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Antecedents and consequences of perceived value in Mobile Government continuance use: An empirical research in China

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ABSTRACT

This paper examines the antecedents and consequences of perceived value in m-government continuance use. Drawing upon service science studies and Chinese m-government context, a research model is constructed by extending the technology acceptance model (TAM). Data collected from a field survey of 326 m-government users are analyzed to test the proposed hypotheses. The results indicate that perceived value is strongly influenced by mobility, perceived usefulness and security, which is, in turn, significant impact on satisfaction and trust in technology, trust in agent and trust in government. These results contribute to drawing attention to the important role of perceived value in m-government continuance use and providing a new view that supplements to the extant technology acceptance research.

1. Introduction

The emergence of mobile technology (MT) is not only changing the way of running business, as demonstrated by the fast growth of mobile commerce, but also enabling the transformation of the way that governments deliver their services (Sharma & Gupta, 2004). The explosion in the use of MT has forced the governments to prepare themselves to transit from e-government to Mobile Government (m-government). M-government, the subset of e-government (Lallana, 2004), refers to the strategy and its implementation for providing information and services to government employees, citizens, businesses, and other organizations through mobile devices (Ishmatova & Obi, 2009; Lee, Tan, & Trimi, 2005; Lee, Tan, & Trimi, 2006). Though m-government is still in its infancy, it is very likely to be implemented in the government to help run business quickly while MT is becoming more and more available. Therefore, it is important to find out which factors influence people on successfully using m-government.

IT usage behavior of individuals over the past two decades has attracted many scholars to research from various theoretical perspectives such as the theory of reasoned action (Fishbein & Ajzen, 1975), theory of planned behavior (Ajzen, 1991), technology acceptance model (TAM) (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989), innovation diffusion theory (IDT) (Rogers, 1995), and unified theory of acceptance and use of technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003). These studies have examined antecedents which motivate individuals to accept a new IS, and how they do it. However, there are little research paying attention on m-government adoption, with the exception of Hung, Chang, and Kuo (2013), Jen and Hung (2010), and Hu, Chen, and Hu (2010), especially empirical research on m-government continuance usage. Though first-time use of information system is an important contribution to accomplishing IS success, long-term acceptance of an IS and its eventual success depends on its continued use rather than initial use (Bhattacherjee, 2001; Zhao, Stylianoua, & Zheng, 2013; Zhou, Fang, Vogel, Jin, & Zhang, 2012). That is why so many firms are currently very successful in today's use of IS, but long-term use of IS often encounters failures (Lyytinen & Hirschheim, 1988). So m-government continuance usage stage should be emphasized.

The main purpose of this paper is to understand m-government continuance use or reuse (in contrast to initial use or adoption). Our research model will be based on TAM, to investigate the antecedents and behavioral consequences of perceived value. The rest of this paper organizes as follows. Section 2 proposes TAM to theorize a model of m-government continuance use. Section 3 describes the field survey used for testing the research model above. Section 4 presents the results of the statistical data analysis and research model testing. Section 5 discusses the major findings of the study, implications for research and practice, and limitations and future research direction. The final section summarizes the core findings of the study and its contributions.

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2. Theoretical development and hypotheses

2.1. Mobile Government service in China

The public sector has made great progress in utilizing e-government since the 1990s in China (Chen, Pan, Zhang, et al., 2009), e.g., Twelve Golden Projects. Based on this information network, the central government of China has been conducting Government Online Projects to promote the applications of e-government at province and ministrie levels of government (Ma, Chung, & Thorson, 2005), especially Golden Tax Project in tax sectors. Golden tax Project is the most important e-government project in China, which has being developed since 1993 to aim at the installation of a nationwide computer network. Chinese Governments invested about 16 billion Yuan so far in constructing three phases of Golden Tax Project. The third phase of Golden Tax Project are currently being developed by the Mainland tax authorities. On its completion, taxpayers and tax officials can verify the invoices received via their own anti-fraud invoicing control machines (terminal port of the Golden Tax System) while the tax authorities can monitor all Value Added Tax invoices issued throughout the Mainland.

With the construction of Golden Tax Project deeply and the rapid growth of use of wireless and mobile networks and devices, M-technology and devices in China is widely used. According to China Internet Network Information Center data, till July 2013, the total number of China's wifi users had reached 591 million, and over 464 (78.5%) million of them use mobile phones as their equipment to surf the net. OA and SMS have been widespread in many government departments in China, especially in taxation departments. Taking mobile tax message platform (MTMP) as an example, MTMP is used to provide tax information for taxpayers, such as tax news, tax notice, tax alert, tax investigation and so on. Taxpayers can also deliver feedback to tax authorities to interact. In actually, MTMP is prevalent in all provinces in China, especially in Henan province. Because the development of Golden Tax Project is the maturest in Henan province, it ranks the first service unit in seven consecutive years in the country. Moreover, Henan province is the first time to start using MTMP (named as 12366 mobile SMS platform) in 2009, users of MTMP is more than 200 thousand at present. Therefore, this study will focus on MTMP and choose Henan province enterprises as samples to test research model in the next section.

2.2. Technology acceptance model

The TAM is selected, not UTAUT including a number of moderating variables, as the theory background because TAM has a concise structure and is the most commonly used model in the IT acceptance literature (Xue, Liang, & Wu, 2011). According to TAM, an individual's intention to use information system is influenced by perceived usefulness and perceived ease of use. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort. The perceived ease of use influences the user's intention through the perceived usefulness. These two perceptions help shape the user's attitude toward usage and intention to use (Davis, 1989). TAM is a parsimonious and powerful model, consistently validated by numerous studies across different settings and technologies. Besides IT applications for firm use, recent researches have also established the applicability of the model for user adoption of e-commerce (Gefen & Straub, 2000), m-commerce (Fang, Chan, Brzezinski, & Xu, 2006), e-government (Carter & Bélanger, 2005), and m-government service (Hung et al., 2013).

Though TAM is widely used in pre-adoption of IS, its targets limited application to ultimate consumers. So researchers have suggested that affect, such as perceived value, should be integrated into TAM (Ko, Kim, & Lee, 2009). Perceived value refers to the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given (Zeithaml, 1988), which contains four characteristics: (1) low price, (2) meeting users specific need, (3) the balance between quality and the paying price , and (4) the surplus from what users get. Though different users will perceive different value for the same thing, (i.e., some may want volume, others high quality, still others convenience) and what is given varies (i.e., some are concemed only with money expended, others with time and effort), value represents a tradeoff of utility (income) and cost (the price). In the continuance use situation, customers who have a first-hand experience with m-government systems are able to form value evaluations. Therefore, we substituted intention to use (or use) for perceived value in the post-use situation in our model.

2.3. Antecedents of perceived value

In this paper, we take perceived ease of use, perceived usefulness, mobility, perceived security as the antecedents of perceived value in m-government continuance use.

2.3.1. Usefulness and ease of use

In TAM, perceived usefulness and perceived ease of use significantly impact on users' intention to use (Davis, 1989). According to the working system view of Alter's (2008), m-government can be considered as an information system, which defined as organizations and individuals providing their customers with products or services using wireless network and portable devices. Compared with e-government, m-government provide users with timely and personalized information and services in a more convenient and easier way, which satisfies users' multi-level information needs, and helps users improve work efficiency and complete tasks in anytime and anywhere (Yuan, Archera, Connelly, & Zheng, 2010). In addition, because of the enhanced level of customization and personalization mobile devices, they are handy and easily adopted. Thereby, m-government can obviously add benifit to users (Trimi & Sheng, 2008; Ishmatova & Obi, 2009) and greatly enhance users value (Bina & Giaglis, 2007; Fan & Poole, 2006; Ko et al., 2009). Therefore, we hypothesize that:

Hypothesis 1: Perceived ease of use will have a positive effect on perceived value.

Hypothesis 2: Perceived usefulness will have a positive effect on perceived value.

2.3.2. Mobility

In mobile computing, mobility refers to characteristics of device to handle information access, communication and business transactions while in state of motion (Yuan et al., 2010). Mobility is considered to be the typical characteristics of m-government, which facilitates users to use wireless portable device anywhere and anytime and deliver information between different wireless devices without the need for a wired network, and then increase users' value (Clarke, 2001). However, m-technology acceptance empirical research did not paid enough attention on the effect of mobility on IS adoption, e.g. Hung et al. (2013). Therefore, we hypothesize that: