

9-1-2015

If you install it, will they use it? Understanding why hospitality customers take “technological pauses” from self-service technology

Mark S. Rosenbaum

IpKin Anthony Wong

Follow this and additional works at: <https://huskiecommons.lib.niu.edu/allfaculty-peerpub>

Original Citation

Rosenbaum, Mark S. & Wong, IpKin Anthony. (2015). If you install it, will they use it? Understanding why hospitality customers take “technological pauses” from self-service technology. Vol. 68 (Issue 9) pp. 1862-1868. DOI: 10.1016/j.jbusres.2015.01.014.

This Article is brought to you for free and open access by the Faculty Research, Artistry, & Scholarship at Huskie Commons. It has been accepted for inclusion in Faculty Peer-Reviewed Publications by an authorized administrator of Huskie Commons. For more information, please contact jschumacher@niu.edu.



If you install it, will they use it? Understanding why hospitality customers take “technological pauses” from self-service technology



Mark S. Rosenbaum^{a,*}, IpKin Anthony Wong^{b,1}

^a Northern Illinois University, College of Business Administration, DeKalb, IL 60115, USA

^b Institute for Tourism Studies, Pousada P304, Colina de Mong-Há, Macau, China

ARTICLE INFO

Available online 2 February 2015

Keywords:

Self-service technology
Hospitality
Technology
Macau
Technology preferences

ABSTRACT

This study extends the self-service technology (SST) paradigm by revealing a relatively unexplored area; namely the under-utilization of SST systems, within service settings. Focusing on an SST kiosk system installed within one of Macau's most luxurious hotel/casinos, this research shows that regardless of a customer's perceived technology readiness, overall, customers deem many SST options unimportant. The results reveal that the hotel's guests rate the SST option that helps them obtain discounts for entertainment and dining options as highest in importance compared to all the other SST options. Thus, fun emerges as an antecedent to SST usage. A qualitative follow-up study reveals that the customers also shun the hotel's SST system because customers may avoid using SST while on vacation—to engage in a so-called technological pause. This finding is original to the SST paradigm.

© 2015 Elsevier Inc. All rights reserved.

1. Introduction

Prior research discusses the growing popularity of self-service technologies (SSTs) in service settings and thoroughly investigates questions such as how SSTs affect customer satisfaction and how customers decide whether to employ SSTs during service exchanges (Massey, Khatri, & Montoya-Weiss, 2007; Meuter, Bitner, Ostrom, & Brown, 2005; Meuter, Ostrom, Roundtree, & Bitner, 2000). Customers grow more comfortable with using SSTs over time (Lin & Hsieh, 2011), and SSTs are now permanent mainstays in service industries, including hospitality, financial, transportation, and retail consumption settings. For example, on a global level, customers increasingly are familiar with automated teller machines in banks, self-checkouts in retail locales, and self-service kiosks in hotel lobbies and car rental locations.

A vast amount of literature exists on consumer behavior toward SSTs, indicating the emergence of SST as a research paradigm. As such, dominant themes consistently supported in replicated studies indicate that consumers' technological readiness (Lin & Hsieh, 2006; Massey et al., 2007; Victorino, Karniouchina, & Verma, 2009) and perceptions of SST ease of use (Oh, Jeong, & Baloglu, 2013) affect their willingness to adopt and use SSTs during service exchanges (Lakshmi & Ganesan, 2010; Stockdale, 2007).

The SST paradigm is extensive and insightful but also possesses a shortcoming—namely, marketing researchers exploring consumer

behavior toward SSTs tend to regard organizational SST offerings as an encompassing, broad-based concept. Researchers exploring customers' attitudes toward SST offerings tend to probe responses to all facets of an SST system, assuming that customers respond to all SST options or none at all (Lin & Hsieh, 2011; Meuter et al., 2005). For example, researchers tend to query respondents with macro-level questions about organizational SST offerings, such as whether they can “complete their service transactions with a firm's SST” (Lin & Hsieh, 2011) or whether they “believe that a firm's SST would be helpful in their completing the check-in process” (Oh et al., 2013).

As a result of this macro-level research focus, researchers probe customer responses to SST systems, rather than exploring customer responses to specific technological offerings inherent within an SST system. For example, a hotel's customers may respond favorably to an SST system that helps them check in, they may not view all SST system check-in options equally and may even view some options as useless or even negatively. A kiosk touch screen offering more than a dozen options in 25 languages may be too overwhelming for some guests to comprehend.

In addition, practitioners may assume that their customers view all SST options favorably. Consequently, they invest in ever-increasingly-complex SST systems that their customers in turn under-utilize because they do not perceive a need for a multitude of SST-based options.

This case study breaks new ground in the SST paradigm by exploring a relatively unknown topic—namely, understanding why customers shun complex SST systems. This study addresses this question by engaging in both descriptive and survey research, with samples obtained from customers of a leading luxury hotel and casino based in Macau. Overall, the descriptive findings reveal two novel reasons hotel customers

* Corresponding author. Tel.: +1 815 753 7913.

E-mail addresses: mrosenbaum@niu.edu (M.S. Rosenbaum), anthonywong@ift.edu.mo (I.A. Wong).

¹ Tel.: +86 853 8598 3360.

refrain from using the property's SST system. First, many customers perceive themselves as being on a “technological pause” during vacation and thus avoid using technology during their sojourns. Second, many customers prefer interacting with service staff in lieu of an SST (Bolton & Saxena-Iyer, 2009; Oh et al., 2013). Specifically, luxury hotel guests in Macau perceive themselves as on vacation from using technology. In addition, the empirical findings reveal that regardless of their technology readiness, customers do not perceive all SST options as equally useful and are drawn to options that offer them fun and entertainment. These findings should help management understand why many of the hotel's SST kiosks are under-utilized.

The plan for this case study proceeds as follows. Section 2 introduces the situation regarding SST under-utilization at Hotel X, followed by both a review of the SST literature to understand the drivers of consumer SST usage and adoption and the research hypotheses. In Section 3, the study empirically tests the hypotheses through the use of questionnaires to a convenient sample of 43 randomly selected Hotel X customers. Section 4 presents the findings, followed by the quantitative interviews in Section 5. Section 6 concludes with a discussion of the theoretical and managerial implications and research limitations.

2. Positioning within the literature

2.1. Hotel X's SST system

Hotel X is among Macau's largest and most exclusive hotel/casino operations. To increase the efficiency of its human resources, especially in Macau where hotels, casinos, retailers, and restaurants continually compete for employees, and to enhance customers' service experience, the hotel purchased and installed a specifically designed SST application from the leading computer hardware manufacturer and software developer firm. Hotel X's management team speculates that high-end customers would embrace the SST technology, which allows them to seamlessly transit through the check-in and checkout process, obtain room keys, and view their account/folio at the lobby-based SST kiosks. The SST system also permits guests to print out welcoming information (e.g., maps, hotel information, incentives/coupons for hotel activities), make reservation changes, and make room selections. In addition to the SST, Hotel X offers guests technology offerings, including internet (Wi-Fi) access, online reservation capabilities, online virtual tours, and e-mail confirmations. Although these SST and technology offerings seem sound, the management soon realized that many of the hotel's customers opted to wait in queues for services that could be immediately processed at the SST kiosks—most notably, guest check-in, guest checkout, and receipt of current account reports.

The management was perplexed why many of the hotel's guests shunned the lobby-based SST kiosks, especially because the hotel targets high-income customers, with an average room rate of \$250 per night, who should be comfortable with using modern SST technology. Unfortunately, Hotel X failed to test the SST system in the Macau context before purchasing the kiosks, despite understanding the risks associated with implementing new service innovations (Khan & Khan, 2009). Consequently, the return on investment has been slow to materialize, and customer complaints associated with their longer-than-expected waiting times increasingly have become problematic.

2.2. SSTs in hospitality

The hospitality industry continues to expand technological offerings to guests, the impetus of which often stems from guest demands (DiPietro & Wang, 2010). Thus, hoteliers have installed computers for reservation systems, business centers in the public areas, online websites for information and reservations, wireless internet in public and guest areas, online check-in and checkout, and so forth, all in an effort to enhance guest satisfaction (Law & Jogaratnam, 2005). Similarly, hotels increasingly employed the use of handheld order-taking devices

to minimize mistakes and guests' waiting time; for example, these devices are linked to kitchen display system (Kimes, 2008) and self-check-in and checkout systems, which lower operational expenses and guests' waiting time (Jungki & Allaway, 2002; Zhao, Mattila, & Tao, 2008).

Overall, extant literature espouses that technological innovations, in the hospitality industry, help satisfy guests' needs and simultaneously lower operational expenses (DiPietro & Wang, 2010; Siguaw & Enz, 1999). In addition, research suggests that these innovations increase the level of service quality and customer satisfaction industrywide (Piccoli, 2008). A recent literature review, however, reveals that negative attributes are discussed rarely with technology innovations in hospitality, except for the costs (Koutroumanis, 2011). The notion that hotel customers may look askance at a hotel's technology offerings or even avoid using them remains under-researched, even though guests' desire for technology seems unwavering.

Given their high operating and labor expenses, hospitality organizations are at the forefront of implementing SSTs as well as other enhancements that may simultaneously lower expenses while increasing customers' satisfaction (Khan & Khan, 2009; Rust & Espinoza, 2006) by creating a more constant service atmosphere (Curran, Meuter, & Surprenant, 2003). Many travelers now consider hotel technology offerings, such as computerized reservation systems (Meuter, Ostrom, Bitner, & Roundtree, 2003), mobile information guides (Riebeck, Stark, Modsching, & Kawalek, 2008), wireless internet (DiPietro & Wang, 2010), and check-in and checkout self-service kiosks, routine business practices (Griffy-Brown, Chun, & Machen, 2008).

2.3. Understanding why hotel guests shun SSTs

Although most hospitality settings are considered interactive services (Bolton & Saxena-Iyer, 2009), meaning that customers often interact with various aspects of a hotel's technological offerings, customers are not necessarily using SSTs with steadfast enthusiasm. For example, Lui and Piccoli (2010) note that hotel guests' acceptance of self-service kiosks largely depends on whether or not they perceive the technology as beneficial. They also forewarn hoteliers that they should not anticipate instantaneous enthusiasm among guests regarding SST usage and therefore should offer a variety of service delivery channels, including those that encourage social interaction between hotel personnel and their guests.

On the one hand, the role of technology in hospitality settings likely will expand as hotels continue to automate service processes and to meet customer demands for enhanced computing and connectivity needs (Victorino et al., 2009). Furthermore, hotel guests will employ technology when they perceive doing so as convenient, enjoyable, and easy to use (Meuter et al., 2000). On the other hand, literature reveals that some hotel guests are frustrated by technology interactions during their stay and that managerial understanding of customers' acceptance of technology is warranted to improve the potential of success for further technological innovations (Victorino et al., 2009).

Within the SST paradigm, researchers refer to technology readiness to describe a person's likelihood to use and appreciate new technologies (Massey et al., 2007; Parasuraman, 2000; Tsikriktsis, 2004). Technology readiness is a relatively broad construct that focuses on issues such as innovativeness and the tendency to be a technology pioneer (Meuter et al., 2003). Parasuraman and Colby (2001) propose and support a taxonomy of five types of technology-ready customers based on their technology beliefs: explorers, pioneers, skeptics, laggards, and paranoids. Tsikriktsis (2004) replicates Parasuraman and Colby (2001) and puts forth a four-customer-type taxonomy, noting that consumers are no longer paranoid about technology. Along these lines, Victorino et al. (2009) demonstrate empirical support for a reduced three-customer-type taxonomy, based on a sample of 2500 hotel guests, thus supporting the reality that consumers' attitudes toward technology in service settings has coalesced into traditional high, medium, and low categories.

2.4. Situation at Hotel X and research questions

The importance of technology readiness in explaining customer adoption of organizational SSTs cannot be understated. Lin and Hsieh (2006) empirically demonstrate that customer technology readiness positively relates to both satisfaction with and propensity to use an organizational SST system. Applying these findings to Hotel X's situation suggests that the firm's guests have low technology readiness and, as a result, avoid using the firm's SSTs. Yet, considering that the luxury hotel/casino targets high-income travelers, this target market should not view themselves as technological laggards.

Rather, perhaps Hotel X's customers shun the organizational SST system because they perceive the system's myriad options as unimportant. Although all guests may not perceive the entire SST system as insignificant and useless, some may view various SST options as unimportant and others may view them as trivial or even of no use. As previously discussed, SST researchers tend to probe customer attitudes toward SST systems rather than exploring attitudes toward increasingly numerous SST options. Perhaps Hotel X's SST system offers guests too many options. Thus, the research hypotheses that guide this study are as follows. H1: Hotel X customers can be classified into a taxonomy on the basis of a technology readiness index. H2: Attitudes among Hotel X's customers toward the importance of the hotel's SST kiosk options significantly differ depending on their technology readiness. H3: Attitudes among Hotel X's customers toward the importance of the hotel's SST kiosk options fall near the neutral category among all respondents.

3. Method

3.1. Sample and procedure

Data come from self-administered questionnaires from a random sample of 313 guests of Hotel X. Interviewers, who were trained on survey administration, invited the respondents to participate in the study. Each respondent received a hotel souvenir (value US\$5.00) as an incentive for completing the questionnaire. The questionnaires were available in both English and Chinese. The Chinese version was translated from English following McGorry's (2000) double-translation method.

Of the 313 respondents, 107 were women, and 60% reported having a college degree. In terms of age, 42% of the respondents were between ages 21 and 30, 28% were between ages 31 and 40, 20% were between ages 41 and 50, and 10% were age 51 or older. Furthermore, 39% of the respondents originated from Hong Kong, 27% from Mainland China, 13% from Macau, 11% from other Asian countries, and 10% from Europe, North America, Australia, or New Zealand.

3.2. Measurement scales

3.2.1. Technology readiness

Parasuraman's (2000) 36-item technology readiness scale evaluated Hotel X's guests' technology readiness. Each item was assessed on a 7-point Likert scale anchored by 1 ("strong disagree") and 7 ("strongly agree"). However, the results of a pilot study with 10 hotel guests reveal that many experienced mental fatigue and respondent burnout from answering the 36 statements. As a result, a 12-item, four-dimensional technology readiness questionnaire was employed; the three items with the highest factor loadings after a varimax rotation were selected from each of the four dimensions (Parasuraman, 2000). The revised scale proved easier for hotel guests to answer and was acceptable to Hotel X's management.

A confirmatory factor analysis evaluated the factor structure. Overall, the results support Parasuraman's (2000) four-dimensional technology readiness structure. Data results reveal reasonable measurement model fit: $\chi^2/df = 1.44$ ($p < 0.05$), comparative fit index = 0.99, goodness-of-fit index = 0.96, root mean square of approximation = 0.04, and standardized mean square residual = 0.03 (Bentler & Hu, 1999). Each of the

four dimensions, along with their respective items, constitutes separate scales, and Cronbach's alpha for each of four scales was greater than 0.80, indicating adequate scale reliability (Nunnally, 1978). The technology readiness scale items, means, standard deviations, and Cronbach's alpha for each scale appear in Table 1.

Note that in the hospitality industry, Victorino et al. (2009) espouse using an abbreviated 10-item version of Parasuraman's (2000) original 36-item technology readiness scale. However, their use of principal component analysis to determine the underlying technology readiness factor structure, as well as their results in which two of the four dimensions have eigenvalues lower than the commonly accepted 1.0, lessens the empirical rigor of their 10-item scale (Thompson, 2004).

3.2.2. Technology options

In total, hotel guests could access 11 different SST and technological options (i.e., wireless internet, ordering food and beverage from an on-line system) during their stay at Hotel X through the property's SST kiosk or their personal computers. Respondents rated the perceived importance of these 11 hotel technologies on a scale ranging from 0 ("not important") to 10 ("extremely important").

3.2.3. Demographics

Respondents also answered demographic questions, including those pertaining to their gender, age, education level, and country/area of origin. In addition, respondents indicated whether their current stay at Hotel X was primarily for business or leisure.

4. Findings

To obtain technology readiness customer segments, a two-step cluster analysis using the IBM (2007) SPSS 19.0 software classified the 12 technology readiness items (Tsikriktsis, 2004; Victorino et al., 2009). The two-step cluster analysis overcomes many obstacles that characterize traditional cluster analysis procedures, such as k-means. Most notably, the two-step cluster analysis eliminates uncertainties about the optimal number of clusters in continuous or categorical data. This

Table 1
Technology readiness scale items.

Scale items (all items measured on a scale from 1 = "strongly disagree" to 7 = "strongly agree")
<i>Optimism scale</i> Technology gives people more control over their daily lives. Products and services that use the newest technologies are much more convenient to use. Technology gives you more freedom of mobility. Mean = 5.51, standard deviation = 1.22, Cronbach's $\alpha = .88$
<i>Innovativeness scale</i> Other people come to you for advice on new technologies. You can usually figure out new high-tech products and services without help from others. In general, you are among the first of your circle of friends to acquire new technology when it appears. Mean = 4.73, standard deviation = 1.43, Cronbach's $\alpha = .88$
<i>Discomfort scale</i> Technological support lines are not helpful because they don't explain things in terms you understand. When you get technical support from a provider of a high-tech product or service, you sometimes feel as if you are being taken advantage of by someone who knows more than you do. It is embarrassing when you have trouble with a high-tech gadget while people are watching. Mean = 4.27, standard deviation = 1.45, Cronbach's $\alpha = .81$
<i>Insecurity scale</i> Any business transactions that you do electronically should be confirmed later with something in writing. You do not feel confident doing business with a place that can only be reached online. You do not consider it safe giving out a credit card number over a computer. Mean = 4.45, standard deviation = 1.41, Cronbach's $\alpha = .87$

problem is prevented by employing Schwarz's Bayesian information criterion to yield an optimal number of unique clusters (Fraley & Raftery, 1998; SPSS, 2001).

Employing the lowest Bayesian information criterion, the two-step cluster analysis successfully classified 307 of Hotel X's respondents into two mutually exclusive groups according to their technology readiness responses. Of the respondents, 155 (50%) constituted the first cluster, 152 (49%) constituted the second cluster, and six (1%) were unclassified. Thus, the data provide support for H1; Hotel X's customers can be classified into a technology readiness taxonomy.

As Table 2 shows, according to the clusters' mean responses to the four technology readiness scales, cluster 1 was labeled as "innovators" and cluster 2 as "laggards" (Parasuraman & Colby, 2001). As mentioned, later works decreased Parasuraman and Colby's (2001) five-cluster taxonomy to four clusters (Tsikriktsis, 2004), then three clusters (Victorino et al., 2009), and now two. Essentially, one-half of Hotel X's guests represent innovators who are technologically savvy and keen to adopt technology as pioneers and thought leaders; the other one-half represent laggards who view new technology with some discomfort and insecurity.

To validate the cluster memberships further, four independent-sample t-tests assessed whether the four technology readiness scale means differ between the clusters. Using the Bonferroni method, each t-test was measured at the $p = 0.0125$ level. Each test was significant, as Table 2 shows (Parasuraman & Colby, 2001; Tsikriktsis, 2004). Innovators ($M = 6.22$) are significantly more likely than laggards ($M = 4.80$, $t = 12.29$, $p < 0.001$) to have favorable dispositions toward technology and believe that technology offers people increased control, flexibility, and efficiency. Likewise, innovators ($M = 5.58$) are more likely than laggards ($M = 3.88$, $t = 12.93$, $p < 0.001$) to be technological pioneers. Laggards ($M = 5.27$) are significantly more likely than innovators ($M = 3.34$, $t = 16.25$, $p < 0.001$) to experience discomfort from technology. Finally, laggards ($M = 5.47$) are more likely than innovators ($M = 3.47$, $t = 16.25$, $p < 0.001$) to be insecure about technology.

4.1. Cluster demographics

To explore the demographic characteristics of the two technology readiness clusters, a series of Pearson chi-square tests examined the demographic variables, as Table 3 shows. Overall, the findings reveal that innovators are more likely than laggards to be male ($\chi^2 = 4.97$, $p < 0.05$), young ($\chi^2 = 30.72$, $p < 0.001$), and more educated ($\chi^2 = 28.79$, $p < 0.001$) and to reside outside mainland China ($\chi^2 = 30.51$,

Table 2
Demographics by cluster (in percentages).

Variable	Innovators (N = 155)	Laggards (N = 152)	χ^2
<i>Gender</i>			4.97*
Male	55.5	42.8	
Female	44.5	57.2	
<i>Age</i>			30.72***
40 or below	79.4	49.0	
41 or above	20.6	51.0	
<i>Education</i>			28.79***
Non-college degree	21.3	49.7	
College degree	78.7	50.3	
<i>Place of origin</i>			30.51***
Hong Kong or Macau	58.1	45.7	
Mainland China	14.2	41.1	
Other Asian countries	12.9	7.3	
Western countries ^a	14.8	6.0	
<i>Travel purpose</i>			.84
Leisure	72.2	77.1	
Business	27.8	22.9	

Note: * $p < .05$, *** $p < .001$.

^a Western countries include respondents from Europe, North America, Australia, and New Zealand.

Table 3
Mean analysis of technology readiness among customer clusters.

Technology readiness scale (all items measured on a scale from 1 = "strongly disagree" to 7 = "strongly agree")	Innovators (N = 155)	Laggards (N = 152)	t-Value
Optimism	6.22	4.80	12.29***
Innovativeness	5.58	3.88	12.93***
Discomfort	3.34	5.27	16.25***
Insecurity	3.47	5.47	17.51***

*** $p < 0.001$.

$p < 0.001$). No significant differences emerged between the two clusters when comparing their travel purpose (i.e., business vs. leisure). These findings confirm prior research exploring technology readiness which finds that laggards are typically female, older, less educated, and report lower incomes than innovators (Tsikriktsis, 2004; Victorino et al., 2009).

4.2. Clusters and technology preferences

In total, 11 independent-sample t-tests evaluated the mean differences between Hotel X's innovators and laggards in terms of the perceived importance of the Hotel's SST and other technology options. Using the Bonferroni technique, each t-test was measured at $p = 0.005$. Table 4 shows that significant differences emerged in nine of the 11 average importance scores that innovators and laggards attributed to the Hotel's SST options and other technology offerings. Both innovators and laggards perceive the ability to obtain reservation information and to make room selection/changes at a lobby-based SST with equal importance. This result partially supports H2; attitudes among Hotel X's customers toward the importance of the hotel's SST kiosk options significantly differ depending on their technology readiness.

More important, the data reveal that though laggards are essentially ambivalent, or neutral, about the perceived importance of all 11 technology offerings, innovators also are rather ambivalent. In terms of the 11 technology offerings' importance, only three options (i.e., wireless internet access, online reservation capability, and receiving information/coupons/incentives from a self-service kiosk) score as important ($M > 7.0$), where 10 indicates "extremely important." Innovators ranked self-service check-in ($M = 6.98$) and checkout ($M = 6.91$) as the next highest in importance, with the rest of the scores steadily decreasing. The average importance scores that both innovators and laggards attribute to the majority of the hotel's SST options hover around neutral scores, suggesting that Hotel X's high-end customers are ambivalent about many of the hotel's SST options. These findings support H3; Hotel X's customers perceive many of the SST options as unimportant and thus avoid them (Oh et al., 2013).

The notion that Hotel X's guests perceive the ability to obtain monetary discounts for entertainment options from the SST as more important than automated check-in and checkout is supported by a recent SST research that links perceived SST enjoyment and novelty seeking (Dabholkar & Bagozzi, 2002) to overall SST service quality (Lin & Hsieh, 2011) and adoption (Curran & Meuter, 2007). Wolfinbarger and Gilly (2001) also provide qualitative evidence that fun is an important and desired outcome when choosing to use a retailer's website for shopping purposes. Intuitively, customers would use an SST kiosk that they also perceive as helping them engage in hedonic pleasure during their stay at Hotel X.

5. Qualitative interviews

To further understand why Hotel X's guests under-utilized the SST system, post hoc hotel-based, one-on-one personal interviews with 26 hotel guests (14 women and 12 men) were conducted. Although SST research empirically tests various reasons why customers shun using SST technology, such as technology anxiety (Meuter et al., 2003), a desire for

Table 4
Mean analysis of technology preferences.

Hotel technology item ^a	Innovators	Laggards	t-Value
Wireless internet access throughout the hotel	8.50	6.96	6.48***
Ability to make online reservations via personal computers	7.73	5.94	7.92***
Ability to receive welcoming information, such as maps, hotel information, incentives/coupons for hotel shows, restaurants, and shopping at the service kiosk	7.12	5.98	4.75***
Self-service check-in with credit card or conformation number at the service kiosk	6.98	5.89	4.24***
Self-service checkout at the service kiosk	6.91	5.49	5.37***
Receive Hotel X promotional offers via e-mail	6.85	5.60	5.13***
Online virtual tours of Hotel X	6.81	5.29	6.60***
Ability to make reservation changes at the service kiosk	6.62	5.16	5.12***
Ability to obtain reservation/folio review (e.g., name, room type, room features, checkout date, room rate, hotel loyalty club number, and payment card information) upon request at the service kiosk	6.56	5.69	3.15 ^{ns}
Ability to receive room keys at the service kiosk	6.50	5.22	5.14***
Ability to make a room selection at the service kiosk, if your room is not ready, a list of alternate rooms is shown that match your requests as closely as possible and have the same room rate	6.13	5.43	3.41 ^{ns}

Note: *** $p < 0.001$.

^{ns} Denotes not significant.

^a Item measured on a scale from 0 = “not important” to 10 = “extremely important.”

autonomy, concern about privacy, lack of perceived usefulness, or need for social interaction (Oh et al., 2013), humanistic knowledge on the topic remains scarce. Other unexplored reasons might help the hotel's managers understand why many customers eschew the firm's SST.

In the interviews, informants' indicated their gender, age, whether or not they used or planned to use the hotel SST kiosk (yes or no), and their reasons for or against using the SST. A line-by-line coding of the qualitative data (Glaser & Strauss, 1967) classified each informant into customer types, many of which are buttressed by extant, empirical knowledge, as Table 5 illustrates. Eight informants were classified as “innovators,” who used Hotel X's system, and three were classified as “laggards,” who did not use or plan to use the SST (Parasuraman & Colby, 2001). In addition, four informants were classified as “socializers,” who desired human interaction during their stay, and one informant was classified as “privacy,” who expressed concern about the possible loss of personal and credit card data (Oh et al., 2013).

A new classificatory group, comprising 10 informants, emerged from the interviews. This group labeled as “technology pausing” has not

appeared previously in the SST paradigm. Of these informants, six were women, and their ages ranged from 31 to 50 years. These informants expressed their lack of enthusiasm in using Hotel X's SST kiosks, which stemmed from their being on vacation. Therefore, they were reluctant to conduct any work, including perceived work associated with using an SST. For example, several informants stated, “I'm not staying at this hotel to work,” or “I don't want to waste time at kiosks.” Unfortunately, Hotel X' management is essentially powerless to encourage this group of guests, who view themselves on respite from all forms of work during their vacation, to use the firm's SST kiosks.

6. Discussion

6.1. Theoretical implications

Research empirically explores technology readiness in hospitality settings (Victorino et al., 2009) and exposes the positive relationship between customer technology readiness and usage and adoption of

Table 5
Exploring SST usage and reluctance.

Gender	Age	SST usage	SST reluctance	Category
M	20	N	I am a very innovative person. I love to try out new things in the technology area.	Innovator
M	29	Y	I like the technology that brings me fun, like printing out coupons for food.	Innovator
F	24	Y	The technology is faster than with man power and it doesn't make mistakes.	Innovator
F	20	Y	I don't have to wait in the long queue for checking in and out.	Innovator
M	40	Y	The new technology looks cool and it saves time.	Innovator
F	22	Y	It more is more efficient and effective to use the kiosk.	Innovator
F	30	Y	The technology is interesting and the hotel makes it convenient for me to use.	Innovator
M	30	Y	It provides me with better service and reduces my wait time.	Innovator
F	60	N	I am afraid of the technology machines, they are not for me. No one will teach me.	Laggard
F	44	N	I don't know how to use the technology and no one can teach me.	Laggard
F	18	N	I have never tried the technology before.	Laggard
F	36	N	I'm concerned about the safety of the equipment and the privacy of my information.	Privacy
M	56	N	I would prefer to be served by the staff. When I am served by people, the feeling is more important, personal, and warm.	Socializer
F	55	N	The technology makes the hotels lose their nature and I don't like this. I prefer talking to traditional people.	Socializer
F	25	N	The latest technologies do not represent the best service that should be provided by people.	Socializer
M	23	N	Self-service kiosks should not be used as a replacement for service, guests should have an option.	Socializer
F	17	Y	When I am on vacation, I like to be served by the staff. The hotel should service guests.	Tech pausing
M	31	N	I resist using technology on vacation. I use technology in my daily life but not here.	Tech pausing
F	21	N	I go travel usually for leisure. I like to travel without having to work.	Tech pausing
M	25	N	I am in the hotel as a tourist. I go to a resort for enjoyment. It's enough already with the technology, not when I'm on vacation.	Tech pausing
M	25	N	I'm on vacation and I want to get close with my friends during the time. I don't want to waste it using kiosks. I want a comfortable stay.	Tech pausing
F	50	N	I'm not staying at this hotel to do work. I'm lazy when I'm on vacation.	Tech pausing
M	28	N	I don't need fancy technologies when I'm on vacation. I would rather have the hotel invest in the quality of the room and the bed, than on technology.	Tech pausing
M	24	N	I don't think hotels should transfer the burden of work to their customers who are on vacation. If I was here for business, maybe I'd use the technology. But not here or at MGM.	Tech pausing
M	50	N	I believe that the more money I pay for a room, the harder the staff should work for me.	Tech pausing
F	24	N	If I travel, I think the main element is the trip and I don't think I will have time to use or to learn technology in the hotel.	Tech pausing

organizational SSTs (Lin & Hsieh, 2006). The current study extends the SST paradigm by revealing that though an organization's customers may view SSTs positively overall, they deem many SST options unimportant. Thus, many complex SST systems may remain under-utilized. In many service settings, the management may install an SST system without fully understanding how each option might fulfill customers' needs.

The finding that Hotel X's guests rate the SST option that helps them obtain monetary discounts for entertainment and dining options as higher in importance than all the other SST option supports Dabholkar and Bagozzi (2002). Fun is an antecedent to consumer attitudes toward SST usage. Additional research is necessary to explore how customers might experience enjoyment from using other SST options, especially labor-intensive options, such as printing reservation folios and checking in and out of the hotel.

The qualitative result that customers may avoid using SST while on vacation—to engage in a so-called technological pause—is original to the SST paradigm. Consequently, research should explore further whether or not a technological pause limits SST usage in hospitality, retail, and food-related settings that cater to leisure travelers. Furthermore, additional descriptive knowledge regarding how and why consumers choose to adopt or shun technology is warranted. Although research continues to extend Parasuraman and Colby's (2001) seminal work on technology readiness, further research could engage in inductive, grounded theoretical studies to discover additional reasons contemporary consumers adopt or shun technologies.

6.2. Managerial implications

The case study applies to all service settings in which SST systems are under-utilized. Research tends to focus on exploring consumer attitudes toward SST systems in general rather than SST options per se. Consequently, practitioners might assume that their customers are comfortable with using SST systems and thus add increasing numbers of options to their SST systems. However, this research reveals that regardless of whether or not customers are technological innovators or laggards, both types are ambivalent about the perceived importance of many SST options. Unfortunately, Hotel X implemented the SST system before the management understood this notion.

In line with Oh et al. (2013), hoteliers should consider their customers' attitudes toward SST systems and design systems that meet their needs and desires. The finding that many of Hotel X's guests take a technological pause during their stay suggests that the SST systems will be permanently under-utilized. This finding does not mean that high-end properties should expunge their SST systems; rather, hospitality settings may not realize the planned savings from labor intensive procedures transferred to SST systems.

In terms of limitations, this research emerged from the case study method; which represents an inductive rather than deductive methodological approach. On the one hand, some researchers claim that case study findings are emergent and often post-hoc. On the other hand, some researchers, including this paper's authors, perceive case studies as rich, empirical descriptions of particular instances of a phenomenon that create theoretical constructs, propositions and/or midrange theory (Eisenhardt & Graebner, 2007). Indeed, the emergent theory regarding technical pausing may not only explain why high-end hotel customers shun technology, but also, why customers of high-end financial service organizations or luxury retail firms also may look askance at using a firm's self-service technological services.

Another potential study limitation is that data were collected at Hotel X, which is one of Macau's most luxurious hotels/casinos. Perhaps customers in other hotels, such as a three-star, business hotel, respond more favorably to all SST options due to limited service offerings and expectations. Business customers selecting a three-star property, or budget travelers staying in a two-star property, most

likely lack expectations regarding full-service and they may appreciate SSTs that offer quick and easy check-in and check-out services.

Despite these aforementioned limitations, this research sets the groundwork for SST researchers to explore consumer attitudes toward SST options rather than SST systems. The study demonstrates that changing the question extends theoretical understanding about customer usage and adoption of SSTs. More important, this research helps practitioners to design SST systems that simultaneously address their customers' needs and permit them to lower their operational expenses.

References

- Bentler, P. M., & Hu, L. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55.
- Bolton, R., & Saxena-Iyer, S. (2009). Interactive services: A framework, synthesis and research directions. *Journal of Interactive Marketing*, 23, 91–104.
- Curran, J. M., & Meuter, M. L. (2007). Encouraging existing customers to switch to self-service technologies: Put a little fun in their lives. *Journal of Marketing Theory and Practice*, 15, 283–298.
- Curran, J. M., Meuter, M. L., & Surprenant, C. F. (2003). Intentions to use self-service technologies: A confluence of multiple attitudes. *Journal of Service Research*, 5, 209–224.
- Dabholkar, P. A., & Bagozzi, R. P. (2002). An attitudinal model of technology-based self-service: Moderating effects of consumer traits and situational factors. *Journal of the Academy of Marketing Science*, 30, 184–201.
- DiPietro, R. B., & Wang, Y. (2010). Summary: What have we learned about the impact of technology in hospitality operations? *Worldwide Hospitality and Tourism Themes*, 2, 110–111.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50, 25–32.
- Fraley, C., & Raftery, A. E. (1998). How many clusters? Which clustering method? Answers via model-based cluster analysis. *Computer Journal*, 4, 578–588.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Griffy-Brown, C., Chun, M. W. S., & Machen, R. (2008). Hilton hotels corporation self-service technology. *Journal of Information Technology Case and Application Research*, 10, 37–57.
- IBM (2007). IBM hotel self-service application for MICROS OPERA. Retrieved from: http://www.customerfacingsolutions.com/pdfs/HotelAppMicros_small.pdf
- Jungki, L., & Allaway, A. (2002). Effects of personal control on adoption of self-service technology innovations. *Journal of Services Marketing*, 16, 553–572.
- Khan, M., & Khan, M. A. (2009). How technological innovations extend services outreach to customers: The changing shape of hospitality services taxonomy. *International Journal of Contemporary Hospitality Management*, 21, 509–522.
- Kimes, S. E. (2008). The role of technology in restaurant revenue management. *Cornell Hospitality Quarterly*, 49, 297–309.
- Koutroumanis, D. A. (2011). Technology's effect on hotels and restaurants: Building a strategic competitive advantage. *Journal of Applied Business and Economics*, 12, 72–80.
- Lakshmi, R., & Ganesan, P. (2010). Does self-service technology impact destination image and customer delight? *Worldwide Hospitality and Tourism Themes*, 2, 520–538.
- Law, R., & Jogaratnam, G. (2005). A study of hotel information technology applications. *International Journal of Contemporary Hospitality Management*, 17, 170–180.
- Lin, J. S., & Hsieh, P. L. (2006). The role of technology readiness in customers' perception and adoption of self-service technologies. *International Journal of Service Industry Management*, 17, 497–517.
- Lin, J. S., & Hsieh, P. L. (2011). Assessing the self-service technology encounters: Development and validation of SSTQUAL scale. *Journal of Retailing*, 87, 194–206.
- Lui, T. W., & Piccoli, G. (2010). Integrating self-service kiosks in a customer-service system. *Cornell Hospitality Report*, 10, 4–20.
- Massey, A. P., Khatri, V., & Montoya-Weiss, M. M. (2007). Usability of online services: The role of technology readiness and context. *Decision Sciences*, 38, 227–308.
- McGorry, S. Y. (2000). Measurement in a cross-cultural environment: Survey translation issues. *Qualitative Marketing Research*, 3, 74–81.
- Meuter, M. L., Bitner, M. J., Ostrom, A. L., & Brown, S. W. (2005). Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies. *Journal of Marketing*, 69, 61–83.
- Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of Business Research*, 56, 899–906.
- Meuter, M. L., Ostrom, A., Roundtree, R., & Bitner, M. J. (2000). Self-service technologies: Understanding customer satisfaction with technology-based service encounters. *Journal of Marketing*, 64, 50–64.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Oh, H., Jeong, M., & Baloglu, S. (2013). Tourists' adoption of self-service technologies at resort hotels. *Journal of Business Research*, 66, 692–699.
- Parasuraman, A. (2000). Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, 2, 307–323.

- Parasuraman, A., & Colby, C. L. (2001). *Techno-ready marketing: How and why your customers adopt technology*. New York: Free Press.
- Piccoli, G. (2008 August). Information technology in hotel management: A framework for evaluating the sustainability of IT-dependent competitive advantage. *Cornell Hospitality Quarterly*, 49, 282–296.
- Riebeck, M., Stark, A., Modsching, M., & Kawalek, J. (2008). Studying the user acceptance of a mobile information system for tourists in the field. *Information Technology & Tourism*, 10, 189–199.
- Rust, R. T., & Espinoza, F. (2006). How technology advances influence business research and marketing strategy. *Journal of Business Research*, 59, 1072–1078.
- Siguaw, J. A., & Enz, C. A. (1999). Best practices in information technology. *Cornell Hotel and Restaurant Administration Quarterly*, 40, 58–71.
- SPSS (2001). The SPSS two-step cluster component. Retrieved from: http://www.spss.ch/upload/1122644952_The%20SPSS%20TwoStep%20Cluster%20Component.pdf
- Stockdale, R. (2007). Managing customer relationships in the self-service environment of e-tourism. *Journal of Vacation Marketing*, 13, 205–519.
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington, DC: American Psychological Association.
- Tsikriktsis, N. (2004). A technology readiness-based taxonomy of customers: A replication and extension. *Journal of Service Research*, 7, 42–52.
- Victorino, L., Karniouchina, E., & Verma, R. (2009). Exploring the use of the abbreviated technology readiness index for hotel customer segmentation. *Cornell Hospitality Quarterly*, 50, 342–359.
- Wolfenbarger, M., & Gilly, M. C. (2001). Shopping online for freedom, control, and fun. *California Management Review*, 43, 34–55.
- Zhao, X. Y., Mattila, A. S., & Tao, L. S. (2008). The role of post-training self-efficacy in customers' use of self-service technologies. *International Journal of Service Industry Management*, 19, 492–505.