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The acceptance and use of a business-to-business information system

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Abstract

Motivated by the need for a better understanding of the acceptance and use of business to business information systems, this study builds upon the technology acceptance model to study the use of an Internet business-to-business information system in a leading Chinese information technology provider and its distributors In particular the study investigates individual users' acceptance of a business-to-business ordering system with a view to examining how users' perception and use of the system in one company influences perception and use of the system in another. The results suggest that while both perceived ease of use and usefulness were influential factors in system utilisation at the user level, it was perceived usefulness that was the more influential factor The study also provides evidence that the processes by which an inter-organizational information system is accepted in one organisation have an impact on the acceptance of the same system in the other organisations.
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1. Introduction

User acceptance of technology has long been a traditional area of research in the information systems domain. The research findings suggest various factors that can influence users' decisions when adopting technology. These factors include socio-cognitive factors such as perceptions and expectations of the technology and self-efficacy (Davis, 1989; Orlikowski & Gash, 1994; Venkatesh, 2000), relevance to task, (Goodhue & Thompson, 1995), and social and institutional factors (Lewis, Agarwal, & Sambamurthy, 2003; Venkatesh, Morris, Davis, & Davis, 2003). Such studies often focus however on technology acceptance among a homogenous group of users who work within the same company and interact with the same system through the same interface (e.g. Adams et al., 1992; Karahanna & Straub, 1999). Current trends in e-business indicate an increasing number of businesses connected with each other through the Internet in order to streamline their business processes. As this trend continues an interesting question arises as to what the criteria are that influence technology acceptance among heterogeneous as opposed to a homogenous group of users. What are the criteria for example that influence the acceptance of the same system used by separate groups of users but

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accessed via different interfaces? Investigating these questions can enhance understanding of business-to-business information systems beyond a set of core measurements (e.g. volume, diversity, breadth, and depth) (Massetti & Zmud, 1996), and 'macro' level issues (e.g. the acceptance of technology at the organisational level) (Hart & Saunders, 1997). Such an investigation is also relevant o the design and management of business-to-business information systems.

This paper presents a study that investigated users' acceptance of a business-to-business information system among heterogeneous user groups. The study assumes that users' acceptance of an information system is largely influenced by how the system is perceived by its users. It is also argued that the use of information systems by one user group can influence the way in which the technology is perceived by other user groups. The theoretical foundation of the study is an adapted version of the technology acceptance model (TAM) that examines the influence of users' perceived usefulness, ease of technology, and self-efficacy in computing, on their acceptance of the technology. The model helps determine what is regarded by the users as important when they consider the technology to be useful and/or easy to use.

During 2003 a case study was carried out within a leading Chinese information technology provider, *China Digital*. In 2000 *China Digital* had launched an Internet-based business-to-business information system, I-Bridge, with the aim of supporting an ordering process distributed between itself and its distributors. In 2002 the I-Bridge project team conducted a user survey of the system among both its internal and external users. The results of the survey suggested that I-Bridge had not been as well received by users as the project team had expected. This current study followed up the use of I-Bridge within *China Digital* and among its distributors in two respects: (1) Users' perceptions of I-Bridge in all participating companies (2) Users' usage of I-Bridge in *China Digital* compared to users' use of the system within its distributors.

The paper is organised as follows. Section 2 reviews the literature on user acceptance of information systems; Section 3 presents the research design; Section 4 presents the case study; and Section 5 discusses the findings that emerged from the analysis of the case study. The paper concludes by addressing the implications of the case for research and practise in information systems.

2. User acceptance

A variety of factors can affect users' acceptance of an information system. Of these factors users' perceptions and expectations of the system are said to be the key factors that influence their acceptance. This is because it is users' perceptions and expectations of a system take mediate the process by which a system is defined within an organisation; and it is that definition of the system that often decides users' attitudes towards (i.e.. acceptance or rejection) and their use of the system (Davis, 1989; Orlikowski & Gash, 1994; Venkatesh & Davis, 2000; Venkatesh et al., 2003).

A range of conceptual frameworks exist for studying the factors that contribute to the formation of user perceptions and expectations of an information system (Venkatesh et al., 2003). Three frameworks are reviewed here: the Technology Acceptance Model (TAM), the Computer Self-Efficacy model (CSE), and the Task-Technology Fit (TTF) model. Of these the TAM is the framework most commonly employed to examine user acceptance of information systems (Lee, Kozar, & Larsen, 2003).

In essence, TAM argues that users' acceptance or rejection of an information system is directly influenced by their perceptions of the usefulness and ease of use of that system. The concept of perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" while the concept of perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). Davis (1989) proposes that both perceived usefulness and ease of use are significantly correlated with self-reported indicators of system use, but no amount of ease of use can compensate for a system that does not perform a useful function. This echoes Robey's (1979) argument that "a system that does not help people perform their jobs is not likely to be received favourably in spite of careful implementation efforts" (p. 523). Perceived usefulness and ease of use are people's subjective appraisal of a system's performance. Davis continues

> […] beliefs are seen as meaningful variables in their own right, which function as behavioural determinants, and are not regarded as surrogate measures of objective phenomena. …Thus, even if an application would