Chapter 16
How do Collaborative Technologies Affect Innovation in SMEs?

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ABSTRACT

This study seeks to assess the impact of collaborative technologies on innovation at the firm level. Collaborative technologies’ influence on innovation is considered here as a multistage process that starts at adoption and extends to use. Thus, the effect of collaborative technologies on innovation is examined not only directly, the simple presence of collaborative technologies, but also based on actual collaborative technologies’ use. Given the fact that firms can use this technology for different purposes, collaborative technologies’ use is measured according to three orientations: e-information, e-communication, and e-workflow. To achieve these objectives, a research model is developed for assessing, on the one hand, the impact of the adoption and use of collaborative technologies on innovation and, on the other hand, the relationship between adoption and use of collaborative technologies. The research model is tested using a dataset of 310 Spanish SMEs.
INTRODUCTION

Emerging powerful Information Technologies (ITs), such as the Intranet, allow people to collaborate and share their complementary knowledge (Bhatt, Gupta, & Kitchens, 2005). These technologies are responsible for e-collaboration, which can be defined as the collaboration among individuals engaged in a common task using electronic technologies (Dasgupta, Granger, & McGarry, 2002). As an intranet evolves, it increases in sophistication and complexity and can be used for advanced applications such as collaborative design, concurrent engineering, and workflow support (Duane & Finnegan, 2003). Thus, intranets are diverse and can integrate different collaborative technologies (CTs).

CTs can be oriented to different, but compatible, uses. These are related to the offering of information online, communications and information exchange, and the automation of internal business processes. Hamel (2002) emphasizes the role of IT as an enabler of product and process innovation. Innovation process requires the support of CTs since they help in the efficient storage and retrieval of codified knowledge (Adamides & Karacapilidis, 2006), get different people together to innovate (Bafoutsou & Mentzas, 2002), enable the formation of virtual teams to execute the innovation process (Adamides & Karacapilidis, 2006; Kessler, 2003), and create an organizational climate favourable to product innovation. Thus, e-collaboration is expected to have a positive impact on firm innovation. The reverse direction of causality could exist as well, that is, causality may flow also from innovation to CTs’ adoption and innovation, as well as the indirect relationship from CTs’ adoption, through CTs’ use, to innovation.

The article consists of six sections and is structured as follows. The next section offers a classification of CTs and a framework differentiating three CTs’ uses. In the third section, the theoretical model is proposed and hypotheses are stated. Following that, the methodology used for sample selection and data collection is discussed. Then, data analysis and results are examined. Finally, the article ends with a discussion of research findings and concluding remarks.

LITERATURE REVIEW

Collaborative Technologies

CTs are applications where ITs are used to help people coordinate their work with others by sharing information or knowledge (Doll & Deng, 2001). They are critical in KM programs (Alavi & Leidner, 2001; Marwick, 2001; Skyrmee, 1998). Different technologies are used in e-collaborations (Dasgupta et al., 2002). A review of the literature reveals several CTs’ classifications. DeSanctis and Gallupe (1987) discuss a taxonomy based on group size (smaller, larger) and task type (planning, creativity, intellective, preference, cognitive, conflict, mixed motive). According to Pinsonneault and Kraemer (1990), there are two categories of group support systems: group decision support systems and group communication support systems. Ellis,
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