

AN EMPIRICAL STUDY OF THE RELATIONSHIPSHIP BETWEEN ORGANIZATIONAL CHARACTERISTICS AND PRESENCE OF CHAMPIONS

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ABSTRACT

Champions and organizational characteristics have been consistently identified as main determinants of organizational adoption of information and communication technology, although little attention has been given to the relationship between these two factors. The present study proposes and tests a model explaining the relationship between organizational characteristics and the presence of champions using a survey of senior executives in the healthcare industry. The result reveals that organizational technology knowledge is a major determinant of the presence of champions.

Key words: Presence of champions, organizational characteristics, organizational size, financial resource, technology knowledge

INTRODUCTION

Numerous studies have identified many factors that are possible determinants of organizational adoption of information technology (IT) (Chwelos *et al.*, 2001; Rai and Patnayakuni, 1996; Thong, 1999). The presence of champions is one of the factors consistently identified as an important determinant of organizational IT adoption (Teo and Ranganathan, 2004). A champion refers to a management-level person who recognizes the usefulness of an idea for the organization and leads authority and resources to innovation throughout its development and implementation (Meyer, 2000). Prior studies consistently found that the presence of a champion facilitated the adoption of a new technology by providing the necessary drive and effort to initiate its adoption (Beath, 1991).

Many studies also found that the characteristics of organizations are significant determinants of organizational IT adoption (Iacovou *et al.*, 1995; Tornatzky and Klein, 1982). Some organizational characteristics frequently identified in prior studies include organizational size (Bajwa and Lewis, 2003), organizational readiness (Iacovou *et al.*, 1995), and organizational structure (Lai and Guynes, 1997). For the most part, it has been convincingly argued that larger, resource-rich organizations are more able to afford the cost of IT innovations and have a larger capability to handle more risks (Dewar and Dutton, 1986), which may in turn enhance the feasibility of adoption (Kimberly and Evanisko, 1981; McDade *et al.*, 2002).

Even though the presence of champions and organizational characteristics are important determinants of organizational IT adoption, the relationship between these two factors is not well understood. It is partially caused by the fact that prior studies have not distinguished the factors which influence different phases of the adoption process. Consequently, it is difficult to find which factor is an antecedent of which. The purpose of this paper is to propose and test a model explaining the relationship between organizational characteristics and the presence of champions in the organizational IT adoption decision process.

BACKGROUND

Organizational Size

Organizational size has been proposed as a significant antecedent of adoption in many innovation and IT studies (Bajwa and Lewis, 2003; Kennedy, 1983). In the meta-research of the effects of organizational size on innovation adoption, Damanpour (1992) found a positive relationship between organizational size and innovation adoption. In addition, he found that: 1) size is more positively related to innovation in manufacturing and profit-making organizations than in service and non-profit-making organizations, 2) the association between size and innovation is stronger when a non-personnel or a log transformation measure of size is used than when a personnel or a raw measure of size is used, 3) types of innovation do not have a considerable moderating effect on the relationship between size and innovation, and 4) size is strongly related to the implementation more than the initiation of innovations in organizations.

For the most part, it has been convincingly argued that larger, resource-rich organizations are more able to afford the cost of IT innovations and have a larger capability to handle more risks (Dewar and Dutton, 1986). However, the results of research investigations have been somewhat inconclusive. While some innovation studies suggest a positive relationship between organizational size and adoption behavior (Moch and Morse, 1977), a negative relationship between size and adoption behavior has also been reported (Mohr, 1969). For example, Ein-Dor and Segev (1978) asserted that small businesses face substantially more barriers to adoption of IS and are less likely to adopt IS than large businesses. Iacovou *et al.* (1995) also argued that small firms resisted becoming EDI-capable because of the: (1) limited impact that IT had on small firms due to under-utilization and lack of integration, (2) low levels of IT sophistication, and (3) weak market positions of small firms and the network nature of the technology. Research on early adopters of group support system (GSS) indicated that larger organizations are more likely to adopt GSS than smaller organizations (Straub and Beauclair, 1988). Lai and Guynes (1997) also found that the organizations most likely to be receptive to ISDN are large companies with more slack resources and actions to infuse IT. However, Grover and Goslar (1993) found no significant relationship between organizational size and the initiation, adoption, and implementation of telecommunication technologies in US Organizations. Nijssen and Grambach (2001) also found that firm size did not have a positive effect on the level of adoption of new product development tools and techniques. They concluded that it might be due to size's interdependency with other variables in the model. Finally, a study of intranet adopters in Hong Kong also reported no significant differences in adoption and implementation of intranets between large and small organizations (Lai, 2001).

Table 1. Summary of Organizational Size and IT Adoption Studies

Source	IT studied	Findings
Premkumar (1999)	Information and communication technologies	Size had a positive impact on the adoption decision of three out of four information technologies.
Thong (1999)	Computer Applications	Firm size affected both the adoption likelihood of IS and the extent of adoption.
Goode and Stevens (2000)	WWW	Business size is associated with the adoption of computers by the respondent's businesses, but it is not associated with the adoption of the World Wide Web.
Eder and Igarria (2001)	Intranet	Organizational size has a moderate direct effect on intranet diffusion.
Yao <i>et al.</i> (2002)	Asynchronous Transfer Mode (ATM)	University size is significantly related to ATM technology adoption in universities.
McDade <i>et al.</i> (2002)	Personal computer, VHS, Software, and etc.	The effect of firm size is far less important than that of organizational preferences when predicting the adoption of high-technology products.
Chang <i>et al.</i> (2003)	Data mining techniques	The organizational size influences the adoption of data mining techniques in the financial service industry.
Bajwa and Lewis (2003)	E-mail, Teleconferencing, Videoconferencing, Data conferencing	Larger organizations with larger IT functions had adopted more of the IT than their smaller counterparts.

Organizational Readiness

Organizational readiness refers to the level of financial and technical resources of the firm (Kuan and Chau, 2001). There are two dimensions to organizational readiness: financial and technical. Financial readiness refers to the financial resources available to pay for new technological innovation costs, implementation of any subsequent enhancements, and ongoing expenses during usage. Technical readiness refers to the level of sophistication of IT usage and IT management in an organization. For example, Iacovou *et al.* (1995) identified organizational readiness, which is represented by financial resources and technological readiness, as an important determinant of EDI adoption. Chwelos *et al.* (2001) used organizational readiness to represent an intra-organizational construct, which in turn is represented by several dimensions: organization financial resources, IT sophistication, and trading partner readiness.

Mehrtens *et al.* (2001) also found that organizational readiness significantly influences Internet adoption. However, they found that the definition of organizational readiness is different. In their study, the level of IT knowledge among IT professionals, the level of IT knowledge among non-IT professionals, and level of IT use in the organization explain organizational readiness better than Iacovou's (1995) financial resources.

Organizational Structure

Organizational structures are often defined in terms of their centralization (Kwon and Zmud, 1987). More concentrated decision-making is associated with a centralized organizational structure. Although many studies have found centralization to be negatively associated with information technology innovation adoption and use (Damanpour, 1991), some positive associations have also been reported (Kimberly and Evanisko, 1981).

According to Ellis *et al.* (1994), organizational complexity plays a significant role in the adoption of LAN technology. Complexity refers to the number of levels in the organizational hierarchy, the number of geographic locations of an organization, and the number of departments or jobs in an organization. However, according to Lai and Guynes (1997), the organizational structure factors proved to be least effective in discriminating adoption. In their research, there was no significant relationship found between the ISDN adoption decision and the degree of centralization, formalization, or complexity. Lai and Guynes argued that other factors may overpower the structural factors during the time period chosen by this research. Eder and Igaris (2001) also found that organization structure was not related to the diffusion or infusion of intranets.

Burns and Stalker (1961) suggested two different types of organizational structure: mechanistic and organic. A mechanistic structure is somewhat rigid in that it consists of very clearly delineated jobs, has a well-defined hierarchical structure, and relies heavily on the formal chain of command for control while an organic structure is more dynamic, decentralized, flexible, and informal. Daft (1986) states more organic organizations tend to adopt new technology more readily.

Presence of Champions

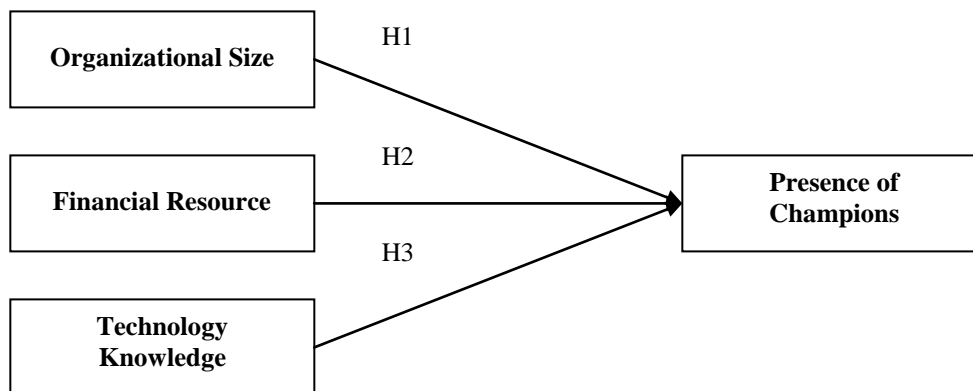
A champion is defined as a management-level person who recognizes the usefulness of an idea to the organization and leads authority and resources to innovation throughout its development and implementation (Meyer, 2000). Prior studies consistently found that the presence of a champion facilitated the adoption of a new technology by providing the necessary drive and effort to initiate their adoption (Beath, 1991). According to Crum (1996), the existence of a champion has been found to be a significant factor in successful adoption and implementation of IS and telecommunications systems. Champions can also help overcome possible resistance in adopting new technologies (Rai and Patnayakuni, 1996).

Grover (1993) found that the existence of a champion was a significant discriminating factor between adopters and non-adopters. Teo and Ranganathan (2004) further found that among e-commerce adopters, 60.85% of the firms indicated the presence of such a champion. In contrast, among non-adopters, only 18.8% of the firms indicated the presence of a champion.

RESEARCH MODEL AND HYPOTHESES

To find the relationship between organizational characteristics and the presence of champions, the present study uses three important organizational characteristics, organizational size, organizational financial resources, and organizational technology knowledge (Figure 1). Also, to increase an ability to control for various organizational and technological factors, a single emerging technology, Radio Frequency Identification (RFID), is used to measure the constructs.

Figure 1. Research Model



METHODOLOGY

Research Subjects

The sample in this research consists of senior executives including Chief Executive Officers (CEOs), Presidents, Chairman, Chief Medical Officers (CMOs), and IT executives in US hospitals. IT executives in hospitals include Chief Information Officers (CIOs), Chief Technology officers (CTOs), VPs in Technology, and Directors of IT. Names and email addresses of these executives were drawn from the *Directory of Top Computer Executives*. The survey instrument was placed on a web site where participants accessed and completed the survey. An email stating the purpose of the study and the strict confidence of the data was sent along with URLs of the survey website to promote participation in the survey.

Although the applicability of findings in one sector to those in another is clearly problematic, concentration of the research focus can help to identify and isolate factors that clarify the nature of the phenomenon in that section and, at the very least, can be helpful in suggesting hypotheses that may be generalizable beyond that sector and tested in others (Kimberly and Evanisko, 1981). The use of a single industry (hospitals) also increases an ability to control for key organizational and environmental confounds (Menon *et al.*, 2000).

Data Analysis

The research model was tested using multiple regression. The result shows that multiple correlation coefficient R is 0.735 (Table 2). R Square for the model is 0.541, indicating that more than fifty percent of the total variation is explained by this equation. The adjusted R Square of .529 is used to incorporate the effect of including additional independent variables in a multiple regression equation. This adjustment was needed due to the fact that several variables were used.

Table 2. Result of Multiple Regression Analysis

Independent Variable	Beta Coefficient	Significance
Organizational Size	.149	0.024
Organizational Financial Resource	.158	0.026
Organizational Technology Knowledge	.583	0.000

CONCLUSIONS

In this study, it is proposed that organizational size, financial resources, and technology knowledge are highly associated with the presence of champions. As predicted, this study was able to discover the significant role of organizational size, financial resource, and technology knowledge. Interestingly, organizational technology knowledge was found to be the most significant discriminator of presence of champions. This simply reconfirms the importance of understanding and knowledgeable about the potentials of IT, especially among senior managers. Although many organizations recognize that IT will be important for them in the future, top management of those organizations may not yet understand IT and its current importance to their business. This lack of understanding may lead them to discount the impact of IT and lead them to believe that they have plenty of time to adopt IT. With greater knowledge, the degree of uncertainty involved in IT adoption will diminish, resulting in the presence of champions.

REFERENCES

References are available upon request from the author (clee@cn.edu).