

# Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology

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## Abstract

Technology acceptance research has tended to focus on instrumental beliefs such as perceived usefulness and perceived ease of use as drivers of usage intentions, with technology characteristics as major external stimuli. Behavioral sciences and individual psychology, however, suggest that social influences and personal traits such as individual innovativeness are potentially important determinants of adoption as well, and may be a more important element in potential adopters' decisions. This paper models and tests these relationships in non-work settings among several latent constructs such as intention to adopt wireless mobile technology, social influences, and personal innovativeness. Structural equation analysis reveals strong causal relationships between the social influences, personal innovativeness and the perceptual beliefs—usefulness and ease of use, which in turn impact adoption intentions. The paper concludes with some important implications for both theory research and implementation strategies.

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**Keywords:** Wireless Internet via mobile technology; Social influences; Personal innovativeness; Adoption intention; Technology acceptance model; Mobile data services

## 1. Introduction

Mobile commerce as the second wave of e-commerce is penetrating into various aspects of our life due to the latest improvement in wireless Internet services via mobile

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technology (WIMT). As a consequence, a rapidly increasing number of organizations are making substantial investments in this new area. Nonetheless, the value of wireless Internet services will only be realized when consumers embrace WIMT as a desirable new system.

For years, research studies have empirically examined the determinants of IS usage (e.g. Davis, 1989; Mathieson, 1991; Moore and Benbasat, 1991; Taylor and Todd, 1995a; Thompson et al., 1994; Venkatesh and Davis, 2000). However, just as Karahanna and Straub (1999) pointed out, most studies on end-user beliefs and attitudes are conducted some time after the systems have been adopted. Consequently, the beliefs and external stimuli identified are mostly suitable for studying continued-use behavior. Even though initial adoption is the first step in long-term usage, the factors that affect usage may not be the same for initial adoption, or the degree of effect may vary.

In the information systems area, few researchers have addressed the issue of pre-adoption criteria. Identifying the pre-adoption criteria thus remains a critical issue in IS research. This has become more important for the adoption of wireless mobile systems. Wireless Internet services is at the stage of initial implementation via mobile devices such as PDAs and 2G, 2.5G and 3G mobile phones in the United States. The latest term for these type of services is mobile data services, covering communication services (e.g. emails, short message services), Web information services (e.g. weather information, sports, stock quotes), database services (e.g. telephone directories, map guides), entertainment (e.g. games, ring-tones), and commercial transactions (e.g. banking, stock trading, ticketing, online auction) (Massey et al., 2004). The web services seem to have the right success factors -right price, quick and easy to use. Yet, the expected adoption is not optimistic. According to a Yankee Group report (*Wireless Data Use Still Limited in US, 2004*), most US mobile users are not convinced of the need for mobile data services. Of the 2490 consumers surveyed, only 11% expressed strong interests in accessing primary email. Percentages of interest on other data services were all much lower. On a global scale, the US is forecasted as a developed market for mobile data services, along with Europe, Japan, Korea. Nevertheless, the m-commerce revenue as forecasted for the US is only 1.7 billion dollars for 2004, compared to 4.5 billion for Japan, 7.4 for Asia as a whole, and 4.6 for West Europe (Coursaris and Hassanein, 2002). Adoption research, therefore, is critical for identifying pre-adoption criteria and suggesting strategies for market development.

In the MIS field, explanations of why users behave in particular ways toward information technologies have been focused predominantly on instrumental beliefs such as perceived usefulness and perceived ease of use as drivers of usage intentions. Prior work in behavioral science and psychology, however, suggests that holistic experiences with technology as captured in constructs such as enjoyment, flow, and social image are potentially important explanatory variables in technology acceptance (e.g. Ajzen and Fishbein, 1980; Klonglan and Coward, 1970; Triandis, 1971; 1980). Researchers in MIS recently also suggest that factors influencing intention to use IS may vary, and the degree of influence of the same factors differs with different stages of adoption (Legris et al., 2003).

This study attempts to advance the theoretical understanding of the antecedents of early adoption. Specifically, the study investigates (1) to what extent individual perceptions toward WIMT is attributed to social influences; (2) to what extent individual perceptions

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