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Examining the Factors Influencing the Adoption of Web-Based Ticketing: Etix and its Adopters

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Abstract

This paper examines the case of the consumer adoption of an air travel service innovation, namely delivering electronic tickets (Etix) for air travel, which may be viewed as an innovation in service delivery. The qualitative study reported here adopted Rogers' model of perceived innovation attributes and was augmented by Bauer's framework of perceived risk. Participants in focus groups were categorised according to their attitudes towards buying electronic tickets for air travel through the Internet. The perceived innovation attributes were identified to be significant determinants of consumers' adoption decisions and practices. In addition, two more dimensions were found to influence consumers' adoption decisions, stressing the high complexity of the adoption decisions for Internet-based air travel ticketing innovations. The findings have practical value for organisations in the air travel sector as well as for traditional travel agents and Global Distribution Systems (GDSs).

Keywords: Etix; ticket distribution; innovation; adoption; air travel; innovation attributes

1 Introduction

The launch of new and innovative travel products and services is an important area for both academics and practitioners. Nevertheless, the majority of products and services launched every year are unsuccessful at significant cost and though estimates of failure levels vary, the current trend stands. Therefore, an in-depth understanding of the reasons some people adopt an innovation and others do not, together with an identification of the factors that may influence this decision is expected to be of considerable practical value. The airlines' web-based ticketing context is one which may be of particular interest for the understanding of consumer adoption of innovations. New services are difficult to evaluate in advance of purchase (particularly where credence qualities dominate). In such contexts, the higher levels of uncertainty and perceived risk that face consumers may serve to emphasise the importance of effective travel marketing activity to influence and support the consumer's adoption decision (Pechlaner et al, 2002).

This paper examines the case of the consumer adoption of an air travel service innovation, namely delivering electronic tickets (Etix) for air travel with scheduled airlines, through the medium of the Internet. The main framework for analysing the perceived attributes of an innovation has been Rogers' (1983) seminal model, with many successive researchers also including the dimension of perceived risk (e.g. Holak, 1988; Lockett and Littler, 1997; Tjostheim, 2002). The above research has mainly been carried out in the context of the adoption of tangible new products. However, the innovation of delivering electronic tickets for air travel through the Internet represents a complex relationship between an intangible service (high in credence qualities) and an innovative medium of service delivery (the Internet). In this framework, the objectives of this paper are: to re-evaluate the applicability of Rogers' (1983) model in the context of paperless Etix tickets; and, to try to identify any potential additional factors that may influence a consumer's decision to adopt.

2 Literature Review

Past research relating to consumer adoption of innovations in both product and service markets has mostly tended to focus on identifying the characteristics of innovators and early adopters, emphasising particularly on socio-demographic and psychographic attributes of consumers. From a psychographic viewpoint, the notion of consumer innovativeness has maintained significant interest as most authors have tried to identify those individuals who display innovative behaviour and are therefore most likely to be innovators or early adopters. After identifying those individuals, then they could be considered as the clear target for marketing campaigns for new product launches. However, the measurement of innovativeness has proved difficult (Goldsmith and Hofacker, 1991) as it became evident that experiential innovativeness could not necessarily be considered as equivalent to intrinsic innovativeness and that innovativeness in general varied across domains. Despite measurement complications, studies have tried to identify the impact of innovativeness on adoption decisions with

the construct of intrinsic innovativeness being explained by the cognitive style of the consumer (Foxall 1994). In addition, Foxall and Bhate (1993a, 1993b) suggested that the notion of intrinsic or 'innate' innovativeness by itself might be too crude and that the connection between this characteristic of individuals and their adoption decision might be influenced by the product context and different levels of involvement.

A number of other researchers that have investigated the characteristics of innovators have focused largely on socio-economic and demographic factors. Many studies have concluded that innovators and early adopters tend to be better educated, with higher incomes and of higher social status than the early and the late majority (LaBay and Kinnear, 1981; Lockett and Littler, 1997). Inclination to job changes has also been identified as a characteristic of innovators, as well as hours worked (Lockett and Littler, 1997). Other personal characteristics found to be important include product category involvement (Dickerson and Gentry, 1983), social character (Donnelly, 1970) and opinion leadership (Rogers, 1983). Although such personal characteristics have been established as significant predictors of consumers' adoption of an innovation, an increasing body of research (Holak, 1988; Lockett and Littler, 1997; Christou and Sigala, 2003) has verified that it is the perceived attributes of the innovation itself rather than the personal characteristics of the innovators and the early adopters that are the most significant predictors of the adoption decision.

However, the attributes of the innovation themselves have tended to receive rather limited consideration than the personal characteristics of innovators. Nonetheless, given that these attributes are under the control of marketers, then undoubtedly an understanding of the impact of product or service attributes on the adoption of an innovation becomes a remarkable and important research issue. Moreover, existing research in service innovations has tended to concentrate on the processes of new service development (John and Storey, 1998) and with some noteworthy exceptions there has been rather limited research on innovations from the consumers' perspective. In all cases where research has focused on the consumer perspective (Rugimbana and Iversen, 1994; Szymigin and Bourne, 1999), the framework associated with the early research by Rogers on innovations in rural societies (Rogers, 1983) has proved to be of significant value.

Rogers' (1983) seminal work outlined a model for evaluating the perceived attributes of an innovation that involves five constructs: relative advantage, compatibility, trialability, observability and complexity. In addition, a large number of studies have also adopted the notion of perceived risk, as described by Bauer (1960) (see Holak, 1988; Lockett and Littler, 1997; Sigala, 2001; Christou and Kassianidis, 2002; Christou and Sigala, 2003). Perceived risk may be of particular relevance in a service context where consumers usually face difficulties in evaluating a service innovation prior to its adoption. The first four characteristics are positively related to the adoption of an innovation and the remaining two, are negatively related (Bauer, 1960; Rogers, 1983). The relationships between these different constructs and the nature of their influence on adoption are discussed below.

The notion of relative advantage is concerned with the extent to which an innovation is perceived by potential adopters as being superior from the idea, product or service it supersedes (Rogers, 1983). The construct of relative advantage is highly domain specific, although dimensions that are found to have some generality include reduced costs and greater convenience. A key issue is that it is not the better performance of an innovation in an objective sense that matters, but rather the superiority of performance as subjectively perceived by the customer (Szymigin and Bourne, 1999). The compatibility of an innovation is the degree to which an innovation is perceived as consistent with past values, experiences and the needs of the potential adopter (Rogers, 1983). An innovation that has resonance with a consumer, and where the consumer feels comfortable or familiar with the innovation, will have a greater possibility of adoption than an innovation which lacks these attributes. In the case of Etix (or Internet ticketing), this notion of compatibility may simply refer to a consumer's acquaintance with the use of the Internet. Trialability refers to the degree to which an innovation is perceived as being trialable, usually on a limited basis prior to adoption. The opportunity to experiment with an adoption is an effective way for reducing perceived risk and thus might have a positive impact on the adoption decision. Finally, the observability of an innovation describes the extent to which an innovation is visible and desirable to other members of a social group. The more visible an innovation (and its associated benefits), the greater the probability of adoption, simply because the gains from adoption will be more easily recognised.

Complexity and perceived risk are the two perceived innovation attributes that are negatively related to the adoption of an innovation. The complexity of an innovation is the degree to which it is perceived as relatively difficult to understand it and use it by members of a social system (Rogers, 1983). Previous research indicates that the complexity of innovations was more highly related (negatively) to their rate of adoption than any other characteristic of the innovations except relative advantage (Singh, 1966). In addition, uncertainty plays a role in adoption decision in the form of perceived risk (Shimp and Bearden, 1982) and this construct is expected to be of considerable significance in relation to service adoption.

In the case of the air travel services industry there have been a limited number of studies into the adoption of related new technologies for distribution. The relative advantage associated with the convenience of being able to receive an airline's ticket outside of travel shop's opening hours has been found to be important in both the case of the adoption of tickets delivered by traditional post (Rugimbana and Iversen, 1994) and telephone based ticketing services (Lockett and Littler, 1997). By contrast, the attributes of flexibility and convenience were found to be of limited value as a source of relative advantage (Szymigin and Bourne, 1999). A major factor in people not adopting innovative ticketing delivery channels is the fact that customers may like to interact with travel agents (Zeithaml and Gilly, 1987; Leblanc, 1990). In addition, perceived risk and the perceived complexity of the innovation were important negative influences on adoption in the case of both mail-delivered tickets (Rugimbana and Iversen, 1994) and telephone based ticketing services (Lockett and Littler, 1997).

Internet ticketing has received rather less research attention because of its comparative novelty, and much of the existing research has adopted an organisational perspective (e.g. Morrison and Roberts, 1998). Where research has focused on consumer related issues, there is evidence to suggest that the patterns that emerge are similar to those of earlier work in that convenience, flexibility and control tend to encourage adoption of new channels and concerns about security and complexity discourage adoption (see, for example, Sathye, 1999). Interestingly, in a more detailed study of motivations, Barczak *et al.* (1997) suggest that this may be a rather simplistic view and highlight instead the importance of focusing attention on travel management philosophies as predictors of the types of channel used.

While these studies are indicative of the relevance of the Rogers framework in the adoption of new services, the focus of attention in most of the previous studies has been on innovations that might be considered to be dynamically continuous in that although there is novelty involved, there is nevertheless a high degree of continuity either in the nature of the service or the mode of access (e.g. mail or telephone). By contrast, the development of Etix presents a much greater degree of discontinuity as a consequence of the nature of the delivery channel (the Internet). While there are a number of exploratory studies in relation to Internet travel services from the consumer perspective, an in-depth analysis of the adoption decision regarding electronic tickets for air travel is still required. Thus the research reported in this paper aimed to identify the extent to which established approaches that have been used to study the adoption of new service innovations may prove relevant in consumer decisions to adopt a major ticketing service innovation.

3 Research Methodology

Because of the exploratory stage of the research it was decided that a qualitative approach, using focus group interviews was appropriate. Focus groups are flexible by nature and allow for the exploration of consumer reactions to new product concepts. In total, twelve focus groups were conducted each comprising between eight and ten participants. In selecting the participants, two screening criteria were employed: a) all participants had to be involved in the purchasing of air travel tickets in their own household; and b) all participants had to have some familiarity with computers and the Internet.

The second criterion was employed as a consequence of initial exploratory research which suggested that individuals with no awareness of the Internet struggled to contribute to any discussion of Etix services because such an innovation was highly incompatible with their experience. In effect, the sample was then constrained to include only those for whom compatibility was less likely to be a major issue. The three segments identified were:

Group1: Internet users that have purchased airline tickets over the Internet, including Etix.

Group2: Internet users that have purchased airline tickets over the Internet but not Etix (these consumers preferred to receive by post a traditional “paper ticket”).

Group3: Internet users that have not purchased anything over the Internet.

This segmentation procedure was deemed necessary because it would facilitate a more meaningful dialogue between group members than if the groups had been heterogeneous. Each segment comprised two focus groups, with *Group 2 (G2)* and *Group 3 (G3)* requiring a demonstration of Web pages from airlines that offer Etix in order to familiarise them with the topic, despite their general familiarity with the Internet.

In order to gain more background information on the participants they were asked to complete a questionnaire before the start of the session. The results showed that the income increased significantly from *Group 3 (G3)* to *G2* and from *G2* to *G1*, while at the same time the working hours between the three segments did not differ considerably. In terms of service category involvement, air travel service usage significantly increased from *G3* to *G2* and from *G2* to *G1*; *G3* and *G2* own fewer telecommunications products than *G1*. No differences could be found across the groups in terms of consumer independent judgement making and intrinsic innovativeness - based on the scales by Manning, cited in Bruner *et al.* (2001).

All interviews were taped and transcribed, which facilitated a detailed two-stage analysis. First, the transcripts were coded; the codes were partly based on the attributes of innovations as identified in the model by Roger (1983) and partly emerged from the interviews. At a second stage, the three groups, as described above, were contrasted in order to identify possible differences.

4 Results and Discussion

4.1 Relative advantage

Compared to telephone based ticketing services, group three and two did not identify any additional advantages, except from having the details visually available. However, they highlighted several disadvantages related to availability, accessibility and level of service. More specifically, it was mentioned that the time to log on might take longer than making a phone call, while once on-line, the transaction might take longer because the respondent felt that he had to "check and re-check" the form filled-in on-line, as he or she was worried of making mistakes.

Regarding accessibility, the use of a mobile phone was seen as leaving one more freedom with regard to where the transaction is taking place (e.g. from a bus).

Telephone ticketing services, as well as visiting a travel agent, were also seen more positive due to the possibility of asking questions and having a contact person.

In contrast to the above, *G1* identified a number of additional advantages compared to using the phone. Highlighted were issues such as better overview of ticketing situation (i.e. just-in-time transactions) and travel planning and the hope of cheaper tickets due to cost savings on the part of the airlines. *G3* and *G2* regarded human interaction as an advantage. However, participants in *G1* expressed their dissatisfaction with the service they are given in travel shops or over the telephone, and appeared to feel that using the Internet was less of a hassle.

G3 and *G2* participants also expressed their view that using the Internet compared to other channels should lead to economic advantages due to the savings of the airlines; however, they were aware of none significant. On the other hand, *G1* participants stressed the good ticket prices offered by an Internet-only airline (like easyJet and Ryanair) and the advantage of comparing ticket prices. The running costs related to conducting ticketing transactions on the Internet compared to other channels elicited a wide range of responses. *G3* and *G2* participants mentioned that it depends on the travel agent's location, or expressed a view that the potentially lower access costs would not convince them to change to the Internet. *G1* participants stressed that off-peak time can be used to reduce the cost.

One of the major advantages identified by users of paperless Etix was the greater control afforded to them by the use of this channel. This was in sharp contrast to respondents in *G3* and, to a lesser extent, in *G2* who sensed a possible loss of control, not least because of their dependence on a technology that they did not understand and a feeling that somehow, the PC might control what happened to them.

Therefore, adopters do recognise significant benefits (accessibility, convenience, cost, control) from the Internet for ticketing services, although many expressed reservations with respect to more complex travel services. Non-adopters retain concerns for the use of the technology, the risks involved and the loss of face to face interaction.

4.2 Compatibility

For many of the non-adopters of Etix, compatibility with their experience and values appeared to be a major issue. Although the initial segmentation was expected to screen out consumers for who compatibility levels would be low, many participants in *G3* were unenthusiastic users of information technology. Some of them did not use credit cards. This contributed to a noticeable degree of resistance to the Internet as a distribution channel. At the same time, this group of participants emphasised their interest in using the television to access the Internet, as the television and operating the remote control were seen as familiar and thus, trustworthy. Participants in *G1* often referred to their busy lifestyle and the inconvenient opening hours of travel shops, as well as call centres. Typically, these people were also highly familiar with

information and communications technologies and thus felt comfortable with the idea of using such systems for ticketing.

Consequently, the degree to which an innovative channel such as the Internet is compatible with the individual's past experiences and values appear to have a significant impact on willingness to adopt; respondents in group three clearly felt uncomfortable with the Internet while those in group one were much more relaxed about computers in general and the Internet in particular.

4.3 Trialability

Only *G1* participants were aware that the Web pages of airlines contain demonstration facilities. Having seen the demonstrations, *G3* and *G2* participants emphasised their usefulness. This highlights the fact that trialability is crucial. However, although Web-based demonstrations are helpful, other opportunities for trial need to be extended to non-computer owners. Furthermore, the fact that such trials are available needs to be communicated more efficiently to potential adopters.

4.4 Observability

The use of the Internet for purchasing tickets is not visible for other members of the society; it is not even widely discussed in a social setting. This is a theme which emerged from all three groups. *G1* participants mentioned that they knew of others who conduct their ticketing transactions over the Internet, while this was only mentioned by one participant in *G3* and *G2*. Thus, it appears that using the Internet for ticketing transactions has little associated social esteem and thus the extent to which others can observe its use does not appear to be a contributor to adoption.

4.5 Complexity

The perception of the complexity involved when conducting ticketing transactions on the Internet was inversely related to a participant's experience with computers. Responses of *G3* members varied, while some (after seeing the demonstration) described it as 'straightforward' and 'self explanatory', others noted that it was complicated as many on-line forms needed to be completed and this appeared a 'daunting' task. Thus, the perception of complexity seems to be related to previous experiences. Although there are different views of complexity across all three groups, clearly the first group, and to a lesser extent the second group, have overcome their concerns about complexity to become users. The third group have not and even those who recognise that Internet ticketing is not that complex are obviously encountering other barriers to adoption.

4.6 Perceived risk

Perceived risk is analysed here in terms of risk of error and the level of security compared to telephone ticketing or visiting a travel shop. Major differences could be

observed across the three groups. While *G1* participants felt that Etix enabled them to be in control and they are unlikely to make an error, on the other hand, *G3* and *G2* participants found this as a daunting responsibility and appear to have more trust that travel agents are less prone to errors than they are. Therefore, it appears that segments 3 and 2 lack self-confidence when compared to *G1* and perceive a higher degree of risk, largely in relation to their own ability to use the channel effectively. Regarding security, *G3* and *G1* participants engaged extensively in story telling about 'hackers', thus, it appears that fear was still a deterrent to using the Internet for ticketing transactions, which was far less prevalent in *G1*. However, participants across all segments acknowledged that this fear was irrational.

5 Conclusions

The present study concentrated on the innovation of delivering ticketing services through the Internet and re-evaluated the applicability of Roger's (1983) model. All focus group members used for data gathering were selected based on their usage of the Internet. Those who use the Internet to purchase Etix (*G1*) differ from those who use the Internet to purchase other goods/services, but not ticketing services (*G2*) on the basis of higher income, and more use of information technology. *G2* (users of the Internet but have not yet purchased anything over the Net) compared to *G3* participants differ in terms of higher income and a larger product related involvement.

Contrasting these three groups revealed that based on the factors of Rogers' model, *G3* and *G2* have very similar attitudes in terms of the advantages perceived by using the Internet compared to visiting travel shops or using the telephone, and share a similar attitude towards the risk involved. Their attitude was far less positive than their *G1* counterparts. As one of the strongest influencing factors which emerged for adoption of the Internet to conduct ticketing transactions was compatibility with a person's values and previous experience with the product category, i.e. computers. Trialability was regarded as important for future adoption; however, its availability needs to be better communicated.

Although the Rogers framework for evaluating the perceived attributes of an innovation is a useful starting point, some other issues also emerged which need to be considered, namely societal issues and the sense of fatalism. While the former could have a negative effect on adoption, the latter seems to have a positive effect. Future research is needed to shed more light on these issues.

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