

Chapter 67

From Adoption to Routinization of B2B e-Commerce: Understanding Patterns across Europe

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ABSTRACT

The authors present an in depth understanding of B2B e-commerce adoption and routinization across Europe. The research was informed by the technology, organization, and environment (TOE) framework. A sample of 7,172 firms across Europe was used. A seven factor model is presented that includes technology readiness, technology integration, firm size, obstacles, education level, competitive pressure, and trading partner collaboration, which inform B2B adoption and routinization. Based on adoption and routinization, clusters of European countries, are identified and factors presented that ensure movement from one cluster to the other.

INTRODUCTION

Business-to-business (B2B) transactions have become a major part of all e-commerce transactions (Albrecht, Dean, & Hansen, 2005; Hung, Tsai, Hung, McQueen, & Jou, 2011; Sila, 2013). In this paper we define B2B e-commerce in accordance with Teo and Ranganathan (2004, p.90) as “the use of the Internet and Web-technologies for conducting inter-organizational business transactions”. Firms using B2B e-commerce obtain substantial returns through efficiency improvements, inven-

tory reduction, sales increase, customer relationship enhancement, new market penetration, and financial returns (Amit & Zott, 2001; Barua, Konana, Whinston, & Yin, 2004; Zhu & Kraemer, 2005; Zhu, Kraemer, Xu, & Dedrick, 2004). The development of B2B e-commerce capability is crucial because not only it is rapidly changing the way companies buy, sell, and deal with customers, it is also becoming a more central part of their business strategies (Abu-Musa, 2004). B2B e-commerce adoption and routinization becomes a noteworthy research topic since it enables firms

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to perform electronic transactions along the value chain activities (Straub & Watson, 2001; Zhu & Kraemer, 2002) and it represents a new way to incorporate Internet-based technologies with core business potentially affecting the whole business (Zhu et al., 2004).

The European Commission (2005) claims that more efforts are needed to improve business processes in European firms if the targets of competitiveness prescribed in the Lisbon treaty are to be achieved. Under the pressure of their main international competitors, European firms need to find new opportunities to reduce costs, improve performance, and identify the extent to which there are common behaviors across them (European Commission, 2010). The 27 European Union (EU) members have very different patterns of e-business readiness (Castaings & Tarantola, 2008; Cruz-Jesus, Oliveira, & Bacao, 2012). To the best of our knowledge very limited empirical research has been undertaken to evaluate the determinants of B2B e-commerce usage, among the 27 European countries (hereinafter, referred EU27). This study seeks to fill this gap, by improving our understanding of B2B e-commerce across EU27. This paper addresses three research questions. They are:

RQ1: What are the factors driving B2B adoption and routinization across EU?

RQ2: How many clusters of countries are there in terms of adoption and routinization, and what are the countries that belong to each cluster?

RQ3: What are the different drivers for B2B adoption and routinization across the clusters found in answering RQ2?

To address these research questions we develop a conceptual model based on the technology, organization, and environment (TOE) framework (Tornatzky & Fleischer, 1990). We empirically evaluate the integrated model through a large-scale survey (7,172 firms) across EU countries (in

methods and data analysis section). In sub-section B2B adoption and routinization, we estimate two regressions (one for adoption and the other for routinization) for the full sample to answer the first RQ. To answer the second RQ we apply a cluster analysis of countries to identify how many groups are in the EU context, in terms of adoption and routinization, and what are the countries that belong to each group (in sub-section clusters analysis of countries). In sub-section B2B adoption and routinization, we estimate six more regressions to answer the last RQ - one for adoption and one for routinization for each of three groups of countries revealed in answering RQ2. In the discussion and conclusion section we suggest a fresh understanding of B2B e-commerce adoption and routinization among countries, and provide guidelines to policymakers and practitioners.

LITERATURE REVIEW AND MODEL DEVELOPMENT

The TOE framework (Tornatzky & Fleischer, 1990) identifies three features of a firm's that may influence adoption of technological innovation. The first is the technological context that describes both the existing technologies in use and new technologies relevant to the firm; second, the organizational context, which refers to characteristics of the organization such as scope and size; third, the environmental context in which a firm conducts its business, referring to its industry, competitors, and dealings with the government.

The TOE framework has been examined in a number of empirical studies across various information system (IS) domains. It was used to explained IS adoption and use (Thong, 1999); electronic data interchange (EDI) adoption (Kuan & Chau, 2001); enterprise resource planning (ERP) adoption (Pan & Jang, 2008); cloud computing adoption (Low, Chen, & Wu, 2011; Oliveira, Thomas, & Espadanal, 2014); and interorganizational business process stan-

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