

# Chapter 7

## Effects of Adaptivity and Other External Variables on Mobile Service Adoption

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### ABSTRACT

*User Interfaces act as the interaction layer between human and computer and have an important role in system adoption. According to technology acceptance model, acceptance of a system is explained as a function of perceived usefulness and perceived ease of use. Since there are several external variables that have an impact on those variables, the content and interface design of every single application should be addressed specifically to enhance users' intention to use the system. Adding adaptive features into systems may be one of the approaches to address this phenomenon. This paper identifies external variables including adaptive behavior impacting acceptance of a mobile reservation system through implementation of two prototypes.*

### INTRODUCTION

Technology Acceptance Model (TAM) explains how information systems users adopt a new technology (Davis et al., 1989). According to TAM, acceptance of a system is modeled as a function of perceived ease of use and perceived usefulness

which mediate effects of external factors through behavioral intention to system acceptance (Davis et al., 1989). The objective of this study is to identify potential external variables that may have an influence on perceived ease of use, perceived usefulness and indirectly on behavioral intention in mobile system acceptance and to explore

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effects of those variables and their relationships with each other through the limited interface of a mobile device. The paper primarily focused on adaptivity. It is expected that different external variables have different impacts on perceived ease of use and perceived usefulness and that adaptivity, one of the external variables that we mostly focus on, enhance both ease of use and usefulness and indirectly behavioral intention in mobile system adoption. Also, those external variables are expected to have effect on each other which as a result influences mobile IS acceptance through mediation of perceived ease of use, perceived usefulness and behavioral intention. In order to explore the propositions, 2 prototypes of a mobile service were developed.

## **LITERATURE REVIEW**

Research has several streams related to our objectives. There is a significant amount of work done specifically in the adoption of information systems. There is a growing amount of work focusing on mobile services and finally equal amount of work focusing on adaptivity factor.

### **Mobile Service Adoption**

According to prior research, there are several user and service related characteristics that impact users' intentions to use an information system.

#### **Adoption Factors**

Pinhanez (2008) proposed a Service Science framework for online service applications in order to explain and predict the differences between traditional interactive software tools and online service applications. Through the framework, 15 important issues for online service interfaces have been identified. Those issues include trust, privacy, security, consistency and personalization which are the constructs derived from our study. Chalmers (2003) proposed that cognitive factors

and concepts should be taken into consideration when developing user interfaces. According to Bederson (2004) interfaces should keep us on the flow by making us concentrate on our work. Wood et al. (2006) mentioned about importance of attention and proposed 8 design issues to consider for developing systems that are aware of user attention. Murrell (1998) explained design principles that should be taken into account for use in a multi lingual, multi cultural environment. Kamppuri, et al. (2006) explored culture-related studies to analyze occurrences and characteristic of culture studies in HCI. Bassam and Mesbah (2007) examined interface style's impact on user perceptions and behavioral intention for technology acceptance and usage. They found out that interface style has indirect effect on behavioral intention through its direct effects on perceived ease of use (PEOU) and perceived usefulness (PU). Ho (2006) explored motivating and inhibiting factors and their effects in switching from current websites to personalized websites.

#### **Adoption Frameworks**

Kargin et al. (2009) investigated adoption factors in mobile services and figured out that usefulness and ease of use are the most important aspects which can be influenced by service or social aspects that constitute the main determinants of mobile service adoption taxonomy proposed in their paper. Phuangthong and Malisawan (2005) examined factors, the constructs in TAM, which have effects on user adoption of 3G Mobile Internet technologies in mobile learning. Huang and Huang (2005) studied TAM in the women-centric context and have remarked that perceived usefulness is not a contributory factor for the intention to visit a web site in the women-centric context and perceived ease of use is less important when compared to perceived usefulness and perceived playfulness. Through the use of Eye Tracking Study and Scan path analysis methods, Lorigo et al. (2006) analyzed impact of gender and task on users' search and evaluation behavior. In order to

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