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# FACTORS INFLUENCING THE USAGE OF MOBILE VALUE-ADDED SERVICES

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## Abstract

Mobile value-added services have drawn the attention of researchers and practitioners recently, due to the rapid development of the mobile telecommunications market. Various mobile-based services and applications have therefore been introduced in order to satisfy mobile phone subscribers' needs. Facing intensive competition, service providers are eager to persuade mobile phone subscribers into using the mobile value-added services in the hope to expand market share and ultimately raise revenues. This study therefore intends to investigate the factors that influence mobile phone subscribers' intention to use mobile value-added services in Taiwan by incorporating quality factors and perceived playfulness with the Technology Acceptance Model. A preliminary proposal is presented in this extended abstract, together with expected contributions for research and practice.

**Keywords:** Technology Acceptance Model, information quality, system quality, service quality, perceived playfulness

## Introduction

Taiwan's mobile market has been a remarkable phenomenon as it had reached the milestone of one mobile device for every person by early 2002. As of the end of 2008, there were 25.41 million mobile phone subscribers (covering 2G, PHS, and 3G systems), a 4.6 percent growth from 2007. This gives the penetration rate of 110.3 percent in the Taiwanese market (NCC, 2008), showing a strong potential of the demand for both voice and mobile value-added services that drives the market energetically moving into the "next generation" of mobile services with the awarding of five licenses for 3G services in 2002 (BuddeComm, 2009). Therefore, abundant and diverse mobile value-added services such as game, ringtone, mobile Internet applications (including community, search engine, map, email, etc.), multimedia messaging, mobile commerce, remote surveillance, and location-based services, etc. have been introduced into the market.

With the various forms of applications,

mobile value-added services serve both hedonic and utilitarian purposes. The former include multimedia message service, games, ringtone, and graphics downloads, etc., which provide entertaining or recreational values. In contrast, the latter make mobile phone subscribers consider the services as a stable and reliable source for fulfilling utilitarian demands such as location-based information, wireless network access, and mobile secretaries, etc.

Investigation into users' behavioral intention to technology acceptance has always been an important topic in IS research. Among the many theoretical perspectives, the Technology Acceptance Model (TAM) (Davis, 1989) is a widely accepted framework for its parsimony and high explanatory power across a wide variety of contexts (Taylor and Todd, 1995). Besides the external variables considered by past research, intrinsic motivation such as perceived playfulness is believed to be influential when users consider whether to adopt a new system that addresses individual experiences (Moon and Kim, 2001). In addition, to reflect the quality concerns discussed earlier, quality antecedents based on DeLone and McLean (2003) were also considered as external variables to examine whether mobile phone subscribers' perception of quality influence their attitude toward mobile value-added services and intention to use these services.

That is, this study intends to investigate the influence of mobile phone subscribers' hedonic and utilitarian beliefs on their intentions to adopt mobile value-added services. The objectives of this study are to understand whether perceived playfulness as hedonic and quality as utilitarian factors influence mobile phone subscribers' intention to use mobile value-added services, and to analyze the relationships between these factors and IT adoption determinants, based on TAM. The research model can be seen as an extension of TAM to include hedonic and utilitarian antecedents to explain the adoption of mobile value-added services.

## Research Methodology

The hypotheses to be examined are as follows.

- H1: Perceived ease of use positively influences perceived usefulness of mobile value-added services.*
- H2: Perceived ease of use positively influences behavioral intention to use mobile value-added services.*
- H3: Perceived usefulness positively influences behavioral intention to use mobile value-added services.*
- H4a: System quality positively influences perceived ease of use of mobile value-added services.*
- H4b: System quality positively influences perceived usefulness of mobile value-added services.*
- H5a: Information quality positively influences perceived ease of use of mobile value-added services.*
- H5b: Information quality positively influences perceived usefulness of mobile value-added services.*
- H6a: Service quality positively influences perceived ease of use of mobile value-added services.*
- H6b: Service quality positively influences perceived usefulness of mobile value-added services.*
- H7: Perceived ease of use positively influences perceived playfulness of mobile value-added services.*
- H8: Perceived playfulness positively influences behavioral intention to use mobile value-added services.*

A pilot test will be performed. To ensure diversity in the research sample, the questionnaire will be administered to students from five departments of three different universities in Taiwan.

After evaluating the appropriateness of the measurement model with confirmatory factor analysis, the formal online survey will be carried out. The online mode of data collection is selected because of its advantages in expediency in data collection, ease of data tabulation, and the ability to reach a wide population of users (Bhattacharjee, 2002). The announcement for the event will be posted on the largest bulletin board system (ptt.cc) and the largest community portal (wretch.cc) in Taiwan. To attract a larger number of participants to this survey, those who finish filling in the questionnaire are entitled to enter a lottery. To avoid duplicated registration into the survey, however, the IP address of each respondent will be recorded to filter out opportunistic attempts.

### **Expected Contributions**

Researchers have spent efforts on extending TAM with external variables or applying TAM to various IT adoption contexts (e.g., Hong et al., 2006; Hsu & Lu, 2004; Koufaris, 2002; Liao et al., 2007; Moon and Kim, 2001; Taylor and Todd, 1995;

Venkatesh & Davis, 2000; Wu and Wang, 2005). This research further extends this stream of research by investigating the adoption of mobile value-added services. Take the use of 3.5G mobile Internet access service for example. Depending on mobile phone subscribers' needs, the use may be either utilitarian or hedonic. If one intends to use the service to check for movie showtimes, the use is hedonic. Rather, if he or she needs to access the Internet to check for the latest stock quotes to ensure personal investment profitability, the use is relatively more utilitarian. That is, this research extends the applicability of TAM to IT services whose purposes are complex and contingent in nature, in contrast to the pure-purpose systems or services such as word processing programs, online games, or mobile commerce (Davis et al., 1989; Hsu and Lu, 2004; Yang, 2005).

From the viewpoint of information quality, information products that present features such as accuracy, meaningfulness, and timeliness, considered as the semantic level of success by Shannon and Weaver (1949), are able to convey the required content to mobile phone subscribers in an intended and clear manner. For example, location-based dining recommendation service delivers information from the operator to the mobile phone subscribers. Only clear, understandable, and meaningful information will be preferred. Suggestion of restaurant locations in the form of longitude and latitude or with only brief descriptions such as name, address, and phone number will be disliked, because the former, though accurate, is difficult to interpret and is thus meaningless, and the latter does not help much for the decision of dining places.

System quality regards the desired characteristics of the system such as high availability, reliability, adaptability, accessibility, and response time. Therefore, mobile telecommunications service providers are expected to provide dense coverage of signal and highly responsive and available infrastructure, especially during peak hours, so that the mobile value-added services can operate seamlessly, without mobile phone subscriber complaints for, for example, lagged transmission of video clips, long download time for ringtones, or delayed delivery of short messages. With high system quality, mobile phone subscribers may perceive the system to be easy to use and useful, thus are more willing to be continual subscribers of the services.

Giving mobile phone subscribers a positive service experience also contributes to the adoption of mobile value-added services. Positive service experiences may come from easy-to-access online help or instant assistance of and prompt response from customer service agents. Periodical and

frequent upgrade of services, such as adding new features, gives mobile phone subscribers the sense of surprises and reliability. Feeling that the service provider is willing to continually spend efforts on maintaining and improving their services, mobile phone subscribers are likely to generate positive perceptions of the effectiveness and promptness of user support as well as the reliability and trustworthiness of the services.

Further, although ease of use and usefulness have been conceived as important issues in traditional IS contexts, playfulness will play an important role with the popularization of mobile value-added services. Playfulness reflects the usage contexts beyond usefulness alone (Davis et al., 1992; van der Heijden, 2004). Motivated by playfulness, an intrinsic motivation that focuses on the process of performing the activity, mobile phone subscribers tend to form the feeling of flow or enjoyment with easy-to-use user interface, thus making them willing to adopt the services, and further introduce the services to more of their colleagues.

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