Technology Acceptance Model and Determinants of Technology Rejection

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ABSTRACT

Technology Acceptance Model (TAM) is an important tool to understand the dynamics of acceptance of Information Systems in an organization. The model posits that perceived ease of use and perceived usefulness are key factors in the adoption. This study extends TAM for investigating the user rejection of technology by reversing the two key factors into perceived difficulty of use and perceived uselessness. The study was conducted by surveying the customers of an e-banking application in Turkey who disuse the system. The results reveal important hints for the organization that wants to get an insight into the causes of the system disuse.

Keywords: Ease of Use, Information System Failure, Perceived Usefulness, Technology Acceptance Model (TAM), Technology Rejection

INTRODUCTION

There is a wide body of research about information systems success and adoption in organizations. There have been several attempts in theorizing the adoption and success of IS. The two most commonly used models for these tasks are Technology Acceptance Model (TAM) and DeLone and McLean’s (1992) IS success model where “system quality” and “information quality” have an effect on “user satisfaction” and “actual usage” and these, in turn, have impact on individuals and on the organization. Ten years after the introduction of the model the authors have updated it by adopting the service quality as the third input construct along with system quality and service quality (DeLone & McLean, 2003). The updated model also has the “net benefits” as the final construct replacing “individual impact” and “organizational impact.” TAM has been introduced by Davis (1986) in his PhD dissertation and was further developed by the same author (Davis, 1989). TAM is derived from Theory of Reasoned Action (TRA) of Fishbein and Ajzen (1975). The model postulates that “perceived usefulness” and “perceived ease of use” determine the attitudes toward using the system which in turn determines the intention to use. This intention is assumed to lead to the actual use of the system.

An important pillar of the marketing research is consumers’ behavior for the techno-
logical products or services offered. Electronic banking, a service that has become widespread in the last decade, is widely researched in the context of consumer behavior (Howcroft et al., 2002; Kolodinsky et al., 2004). E-banking systems are desirable for the convenience they offer to the users. They are also desirable for the banks, because a typical e-banking transaction costs about one cent whereas an ATM transaction costs 27 cents and a teller-window transaction costs 107 cents (Dandapani, 2004). An important aspect of e-banking research is the consumers’ decision to accept or reject the service along with the technology that facilitates it. Since TAM has the capacity to offer an insight into that decision process, it is widely used in e-banking research (Pikkarainen et al., 2004; Wang et al., 2003).

Sole empiricism and anecdotal approach to the events are indicators of infancy of an academic field. Webster and Watson (2002) argue that, like other management fields, the maturity process of the IS field is directly related with theory development. Theories and models enable us to deduce and induce along the spectrum of specific to general. Theories in social sciences are not static and they can be extended to cover new areas with new constructs. The development of TAM from TRA shows that theories can also breed new theories. Like most other models in IS TAM has been extended by several researchers including its developer. Venkatesh and Davis (2000) extended the model to incorporate social influence processes and cognitive instrumental processes. They tested the extended model longitudinally and called it TAM2. In addition to the constructs that existed in the first version of TAM, the extended model contains constructs such as subjective norm, image, job relevance, output quality, and result demonstrability.

The essence of TAM is for adoption of the technology and the original model’s constructs such as usefulness and ease of use have a positive overtone. By reversing these constructs to uselessness and difficulty of use the newly formed model can be a valuable tool for predicting the negative outcome of a possible rejection of information systems by its users. This research attempts to realize this approach by using data from an e-banking application in Turkey. Although it is a common practice to extend theoretical models in IS, this research is a unique approach that reverses the constructs of the model along with the model itself. The resulting model has the capacity to offer an insight to the reasons for disuse of the computerized information systems. By determining the possible areas of user dissatisfaction and analyzing their relative importance to the users the model can be a useful tool for preventing possible failures in future.

PRIOR RESEARCH

TAM is the most commonly used theoretical model in IS research (Lee et al., 2003) and it has been applied and empirically tested in various environments. Liao and Landry (2000) applied the model in analyzing technology adoption in the banking sector and Wang et al. (2003) used TAM to analyze customers’ adoption behavior for e-banking. Benamati and Rajkumar (2002) analyzed the decision process for IS development outsourcing through TAM. Vijayasarathy (2004) and Shih (2004) analyzed on-line shopping behavior with TAM.

The results of previous research show that the model was generally found to sufficiently explain the mechanisms of a new ICT adoption in organizations. Lee et al. (2003) analyzed the TAM literature between 1986 and 2003. They chronologically classified TAM-related articles into four periods, namely model introduction, model validation, model extension, and model elaboration. These periods are not distinct; for example, model extension period started in 1994 by Straub’s article and it was still in progress in 2003 when the article was published. The model elaboration period started in 2000 by the article of Venkatesh and Davis and this period was also in progress in 2003. Lee et al. also listed the extensions to the model. This list has a range
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