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Empirical evaluation of the revised end user computing acceptance model

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Abstract

This paper proposed a revised technology acceptance model for measuring end user computing (EUC) acceptance. An empirical study was conducted to collect data. This data was empirically used to test the proposed research model. The structural equation modeling technique was used to evaluate the causal model and confirmatory factor analysis was performed to examine the reliability and validity of the measurement model. The results demonstrate that the model explains 56% of the variance. This finding contributes to an expanded understanding of the factors that promote EUC acceptance. The implication of this work to both researchers and practitioners is discussed.
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1. Introduction

With the recent growth of practical information technology in such areas as engineering and business, the topics of end user computing (EUC) deserve careful attention. Today, knowledge workers are increasingly using sophisticated tools to develop their own

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information systems to help them efficiently manage work. EUC acceptance has been established as one of the critical success factors in achieving business success. It is becoming a fundamental part of the organizational plan.

End user computing acceptance is one of the most widely researched topics in the information field. The definition of the EUC is not consistent in the literature. Here, the EUC is defined as the adoption and use of information technology by personnel outside the information systems department to develop software applications in support of organizational tasks (Brancheau & Brown, 1993).

The reasoned action theory (TRA) is a well-established model and has been broadly used to predict and explain human behavior in various domains. Davis proposed the technology acceptance model (TAM) derived from TRA that has been tested and extended by numerous empirical researches (Davis, 1989; Henderson & Divett, 2003; Igbaria, Zinatelli, Cragg, & Cavaye, 1997; Legris, Ingham, & Collerette, 2003; Venkatesh & Davis, 2000). As Davis (1989) pointed out, the original TAM model consists of perceived ease of use (PEOU), perceived usefulness (PU), attitude toward using (AT), behavioral intention to use (BI), and actual system use (AU). PU and PEOU are the primary determinates of system use while prior researches have indicated that attitude towards the technology is not a significant mediating variable. TAM has been proven for its validity and ability to satisfactorily explain end user system usage (SU).

Igbaria et al. (1997) assumed that the antecedents of the end user's perception are intra-organizational and extra-organizational factors. However, Igbaria et al. pointed out that the model variables in their study only explained 25% of the variance in system usage and suggested that further research should incorporate other variables into the model. In addition, some other EUC acceptance researches using TAM are summarized in Table 1. Table 1 shows that none of the explained variance for the model is above 30%. Comprehending the essentials of what determines EUC acceptance can provide great management insights for promoting EUC success. Therefore, this research adopts the TAM, from Igbaria et al. (1997), and integrates it with the task-technology fit theory (TTF), network externality, subject norm, computer self-efficacy and computer enjoyment variables to investigate what determines EUC acceptance. The proposed model is then evaluated.

Table 1
Prior TAM for EUC

Reference	Model	The explained variance of the model (%)
Adams et al. (1992)	Perceived ease of use → Usage Perceived usefulness → Usage	30
Igbaria et al. (1996)	Organizational support → Usage Complexity → Usage Usefulness → Usage Enjoyment → Usage Social pressure → Usage	28
Igbaria et al. (1997)	Internal computing support → Usage Internal computing training → Usage Management support → Usage Internal computing support → Usage External computing support → Usage Perceived ease of use → Usage Perceived usefulness → Usage	28