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A REVIEW OF KEY FACTORS AFFECTING CONSUMERS' ADOPTION AND USAGE OF SELF- SERVICE TECHNOLOGIES IN THE TOURISM SECTOR

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Abstract

During the past ten years self-service technologies (SSTs) have attracted research attention especially in the banking, retail and airline sectors. The infusion of technology in the service encounter has been identified as being advantageous to both the service provider and the consumer, provided that SSTs gain adoption among consumers. In light of the importance of consumer participation in SSTs, this paper reviews the state of the SST adoption literature in an attempt to identify the most important influencing factors. Seven factors emerged as the ones of key research interest in the literature and they are discussed in more detail. These include risk, trust, perceived ease of use, perceived usefulness, technology readiness, preference for personal contact and demographic variables.

Key Words: self-service technologies (SSTs), SST adoption factors, consumer behavior, services management

1.0 INTRODUCTION

Self-service technologies (SSTs) are attracting research attention in services marketing and management (Curran and Meuter, 2005; Bitner, Ostrom and Meuter, 2002) because when they are implemented successfully, they have proven to offer efficient and effective service standards without any traditional employee involvement. Some SST examples include the ATM, e-commerce websites such as Amazon.com and the online booking engines on airline websites. The aim of this paper is to present the factors affecting consumer adoption and usage of SSTs. A literature review of seven adoption factors and two adoption models identifies some key gaps which may be used as directions for further research into SST adoption.

2.0 LITERATURE REVIEW

The term 'self-service technologies' was first used by Meuter, Ostrom, Roundtree and Bitner (2000, p.50) who defined them as 'technological interfaces that enable customers to produce a service independent of direct service employee involvement'. This term and definition gained wide acceptance in subsequent research by other authors (e.g. Dean, 2008; Beatson, Lee and Coote, 2007; Curran and Meuter, 2005).

2.1 Classifications of SSTs

The growing research into SSTs brought the need for the development of a classification system. Meuter *et al.* (2000) made one of the initial attempts to devise a classification of SSTs. Their classification divides SSTs along two dimensions: interface (telephone/interactive voice response; online/internet; interactive kiosks; video/CD) and purpose (customer service, transactions, self-help). The need for a classification of SSTs by interface and purpose was further confirmed when Walker and Johnson (2006) and Curran and Meuter (2005) tested

adoption factor models across different SSTs and reported that the influence of the tested adoption factors varied by SST type.

Similarly to Meuter *et al.* (2000), Castro, Atkinson and Ezell (2010) classified the existing SSTs based on interface. Their classification recognizes four broad groups based on the type of the self-service technology channel: 1) electronic kiosks, 2) internet applications, 3) mobile devices and 4) phone applications. Please refer to Table 2.1 below for examples of SSTs as developed by Castro *et al.* (2010).

Table 2.1 Commonly Used SSTs (2010)

Electronic Kiosks	Internet Applications	Mobile Devices	Phone Applications
Banking ATM	Online health	Smart phones	Dual tone multi frequency (DTMF) – use phone buttons to navigate a services menu
Self-service gasoline stations	Online banking	Mobile payments	Interactive voice response (IVR) – speech recognition technology
Self-pay parking, tolls	E-learning	Smart cards	
Food ordering kiosks	Professional services		
Airport kiosks	Retail e-commerce		
Vending machines	Customer service		
Self checkout	Online customization		
Retail kiosks	Access to government services		
Human resource kiosks	Ticketing and reservation		
Photo printing kiosks			
Postal kiosks			
Electronic voting			
Health kiosks			
Information kiosks			

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Source: adapted by the author from Castro, D., Atkinson, R. and Ezell, S.(2010) Embracing the Self-Service Economy, *The Information Technology and Innovation Foundation*, April 2010.

It is evident from comparing the Meuter *et al.* (2000) and Castro *et al.* (2010) classifications by SST interface that some changes have occurred. The mobile devices section is not present in Meuter *et al.*'s (2000) classification, due to the lack of availability of smart phones and mobile internet access not existing in consumer markets at the time. Smart phones are presently used for commercial and financial transactions, online reservations, airline check-in and boarding and mobile banking (Castro *et al.*, 2010).

Cunningham, Young and Gerlach (2008) offer a different perspective by researching how consumers view SSTs. Consumers classed SSTs along two main dimensions, *customized-standardized* and *separable-inseparable* from the core service. For example, airline reservations are viewed as highly customized and separable from the main service, while ATMs are standardized and inseparable from the service (Cunningham *et al.*, 2008).

Meuter *et al.*'s (2000) classification and the more up-to-date classification by Castro *et al.* (2010) contribute towards a general overview of the existing SSTs. Even so, Cunningham *et al.* (2008) suggested that there is no widely established SST classification which is still a research gap.

2.2 Advantages and Disadvantages of SSTs

Some of the main advantages of SSTs as identified by consumers relate to a 'better than the alternative' theme including: ease of use; avoid service personnel; saved time; saved money; time and place convenience (Meuter *et al.*, 2000, p.56). Dabholkar, Bobbitt and Lee (2003) propose that customers also enjoy the SST interaction. Further more, SSTs can improve service quality perceptions, offer flexibility and customize services to individual consumer needs (Bitner, Brown and Meuter, 2000). On the negative side, consumers reject SSTs because of 'technology failure', 'process failure', 'poor design' and 'customer-driven failure' (Meuter *et al.*, 2000, p.56). Even people who have favorable attitudes towards technology may avoid SSTs because they can not replace the personal interaction (Dabholkar *et al.*, 2003; Lee and Allaway,

2002). SSTs also require higher levels of consumer participation and responsibility, so they are perceived as riskier than personal services (Lee and Allaway, 2002).

The main benefits to service providers from successfully implementing SSTs are: operational cost reduction; increasing customer satisfaction and loyalty; and accessing new markets (Bitner *et al.*, 2002). SSTs allow staff to be relieved from routine duties and concentrate on aspects of the service delivery where personal touch is more valuable (Lee and Allaway, 2002). The limitations of SSTs from a service provider perspective are related to investment expenses, and staff and consumer training (Bitner *et al.*, 2002; Lee and Allaway, 2002). If the service technology does not gain adoption with consumers, the company may face increased expenses because it needs to keep the operational staff, as well as pay for the new technology (Lee and Allaway, 2002).

It is obvious that SSTs offer plenty of benefits, but Anitsal and Schumann (2007) question if those are shared fairly between service providers and consumers. During SST encounters, consumers are active participants in the service delivery, and as such, service providers need to be familiar with the consumer perspective (Anitsal and Schumann, 2007). If consumers perceive that their input in the service production is higher than the output that they receive as benefits or rewards, they are unlikely to adopt the SST (Anitsal and Schumann, 2007).

2.3 SST Adoption Factors

The successful implementation of SSTs is dependent on wide consumer adoption in order to justify the investment cost (Lee and Allaway, 2002). A review of the SST literature, by the authors, from the past ten years identified over sixty peer-reviewed publications relating to research into SST adoption factors. This review produced over twenty different SST adoption factors and this paper suggests that there is no evidence of a widely agreed model of SST adoption. For the purposes of this paper, the authors examine seven key factors, namely perceived risk, trust, perceived ease of use, perceived usefulness, technology readiness, preference for personal contact and demographic variables. Those factors were chosen because of their frequent inclusion in SST adoption research and will be reviewed below.

2.3.1 Perceived Risk

The risk variable is examined mainly in the e-commerce literature in connection with the buying process (Cunningham, Gerlach, Harper and Young, 2005; Cunningham, Gerlach and Harper, 2004; Forsythe and Shi, 2003; Cases, 2002). The risks involved in internet shopping were researched in varying shopping contexts: shopping for clothes (Cases, 2002), airplane tickets (Kim, Qu and Kim, 2009; Cunningham *et al.*, 2004) and Internet shopping in general (Forsythe and Shi 2003; Liebermann and Stashevsky, 2002).

Kim *et al.* (2009) studied the perceived risk and risk reduction in purchasing air-tickets online. They included risk dimension variables including performance risk, security risk, financial risk, physical risk, psychological risk and time risk. Kim *et al.* (2009) concluded that security risk was of primary importance. This finding is similar to previous research which found that payment and privacy security appeared as major risk factors in internet shopping settings (Forsythe and Shi, 2003; Cases, 2002; Liebermann and Stashevsky, 2002).

Risk associated with the travel and tourism sector is further intensified by the specific characteristics of the tourism product (Kim *et al.*, 2009). Kim *et al.* (2009) summarize four characteristics of the tourism product which contribute to its relatively higher perceived riskiness in comparison to other products: 1) intangibility, 2) the product is purchased before experience, 3) variations in performance due to dependence on situational variables like weather, performance of the different components of the package and other tourists and 4) perishability, as the product quality is largely dependent on fluctuations in demand.

Recent studies on risk identify as a common weakness the usage of non-generalisable student samples and single measures (Kim *et al.*, 2009; Cunningham *et al.*, 2005). Cases (2002) studied risk within a very specific research context, i.e. clothes shopping online, which she recognized as a shortcoming of the research.

2.3.2 Trust

Bitner *et al.* (2000) recognize that the infusion of technologies in service encounters may not be welcomed by consumers, regardless of the obvious benefits. They propose two main concerns to the adoption of SSTs by customers: the preferences of some customers for interpersonal encounters during service, and the issues of privacy and confidentiality. Meuter *et al.* (2000) also suggest that developing trust in a non-employee atmosphere could be an avenue for further research in the area of SSTs. The importance of gaining consumers' trust is further emphasized by findings from research which suggest that trust is a direct antecedent of behavioural intentions in electronic environments (Yousafzai, Pallister and Foxhall, 2009; McKnight, Choudhury and Kacmar, 2002).

The trust construct is regarded in the literature as hard to measure as a one-dimensional phenomenon (McKnight *et al.*, 2002). McKnight *et al.* (2002) tested a model examining how personal *disposition to trust* and *institution-based trust* in the internet affected consumer's *trusting beliefs* and *trusting intentions*. The findings from statistical analysis identified a relationship between disposition to trust and trusting beliefs and trusting beliefs and trusting intentions (McKnight *et al.*, 2002). None of the paths from institution-based trust to the other variables were supported. This finding was not expected and it was interpreted as a shortcoming of the definition of institution-based trust as a general belief in the internet rather than a specific website context (McKnight *et al.*, 2002). Institution-based trust therefore needs further research attention (McKnight *et al.*, 2002). The authors suggest that the model could be tested in the e-vendor context and examined for changes beyond the initial trust and moving into on-going commercial relationships.

Connolly and Bannister (2008) tested the factors influencing trust in internet shopping in Ireland. They employed, as a measurement instrument, the conceptual model developed by Cheung and Lee (2000). Cheung and Lee's (2000) model hypothesizes that there are two groups of variables which determine consumers' trust in internet shopping namely, trustworthiness of the internet vendor, and external environment and those are mediated by the personal propensity to trust. Their empirical testing of the model argues that external environment factors have a very weak influence on consumer trust and that the moderating effect of propensity to trust is non-existent.

In an Irish context, the trustworthiness of the Internet vendor, combined with previous experience (which is part of the propensity to trust variable) were the two direct antecedents of trust while higher technical awareness led to the perception of higher trustworthiness of the Internet vendor. Connolly and Bannister (2008) concluded that the difference in findings of the two studies indicates that the Cheung and Lee (2000) model is not culture independent, and they call for further research into global factors influencing consumer trust in Internet shopping.

The latest trend in consumer trust research is a shifting towards exploring trust in virtual communities and social networks, as the new (Rayport, 2009; Wu and Tsang, 2008). Wu and Tsang (2008) adapted the McKnight *et al.* (2002) trust building model to measure trust in virtual communities. The outcomes of their research support the hypothesis that trust in websites has a behavioural influence on the intention of members to visit them.

2.3.3 Perceived Ease of Use and Perceived Usefulness

Davis, Bagozzi and Warshaw (1989) introduced the two variables of perceived usefulness and perceived ease of use in a conceptual model called the Technology Acceptance Model (TAM). Davis (1989) justified the choice of perceived ease of use and perceived usefulness as key determinants of technology adoption behavior, based on a literature review of multiple disciplines dealing with behavior and innovation adoption. Perceived ease of use is introduced in the information systems literature by Davis (1989, p.320) and defined as ‘the degree to which a person believes that using a particular system would be free of effort’. He further defined perceived usefulness as ‘the degree to which a person believes that using a particular system would enhance his or her job performance’ (p.320). TAM and its application in SST adoption literature will be discussed in Section 2.5.1.

2.3.4 Technology Readiness

Technology readiness (TR) is defined by Parasuraman (2000, p.308) as ‘people’s propensity to embrace and use new technologies for accomplishing goals in home life and at work’. Parasuraman (2000) based the components of TR on the notion that people harbor positive and

negative feelings towards technology, as identified by Mick and Fournier (1998). Mick and Fournier (1998) listed eight technology paradoxes with which consumers have to cope: control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfills/creates needs, assimilation/isolation and engaging/disengaging. Parasuraman (2000) identified four groups of beliefs which impact on the technological readiness of individuals. He contends that *optimism* and *innovativeness* are contributors to TR whilst *discomfort* and *insecurity* are inhibitors to TR.

Parasuraman (2000) points to the need to investigate the antecedents and consequences of TR in a model where TR is the core construct. This research avenue was followed by Lin and Hsieh (2005) who empirically tested how TR influenced satisfaction and behavioural intentions. Their research found that TR had an influence on how consumers perceived the quality of SST interactions and determined their intentions to use them. Furthermore, another study by Zhu, Nakata, Sivakumar and Grewal (2007) empirically tested the influence of TR on the effectiveness of technology interfaces and found that the level of TR influenced the cognitive processing of interface design features. Therefore TR is a critical factor as it is directly related to perceptions of service quality (Zeithaml, Parasuraman and Malhotra, 2002).

Chiu, Fang and Tseng (2010) and Liljander, Gillberg, Gummerus and Riel (2006) challenge the importance of TR in explaining SST adoption behavior. In their study, Liljander *et al.* (2006) suggested that TR of adopters and non-adopters of self-service check-in did not differ significantly while other factors such as efficiency of service, control, perceived benefits, preference for personal contact and convenience emerged as stronger predictors. Liljander *et al.*'s (2006) research did not confirm the central role of TR as an adoption factor which contrasts with the findings of Lin and Hsieh (2005) and Parasuraman (2000). This difference in findings was attributed to the TR measurements which may need to be adapted for the specific research contexts (Chiu *et al.*, 2010; Liljander *et al.* 2006).

2.3.5 Preference for Personal Contact

A common construct included in research models regarding SST adoption is the preference for personal contact (Lee, Cho, Xu and Fairhurst, 2010; Walker and Johnson, 2006; Curran and Meuter, 2005; Meuter, Bitner, Ostrom and Brown, 2005; Dabholkar *et al.*, 2003). This construct is researched in more detail by Simon and Usunier (2007). Their research concluded that a cognitive style (rational/experiential) had the strongest influence on the preference for the personal contact construct. This fact confirms the view of Dabholkar and Bagozzi (2002) that personal traits are the basis of forming consumer attitudes and behavioural intentions. Lee *et al.* (2010) confirmed the effect of consumer personality traits, such as the need for interaction, on the intention to use SSTs but their results also proved that age is an antecedent to the preference for the personal contact construct. Preference for personal contact grew stronger with age (Lee *et al.*, 2010; Simon and Usunier, 2007). Walker and Johnson (2006) reported that 35% of the respondents to their survey preferred personal contact and 65% preferred it on some occasions, including when they had a specific issue which needed prompt resolution, or when they wanted to make a complaint. Consumers develop negative attitudes towards a service provider if they are left with only an SST option and expect to have personal backup if something goes wrong (Reinders, Dabholkar and Frambach, 2008).

2.3.6 Demographic Variables

Some of the most common demographic variables researched in relation to SSTs include age, gender, education and income, since they offer effective grounds for traditional marketing segmentation (Lee *et al.*, 2010; Nilsson, 2007; Chang and Samuel, 2004; Wu, 2003).

Demographics have been examined as direct antecedents of usage (Nilsson 2007; Chang and Samuel, 2004), as influencing beliefs and attitudes (Elliott and Hall, 2005; Wu, 2003) or as indicators of personality traits (Lee *et al.*, 2010). Dabholkar and Bagozzi (2002) expressed a view that demographic factors are not of interest in understanding consumer behaviour towards SSTs but research has produced varying results which will be discussed below.

A comparative research of Estonian and Swedish customers' use of online banking undertaken by Nilsson (2007) found that demographic profiles of consumers in Western markets were more

diverse than in developing Eastern markets. The typical user of online banking in Estonia emerged as a young, well-educated male with a high income, while in Sweden no sizable differences in usage were identified across age, gender, education and income groups. In another study, Taiwanese men in the age group 36-40 showed better attitudes towards online shopping (Wu, 2003).

Some authors have concluded that age starts to matter less with experience and wider dissemination of technology in one's everyday social and business life (Nilsson, 2007; Dabholkar *et al.*, 2003; Dabholkar and Bagozzi, 2002), while other studies confirm differences associated with age (Lee *et al.*, 2010; Dean, 2008; Simon and Usunier, 2007; Chang and Samuel, 2004).

Dabholkar *et al.* (2003) found that shopper age had little influence on adoption of self-scanning in grocery shops. In contrast, a study specifically of the age variable by Dean (2008) found that there are differences in the adoption of SSTs between the different age groups. Dean divided his sample into three age groups: 18-28; 29-48 and 49+. The study concluded that increasing age has a negative effect on three variables: preferences for SST to human contact; confidence to use SSTs; and belief in the benefits of using technology.

The interaction between demographics (e.g. age, gender, education and income) and personality traits (e.g. technology anxiety, need for interaction and technology innovativeness) and their effect on intentions to use SSTs was researched by Lee *et al.* (2010). Their findings show that consumer demographics influenced SST usage intentions through the mediating effect of personality traits (Lee *et al.*, 2010). For example, men exhibited a greater level of technology innovativeness and less technology anxiety; older people needed more personal contact, showed more technology anxiety and less technology innovativeness; while consumers with higher income were less anxious about technology. The education construct is the only one which did not affect any of the tested personality traits (Lee *et al.*, 2010).

The varying results of the SST research into demographics may be explained to some extent by the cross-cultural differences (Nilsson, 2007) or the changing influence of different demographic features over time based on changes in society (Chang and Samuel, 2004).

2.4 Adoption models

SST adoption has been researched by organizing various factors in testable conceptual models (Baron, Patterson and Harris, 2006). In this paper, two models will be presented, i.e. the Technology Acceptance Model (TAM) and the Bitner *et al.* (2002) SST Adoption Model.

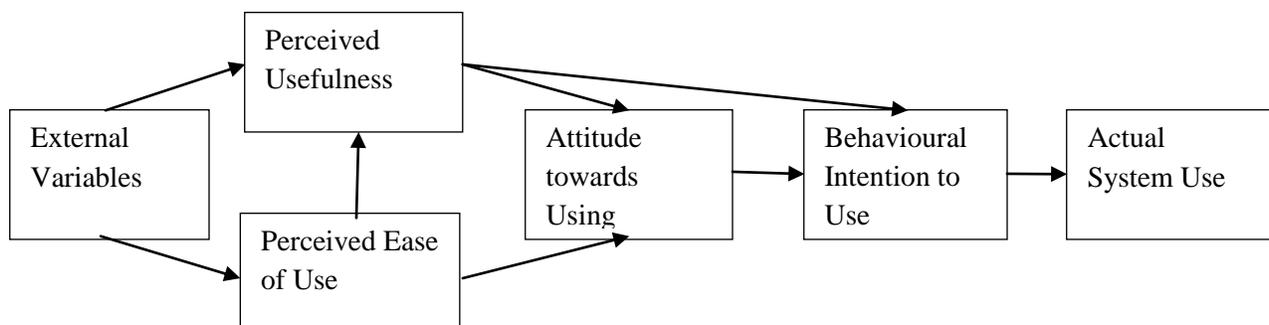
2.4.1 Technology Acceptance Model

One of the most influential adoption models in the SST literature is the Technology Acceptance Model (TAM) by Davis, Bagozzi and Warshaw (1989), which is illustrated in Figure 2.1 below. The model was originally developed to predict technology systems usage in the workplace. TAM proposes that the beliefs of perceived usefulness and perceived ease of use are fundamental in forming an attitude towards an information system, which in turn forms a behavioral intention, followed by actual system use (Davis *et al.*, 1989). Other factors such as demographics, personal traits and technology attributes are to be included in a group of external variables which affect attitudes only through the mediating TAM variables of perceived usefulness and perceived ease of use (Davis *et al.*, 1989).

TAM has been researched in different technology contexts and its extensive testing to date has proven that it is a scientifically robust model (Gefen, Karahanna and Straub, 2003). The adaptability of TAM to different contexts was a justification to adapt it for SST research (Gefen *et al.*, 2003). Findings show that the proposition of TAM which states that technology system

usage is predicted by perceived ease of use and perceived usefulness, could not explain fully SST adoption (Curran and Meuter, 2005; Gefen *et al.*, 2003).

Figure 2.1 Technology Acceptance Model



Source: Davis, F., Bagozzi, R. and Warshaw, P.(1989) User Acceptance of Computer Technology: A Comparison of Two Theoretical Models, *Management Science*, 35(8), pp.982-1003.

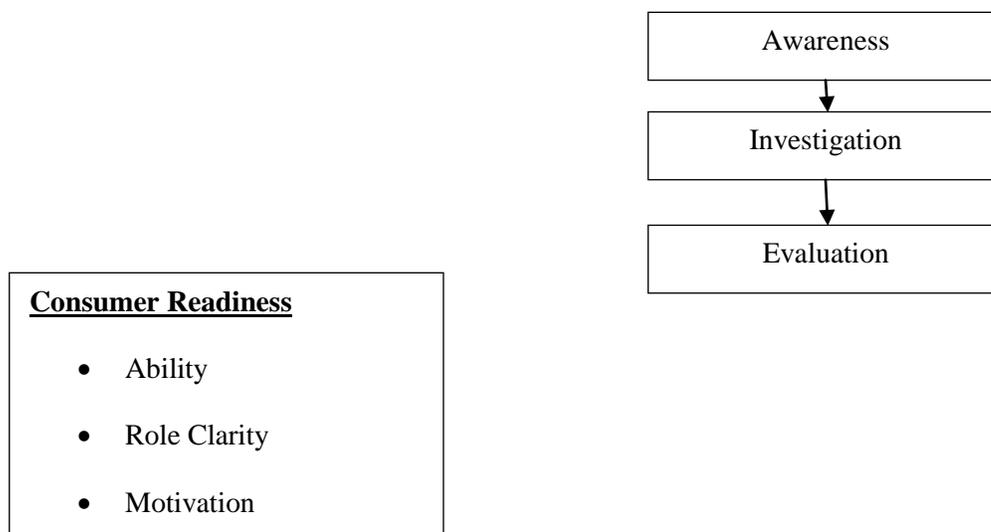
Gefen *et al.* (2003) found empirical evidence that, in an online shopping context, trust was significantly related to usage, independent of the TAM variables. Similarly, Curran and Meuter (2005) found that the adoption of online banking was more influenced by consumers' perceptions of risk, than by their perceptions of its usefulness or ease of use. Baron *et al.* (2006) offered a qualitative approach to analyzing TAM and the issue of explaining and predicting technology adoption. The authors recognized the predominantly quantitative and rational approaches into researching technology adoption in consumer markets. Baron *et al.* (2006) concluded that quantitative model verifications based on TAM have been exhausted. Baron *et al.*

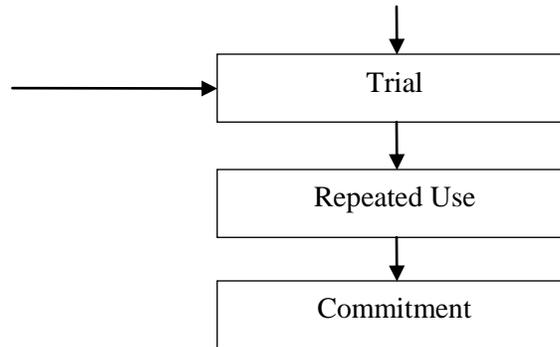
(2006) suggested that there is still room for more research into adoption as TAM fails to explain situations where SSTs are deeply influenced by social context and consumer co-creation of value. Baron *et al.* (2006) chose to employ consumer diary writing as a research instrument in the context of mobile text messaging. The study revealed that technology paradoxes and coping strategies (from Mick and Fournier, 1998), as well as consumer co-creating of value and embracement of text messaging services, provided new nuances to consumer technology-based service adoption.

2.4.2 Bitner, Brown and Meuter (2002) SST Adoption Model

SST adoption is recognized as a consumer decision process by Bitner *et al.* (2002) who proposed a conceptual model comprising of six stages namely, awareness, investigation, evaluation, trial, repeated use and commitment. Please refer to their model in Figure 2.2. Their model was developed on the basis of qualitative in-depth interviews with consumers and the integration of theory. Bitner *et al.* (2002) conducted 22 in-depth interviews with customers of a healthcare company which was in the process of trying to implement a voice response ordering system for prescription refills (Bitner *et al.*, 2002). The results confirmed that awareness of the SST was an initial stage of the adoption process, after that the consumer collected additional information about it and evaluated the advantages and drawbacks of the offered new SST over the traditional method of service delivery. If the evaluation was positive, the customer was likely to try the SST. The outcome of the trial would then determine if the usage was repeated (Bitner *et al.*, 2002).

Figure 2.2 Model of SST Adoption





Source: Bitner, M., Brown, S. and Meuter, M.(2000) Technology Infusion in Service Encounters, *Journal of the Academy of Marketing Science*, 28(1), pp.138-49.

Meuter *et al.* (2005) determined that the trial stage of the Bitner *et al.* (2002) adoption model deserved most attention as it is crucial for adoption. A set of factors predicting trial was derived from previous adoption literature. Those antecedents included - innovation characteristics (compatibility, relative advantage, complexity, observability, triability and perceived risk), and individual differences (inertia, technology anxiety, need for interaction, previous experience, age, gender, education and income). The set of predictors was hypothesized to be mediated by the consumer readiness construct which is conceptualized as role clarity, motivation and ability (Meuter *et al.*, 2005).

Meuter *et al.*'s (2005) research confirmed that the dimensions of the readiness construct mediated the set of individual differences and innovation characteristics tested. *Role clarity* and *extrinsic motivation* emerged as the consumer readiness factors which mediated the largest amount of antecedent predictors. They suggest further research regarding the exploration of the other steps of the adoption process from awareness to commitment, as well as in-depth research of the most influential mediator of role clarity.

3.0 CONCLUSION

This paper provided an overview of the relatively new area of SSTs, concentrating on consumer adoption. This area of research has been attracting attention as there are obvious advantages that

SSTs offer to both consumers and service providers, whilst certain drawbacks are to be taken into consideration.

The review of the key SST adoption factors and models to date revealed a number of gaps which call for further research. SST adoption has been researched predominantly at a 'trial' level, i.e. Stage 4 of Bitner *et al.*'s six stage process. There are three stages preceding trial (awareness, information search and evaluation) and no factors have been identified which may improve awareness of SSTs or influence towards a better evaluation. Similarly, beyond the trial stage, research has been interested mainly in satisfaction outcomes but has not investigated other factors contributing to repeated usage (Beatson *et al.*, 2007).

The strategic importance of understanding SST adoption factors is essential in service industries, especially if large investments are involved (Anitsal and Schumann, 2007). Some SSTs do not gain adoption because service providers do not take into consideration that a high level of consumer participation is involved, and sometimes the consumer is not rewarded for his input (Anitsal and Schumann, 2007). Therefore, an understanding of the consumer perspective is of importance in terms of awareness, adoption, repeated usage and commitment to SSTs.

4.0 REFERENCES

Anitsal, I. and Schumann, D.(2007) Toward a Conceptualization of Customer Productivity: The Customer's Perspective on Transforming Customer Labour into Customer Outcomes Using Technology-Based Self-Service Options, *Journal of Marketing Theory and Practice*, 15(4), pp.349-63.

Baron, S., Patterson, A. and Harris, K.(2006) Beyond Technology Acceptance: Understanding Consumer Practice, *International Journal of Service Industry Management*, 17(2), pp.111-35.

Beatson, A., Lee, N. and Coote, L.(2007) Self-Service Technology and the Service Encounter, *The Service Industries Journal*, 27(1), pp.75-89.

Bitner, M., Brown, S. and Meuter, M.(2000) Technology Infusion in Service Encounters, *Journal of the Academy of Marketing Science*, 28(1), pp.138-49.

Bitner, M., Ostrom, A. and Meuter, M.(2002) Implementing Successful Self-Service Technologies, *Academy of Management Executive*, 16(4), pp.96-108.

Cases, A.(2002) Perceived Risk and Risk-reduction Strategies in Internet Shopping, *The International Review of Retail, Distribution and Consumer Research*, 12(4), pp.375-94.

Castro, D., Atkinson, R. and Ezell, S.(2010) Embracing the Self-Service Economy, *The Information Technology and Innovation Foundation*, April 2010.

Chang, J. and Samuel, N.(2004) Internet Shopper Demographics and Buying Behaviour in Australia, *The Journal of American Academy of Business*, September, pp.171-6.

Cheung, C. and Lee, M.(2000) Trust in Internet Shopping: A Proposed Model and Measurement Instrument, *Proceedings of the 6th Americas Conference on IS*, Long Beach, CA.

Chiu, Y., Fang, S. and Tseng, C.(2010) Early Versus Potential Adopters: Exploring the Antecedents of Use Intention in the Context of Retail Service Innovations, *International Journal of Retail and Distribution Management*, 38(6), pp.443-59.

Connolly, R. and Bannister, F.(2008) Factors Influencing Irish Consumers' Trust in Internet Shopping, *Management Research News*, 31(5), pp.339-58.

Cunningham, L., Gerlach, J., Harper, M. and Young, C.(2005) Perceived Risk and the Consumer Buying Process: Internet Airline Reservations, *International Journal of Service Industry Management*, 16(4), pp.357-72.

Cunningham, L., Gerlach, J. and Harper, M.(2004) Assessing Perceived Risk of Consumers in Internet Airline Reservations Services, *Journal of Air Transportation*, 9(1), pp.21-35.

Cunningham, L., Young, C. and Gerlach, J.(2008) Consumer Views of Self-Service Technologies, *The Service Industries Journal*, 28(6), pp.719-32

Curran, J. and Meuter, M.(2005) Self-Service Technology Adoption: Comparing Three Technologies, *Journal of Services Marketing*, 19(2), pp.103-13.

Dabholkar, P. and Bagozzi, R.(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(3), pp.184-201.

Dabholkar, P., Bobbitt, L. and Lee, E.(2003) Understanding Consumer Motivation and Behavior Related to Self-Scanning in Retailing, *International Journal of Service Industry Management*, 14(1), pp.59-95.

Davis, F., Bagozzi, R. and Warshaw, P.(1989) User Acceptance of Computer Technology: A Comparison of Two Theoretical Models, *Management Science*, 35(8), pp.982-1003.

Davis, F.(1989) Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, *MIS Quarterly*, September, pp.319-40.

Dean, D.(2008) Shopper Age and the Use of Self-Service Technologies, *Managing Service Quality*, 18(3), pp.225-38.

Elliott, K., Meng, J. and Hall, M.(2008) Technology Readiness and the Likelihood to Use Self-Service Technology: Chinese vs. American Consumers, *Marketing Management Journal*, 18(2), pp.20-31.

Forsythe, S. and Shi, B.(2003) Consumer Patronage and Risk Perceptions in Internet Shopping, *Journal of Business Research*, 56(11), pp.867-875.

Gefen, D., Karahanna, E. and Straub, D.(2003) Trust and TAM in Online Shopping: An Integrated Model, *MIS Quarterly*, 27(1), pp.51-90.

Kim, L., Qu, H. and Kim, D.(2009) A Study of Perceived Risk and Risk Reduction of Purchasing Air-Tickets Online, *Journal of Travel and Tourism Marketing*, 26, pp.302-24.

Lee, J. and Allaway, A.(2002) Effects of Personal Control on Adoption of Self-Service Technology Innovations, *Journal of Services Marketing*, 16(6), pp.553-73.

Lee, H., Cho, H., Xu, W. and Fairhurst, A.(2010) The Influence of Consumer Traits and Demographics on Intention to Use Retail Self-Service Checkouts, *Marketing Intelligence and Planning*, 28(1), pp.46-58.

Liebermann, Y. and Stashevsky, S.(2002) Perceived Risks as Barriers to Internet and E-commerce Usage, *Qualitative Market Research: An International Journal*, 5(4), pp.291-300.

Liljander, V., Gillberg, F., Gummerus, J. and Riel, A.(2006) Technology Readiness and the Evaluation and Adoption of Self-Service Technologies, *Journal of Retailing and Consumer Services*, 13, pp.177-91.

Lin, J. and Hsieh, P.(2005) The Influence of Technology Readiness on Satisfaction and Behavioral Intentions Toward Self-Service Technologies, *Computers in Human Behavior*, 23, 1597-615.

McKnight, D., Choudhury, V. and Kacmar, C.(2002) Developing and Validating Trust Measures for E-Commerce: An Integrative Typology, *Information Systems Research*, 13(3), pp.334-59.

Meuter, M., Bitner, M., Ostrom, A., and Brown, S.(2005) Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies, *Journal of Marketing*, 69(April), pp.61-83.

Meuter, M., Ostrom, A., Roundtree, R and Bitner, M.(2000) Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters, *Journal of Marketing*, 64(July), pp.50-64.

Mick, D. and Fournier, S.(1998) Paradoxes of Technology: Consumer Cognizance, Emotions, and Coping Strategies, *Journal of Consumer Research*, 25(2), pp.123-43.

Nilsson, D.(2007) A Cross-Cultural Comparison of Self-Service Technology Use, *European Journal of Marketing*, 41(3/4), pp.367-81.

Parasuraman, A.(2000) Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies, *Journal of Service Research*, 2(4), pp.307-20.

Rayport, J (2009) Ourspace: The Shift to a Social Web, *Business Week*, 18 May, Issue 4131, p.67.

Reinders, M., Dabholkar, P. and Frambach, R.(2008) Consequences of Forcing Consumers to Use Technology-Based Self-Service, *Journal of Service Research*, 11(Nov), pp.107-23.

Simon, F. and Usunier, J.(2007) Cognitive, Demographic, and Situational Determinants of Service Customer Preference for Personnel-in-Contact over Self-Service Technology, *International Journal of Research in Marketing*, 24, pp.163-73.

Walker, R. and Johnson, L.(2006) Why Consumers Use and Do Not Use Technology-Enabled Services, *Journal of Services Marketing*, 20(2), pp.125-35.

Wu, S.(2003) The Relationship Between Consumer Characteristics and Attitude Toward Online Shopping, *Marketing Intelligence and Planning*, 21(1), pp.37-44.

Wu, J. and Tsang, A.(2008) Factors Affecting Members' Trust Belief and Behaviour Intention in Virtual Communities, *Behaviour & Information Technology*, 27(2), pp.115-25.

Yousafzai, S., Pallister, J. and Foxhall, G.(2009) Multi-dimensional Role of Trust in Internet Banking Adoption, *The Service Industries Journal*, 29(5-6), pp.591-605.

Zeithaml, V., Parasurman, A. and Malhotra, A.(2002) Service Quality Delivery Through Web Sites: A Critical Review of Extant Knowledge, *Journal of the Academy of Marketing Science*, 30(4), pp.362-75.

Zhu, Z., Nakata, C., Sivakumar, K. and Grewal, D.(2007) Self-Service Technology Effectiveness: the Role of Design Features and Individual Traits, *Journal of the Academy of Marketing Science*, 35, pp.492-506.