



Employees' acceptance of mobile technology in a workplace: An empirical study using SEM and fsQCA[☆]



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ABSTRACT

This study aims to analyze the antecedent conditions of work performance including performance expectancy, facilitating conditions, social influence, and which combination of them better leads to higher levels of performance when using mobile technology in the workplace. With an extended theoretical framework of UTAUT, this study undertook a survey of employees from various industrial categories in Taiwan. The data were analyzed by structural equation model (SEM) and fuzzy-set qualitative comparative analysis (fsQCA) to understand the statistical associations and the set relations of the conjunctions and conditions. Using a sample of 692 employees, the results support all four hypotheses and support the structural model built in this study. The findings suggested that using mobile technology in the workplace positively influenced employees' perceived improvement of work performance and that the performance expectancy also affected work performance improvement. Finally, facilitating conditions and social influence significantly affected mobile technology usage behavior.

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1. Introduction

In the fast-moving global market, the need for flexible workers is one major factor that motivates companies to adopt mobile technologies. Accenture (2014) forecasts a high level of organizational adoption within the next few years for both mobile business apps and mobile company apps. Li (2015) reports that more than 50% of companies in Taiwan have the willingness to implement mobile technology between 2013 and 2015 and that these companies' average investment cost of mobile technology is 2.28 million in 2015 (Chang, 2011; Citrix, 2013; Huang, 2015).

Many companies adopt and implement mobile technology in the workplace to improve the performance of internal and external communication by promoting flexibility of information access and workflows (Chao, Lin, & Hou, 2012; Harmon & Demirkan, 2011; Stieglitz & Brockmann, 2012). Recent studies and surveys have verified the benefits of implementing mobile technology in the workplace. Lu, Yueh, and Lin (2015) suggest that using mobile technology (smartphones and tablets) in the workplace improves communication among employees, clients and companies to advance workflows and enhance professional image. Stieglitz and Brockmann (2012) propose that using a mobile enterprise system helps employees access and

receive ad-hoc information, making workflows more transparent and efficient through unified communication channels. Chang, Tseng, and Woodside (2013) conduct a survey of 1700 information executives in 17 countries and find that 62% of the executives believe that improving mobility initiates employees' performance of productivity, responsiveness and job satisfaction. Similar findings are also supported by local studies in Taiwan (Chao et al., 2012; Shin Kong Financial Holding, 2014; Huang, 2015; Lu et al., 2015).

However, knowing the purposes and outcomes of mobile technology implementation is not sufficient for company executives and managers to make the decision on mobile technology adoption. Stieglitz and Brockmann (2012) explain how mobile technologies increase organizational performance after surveying 192 CIOs and IT managers in German companies. The findings suggest that employees' understanding of the organizational policies and supports, and their actual use of the mobile technologies are critical factors that predict the success of employee's usage and working performance. Corresponding to Suchman's (1995) arguments that more factors other than behavior intention should be taken into systematical consideration, Yueh, Huang, and Chang (2015) cope with the issue by developing an extended UTAUT model that presents the importance of actual usage in terms of moderating the effort expectancy and behavior intention of continued use. Additionally, Lu et al. (2015) modify the model of Stieglitz and Brockmann (2012) and indicate that organizational culture is a key factor to initiate the completely mobile IT implementation process.

In addition to fragmental findings of the studies that suggest the reactions and results of adopting mobile technologies in the workplace

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(Lee, Lee, & Hwang, 2015; Tho & Trang, 2015; Woodside, 2013), more comprehensive strategies that incorporate the organizational goals, employees' behaviors and performance assessment are required for executives to develop adaptive and appropriate mobile solutions. Therefore the purposes of this study is to explore the relationships between employees' work performance when using mobile technologies and the antecedent conditions including performance expectancy, facilitating conditions and social influence. The consideration of constructs examined are based on the goals of implementing mobile technology in business cycle and the gaps of the UTAUT model for mobile IT business value creation. With an extended theoretical framework of UTAUT, this study undertook a survey of employees from various industrial categories in Taiwan. The data were analyzed by structural equation model (SEM) and fuzzy-set qualitative comparative analysis (fsQCA) to understand the statistical associations and the set relations of the conjunctions and conditions.

2. Theoretical background and hypotheses

2.1. Conceptual model

The Unified Theory of Acceptance and Use of Technology, the UTAUT model, is frequently used as a theoretical framework to explore the adoption behavior of information technology. The model suggests the causal relationship among performance expectancy, effort expectancy, social influence and use intention of information technology, with an emphasis on the facilitating conditions that can positively influence usage behavior of information technology (Venkatesh, Morris, Davis, & Davis, 2003). However, as Suchman (1995) contends, whether users actually use new technology or systems and how they perform with them deserves even more attention than behavior intention alone. Based on the extended UTAUT model proposed by Yueh et al. (2015), and the mobile IT business value creation model from Stieglitz and Brockmann (2012), this study developed the theoretical model depicted in Fig. 1, where performance expectancy (PE) and usage behavior (USE) were hypothetically the main factors that affected the perceived improvement of work performance (PIWP). In addition, the hypothetically causal relationship among facilitating conditions (FC), social influence (SI) and mobile technology usage behavior (USE) was also demonstrated.

2.2. Performance expectancy and work performance

For a company, performance means how well the technology supports the objectives of the firm (Ragin, 2008). While employees' daily lives were rife with mobile technology and applications, this study focused on whether their attitudes and behaviors transferred to the workplace to facilitate their working performance. The concept of perceived improvement of work performance (PIWP) was developed as a subjective measurement of working performance, which referred to how useful mobile technology was to an individual employee in helping them complete their work. Performance expectancy (PE) was conceptualized under the definition proposed by Venkatesh et al. (2003) as how much an individual employee was convinced that using mobile technology would benefit their job performance. Five sub-constructs of PE, including perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations, were also included in the measurement (Venkatesh et al., 2003) and corresponded to the model proposed by Stieglitz and Brockmann (2012).

The impact of people's expectations on their performance is obvious from several prior studies (Gellatly, 1996; Sheridan, Slocum, & Min, 1975; Tatum, 2012) that support employees' job performance can be predicted by the expectancy model and that the effect of conscientiousness on task performance can be mediated by performance expectancy. Other factors that influence perceived work performance include the fit between technology and tasks (Parkes, 2013) and the perceived usefulness of the technology (Matheus, Matheus, & Neely, 2014). Based on the studies mentioned above, it could be assumed that employees' expectations of their performance have an influence on their perceived work performance (H1).

H1. Performance expectancy has a positive impact on perceived work performance improvement.

2.3. Facilitating usage behavior of mobile technology

Mobile technology by its nature belongs to information technology that consists of databases, document management systems, search engines, groupware, decision support systems, intranets and data warehouses (Wang, Klein, & Jiang, 2007). The adoption of mobile

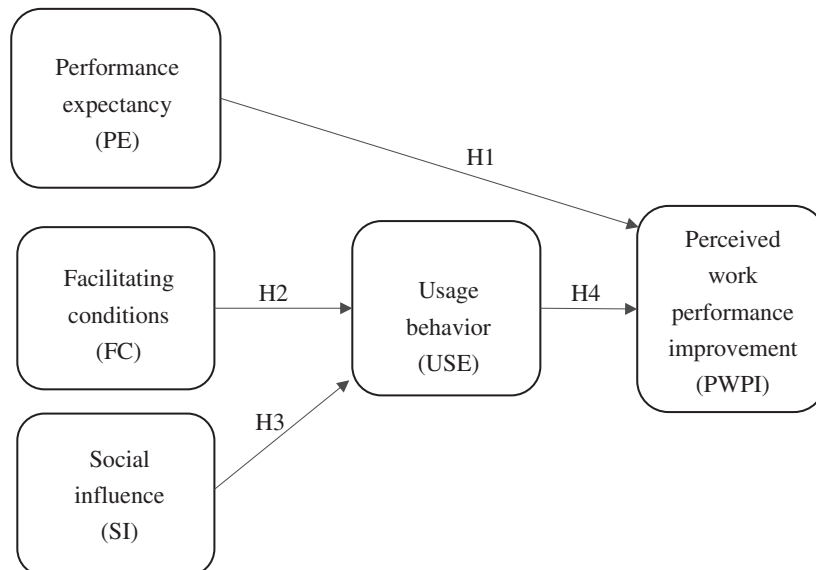


Fig. 1. Research model.

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