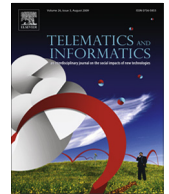




ELSEVIER

Contents lists available at ScienceDirect

## Telematics and Informatics

journal homepage: [www.elsevier.com/locate/tele](http://www.elsevier.com/locate/tele)

# Analyzing the effects of technological, organizational and competition factors on Web knowledge exchange in SMEs



Daniel Palacios-Marqués<sup>a</sup>, Pedro Soto-Acosta<sup>b,\*</sup>, José M. Merigó<sup>c</sup>

<sup>a</sup> Department of Business Administration, Polytechnic University of Valencia, Camino Vera s/n, 46022 Valencia, Spain

<sup>b</sup> Department of Management and Finance, University of Murcia, Campus de Espinardo, 30100 Murcia, Spain

<sup>c</sup> Manchester Business School, The University of Manchester, Booth Street West, M15 6PE Manchester, United Kingdom

## ARTICLE INFO

### Article history:

Received 2 April 2014

Received in revised form 10 July 2014

Accepted 1 August 2014

Available online 23 August 2014

### Keywords:

Knowledge exchange

Web technologies

Internet

Competition

Technology

SMEs

Organizations

## ABSTRACT

Internet technologies are increasingly being used within all knowledge management processes, including knowledge acquisition, knowledge exchange and knowledge use. Although technological issues are key drivers for Internet technologies adoption and use, organizational and environmental aspects have been found to be equally important. This paper extends previous studies on the use of Internet technologies and knowledge management by analyzing factors affecting Web knowledge exchange in small and medium-sized enterprises (SMEs). More specifically, by drawing on the technology–organization–environment framework, a model to examine how distinct contextual factors influence Web knowledge exchange in SMEs is developed. The hypotheses are tested by using structural equation modelling on a large sample of Spanish SMEs from different industries. Results suggest that IT expertise and commitment-based human resource practices positively affect Web knowledge exchange, with the latter being the strongest factor in our proposed model. In contrast, a negative relationship is found between competition and Web knowledge exchange.

© 2014 Elsevier Ltd. All rights reserved.

## 1. Introduction

With the advent of the Internet and open standards technologies and the associated reduction of communication costs, firms are migrating toward the Internet platform (Zhu et al., 2006) and cloud computing environments (Colomo-Palacios et al., 2012; Hsu et al., 2014). As a consequence, effective adoption and use of Internet technologies have become management concerns (Soto-Acosta and Meroño-Cerdan, 2008; Meroño-Cerdan et al., 2008b).

The characteristics of rapid search, access, retrieval and exchange of information make Internet technology suitable for collaboration and knowledge exchange between organizational members (Lucio-Nieto et al., 2012). One of the main characteristics of the Internet-based digital platform is that it is founded on the democratization of knowledge, so it facilitates the appearance of natural flows of collaboration and knowledge which, in turn, may favour creativity and innovation (Lucio-Nieto et al., 2012; Pérez-López and Alegre, 2012; Soto-Acosta et al., 2011). Thus, it is important to understand the key factors that facilitate and motivate the use of Internet technologies for knowledge exchange within firms. Competitive pressure has been defined in various studies as a key determinant of firm's readiness to accept new technology (Bayo-Moriones and Lera-Lopez, 2007; Sila, 2013; Teo et al., 2006). At the same time, the literature considers that technological factors are important

\* Corresponding author. Tel.: +34 868887805; fax: +34 868887537.

E-mail addresses: [dapamar@doe.upv.es](mailto:dapamar@doe.upv.es) (D. Palacios-Marqués), [psoto@um.es](mailto:psoto@um.es) (P. Soto-Acosta), [jose.merigolindahl@mbs.ac.uk](mailto:jose.merigolindahl@mbs.ac.uk) (J.M. Merigó).

drivers for the adoption and implementation of IT innovations (Aboelmaged, 2014; Ramdani et al., 2013). However, beyond technological and the environmental factors, research has recognized the importance of organizational factors in influencing Internet technologies adoption and use (Aboelmaged, 2014; Gu et al., 2012; Lian et al., 2014; Sila, 2013). Organizational factors may restrict or facilitate the implementation and usage of Internet technologies (Soto-Acosta et al., 2014). In this sense, the literature suggests that organizational human resource (HR) practices that create a commitment-based environment influence the interactions, behaviours and motivation of employees (Collins and Smith, 2006). HR practices may therefore affect the organizational social climate that motivates employees to work together and exchange knowledge by being organizational enablers of technology use.

Furthermore, small and medium-sized enterprises (SMEs) are of great importance for economic growth, employment and wealth creation. For example, in Europe, SMEs represent around 99% of the total number of firms (Lopez-Nicolas and Soto-Acosta, 2010). However, studies in the literature tend to examine Internet technology adoption and use in large businesses, with very few recent studies analyzing Internet technologies adoption and use in SMEs (e.g. Aboelmaged, 2014; Chan et al., 2012; Chong et al., 2009; Lopez-Nicolas and Soto-Acosta, 2010; Huy et al., 2012; Ramdani et al., 2013; Soto-Acosta et al., 2014). Findings from studies examining large companies are unlikely to be generalizable to SMEs because of various differences between these types of firms (Bhagwat and Sharma, 2007; Lopez-Nicolas and Soto-Acosta, 2010). Moreover, although businesses have extensively adopted Internet technologies, actual use is an important link to business value and such a link has been found to be especially lacking in SMEs (Devaraj and Kholi, 2003).

To respond to the above-mentioned gaps in the literature, this paper develops a conceptual model, grounded on the technology–organization–environment (TOE) framework, to analyze the key factors that facilitate Web knowledge exchange and it uses a large sample of SMEs from different industries for hypothesis testing. The paper consists of six sections and is structured as follows: The next section presents the literature review and hypotheses. Following that, the methodology used for sample selection and data collection is discussed. Then, data analysis and results are examined. Finally, the paper ends with a discussion of research findings, limitations and concluding remarks.

## 2. Theoretical background and hypotheses

The technology–organization–environment (TOE) theory (Tornatzky and Fleischer, 1990) has emerged as the main theoretical framework to analyze factors which affect the adoption and use of different ITs including: cloud computing (e.g. Hsu et al., 2014; Lian et al., 2014), electronic business (e.g. Bordonaba-Juste et al., 2012; Sila, 2013; Soto-Acosta and Meroño-Cerdan, 2008; Xu et al., 2004), electronic collaboration (e.g. Chan et al., 2012), mobile commerce (e.g. San Martín et al., 2012), enterprise resource planning (e.g. Bradford et al., 2014; Zhu et al., 2010) and information and open systems (e.g. Chau and Tam, 1997; Thong, 1999). The TOE framework conceptualizes the context of adoption and implementation of technological innovations as consisting of three aspects: technological context, organizational context and environmental context. Technological context refers to the characteristics of the technological innovation; organizational context describes characteristics of the organizations; and environmental context involves characteristics of the environment in which the adopting organizations operate (Tornatzky and Fleischer, 1990; Thong, 1999). According to Thong (1999), competition is the business environment in which the business operates. Porter's (1985) five forces refer to horizontal competition (the threat of substitute products, the threat of existing rivals, and the threat of new entrants), and vertical competition (the bargaining power of suppliers and the bargaining power of customers).

The TOE framework has also been extensively used to analyze the factors which affect the adoption and use of Internet technologies. Recent studies have employed this theoretical framework to analyze factors affecting Internet technologies adoption and use (e.g. Bordonaba-Juste et al., 2012; Chan et al., 2012; Gu et al., 2012; San Martín et al., 2012). Thus, drawing upon literature analyzing Internet technology adoption and use, this paper proposes a comprehensive research model based on the TOE framework to study factors that influence Web knowledge exchange in SMEs. The next subsections discuss the hypotheses of the model.

### 2.1. Technological context

The extent of Internet technologies use for knowledge exchange would depend on firms' technology competence, since IT plays a pivotal role in supporting organizational knowledge exchange processes. Technology competence refers not only to tangible assets, but also to intangibles resources, which are more likely to create competitive advantages (Aboelmaged, 2014; Bharadwaj, 2000; O'Sullivan and Dooley, 2010; Soto-Acosta and Meroño-Cerdan, 2008). With regard to tangible IT assets, technology integration is a factor, within the TOE framework, that has been found to be significant in studies focusing on Internet technologies adoption and use (e.g. Zhu et al., 2006; Zhu and Kraemer, 2005). Technology integration is the degree of connectivity of front-end and back-end IT systems and databases. Front-end integration refers to the degree of integration of the Web site functionalities with databases inside the firm, while back-end integration represents the degree of integration of the legacy systems so as to provide data integration among internal databases (Zhu et al., 2004). Front-end and Back-end integration are built on common Internet technologies in use (intranet, website and extranet...) and are important antecedents of Web knowledge exchange since they enable communications and collaboration. Regarding IT intangibles resources, IT expertise has been identified as one of the main factors that influence the level of e-business use

Download English Version:

<https://daneshyari.com/en/article/464437>

Download Persian Version:

<https://daneshyari.com/article/464437>

[Daneshyari.com](https://daneshyari.com)