone-based SSTs.**Table 8**
Paired Sample t Test.

Scale	Mean	Paired Difference	Correlation	t-value	Sig.
Average SST ₁ Scale	5.76	2.23	0.68	47.532	.000
Average SST ₂ Scale	3.53				
Average SST ₁ Scale	5.76	0.84	0.37	19.161	.000
Average SST ₃ Scale	4.92				
Average SST ₂ Scale	3.53	-1.39	0.49	31.023	.000
Average SST ₃ Scale	4.92				

lowest (19.161). However, all were found highly significant as the p-value was <0.001 for all three cases. Thus, these findings supported hypothesis H_{7(b)} confirming that tourists showed a more positive attitude towards the highly adopted SST₁ as compared to the poorly adopted SST₂.

6. Conclusion

For analysing tourists' adoption behaviour towards SSHTs, the basic TAM model is extended by adding a few external antecedents (need for interaction, performance risk, trust, and subjective norm), as shown in Fig. 1. The results of our study indicate that trust, performance risk, and subjective norm directly and significantly impact tourists' attitude and behavioural intention towards adopting SSHTs (Davis, 1989; Moore & Benbasat, 1991; Rogers, 1995; Butcher, Sparks, & O'callaghan, 2001; Kim & Qu, 2014). Additionally, trust was reported to be the most crucial variable affecting tourists' attitude followed by PR, PU and PEOU. Therefore, tourists are more likely to have a positive attitude towards SSHTs adoption if these technologies are more trustworthy, free of risk, competent and ease to use. All variables other than need for interaction came out as significant while analysing the relationships among these antecedents and the attitude construct.

Lack of consumers' knowledge, perception of risk, and feeling of vulnerability designated trust as a critical factor. PR affected the overall satisfaction of potential adopters (Meuter, Ostrom, Bitner, & Roundtree, 2003; Moore & Benbasat, 1991). Satisfaction directly affected both attitude and behavioural intentions with attitude having a significant positive association with behavioural intention towards adopting SSHTs (Kim & Qu, 2014; Jeong & Lambert, 2001; Macdonald & Smith, 2004). The present study considered attitude and behavioural intention as two key constructs. Future studies can include satisfaction as a separate construct for analysing the innovativeness of those who have had personal experience with a few or all available SSTs. Previous positive experiences of customers with one SST (e.g. online flight check-in) might inspire them to adopt another (e.g. online hotel reservation) (Wang, Harris, & Patterson, 2012).

Our research has both theoretical as well as managerial implications and examines the adoption theory by extending the TAM in an offline hospitality environment. Results of the present study clearly indicate the need for more descriptive and empirical future research to increase the applicability of the adoption theories, especially in service contexts comprising hospitality, banking and airline services, among others.

From a managerial perspective, service providers and their managers must determine the degree of tourists' adaptability towards SSHTs by examining their usage or adoption behaviour towards other SSTs. There are several SSKs that have been widely adopted in different service industries. Two such examples are ATM (automatic teller machine) in banking services (Curran & Meuter, 2005) and airline check-in (Wang, So, & Sparks, 2014; Liljander, Gillberg, Gummerus, & Riel, 2006). Therefore, a careful investigation of the above cases could help managers understand how variables differ from one SST to another in separate contexts. Policy makers and marketers must identify a few crucial pre-adoption avoidance practises followed by customers (e.g. tourist) such as *ignorance* – when customers (e.g. tourists) usually ignore crucial information regarding the initial use of any specific or multiple

SSTs; *diffuse* – when tourists openly reject to use any SST; and *delay* – when tourists suddenly postpone SST usage. To overcome these situations, service providers must apply pre-adoption confrontative strategies such as *pretest* – providing tourists necessary convenience to start using SSTs; *heuristics* – providing learning opportunities such as demo-presentations on how to use a given SST for the first time; and *extended decision making* – informing them about multiple uses of an SST (see Appendix B).

Tourists' decision to choose SSTs or employee-based self-service options is really not limited to the early stages of adoption. In fact, they might reject adoption even after the initial use of SSTs. In such situations, the most common consumption avoidance practises adopted by tourists are: *neglect* – when tourists impose certain limitations on further use of any specific SST either because of bad initial experience or due to any other reason; *abandonment* – when they completely refuse adoption of any given SST; and *distancing* – when users after initial SST adoption, start maintaining physical distance with them. To win over these practises, the following consumption confrontative strategies should be applied: *accommodation* – removing tourists' consumption avoidances by providing alternative uses of SSTs based on their salient features; *partnering* – maintaining personal relationships with tourists by providing user-friendly SST interfaces; and *mastering* – providing them multiple opportunities to increase their knowledge of an SST.

Trust and subjective norm were reported to significantly affect tourists' behavioural intentions towards adopting SSHTs, followed by perceived usefulness. This reveals that tourists prefer adopting only those recommended technologies which they perceive as trustworthy and facilitating. Thus, hotel managers need to encourage the adoption of SSHTs by communicating their usefulness such as saved time, and making tourists aware of the similarities of one SST (with which they are more familiar) with others (ATMs, airline check-in, etc.). For instance, emphasis on reduction in waiting time with adoption of self-service check-in technologies (perceived usefulness) is critical to an increase in the adoption rate (Durrande-Moreau, 1999; Taylor, 1994). Thus, trust and subjective norm are considered crucial determinants of tourists' adoption behaviour, even in an offline hospitality environment. The study further suggests that tourists, during their stay, enjoy using SSHTs and prefer to adopt SSTs not only based on their own experiences but also on recommendations of others. These results are consistent with those of past studies on technology adoption (Flavián et al., 2006; Lin & Wang, 2006) and confirm the significant role of additional variables in an offline hospitality context.

7. Limitations and future research directions

Like others, this study too has a few crucial limitations. First of all, a low online response rate (4.64%) should be analysed carefully as tourists who did not participate in our survey may have a different perception than those who participated. In the current study, tourists' adoption behaviour towards distinct SSHTs is analysed with regard to all available varieties of hotels (luxury, deluxe, and economy) therefore, findings may not be applicable to a particular variety of hotels. In addition, the study is based on a few attitudinal and behavioural variables and other psychographic variables are not included (Meuter et al., 2003). Various adoption theories such as the diffusion theory (Rogers, 1962), theory of reasoned action (Fishbein & Ajzen, 1975), theory of planned behaviour (Ajzen, 1985) and theory of PR (Bauer, 1960) can also be included for analysing tourists' adoption behaviour towards SSTs available in the hotel industry.

Although different researchers have extensively examined the relationship between innovativeness and adoption behaviour since 1971 (Kaushik & Rahman, 2014), SST adoption in the offline hospitality context is a relatively new phenomenon. In future, researchers can apply distinct adoption models across numerous SSHTs and analyse the applicability of these models by considering the users and non-users of these

technologies. Additionally, these models have great potential for examining the relationship between the attitude and intention constructs and their predictors that affect consumers' adoption of different SSTs.

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Appendix A. Constructs and their corresponding items

Perceived Ease of Use (PEOU) It is easy to learn to use hotel self-service technology. Much conscious efforts are not needed when using hotel self-service technology.* Finding hotel self-service technology difficult to use.*	Davis (1989), Davis et al. (1989), Adams et al. (1992)
Perceived Usefulness (PU) Using hotel self-service technology enables me to enhance my effectiveness (saving check-in & check out time). Using hotel self-service technology makes it easier to do my check-in and check-out. Overall, I believe using hotel self-service technology is useful in my check-in and check-out.	Davis (1989), Davis et al. (1989), Adams et al. (1992)
Need for Interaction (NI) Enjoy watching people working at hotels. Personal attention of hotelier is not important.* People do things for me that no machine could.	Dabholkar (1996), Meuter et al. (2005)
Perceived Risk Using hotel self-service technology infringes on my privacy. Feeling secure while using the self-service technology in hotels. I am unsure if hotel self-service technology performs satisfactorily.*	Murray (1991), Dabholkar (1996), Meuter & Bitner (1998), Meuter et al. (2005)
Attitude towards SSTs I like using hotel self-service technology. All things considered, using hotel self-service technology is pleasant. All things considered, using hotel self-service technology is a good idea.	Davis et al. (1989), Hartwick & Barki (1994), Dabholkar (1996), Harrison, Mykytyn, & Riemenschneider (1997)
Intention to adopt or use SSTs I intend to use hotel self-service technology in the future. I plan to use of hotel self-service technology in the future. The likelihood that I would recommend the hotel self-service technology to a friend is high.	Lin & Hsieh (2006), Lam et al. (2007)
Trust I think that the information offered by this system is sincere and honest. The system is characterized by the frankness and clarity of the services that it offers to the consumer. I think that this system has the necessary abilities to carry out its work.	Doney and Cannon (1997), Kumar, Scheer, and Steenkamp (1995), Roy, Dewit, and Aubert (2001)
Subjective norm People who influence my behaviour think that I should use the system. People who are important to me think that I should use the system. Using a system enhances my stature within my surroundings.	Ajzen (1991), Davis et al. (1989), Fishbein and Ajzen (1975), Taylor and Todd (1995a,b)

* Reverse coded items.

Appendix B. Summary of findings and implications of the study

Key Findings	Implications of the study
Key contributions	
<ul style="list-style-type: none"> An empirical investigation of tourists' adoption behaviour towards various SSTs in offline hospitality environment. Empirically examining a few additional exogenous variables (need for interaction, perceived performance risk, trust and subjective norm) to analyse tourists' adoption behaviour towards SSTs available in the offline hospitality context. A comparison of various SSTs in terms of their adoption by tourists. Extending TAM in offline hospitality environment. 	<ul style="list-style-type: none"> Providing an effective framework (extended version of TAM) to academics and practitioners that can be further used for investigating consumer innovativeness in offline service context. Consumers show different attitudes for different SSTs. Thus, strategies must be separately developed for poorly adopted self-service options. Filled an important gap in literature by extending the basic TAM in an offline environment of the hospitality industry. The proposed and validated model would guide policy makers and managers in formulating and implementing effective strategies for successful and speedy customer adoption of SSTs.
Behavioural consequences towards innovation adoption	
<ul style="list-style-type: none"> PEOU positively relates to PU (H_1), PU positively relates to attitude (H_2), PEOU positively relates to attitude (H_3), PU positively relates to behavioural intention (H_4), Need for interaction negatively relates to attitude (H_5), Perceived performance risk negatively relates to attitude (H_6), attitude positively relates to behavioural intention (H_7), trust positively relates to attitude (H_8), and trust positively relates to behavioural intention (H_9). Attitude towards different SSTs will be different (H_{7a}) and attitude towards highly adopted SST will be more positive than those poorly adopted (H_{7b}). 	<ul style="list-style-type: none"> Findings support the first four assumptions of basic TAM. If any SST is perceived as easy to use, it will be considered more useful (H_1) and will also affect tourists' attitude towards SST adoption (H_3). Similarly, if any SST is perceived useful, it will favourably affect tourists' attitude as well as behavioural intention towards adoption or use. Need for interaction does not significantly affect tourists' attitude. However, perceived performance risk (H_6) does. Also, trust (H_8) and subjective norm (H_9) are key influencers affecting tourists' adoption intention in offline contexts. The above-mentioned variables must be considered by service providers and policy makers, especially while developing different strategies. Since SSTs are also available in offline contexts in many service industries, an extended version of TAM is required.
Additional findings	
<ul style="list-style-type: none"> Different strategies must be developed by service marketers and policy makers to increase the adoption and use of SSTs by tourists. Tourists show significantly different attitudes across different SSTs (H_{7a}); in fact, they show a more favourable attitude towards highly adopted SSTs than poorly adopted ones (H_{7b}). Offline context is as crucial as online context because of the high involvement of consumers in self-service options; the number of such SSTs is growing by the day. 	<ul style="list-style-type: none"> Service providers must develop a few pre-adoption confrontative strategies such as 'pretest', 'heuristics' and 'extended decision making' in order to win over pre-adoption avoidance practises (ignorance, diffuse and delay) that consumers follow to resist SST adoption in early stages. Furthermore, firms should revisit existing strategies and develop new consumption confrontative strategies such as 'accommodation', 'partnering' and 'mastering' to counter the various consumption avoidance practises (neglect, abandonment and distancing) that consumers follow to resist continued use of SSTs. Tourists should be targeted based on their own choice of self-service options. For instance, service providers may provide them the opportunity to choose SST vs. employee-based

Appendix B (continued)

Key Findings	Implications of the study
	<ul style="list-style-type: none"> self-service options and accordingly formulate strategies (Oh, Jeong, & Baloglu, 2013). The difference in customer awareness (86.1%) and regular usage of SSTs (35.2%) highlights the fundamental differences in current marketing appeal, showing need for effective communication strategies to increase adoption as well as awareness among tourists.

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Arun Kumar Kaushik has received his PG Degree of Master of Business Administration and Master of Commerce in marketing specialization. He is a full time sponsored research scholar, working on research area related to 'consumer innovativeness' while pursuing his Ph.D. in Marketing Management at the Indian Institute of Technology, Roorkee, Uttarakhand, India. Before this, he has worked as an Assistant Professor with reputed B-schools in India. He has more than 6 Years of experienced in Academic & Corporate world. He has attended more than 15 International/national conferences and workshops, and published a few research papers in reputed journals. His areas of interest are marketing, consumer behavior and innovation.



Amit Kumar Agrawal has received his PG Degree of Master of Business Administration in marketing specialization. He is a full time sponsored research scholar, working on research area related to 'Customer Value Co-creation' while pursuing his Ph.D. in Marketing Management at the Indian Institute of Technology, Roorkee, Uttarakhand, India. He has more than 5 years of experience in the field of Brand and Marketing Communication in leading media house. He has attended several international/national conferences and workshops.



Zillur Rahman has received his M.B.A. and Ph.D. degrees in Business Administration. Currently he is working as an Associate Professor at the Department of Management Studies, Indian Institute of Technology Roorkee. He has more than 18 years of total experience in academics. He has attended various International Conferences in the USA, Switzerland, Germany, Turkey, Poland, etc. He has several publications in reputed international journals. He has published numerous research papers with heavy citation indices. He has organized several workshops and conferences and has worked on many sponsored research projects. His research interest is business strategy and international marketing. He was the recipient of the Emerald Literati Club Highly Commended Award in 2004 and Emerald/AIMA research fund award in 2009 and 2012.