

# An empirical investigation of competency factors affecting e-business success in European SMEs

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## Abstract

In the last decade there was growing interest in strategic management literature about factors that influence a company's ability to use IT. There is general consensus that knowledge and competency are necessary in developing an IT capability, but there is very little understanding of what the necessary competencies are, and how they influence IS usage in different contexts. The small and medium-sized enterprise context is particularly interesting for two reasons: it constitutes a major part of the economy and it has been relatively unsuccessful in exploiting e-business.

We explored the relationship between e-business competency and its success in European SMEs. A literature review was used to determine factors representing e-business competency, and develop hypotheses, which were tested using data collected from 339 SMEs in Europe. Our results provide evidence on the importance of certain e-business competencies on e-business success, and have implications for both research and practice in the field of SMEs.

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## 1. Introduction

Small and medium sized enterprises (SMEs) are a major part of the industrial economies. Their survival and growth has therefore been a prominent issue, and considerable research has been initiated to determine e-business diffusion in SMEs. It has been assumed that success of e-business in the SME segment will increase a country's competitiveness, and that successful adoption and use of e-business technology are crucial for survival [12]. However, several studies have indicated that SMEs are sometimes unable to adopt and use e-business technology successfully. A number of studies have emphasized lack of e-business competency (see, e.g.

[28,34]) as the major cause of this. Such competency is viewed as important not only for understanding the implications of e-business but also for developing the capabilities needed to perform well [23]. However, we have found no published systematic empirical work that identifies critical competencies for the successful adoption and use of e-business in SMEs.

A number of researchers have emphasized the role of competencies for achieving and sustaining competitive advantage (see, e.g. [46]). The majority of these contributions have taken a resource-based perspective of the firm. Understanding and leveraging resources and competencies in the organization are essential for effective strategic management [17]. E-business usually implies a rethinking of business models, the network, and system infrastructure. Therefore, only businesses with access to significant e-business competency can expect to succeed with their efforts [10].

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Resources and core competency are important in the successful utilization of new technology. SMEs, in general, have less financial and human resources than large enterprises (e.g. [9]). Firm size can affect several crucial organizational processes [47], and research dealing only with large corporations may create a bias in conclusions about IT [25]. The way that small firms deal with adoption and implementation issues can differ substantially [13]. Limited financial and IS resources create greater risks in small firms [9]. Forrest [21] found that resource scarcity led small businesses to co-operate more closely with others (e.g. suppliers, customers and partners).

There are many different definitions of e-business and there also are related terms such as Internet business, Internet commerce, network economy, and electronic commerce. We adopted a relatively broad definition of e-business: the conduct of business with the assistance of telecommunication and telecommunications-based tools [8].

Definitions of SMEs also vary. The North American Industry Classification System uses measures such as: number of employees and total turnover, depending on the industry. The European Union (EU) has created a uniform definition: independent companies with fewer than 250 employees and having either a turnover of less than 40 million euro or total assets of less than 27 million euro [18]. Independent enterprises are ones that are not owned by another enterprise or several enterprises having 25% or more of the capital or voting rights. This definition has been adopted, with modifications, by most member states and some non-EU countries. Since our research was conducted as part of an EU program, we adopted this definition.

We addressed the following research question: *Which competencies are critical for SMEs to realize the potential value of e-business?* To answer this question we first synthesized e-business competency from a literature review and several rounds of interviews with SME managers. These e-business competencies

were subsequently operationalized into a survey instrument. We then surveyed 339 SME managers from three European countries. Finally, we performed a statistical analysis of the data to identify important areas of e-business competency significantly related to e-business success.

## 2. The research model

Our examination of the literature showed that little has been published on the possible relationship between competency and successful use of e-business in SMEs. We therefore broadened our scope to IT and IS/IT competency. We included studies that focused on the business manager, since several studies pointed to the importance of him or her in achieving successful implementation of strategies and technologies (e.g. [35]). Furthermore, we based our approach on the assumption that we could increase the understanding of e-business competency in SMEs by applying theories and findings from studies of larger businesses. The sources were mainly from literature on IT competency and IT in general, and relatively few sources focused specifically on e-business technology. Moreover, of the studies of IT competency, relatively few focused on competencies needed in an inter-organizational settings between e-business partners.

We identified several streams of research. Key contributions came from Bharadwaj et al. [3], Bassellier et al. [2], Heijden [26], Feeny and Willcocks [19], Sambamurthy and Zmud [43], Lee et al. [33] and Peppard et al. [40]. These studies provided the basis for establishing our model of IS competency. Table 1 presents an overview of definitions and scope of IS competency.

Most of the literature dealt with the resource-based view. We adopted this and therefore see competencies as the source of e-business capabilities. Fig. 1 depicts the research model. Competency dimensions, such as strategy and vision competency, IT-business process

Table 1  
Definitions and scope of competency in key IS competency studies

Definitions and scope of competency	Reference
IT/IS core capabilities: organization-specific routines, processes, skills and resources	[27,19]
Capabilities, skills and tacit know-how that an organization develops over time that enable it to acquire, deploy, and leverage its IT investments	[43]
Critical IT capabilities as organizational capability in the resource based view	[3]
IT related explicit and tacit knowledge	[2]
Critical knowledge and skills requirements for IS professionals	[33]
All aspects of the management of information, including assessing the role of information in an industry, the exploration of the impact of technology, the identification of competitive opportunities	[40]

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