



Adoption of ERP systems: Does information transparency matter?



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ARTICLE INFO

Article history:

Received 2 March 2014

Received in revised form 15 September 2014

Accepted 17 September 2014

Available online 28 September 2014

Keywords:

Information technology adoption
Perceived information transparency
Perceived usefulness
Perceived ease of use
Technology acceptance model
Symbolic adoption

ABSTRACT

Research on the adoption of Enterprise Resource Planning (ERP) systems has drawn much attention in the information systems (IS) research. This study extends previous research on ERP adoption by examining the direct and indirect effects of perceived information transparency that result from the adoption of ERP systems. Based on the extensive review of literature grounded in the technology acceptance model and theory of reasoned action, a research model is proposed. The proposed model is validated by a survey of 106 ERP users. The results of this survey confirm that perceived information transparency of the ERP system has significant direct effects on perceived usefulness, ease of use, and indirect effects on attitude and adoption. Moreover, the perceived usefulness fully mediates the relationship between information transparency and the attitude toward using the ERP system. This study expands the existing body of knowledge on the adoption of ERP systems, and benefits ERP providers and vendors when formulating their business models.

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1. Introduction

Many research studies have attempted to explain the adoption and use of particular technology. None of the existing frameworks, models, and theories fully explains, however, why a particular technology is accepted or rejected. Furthermore, most of the research assumes that the adoption of technology is voluntary and a rejection of the new system is a valid option (Brown et al., 2002). Understanding factors that lead to positive or negative attitudes towards technology is important as it help management implement new technology with less attrition. In particular, resistance towards new information technology (IT) may reduce the overall organizational performance because of the discontented users. Unfortunately, users' acceptance or rejection of IT is not fully understood.

Adoption of IT greatly affects business organizations. Frequently, IT system leads to changes in business procedures, rearrangement of organizational structures, and shifts in managerial power. In addition, implementing IT may lead to a higher level of transparency, as it supports the sharing of data and information. IT applications such as Enterprise Resource Planning (ERP), Enterprise Information Portals (EIP), Customer Relationship Management (CRM) and Supply Chain Management (SCM) enable information sharing across business processes and value chains. These and other applications gather, compile, and distribute information and establish links among business partners.

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Today, a vast amount of information is being exchanged between buyers, sellers, and competitors. This makes information more transparent in the net-enabled organizations. Perceived information transparency was not addressed in previous research studies as a determinant factor of IT adoption. This gap provides the motivation for this study. Hence, the objective of this study is to extend previous research, particularly technology acceptance model, and construct a research model that includes information transparency as a salient factor affecting the users' attitude towards IT adoption and use in business organizations. The research question that this study tries to answer is: Does perceived information transparency impact the perceived usefulness, ease of use, and attitudes toward using IT systems, such as ERP, and as a consequence, do users form favorable attitude toward using the system, and eventually adopt the system?

The rest of the paper is organized as follows. Next is a brief theoretical foundation and proposed research model. Then, the research methodology is described and followed by presenting the results. In the last three sections, the results of the study are discussed, conclusions and limitations of the research study are presented, and future research directions are suggested.

2. Theoretical foundation

The next section reviews the important literature that is related to the adoption of IT and relevant to the research question.

2.1. Information technology adoption frameworks, models, and theories

The technology acceptance model (TAM), proposed by Davis (1989) is still one of the most frequently cited frameworks to explain why a particular IT is embraced (or rejected) by users (Mao and Palvia, 2008). According to TAM, a specific IT is likely to be accepted by potential users when this technology is perceived to be potentially useful and relatively easy to use. In other words, this model assumes that a prospective user of technology weighs the potential benefits of using a given technology against the challenges in using it, and then adopts or rejects it.

In reality, however, there are many cases when the prospective user is not able to reject a particular IT because it is mandated. One example of this mandatory adoption of IT is the implementation of ERP systems (Al-Jabri and Al-Hadab, 2008). Often, investments in IT are mandated by top management with hopes of staying competitive (Joshi and Pant, 2008) or are conducted under pressure from customers and suppliers (Irani et al., 2003). Thus, these decisions are done by top management that is often under external pressures (Chae and Poole, 2005). In all of these situations, the employees who represent major users have less or no say.

Even though many IT investments, such as Enterprise Systems, are sometimes conducted without involvement of major users, the acceptance of this IT may vary substantially among the users. TAM model (Davis, 1989), or extended TAM (Venkatesh and Davis, 2000), fails to explain this variation of technology acceptance in a mandatory setting (Nah et al., 2004). Several extensions of the TAM have attempted to address the involuntary setting issue. For example, Abdinnour-Helm et al. (2003) proposed to add "expected capability" and "expected value" to the original TAM. However, results from a survey of ERP users in a company in Saudi Arabia suggest that even this extended model is not able to fully explain users resistance toward IT systems (Al-Jabri and Al-Hadab, 2008).

At the same time, as the adoption and use of large intra-organizational (Al-Mashari, 2003) and inter-organizational systems (Irani et al., 2003; Madlberger and Roztocki, 2008, 2009) continue, more and more investments are conducted in a mandatory environment. As a result, there is a need for developing a framework that explains technology acceptance or rejection in settings where users have little influence on adoption and use. Such a study may help to explain sources of the true cost of deploying IT (Love et al., 2006) and make implementations more successful. Moreover, the framework may better explain the complex topic of technology diffusion (Bagchi et al., 2008).

Many research studies have been published in various information technology journals to investigate the main factors of information technology adoption. In essence, there are two lines of research in IT adoption. The first line is based on social psychology models such as theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), the theory of planned behavior (TPB) (Ajzen, 1991), the TAM (Davis, 1989) and its extensions, TAM2 (Venkatesh and Davis, 2000) and TAM3 (Venkatesh and Bala, 2008). The second line is based on the diffusion of innovation theory (DIT) (Rogers, 2003) and other related models. As it could be seen from this literature review, none of the discussed frameworks, models, and theories considered perceived information transparency of the IT system.

2.2. Information transparency

McManus in an interview (Lazarus and McManus, 2006) described transparency as the openness and access to information, the free flow of information, and the right to own some information. In a corporate or organization environment, information transparency prevails when internal employees receive, at their desktops, the information necessary to make business decisions (Simon, 2006). Street and Meister (2004) argued that there are two different types of information transparency: internal and external. They defined internal transparency as "an outcome of communication behaviors within an organization that reflects the degree to which employees have access to the information requisite for their responsibilities" (Street and Meister, 2004, p. 477). For example, a supervisor sharing information with subordinates is an example of internal

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