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Factors affecting hotels' adoption of mobile reservation systems: A technology-organization-environment framework

Yi-Shun Wang [a], Hsien-Ta Li [a, *], Ci-Rong Li [b], Ding-Zhong Zhang [a]

[a] Department of Information Management, National Changhua University of Education, Taiwan
[b] Faculty of Management, Fuqing Branch of Fujian Normal University, China

HIGHLIGHTS

- We explore why hotels adopt mobile hotel reservation systems.
- Compatibility constitutes a facilitator, while complexity is an inhibitor.
- Firm size constitutes a facilitator, as does technology competence.
- Critical mass is found to be a facilitator.

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ABSTRACT

This study explores why hotels adopt mobile reservation systems; based on a technology-organization-environment (TOE) framework, nine factors are hypothesized to explain hotels' adoption of mobile hotel reservation systems (MHRS). Logistic regression is employed to analyze data gathered from 140 hotels in Taiwan. The results indicate that compatibility, firm size, technology competence, and critical mass are significantly positively related to MHRS adoption, while complexity is significantly negatively related to MHRS adoption. By indentifying the predictors of hotels' adoption of MHRS through the TOE framework, this study provides several theoretical and practical implications related to mobile service adoption.

1. Introduction

Mobile commerce has emerged as a vital tool for many firms as smart phones continue to evolve and gain in popularity. It offers customers accessibility, enabling them to purchase products or services at anytime, from anywhere. The emergence of mobile commerce has attracted the attention of researchers interested in gaining a better understanding of the basis for its adoption. Previous research has investigated mobile commerce adoption pertaining to specific technologies or industries, such as the insurance industry (Lee, Cheng, & Cheng, 2007), banking (Zhou, Lu, & Wang, 2010), payment services (Yang, Lu, Gupta, Cao, & Zhang, 2012), healthcare (Wu, Li, & Fu, 2011), multimedia messaging services (Chang & Pan, 2011), shopping for fashion products (Ko, Kim, & Lee, 2009), broadband wireless access technology-based games (Ha, Yoon, & Choi, 2007), public transportation ticketing services (Mallat, Rossi, Tuunainen, & Öörni, 2008), and the usage of electronic procurement systems (Gebauer & Shaw, 2004).

As suggested in previous studies (e.g., Ho, 2012; Khalifa, Cheng, & Shen, 2012; Slade, Williams, & Dwivedi, 2014; Zhou & Lu, 2011), theoretical perspectives underpinning mobile commerce adoption research include motivational theories (see Ryan & Deci, 2000), the technology acceptance model (Davis, 1989), the theory of planned behavior (Ajzen, 1991), the task-technology fit (Goodhue & Thompson, 1995), the innovation diffusion theory (Rogers, 2003), the unified theory of acceptance and use of technology (i.e., UTAUT; see Venkatesh, Morris, Davis, & Davis, 2003), UTAUT2 (Venkatesh, Thong, & Xu, 2012), the information systems success model (DeLone & McLean, 2003), the valence framework (see Peter & Tarpey, 1975), and the flow experience (Csikszentmihalyi, 1975).

* Corresponding author.
E-mail addresses: yswang@cc.ncue.edu.tw (Y.-S. Wang), hsienta.li@msa.hinet.net (H.-T. Li).

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One important mobile application associated with the hotel industry is mobile hotel reservation systems (MHRS). Wang and Wang (2010) define MHRS as location-based online distribution information systems that enable customers to reserve hotel rooms at anytime, from anywhere, through the use of portable devices. However, their study focuses on the adoption of MHRS from a customer standpoint. While a considerable body of research has investigated customers' or individuals' adoption of mobile commerce (e.g., Chang & Pan, 2011; Ha et al., 2007; Ko et al., 2009; Lee & Mills, 2010; Mallat et al., 2008; Yang et al., 2012; Zhou et al., 2010), relatively little research has examined mobile commerce adoption from an organizational standpoint (e.g., Liang, Huang, Yeh, & Lin, 2007; Mallat & Tuunainen, 2008; Pagani, 2006; Stoica, Miller, & Stotlar, 2005; Wang & Cheung, 2004). Prior researchers have called for additional studies that investigate organizational mobile commerce adoption (e.g., Slade, Williams, & Dwivedi, 2013). However, investigating MHRS adoption from the standpoint of hotels has not been addressed as of yet, representing a knowledge gap.

The purpose of this study is to investigate factors affecting hotel adoption of MHRS, and thereby contribute to the organizational mobile commerce adoption literature. In this study, MHRS refer to hotel booking mobile apps. These apps tend to fall into one of two categories: the first is apps offered by a hotel for its customers to check hotel locations, room rates, promotions, or membership information (e.g., membership points); the second is apps offered by a third-party organization that provides information on different hotels for the convenience of travelers. The factors that drive a hotel's adoption of these two types of mobile apps may differ; as such, this study focuses on hotel development and implementation of hotel booking mobile apps to ensure a better understanding of this category. Further, the current study utilizes a technology-organization-environment (TOE) framework (see Tornatzky & Fleischer, 1990) to integrate various perspectives into this investigation.

The remainder of this article sequentially discusses the theoretical foundation underpinning the study, the research model, the quantitative research method utilized to test this model, results of hypothesis-testing, and contributions, implications, and limitations associated with this study.

2. Theoretical background and research model

2.1. Organizational technology adoption

Organizational mobile commerce adoption is closely related to organizational technology adoption. An influential framework that has been utilized by organizational technology adoption studies is the technology-organization-environment (TOE) framework (see Tornatzky & Fleischer, 1990). Previous studies utilize perspectives relevant to the TOE framework to investigate the adoption of various technologies.

For instance, Hung, Hung, Tsai, and Jiang (2010) use the organizational and information system perspectives to investigate critical factors that influence hospital adoption of customer relationship management systems (cf. Racherla & Hu, 2008 for a proposed TOE framework for hospitality organizations' adoption of electronic customer relationship management systems). In Hung et al.'s (2010) study, characteristics of organization include size of organization, IS capabilities of staff, innovation of senior executives, and knowledge management capabilities. Characteristics of customer relationship management systems include relative advantage and complexity. They find that size of organization, IS capabilities of staff, innovation of senior executives, knowledge management capabilities, and relative advantage have a significant influence on hospital adoption of customer relationship management systems, while complexity does not.

Pan and Jang (2008) also employ a TOE framework to investigate firms' adoption of enterprise resource planning systems in the communications industry. The technological factors include IT infrastructure and technology readiness; the organizational factors include organization size and perceived barriers; and the environmental factors include production and operations improvement, enhancement of products and services, competitive pressure, and regulatory policy. They found that technology readiness, organization size, perceived barriers, and production and operations improvement are important determinants of adoption, while the remaining factors are not.

Teo, Lin, and Lai (2009) take a TOE framework to investigate companies' adoption of e-procurement systems. The technological factors include perceived direct benefits, perceived indirect benefits, and perceived costs; the organizational factors include firm size, top management support, and information sharing culture; and the environmental factor is business partner influence. They found that perceived indirect benefits, firm size, top management support, and business partner influence are positively associated with adoption, while the others are not.

Lin (2014) takes a TOE framework to investigate firms' adoption of electronic supply chain management systems. The technological factors include perceived benefits and perceived costs; the organizational factors include firm size, top management support, and absorptive capacity; and the environmental factors include trading partner influence and competitive pressure. Lin (2014) found that perceived benefits, perceived costs, top management support, absorptive capacity, and competitive pressure are significant adoption discriminators, while the remaining two factors are not.

2.2. Organizational mobile commerce adoption

Some studies investigate organizational mobile commerce adoption without specifying technologies and industries. For instance, Stoica et al. (2005) formulate a mobile commerce adoption model consisting of firm external factors (new technological change and government involvement) and firm internal factors (organizational culture, management structure, and business strategy).

Other studies investigate organizational mobile commerce adoption in a specific industry. For instance, Wang and Cheung (2004) investigate travel agencies' adoption of mobile e-business. They found that major obstacles to mobile e-business adoption include the lack of competitive pressure and misfit between current mobile solutions, characteristics of travel products, and patterns of customer behavior.

Additional studies investigate organizational mobile commerce adoption for a specific technology. For instance, Mallat and Tuunainen (2008) explore merchant adoption of mobile payment systems: they investigate various types of merchants, such as grocery stores, restaurants, and content providers. They found that drivers of merchant adoption include increased impulse purchases, enhanced customer service, increased product/service availability, new service offerings, gaining new customers, enhanced company image, and reductions in fees or payment processing costs. Barriers to merchant adoption include incompatibility (with existing business, as well as lack of standardization of mobile payments and suitable charging models), current solution complexity, lack of critical mass, high commissions and implementation costs, and lack of perceived security and trust in mobile payment service providers. A few years earlier, Pagani (2006) investigates factors influencing business adoption of wireless high speed data services. The companies investigated include banks and insurance