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International Journal of Information Management 26 (2006) 16–29
International Journal of
Information
Management
www.elsevier.com/locate/ijinfomgt

Information technology and learning: Their relationship and impact on organisational performance in small businesses ☆

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Abstract

Information technology is seen as a key tool in knowledge management processes. Nevertheless, the presence of information technology neither guarantees knowledge creation, knowledge distribution nor knowledge use. In addition to information technology, a job environment and a culture that encourage sharing and continuous learning should also be created and maintained by management. This paper provides empirical evidence of the relationship between information technology and learning in small businesses as well as their impact on organisational performance. Furthermore, the level of sector knowledge-intensity is taken into consideration. Results show that individual learning along with individual and collaborative information technologies have a positive and significant impact on organisational learning. On the other hand, unlike individual and collaborative information technologies, individual and organisational learning have shown significant and positive effects on organisational performance. Therefore, information technology has a significant impact on outcomes only when in a proper context of learning is in place. Small businesses in sectors with high knowledge-intensity levels are more likely to use more frequently information technology tools and organisational learning practices.

Keywords: Information technology; Learning; Sector knowledge-intensity; Organisational performance; Small businesses

1. Introduction

Knowledge creation, both tacit and explicit, has become a key element in business administration. Both kinds of knowledge help management to adapt and anticipate environmental changes through the development of new products and/or services. Information technology allows companies to obtain, process, store and exchange information. Furthermore, in a knowledge management context, information technology can support transformation within and between tacit and explicit knowledge. Nevertheless, the presence of information technology neither guarantees knowledge creation, knowledge distribution nor knowledge use.

Some research has stated that many knowledge management systems have been unsuccessful (see Schultze & Boland, 2000), with Storey and Barnett (2000) reporting failure rates of over 80%. Information technology

☆ Data used for this paper came from a study commissioned by the European Union (FEDER: 1FD1997-2251-C02-02).
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doi:10.1016/j.ijinfomgt.2005.10.003

benefits are clear in well-structured job environments. If the flow of work, including people, tasks and tools, can be predefined, automation via information technology could be the best option. Fielder, Grover, and Teng (1994) argue that traditionally, the conservative approach for applying information technology was through the automation of existing processes within the boundaries of traditional functional structures, based on the assumption that the original process designs were satisfactory. Troubles arise when this fit cannot be made. That has been the case when implementing knowledge management scenarios. The best of information technology cannot be achieved without processes, rules and habits where sharing and collaboration play key roles.

In a knowledge management context, information technology benefits are highly influenced by the existence of an appropriate climate to share (Davenport, Long, & Beers, 1998) and a human orientation (Choi & Lee, 2003). In sum it depends on the employees' commitment to knowledge creation processes (Cross & Baird, 2000). Therefore, a culture in which learning features prominently is required. An internal environment that boosts the learning process activities (data collection, distribution, interpretation, action and reflection) and encourages the use of certain tools (metaphor, dialogue, interactive systems and information technology) should be promoted.

Despite the unexpected number of failures of knowledge management, there are some evidences of its positive influence on organisational performance. Some empirical work has been done (see Choi & Lee, 2003; Gold, Malhotra, & Segars, 2001; Lee & Choi, 2003) but there is still a lack of empirical evidence especially in small businesses.[1] Traditionally, knowledge management research has been addressed to large companies. Nevertheless, small businesses are likely to be knowledge generator. Their organic structure and culture may foster knowledge innovations. However, their structural features and resources scarcity may impede to obtain sustainable competitive advantage from these innovations (Levy, Loebbecke, & Powell, 2003). So, it can be expected that successful knowledge management initiatives could transform the small business innovation capacity into a sustainable higher performance.

Furthermore, researchers are starting to wonder if the level of sector knowledge-intensity could have an impact on managerial practices (Desnoyers & Lirette, 1999; Smith, 2002). Information technology as well as learning processes could be also affected by this variable.

The aim of this research is to provide empirical evidence of the relationship between information technology and learning as well as their impact on small businesses performance. To complete this aim: (1) the distinction between individual technology and collaborative technology is made; (2) a multilevel learning model is used; (3) the sector knowledge-intensity is considered; (4) the level of objectives achievement is introduced as a perceptual organisational performance measurement; and (5) an empirical study is accomplished.

2. Information technology and knowledge management

In this paper we focus on information technology which is different from information system. Essentially, information technology is a generic term for the convergence of computers, hardware, software, telecommunications, Internet, electronics and the resulting technologies. It can be measured through the inventory of applications that organisations have. Whereas, information system is a wider concept, which refers to how information flows are designed within organisations so as to meet organisations information needs (Gunasekaran, Love, Rahimi, & Miele, 2001).

Considering the distinction between information technology and information system, information technology can be conceived as the infrastructure to knowledge management (Chou, 2003), or a knowledge platform (Tiwana, 2002). Some authors, as Choi and Lee (2003) and Gold et al. (2001), with a similar orientation see information technology as an enabler of knowledge management. The role of information technology is to extend human capacity of knowledge creation through the speed, memory extension and communication facilities of technology (Baroni & Araújo, 2001).

[1]Following the European Union concept for Small and Medium Size Enterprises (ENSR, 1997), in this research "small businesses" are defined as those with less than 250 employees.