Online Trust in Mobile Commerce

Yuk Kuen Wong
Griffith University, Australia

C. J. Hsu
Griffith University, Australia

INTRODUCTION

Mobile commerce (m-commerce) has seen significant growth in the last 10 years with rapid growth in a number of areas such as mobile marketing and mobile Internet business. It has been predicted that this rapid growth will continue, with a more than doubling of users to 3.9 billion users, and 50% of the world's population, in the next five years (Worldwide Mobile Market, 2006).

In 2005, the global total number of SMS messages sent has reached 670 billion and this figure is expected to grow to 2.6 trillions by 2007 (Bauer, Barnes, Reichardt, & Neumann, 2005). The usage of SMS business such as mobile advertising products or services is rapidly increasing. Recently reports estimated that approximately 15% of SMS global traffic would be for commercial purposes in 2004. In comparison, the m-commerce activities are more active in some of advanced countries such Finland which has reported between 50%-70% (*Finland: Mobile marketing reaches nearly half of Finns, 2005*). It has been reported that over 70% of mobile users have received mobile marketing in 2005 whereas around 10% are engaged with mobile business activities where customers who buy products via their mobile phones (PEAR, 2006, p.1). As a result, it is important to further explore strategies for implementing mobile commerce.

The aim of this study focuses solely on the customer's perceptions of the m-commerce environment, rather than on trust in intermediaries or in third parties that might mediate between the customer and the store. The focus is on development of a framework to explain m-commerce acceptance in consumers' decision-making process. The chapter further extends the technology acceptance model (TAM) in mobile commerce, particularly in the context of the consumer's confidence level in the buying decision making process, rather than only focusing on the users' acceptance of technology. The chapter provides a theoretical framework for m-commerce adoption and also suggests the important relationships between psychological and behavioral factors in the consumer decision-making process.

BACKGROUND

The m-commerce environment is more uncertain and riskier than the traditional retail environment. Since the transactions can take place without personal contact, customers are generally concerned with the legitimacy of the vendor and authenticity of the products or services. Thus, buying confidence and trust over the mobile network or Internet are major concerns. Consumer's confidence has been identified as a construct that is critical for the success of m-commerce (Steele & Tao, 2006; Tao & Steele, 2006; Torkzadeh & Dhillon, 2002), because without it, customers will not use the vendor's technology application and do business with the online mobile vendors (Reichheld & Schefter, 2000). Therefore, it is important that online mobile businesses recognize that developing customer's confidence is a key to success in m-commerce environments. As such, mobile business should continually analyze how to develop customer's confidence (Tao & Steele, 2006).

M-commerce is an extension of e-commerce. In terms of e-commerce, mobile commerce often refers to the business to consumer (B2C) model (Wong, Rubasinghe, & Steele, 2005b). In particular, Louis (2001) classified mobile B2C to include the following characteristics:

- Wireless data delivery service is a critical element of m-commerce. Popular services are weather and sports reports, traffic conditions, financial news, stock portfolio tracking, stock quotes, and telephone directory assistance.
- M-commerce transactions often require immediate actions for people on the run. For example, typical m-commerce transactions include buying

tickets, purchasing goods from vending machines via wireless devices, and trading stocks.
- M-commerce marketing functions may alert users of shops and special sales based on their locations.

There are a number of mobile technologies and applications supporting m-commerce. For example, location-based services can be used for advertising goods or services to customers in a unique way. Many innovative technologies and applications in B2C mobile commerce can be found in the retail industry (Extended Systems, 2002; Roussos, 2002; Wong et al., 2005a; Wong, Hsu, & Steele, 2005b). However, to build trust and reach customers, it is important to understand customer buying behavior such as their buying decision process.

Framework for Online Trust in Mobile Commerce

This section reviews some research streams and based on identified factors effecting confidence from the previous section, determines which ones may affect consumer buying decisions (Steele & Tao, 2006). A framework of m-commerce acceptance is proposed and discussed. A significant body of knowledge from several research streams sheds light on how confidence forms. Drawing from those theoretical streams, a number of confidence antecedents have been identified from the literature. The framework of the mobile technology acceptance model has a number of elements which are psychological and behavioral factors that effect buying behavior (see Figure 1) (Wong & Hsu, 2006). The behavioural factors include perceived ease of use and perceived usefulness (these two factors are directly adopted from TAM) (Davis, 1989). The psychological factors refer to security, convenience and trust.

Behavioral Factors

In most technological inventions, success or failure is determined by user acceptance. Attewell & Rule says it's "the pivotal factor" (Al-Gahtani, 2001). User cooperation is essential for many technology applications of mobile technology. Three important factors that lead to acceptance:

- Users have a need for increased security, and believe that the mobile technology will increase security (Wong et al., 2005a).
- Mobile technology is more convenient to use than previous/alternative systems.
- Users trust those holding the data to keep them secure and not use them in any other way than the advertised purpose.

Perceived Usefulness and Perceived Ease of Use

The technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a technology. The TAM was first introduced by Davis et al. in 1986 (Davis, 1989). The model provides a traditional viewpoint about technology acceptance from users' aspects. The level of the users' acceptance depends on perceived usefulness and perceived ease of use. TAM is a well-respected model of IT adoption and use. TAM shown in Figure 2 includes two constructs; perceived usefulness and perceived ease of use (Davis, 1989).

TAM is used as a base model to produce a causal model resembling a network of relationships among the constructs of the study. This work has also indicated that perceived usefulness has the largest influence on IT acceptance followed by users' attitudes toward IT. Perceived usefulness is demonstrated to operate directly on IT acceptance and indirectly through user attitudes (Davis, 1989). Meanwhile, perceived ease of use has a larger influence on users' attitudes than perceived usefulness (Davis, 1989).

The core concept of TAM is that perceptions of usefulness, ease of use and other external variables will influence an individual's intention to use IT, which will ultimately influence actual usage behavior (Davis, 1989). The TAM also offers a promising theoretical basis for examining the factors contributing to IT acceptance in natural settings. A key purpose of TAM therefore, is to provide a basis for tracing the impact of external factors on internal beliefs and attitudes (Davis, 1989). TAM was formulated in an attempt to achieve these goals by identifying a small number of fundamental variables suggested by previous research dealing with cognitive and affective determinants of computer acceptance (Davis, Bagozzi, & Warshaw, 1989).

Perceived usefulness and perceived ease of use are the two particular beliefs, as depicted in Figure 2. According to this model, system usage is determined by the users' attitude towards using the system while at-