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Empirical Findings on Perceived Value of Mobile Commerce as a Distribution Channel

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Abstract

Internet growth will be fueled by mobile commerce using mobile telecommunication services. The highly personalized, anytime-anywhere access features of mobile telecommunications will cause mobile commerce applications to grow even faster than fixed-line e-commerce. Mobile commerce will complement, not replace the fixed-line e-commerce. Our research is designed to answer two major questions: (1) can we identify qualities of the distribution channel that influence the choice of distribution channel between m-commerce, e-commerce and traditional channels? 2) can we identify groups of goods and services where consumers prefer m-commerce as a distribution channel? The data collection for the main study will be conducted using undergraduate and graduate students drawn from Management Information Systems class at a southeastern university as subjects.

Keywords: Mobile commerce, distribution channel, consumer transactions, mobile devices, fixed-line devices

Introduction

Few topics have received as much attention as the Internet/World Wide Web (Web) in the information technology field. The Web has become one of the most important mediums for sharing business information in e-commerce. Internet growth will also be fueled by mobile commerce (m-commerce) – i.e., the use of mobile telecommunication services to conduct business. In fact, it is likely that the highly personalized, anytime-anywhere access features of mobile telecommunications will cause m-commerce applications to grow even faster than fixed-line e-commerce in the near future [Shim, Simkin, and Bartlett, 2001].

Over the past decade, we have seen significant increases in the use of the Web. As new technologies are introduced, providers experience stagnation of growth due to an inability to meet the real customers needs, and sudden increases in growth when problems are resolved or killer applications are introduced. We have seen similar patterns in the development of m-commerce. The emphasis has been on development of infrastructure, but actual consumer use has lagged far behind anticipated use of the mobile Internet. Part of the explanation lies, without doubt, with the difficulties of using mobile devices with very limited input and output functions. Keyboards are tiny, handwriting recognition is inaccurate, and display screens have been very small compared with regular computer monitors. Many experts now consider mobile phones only suitable for buying simple products, such as flowers, travel packages, or concert tickets (Pringle, 2001). Perhaps we need to focus on the unique capabilities of mobile devices: providing time-sensitive information anywhere, anytime (Mooney, 2001).

In a longitudinal study of usage and satisfaction levels of Internet shopping, reasons to use the Internet for purchasing are given as convenience, 24-hour availability, timely access to information, and quick response time (Stark and Meyer, 2001). Major reasons for not using the Internet for purchases include credit card security concerns, products/service guarantee concerns, inability to check the merchandise physically, unfamiliarity with merchants, and inability to shop quickly and without difficulties (Stark and Meyer, 2001). Over time, the strengths will remain and problems will be resolved.

The mobile Internet has seen similar problems since its inception. The Wireless Application Protocol (WAP) has not been widely adopted, and recently the proportion of mobile device owners intending to use their handsets for mobile commerce has actually

declined (Mobinet 2). Consumers do not find any uses of these devices compelling, find them difficult to use (Delaney 2001), and are concerned about security (Mobinet 2). Very few use their mobile devices to access the Web. Most consumers prefer to use PC's rather than mobile phones for online shopping (Mobinet 2), even though access is not as universal as it could be with a mobile device. Perhaps we need to reevaluate if we anticipate mobile devices as substitutes that will eventually replace computers with fixed connections or rather as complements to be used side-by-side.

Traditionally, consumers have gone to physical markets and stores. Before the advent of the Internet, channels such as mail-order catalogs and ordering by phone were introduced as alternatives. M-commerce can be a similar complement to fixed-line e-Commerce, rather than a replacement. Consumers will have an additional choice, and may choose based on perceived ease-of-use, perceived usefulness (Davis 1989), perceived risks of product or service, perceived risk of online transaction, and perceived security risk. Not all factors carry the same weight for all products and services, and consequently some products and services may be more suited for m-commerce than others. Furthermore, rather than using the mobile Internet as a segregated distribution channel, the information providing capabilities could be the deciding factor in consumer purchase decisions. Specifically, two major questions are addressed: (1) Can we identify qualities of the distribution channel that influence the choice of distribution channel between m-commerce, e-commerce and traditional channels? 2) Can we identify groups of goods and services where consumers prefer m-commerce as a distribution channel?

Prior Significant Works

In recent years, the traditional Technology Acceptance Model (Davis, 1989) has been expanded to include perceived risk (Bhatnagar *et al*, 2000) (Kim *et al*, 2000) in their work on Internet shopping behavior.) A difference between the study of Kim *et al* (2000) and our study, is that Kim *et al*'s study focused more on consumers and lifestyles, whereas our study focuses more on the unique qualities of purchasing channels (traditional, Internet, and mobile devices) which could lead consumers to prefer one channel over another when performing certain transactions. Recently, Kim *et al* (2000) presented that lifestyle can be an important determinant in choice of marketing channel. However, we feel that the mobile Internet should either be part of an overall marketing strategy where the unique qualities of the mobile Internet are used to select functions, or vendors and suppliers should focus on those transactions where the mobile Internet has a distinct advantage. In summary, our research model assumes four independent variables (*perceived usefulness, perceived ease-of-use, perceived product risk,* and *perceived transaction risk*), and one dependent categorical variable (the *preferred distribution channel*).

Hypotheses

Regarding qualities of the distribution channel that influence the choice of distribution channel between m-commerce, e-commerce and traditional channels ,we hypothesize:

> H_1: Lack of perceived ease-of-use of mobile devices will negatively influence the choice of m-commerce as a distribution channel for consumer transactions.

> H_2: Perceived usefulness of mobile devices will positively influence the choice of m-commerce as a distribution channel for consumer transactions.

> H_3: Perceived risk of product or services will negatively influence the choice of m-commerce as a distribution channel for consumer transactions.

> H_4: Perceived transaction risk will negatively influence the choice of m-commerce as a distribution channel for consumer transactions.

Regarding groups of goods and services where consumers prefer m-commerce as a distribution channel, we hypothesize:

> H_5: Products and services with a high information intensity will negatively influence the choice of m-commerce as a distribution channel

> H_6: High financial risk will be negatively associated with choice of m-commerce as a distribution channel

H$_7$: Products and services with a high benefit of location independence will be associated with choice of m-commerce as a distribution channel

H$_8$: Products and services that benefit from immediate fulfillment of needs, will be positively associated with choice of m-commerce as a distribution channel.

Research Methodology

The research methodology for this study has two phases: phase one concerns user's perceptions and experiences (qualitative method) and phase two concerns customer's perceptions (quantitative method). For phase one of the study, existential phenomenological method has been employed. The core assumptions of this method can be described through the metaphors of pattern, figure/ground, and perspective [Thompson *et al*, 1989]. Within a given context, a person experiences a view that has a pertinent pattern. To employ existential phenomenology in this study, the authors used the interview approach [Kvale, 1983]. Accordingly, respondents were presented with a set of questions (see Appendix A). A sample of participants was obtained by networking: people who were identified as having frequently shopped for consumer goods/services on the Internet were asked to name additional people with this experience. The majority of respondents, whose names were obtained through networking or referral were well-educated, comfortable with computer use, and already somewhat experienced with online shopping.

The respondents in this study generally use fixed-line devices, mobile devices, or traditional devices, to make purchases of goods/services. A list of possible uses for mobile commerce that emerged from the literature review and modified by the results from 9 interviews includes *Entertainment, Information, Utility*, and *Shopping*. (see Appendix B1 and B2). The results in this study will be based on the pretest and on the data collection for the main study. The data collection for the main study will be conducted using undergraduate and graduate students drawn from a southeastern university as subjects.

After the data has been collected, we will perform a Factor Analysis on the variables listed in Appendix B2. Orthogonal rotations will be used to clarify the factor structure, but no one oblique rotations will be used so that we will be able to use either factor scores or a summated scale in the second part of the analysis. In the Multiple Discriminant Analysis, each possible use for m-commerce will be assessed separately, to ascertain which factors (represented either by factor scores or by summated scales) contribute or detract from choosing m-commerce as the preferred distribution channel for the particular activity. After single possible uses of m-commerce have been evaluated, we will also perform a Factor Analysis on the results of the choices in Appendix B1, to evaluate possible groupings of uses for which the three distribution channels are preferred. Finally, we will consider collapsing the traditional and fixed Internet groups into a single non-mobile commerce group, and use Logistic Regression to discover if the results from the first part of the analysis can help predict choosing for or against m-commerce as a distribution channel.

Expected Findings/Conclusions

We have observed that m-commerce has not lived up to the expectations so far, and we know that changes in human behavior are currently slower than the changes in technology. We expect perceived lack of ease-of-use and, to a lesser extent, perceived lack of usefulness to be stronger negative influences than perceived risks associated with transactions and security. Perhaps we have focused too much on making m-commerce safe and secure, and neglected to ask ourselves why consumers would choose to use a mobile device, when other choices are available and established in the routine of daily life. We also expect few types of transactions to be performed preferably by mobile device. This finding may provide guidance for future research to understand perceived value of m-commerce as a distribution channel.

What Will be Presented at AMCIS

The authors will present the final results from the survey.

Note: Appendices, Figures, References are available upon request.