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Chapter IV

The Impact of IT Personnel Skills on IS Infrastructure and Competitive IS

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ABSTRACT

The knowledge and skills of information technology (IT) personnel have become of critical importance as the strategic value of IT in modern organizations has become apparent. In addition to technical skills traditionally expected of IT personnel, organizational, functional, and managerial skills have been increasingly cited as mandatory for these employees. This paper used a well-accepted typology of IT personnel knowledge and skills, and investigated its relationship to desirable technological traits in organizations and to technological variables that have been closely aligned to competitive advantage in organizations. This exploratory examination used the statistical technique of canonical correlation analysis to investigate the relationship between IT personnel knowledge and skills and the flexibility of information systems (IS)

infrastructure. Additionally, the same technique was used to test the relationship between the knowledge and skills of these personnel and measures of IT contribution to competitive advantage. In both cases, the relationships were significant and positive. Implications of these findings and a call for further research into the strategic value of IT personnel knowledge and skills are discussed.

INTRODUCTION

Assessing the requisite knowledge and skills of information technology (IT) personnel has become of strategic importance as the value of IT has increased in modern organizations. In addition to technical skills traditionally expected of IT personnel, organizational, functional, and managerial skills are increasingly cited as mandatory for these technical employees (Chang & King, 2000; Cougar et al., 1995; Darais et al., 2001; Dhillion & Lee, 2000, Lee et al., 1995; McMurtrey et al., 2002). Indeed, numerous research studies indicate that organizational and behavioral knowledge and skills are crucial to programmers, systems analysts, database administrators, and other IT personnel in the organizations of today (Chang & King, 2000; Cheney et al., 1989; Darais et al., 2001; Dhillion & Lee, 2000; Lee et al., 1995; Leitheiser, 1992; McMurtrey et al., 2002; Nelson, 1991; Rockart et al., 1996; Ross et al., 1996; Tu et al., 2001; Watson et al., 1990). The IT curriculum, recommended through the collaborative efforts of professional organizations like ACM, AIS, DPMA, and ICIS, establishes organizational and managerial knowledge and skills as integral to the overall training of IT personnel (Couger et al., 1995; Darais et al., 2001; Dhillion & Lee, 2000). In the same way, the trade press promotes similar advice through articles alluding to the increased need of IT personnel to gain organizational, interpersonal, and managerial knowledge and skills (Fallon, 1997; *InfoWorld,* 1998; *Insurance & Technology,* 2003).

Recent research and practitioner literature stresses the value of a broad range of knowledge and skills for IT professionals in meeting the strategic requirements of modern organizations. To add value, IT professionals are called upon to blend technical skills with a deep understanding of the business, along with cultivating their interpersonal skills. However, empirical evidence that actually examines the relationship between IT personnel knowledge and skills with organizational success variables has not been reported in the research literature. This study attempts to fill this void by employing a well-accepted typology of IT personnel knowledge and skills to investigate relationships with desirable technological traits in organizations and technological variables that are closely aligned to competitive advantage.

Based on these relationships, this paper explores the strategic value of developing an IT organization with a broad set of skills; that is, an IT organization

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