Are you being self served?:
An overview of business adoption of self-service technologies (SSTs)

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Abstract

Business behaviour has altered dramatically with the increase of technology use in a B2B context. Self service technologies are also increasing in use, from people checking out their own library book, selecting their own seats on airplanes, and booking hotel rooms online. While there is a good understanding of self service technologies in marketing, there is little understanding of business adoption of self service technologies. This paper is part of an ongoing study and will provide an overview of SST adoption by businesses. It will conclude providing a conceptual model and a series of research propositions to be tested by the author.

Introduction

Businesses are increasingly utilising technologies in their business to business (B2B) relationships. Furthermore, technology has had profound influences on services, and has altered the way services are delivered (Bitner, Ostrom and Meuter, 2002), particularly with the increased use of self-service technologies (SSTs). Many organisations have implemented e-business operations to assist them in their B2B activities, to provide improved levels of customer service to the target market, and to lower costs for communication and distribution. This paper will provide an overview of self-service technologies from a B2B perspective, with implications for further research.

Innovation adoption in organisations

Much of the literature on innovation adoption relates to individual adoption or diffusion through the market. Literature suggests differences in adoption patterns between individual consumers and organisations. From a B2B perspective, industry type appears to influence the innovativeness of a company. According to the Boston Consulting Group (Business Week, 2005), of the 20 most innovative companies in the world, eight of them are internet and computer related, with others including companies such as 3M, Sony, Nokia, Wal-Mart and Starbucks. It could therefore be argued that industry type will influence interest in adoption of innovations.

Research has suggested that innovation adoption in organisations differs from individual adoption. Nevertheless, when attempting to understand business adoption, a two-part stage is required – firstly where the management of the organisation must choose to adopt the technology, and secondly, where the end users are engaged in implementing the technology (Zaltman, Duncan and Holbeck, 1973; Leonard Barton and Deschamps, 1988), suggesting that views of both management and end users are important in understanding the adoption process. Gallivan (2001) reinforces this by suggesting that adoption of technology needs to be examined in two stages – that is,
Primary Authority Adoption and Secondary Adoption, covering both management and staff.

From an organisational point of view, Rogers (1995) believes that it is essential to understand managerial attitude in order to predict innovation adoption within an organisation. Within organisational contexts, Rogers proposes six stages of behaviour leading to adoption. These stages are: agenda setting; matching; decision; redefining/restructuring; clarifying; routinising.

Four categories influence innovation adoption in organisations: individual factors; organisation factors; environmental factors and innovation characteristics (Lakhanpal, 1994). Key elements predicting organisation adoption are: Managerial intervention; Subjective norms; Facilitating conditions; Secondary adoption process; Assimilation and Consequences (Gallivan, 2001).

Through this brief discussion of the existing literature, it is clear that a number of organisation innovation adoption models exist, however none relate to SST adoption by organisations.

**Services Marketing and self service technologies**

Turning the customer into a co-producer of a service has become evident where the customer participates in value creation (Vargot and Lusch, 2004), such as checking out a library book, booking a hotel room online, and of course, internet banking. Self-service technologies are undertaken at varying rates – for instance, purchasing books and flights online have been adopted with enthusiasm, whilst self-scanning at retail shops has had less appeal for customers (Bitner et al, 2002). From a business perspective, there is little understanding of SSTs.

From a services marketing perspective, it is important to note that SSTs have influenced SERVQUAL measures (Parasauraman, Zeithaml and Berry, 1988), making it essential to understand what drives satisfaction and dissatisfaction with technology from a business customer perspective (Meuter, Ostrom, Roundtree and Bitner, 2000). SERVQUAL looks at five dimensions of service quality: responsiveness, reliability, assurances, empathy and tangibility (Parasauraman et al, 1988). Rexha (2005) suggests that within SSTs, additional measures are required. Utilising an online banking context, Rexha (2005) proposes that security, online system quality, convenience, feedback management, efficiency, queue management, accessibility and customization are also essential (based on Sathye, 1999; Jun and Cai, 2001 and Joseph, McClure and Joseph, 2001). Most SSTs do not have service recovery systems in place, and the customer must speak to someone over the telephone or in person (Bitner, et al, 2002) increasing dissatisfaction with the technology and potentially the brand. In general, research indicates that when a SST assists in a difficult situation, is better than the alternative and works, customers generally utilise these technologies. Comparatively, when an SST fails, is poorly designed, or the customer makes mistakes, consumers do not find SSTs helpful (Bitner, et al, 2002).

As SSTs are increasing in use, and as a model of business adoption of SSTs does not exist, a new model has been proposed.
Proposed Model of Technology Adoption and Acceptance

Currently, there are a number of models utilised to discuss B2B Technology Adoption and Acceptance. Primarily, the models by Rogers (1995) and Davis et al (1989) are viewed as the most relevant to this study, however neither look specifically at adoption of SSTs by organisations. Based on the literature, the proposed model looks at eight stages.

These stages are: Agenda setting; matching (perceived usefulness); attitude towards use; perceived ease of use; behavioural intention (decision); redefining; clarifying and routinising. Furthermore, issues such as perceived risk, organisational variables, characteristics of the innovation and individual are important to address. (Rogers, 1995; Frambach and Schillewaert, 2002 and Davis et al, 1989).

Further research

Through this brief discussion of the literature, it is evident that future research needs to be undertaken to understand SST adoption by organisations. The objective for further study therefore, is to find out:

*Which organisational and relationship characteristics (iv) impact on the adoption and acceptance of self-service technologies (dv)?*

Table one clearly indicates the research propositions, literature and justification of these research propositions.

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<tr>
<th>Research proposition</th>
<th>Literature / justification</th>
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<td>1: a product with an innovative distribution method will be perceived as innovative,</td>
<td>Alderson (1954) believed that distribution could be utilised to increase innovativeness. A customer will perceive a traditional product with an innovative</td>
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<td>regardless of whether the product is traditional or innovative.</td>
<td>distribution method as innovative. In other words, a traditional product, such as banking, is perceived as innovative simply due to the method of distribution – such as utilising self-service technologies.</td>
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<td>2: an organisation’s perception of innovation of a product/distribution will lead to</td>
<td>Dimensions of perceived risk include: functional risk, performance risk, physical risk, psychological risk, social risk and financial risk (Peter and Tapey,</td>
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<td>an increased perception of perceived risk.</td>
<td>1975; Jacoby and Kaplan, 1972; Pires, Stanton and Eckford, 2004; Tsiros, M., and Heilman, C., 2005)</td>
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3: previous experience with Self Service Technologies (SSTs) within an organisation will reduce the perception of risk of new SSTs.

As perceived risk increases, motivation to use an SST declines (Meuter, Bitner, Ostrom and Brown, 2005). Furthermore, previous experience with related technologies is likely to influence consumer readiness (Meuter, et al, 2005), and satisfaction with prior use of technologies lowers perceived risk (Pires, et al, 2004).

4: a lack of perceived risk will lead to technology adoption.

Literature has suggested that a reduced perceived risk will lead to trial (Meuter, et al, 2005) and trial can generally lead to adoption (Rogers, 1995).

5: increased trust leads to a decline in perceived risk

Familiarity with a brand can reduce perceived risk (Ha, 2002).

6: internal and external organisational characteristics, and industry innovativeness, will impact on adoption of SSTs and ultimately, satisfaction of SSTs.

A series of internal and external organisational factors can influence on the firm’s decision to use e-procurement and e-commerce (Buttriss and Wilkinson, 2003). Furthermore, it is evident that the type of industry can impact on innovativeness (Buttriss and Wilkinson, 2003; Business Week, 2005).

7: the innovative characteristics of a product will impact on satisfaction of adoption of SSTs.

Research has indicated that characteristics of an innovative product can lead to adoption of the product (Rogers, 1995).

To synthesise, it is research propositioned that innovative distribution can lead to a perception on innovation, leading to an element of perceived risk. Trust and previous experience with SSTs can reduce this perceived risk, which, it is proposed will then lead to acceptance of SSTs, and ultimately satisfaction. Furthermore, characteristics of the organisation and industry type, and characteristics of the product can influence this satisfaction. This is shown in the following conceptual diagram.
Summary

To summarise, it is evident that as the use of SSTs increase, business adoption will also need to increase. An understanding of business adoption and acceptance of SSTs is lacking.

This paper has briefly reviewed the literature, and provided an overview for future research. It has built on existing models to provide a conceptual model for testing, with the use of seven research propositions. This paper is part of an ongoing study that will continue to examine B2B adoption and acceptance of SSTs. The author will utilise this framework to carry out future research.
Reference List


Leonard Barton, D., and Deschamps, I., 1998. Managerial Influence in the implementation of new Technology, Management Science: 14


Parrasuraman, A., Zeithaml, V., and Berry, L., 1988. SERVQUAL: A multi item scale of measuring consumer perceptions of service quality: Journal of Retailing, 64, 1


Tsiros, M., and Heilman, C., 2005. The effect of expiration dates and perceived risk
on purchasing behaviour in grocery store perishable categories, Journal of Marketing,
Vol 69, April 2005

Vargot, S., and Lusch, R., 2004. Evolving to a new dominant logic of marketing,
Journal of Marketing, 68 (1)

York, Wiley and Sons