



Antecedents and performance of electronic business adoption in the hotel industry

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Abstract

Purpose – The purpose of this study is to investigate the environmental and organizational factors that influence the intensity of electronic business adoption by contemporary organizations, and provide evidence regarding the relationship between e-business adoption and organizational performance.

Design/methodology/approach – The study develops an integrative conceptual model of the antecedents and performance outcomes of e-business adoption. The research model is subsequently tested empirically using data collected from 154 hotel companies. Structural equation modeling procedures were used to assess the psychometric properties of measurement scales and test research hypotheses.

Findings – The study findings indicate that customer power has the greatest impact on the intensity of e-business adoption, followed by organizational learning ability, adhocracy culture, and top management emphasis. The results also suggest that companies that use the internet more extensively to perform a range of value-chain activities achieve superior e-business performance, and e-business performance has a significant positive effect on organizational performance.

Originality/value – E-business adoption can provide substantial benefits to companies including increased revenues, operational efficiency, customer satisfaction, and relationship development. A thorough understanding of the factors that facilitate (or inhibit) e-business adoption, and the provision of clear evidence regarding its potential impact on business performance, is critically important for firms that should invest significant financial and human resources in order to successfully implement these innovative technologies. The present study adds to the limited empirical work done in this area by simultaneously investigating the antecedents and outcomes of e-business adoption, within the context of a highly competitive and rapidly evolving industry.

Keywords E-business adoption, Hotel and catering industry, Internet marketing, Hotels, Electronic commerce

Paper type Research paper



1. Introduction

The exponential growth of the internet and the worldwide web during the past decade has revolutionized the way the hotel industry operates. Changes in the way hotels handle reservations are the most notable development; reservations used to come through travel agents and hotel chains' call centers, but they are now generated online by individual customers and corporate travel planners, who are as likely to use online

intermediaries as they are to contact hotels or chains directly (Carroll and Siguaw, 2003). The interactive, multi-media interface of the Web makes this channel fundamentally different from any other alternative used for hotel bookings. Effective websites offer customers a unique purchasing experience, using a combination of words, pictures, sound, and motion to provide a large amount of relevant content. Customers can receive personalized information, share their experiences and provide useful peer-to-peer evaluation of hotels, and obtain new market value, which hotels add to their products and services (Liang and Law, 2003).

At present, a range of distribution channels is available to customers for making hotel reservations (e.g. traditional travel agencies, internet-based travel agencies, global-distribution systems). However, hotels can benefit greatly by shifting transactions to their own facilities through direct connections and websites. In particular, hotel companies can potentially realize the full range of benefits the internet offers, including increased occupancy rates and revenues; reduced costs; more effective communications with customers, staff, and suppliers; intelligence generation; better operational control; improved customer service; and the development of long-term customer relationships (Garcés *et al.*, 2004; Siguaw *et al.*, 2000).

Academic researchers interested in the field of tourism management are attracted by the many opportunities created by the expansion of the internet for the tourism sector. As a result, several studies examine the utilization of internet-based technologies in the hotel industry (Siguaw *et al.*, 2000; Wei *et al.*, 2001); emerging trends in electronic hotel distribution (Carroll and Siguaw, 2003); hotels' online pricing practices (O'Connor, 2003); differences in customer satisfaction and loyalty when making hotel reservations using an online versus offline medium (Shankar *et al.*, 2003); and hotels' website design, features, and quality (Baloglu and Pekcan, 2006; Chung and Law, 2003). However, empirical evidence regarding the factors that influence the intensity of internet adoption by hotel companies is scarce (O'Connor and Frew, 2004). Moreover, few studies examine issues related to electronic business (e-business) adoption, which refers to the use of the internet to perform a range of value chain activities (Wu *et al.*, 2003; Zhu *et al.*, 2006). Finally, the literature includes no attempt to investigate the crucial relationship between the intensity of e-business adoption and hotel companies' performance.

This study develops and empirically tests an integrated model of the antecedents and performance outcomes of e-business adoption in the hotel industry. Consistent with previous research (Wu *et al.*, 2003; Zhu *et al.*, 2006), the focus is on a process-based conceptualization of e-business adoption. In particular, our conceptualization of e-business emphasizes the utilization of the internet for performing major business processes along the value chain. The value chain considers the activities (or processes) that an organization can perform or manage with the intention of creating value for customers (Porter, 1980). The present study examines the extent to which hotel companies use the internet to perform important business processes, including internal communications, customer communications, online reservations, internal administration, and procurement. Furthermore, the study extends previous research by investigating both the relationship between the intensity of e-business adoption and e-business performance and the impact of e-business performance on organizational performance.

The remainder of the article is organized as follows: section 2 outlines the theoretical background of the research. Section 3 presents the conceptual model that guided the execution of the study and develops research hypotheses. Section 4 describes the research method used to test the hypotheses. Section 5 presents the results of statistical analyses. Section 6 discusses the implications of the research. Finally, section 7 concludes by addressing study limitations and identifying future research avenues.

2. Theoretical background

A key premise of modern marketing thought is that a firm's success in the marketplace depends greatly on its ability to create a sustainable competitive advantage (Day and Wensley, 1983). Therefore, marketing researchers have devoted considerable effort in uncovering the organizational skills, capabilities, and resources that contribute toward the achievement of this fundamental objective (Day, 1994). Given the rapid technological progress, a primary concern for modern companies is how to adopt and assimilate new technologies to gain and sustain a competitive advantage (Lee and Grewal, 2004). A thorough review of the relevant literature, however, reveals a scarcity of research on issues related to the organizational adoption of radical technologies (Srinivasan *et al.*, 2002).

Most previous studies on the organizational adoption of technological innovation focus on the purchasing behavior of firms as buying units, as well as on the intra-organizational diffusion of innovations (Frambach, 1993; Frambach and Schillewaert, 2002; Gatignon and Robertson, 1989; Kim and Srivastava, 1998). Undoubtedly, these studies provide useful insights to selling organizations operating in business-to-business markets into how they can achieve more rapid diffusion of technological innovations and improve the performance of new products. However, for adopting firms, the critical concern is how to assimilate new technologies to enhance the effectiveness and efficiency of business functions and processes. Despite the importance of this issue, the lack of a unified theoretical framework has inhibited the advancement of empirical research in this area (Zhu *et al.*, 2006). Nonetheless, in recent years, the continuous expansion of the internet and its potential to support value chain activities have encouraged a growing stream of research on issues related to the adoption of e-business. Srinivasan *et al.* (2002) investigate the factors that determine e-business adoption and technological opportunism in the context of business-to-business firms. They define "technological opportunism" as a sense-and-respond capability of firms with respect to new technologies. Wu *et al.* (2003) propose and empirically test an integrative model that captures a range of environmental and organizational antecedents of e-business adoption, adoption intensity, and performance outcomes. Lee and Grewal (2004) develop a theoretical framework that describes the influence of strategic responses to new technologies on firm performance. This study conceptualizes strategic responses along the dimensions of magnitude (intensity of response), domain (business process altered to adopt the new technology), and speed (speed with which firms adopt the new technology). Woodside *et al.* (2004) and Gupta *et al.* (2005) examine the creation of business-to-business e-market ventures, emphasizing the role of network champions in the innovation and diffusion processes. Zhu *et al.* (2006) propose a conceptual framework for investigating e-business assimilation that comprises three stages: initiation (evaluating the potential benefits of e-business), adoption (making the decision to use the internet for value chain activities), and routinization (using e-business as an integral part of a firm's value chain activities).

Previous studies have employed several diverse conceptual frameworks and constructs for examining e-business adoption. Despite the different perspectives adopted, however, the study of e-business adoption must involve three sets of variables: antecedent factors, intensity of e-business adoption, and performance outcomes. A thorough assessment of the extant literature revealed that Wu *et al.*'s (2003) integrative model was highly relevant and appropriate for the purposes of the present study. In particular, the specific framework examines the influence of various organizational and environmental antecedents on the intensity of e-business adoption, proposes a process-based conceptualization of e-business adoption that includes the key value chain activities performed by hotel companies, and evaluates e-business performance along multiple dimensions that correspond to the main benefits hotel companies expect to realize from e-business adoption. A series of personal interviews conducted with senior managers in ten hotels also confirmed the appropriateness of the specific conceptualization for investigating e-business adoption in the hotel industry. Therefore, Wu *et al.*'s (2003) work served as the basis for the design and execution of the present research study.

3. Conceptual model and research hypotheses

Figure 1 presents the conceptual model that guided the present empirical effort. Compared with Wu *et al.*'s (2003) framework, several notable changes to the conceptual model were introduced. First, the antecedents of e-business adoption were expanded by examining an additional organizational factor – namely, adhocracy culture. Initially, we examined the possibility of performing a comprehensive assessment of the influence of organizational culture on e-business adoption. A thorough review of the mainstream marketing literature revealed that the work of Deshpandé *et al.* (1993) provides a comprehensive and robust typology of organizational culture, as evident by its wide use in subsequent marketing studies. In particular, these authors propose four organizational culture types: clan, adhocracy, hierarchy, and market. We carefully assessed these dimensions in terms of relevance and importance for the empirical context of our study. We also performed a review of the literature in order to find conceptual and empirical support for linking these organizational culture dimensions with e-business adoption. We concluded that only the organizational culture type of adhocracy was potentially relevant and significant for explaining the intensity of e-business adoption. Adhocracy culture emphasizes innovation, entrepreneurship, creativity, adaptability, and risk taking. Therefore, there is a conceptual link between the dominant attributes of adhocracy culture and e-business adoption. By contrast, no such connection can be made with the remaining three organizational culture types. Moreover, to the best of our knowledge, the only study that attempted to examine the influence of organizational culture on e-business was the one by Srinivasan *et al.* (2002). These authors also focused on adhocracy culture and ignored the other three organizational culture types. For these reasons, we decided to include only adhocracy culture in our conceptual model of e-business adoption.

Second, the intensity of e-business adoption was conceptualized as a second-order construct comprising the extent to which managers use the internet to perform a range of relevant business processes. The rationale for this conceptualization is that customers and other stakeholders expect (and demand) a fully interactive website that satisfies all their needs and requests. Therefore, firms should not consider the various

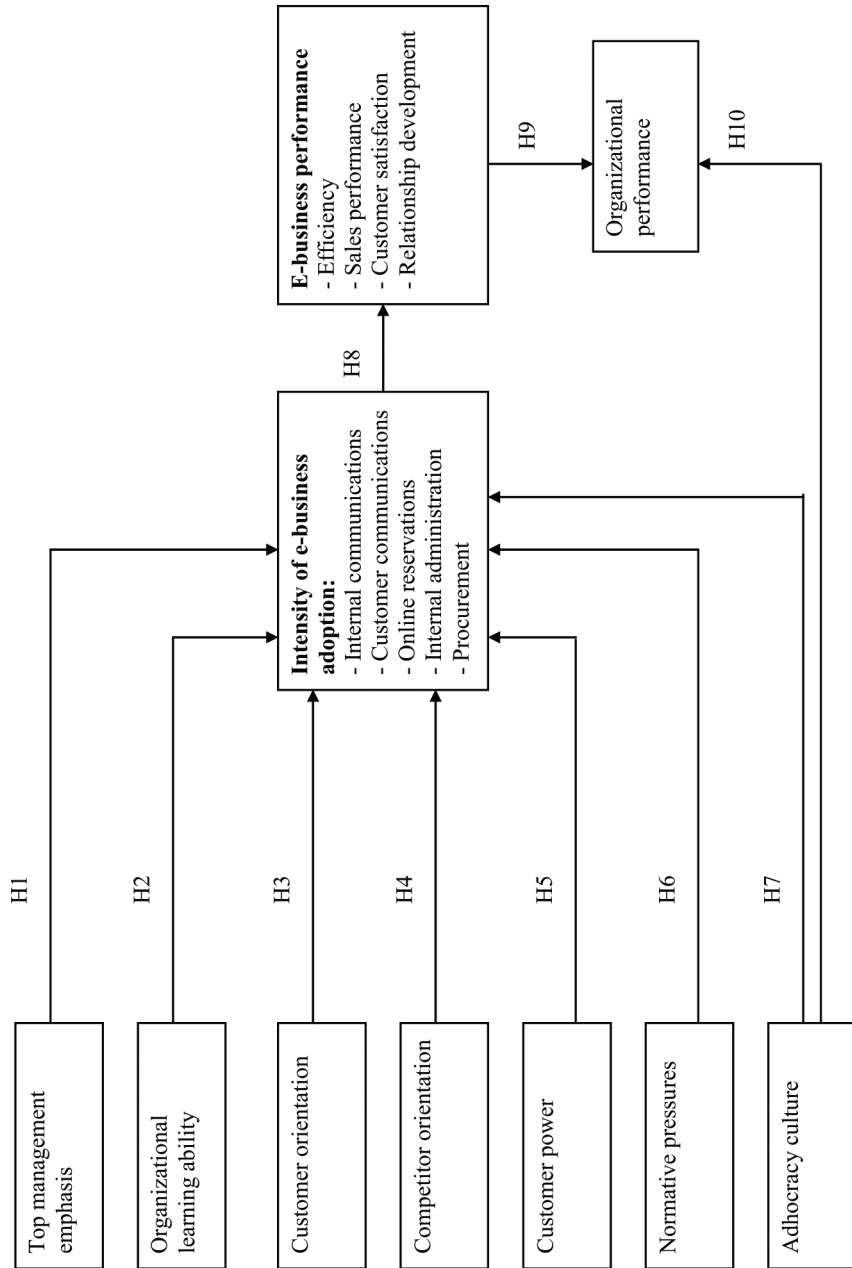


Figure 1.
A conceptual model of the antecedents and performance outcomes of e-business adoption

e-business processes in isolation from one another; rather, they should view the relevant processes as mutually reinforcing elements of value creation along the value chain (Zhu *et al.*, 2004). Otherwise, results will be less than optimal, and poor performance in one or more dimensions may deteriorate the overall effectiveness and efficiency of online activities. Third, with respect to performance outcomes, this study examines both e-business performance and organizational performance. On the one hand, e-business performance assesses the direct contribution of e-business processes on achieving key business and marketing objectives, such as reducing costs, increasing sales, enhancing customer satisfaction, and developing customer relationships. On the other hand, organizational performance refers to the overall performance of a hotel. In the following paragraphs, the hypotheses that examine the interrelationships between the study constructs are developed.

3.1 Top management emphasis and intensity of e-business adoption

Top management emphasis reflects the extent to which top managers endorse the adoption of new technologies. The critical role of top managers in influencing the activities and behaviors of an organization is well understood in the marketing literature (e.g. Kohli and Jaworski, 1990). In the case of e-business adoption in particular, top managers have the power and authority to allocate the required financial and other resources. Moreover, top managers must exercise their leadership skills and capabilities to gain acceptance for the new technology both within the company and among external business partners. This is particularly important in the case of e-business adoption, which is likely to disrupt existing structures, systems, processes, and routines (Zhu *et al.*, 2003). Top management support is a key factor that influences the intensity of e-business adoption (Chatterjee *et al.*, 2002; Srinivasan *et al.*, 2002; Wu *et al.*, 2003).

H1. The greater the top management emphasis on e-business, the greater is the intensity of e-business adoption.

3.2. Organizational learning ability and intensity of e-business adoption

Organizational learning ability describes an organization's ability to evaluate, adopt, and exploit external knowledge (Wu *et al.*, 2007). Alternatively, it can be defined as an organization's ability to recognize the value of new information, assimilate it, and apply it to commercial ends (Cohen and Levinthal, 1990). Evidently, an organization needs to understand a new technology's potential benefits before it can adopt the technology to improve performance (Zhu *et al.*, 2006). Organizations that are open to external input are more likely to develop information sources not only for the availability of new technologies but also for their effective usage. Moreover, open and frequent communication among organizational departments and members facilitates idea dispersion and creates a favorable environment for new ideas (Kim and Srivastava, 1998). A recent empirical study concludes that the intensity of e-business adoption is greater in companies that promote the acquisition and distribution of knowledge and the utilization of organizational memory than in those that do not (Cegarra-Navarro *et al.*, 2007). Similarly, Wu *et al.* (2003) find a positive relationship between organizational learning ability and intensity of e-business adoption.

H2. The greater the organizational learning ability of a hotel, the greater is the intensity of e-business adoption.

3.3 Customer orientation and intensity of e-business adoption

Customer orientation is a corporate culture that places top priority on serving the interests of the customers, without ignoring other key stakeholders, and advocates a continuous search for ways to provide superior customer value (Narver and Slater, 1990; Slater and Narver, 1995). Technology is the main driving force behind progress and development in most industrial sectors worldwide, and thus customer-oriented firms will pay close attention to technological innovations that enhance their capabilities to add value to products and services delivered to the customer. Because of their commitment on finding innovative ways to improve customer value, customer-oriented hotels are more likely to appreciate how e-business adoption can strengthen their capabilities in serving customers. Available empirical evidence reveals a positive impact of customer orientation on organizational innovation (Han *et al.*, 1998) and e-business adoption (Wu *et al.*, 2003).

H3. The greater the customer orientation of a hotel, the greater is the intensity of e-business adoption.

3.4 Competitor orientation and intensity of e-business adoption

Competitor orientation focuses on analyzing competitors' short-term strengths and weaknesses, their long-term capabilities and strategies, and the technologies they possess (Narver and Slater, 1990). To create and maintain a competitive advantage, a company should be constantly informed about its relative standing in the marketplace and should adopt appropriate strategies or technologies to stay ahead of its rivals. E-business applications can assist firms in maintaining their competitive edge by improving market responsiveness and information transparency, increasing operational efficiencies, and achieving customer lock-in (Zhu *et al.*, 2006). Because the main objective of competitor-oriented firms is to stay ahead of the rest of the field (Han *et al.*, 1998), these firms are more likely to adopt innovative technologies. The hotel industry offers a suitable context for the application of e-business activities that enhance customer value and improve operational effectiveness and efficiency. However, competitive advantages tend to be short-lived on the internet because competitors can easily monitor each other and respond. Therefore, to differentiate their offerings, hotel companies should adopt a proactive approach by introducing innovative e-business applications ahead of the competition. Competitor-oriented firms are in a better position to lead the industry in terms of e-business initiatives because they are actively involved in environmental scanning and, particularly, in gathering intelligence on competitors' internet-based services (Han *et al.*, 1998; Wu *et al.*, 2003).

H4. The greater the competitor orientation of a hotel, the greater is the intensity of e-business adoption.

3.5 Customer power and intensity of e-business adoption

Customer power refers to "exogenous customer demands on a firm to implement certain practices" (Wu *et al.*, 2003, p. 431). In the context of e-business adoption, customer power is reflected in the increasing pressure that customers impose on firms to develop effective websites that will enable them to fill their information needs, support their purchasing process, and satisfy other functional and/or hedonic needs. The internet is the fastest growing communications medium in history. Recent

statistics indicate that a significant portion of the world's population is now familiar with the internet and uses it extensively to find more information about products and services more easily, efficiently, and from the comfort of their homes (United Nations Conference on Trade and Development, 2005). Furthermore, in some industries, including the travel and hospitality industry, independent online intermediaries that offer price and product/service comparisons have become commonplace, offering users the opportunity to switch suppliers in seconds (Chaffey *et al.*, 2006). The popularity of these online intermediaries among consumers exercises additional pressure on hotel companies to adopt e-business. As previous research suggests, the hotel and travel industry is among those that have been greatly affected by the internet, and the online channel plays an important role mediating between customers and hotel companies as a place for information acquisition and business transactions (Liang and Law, 2003). Therefore, customers' expectations regarding the quality of websites get increasingly higher and hotel companies are pressured to upgrade their online services continuously to facilitate the purchase process and enhance the overall customer experience.

H5. The greater the customer power exercised within the context of e-business adoption, the greater is the intensity of e-business adoption.

3.6 Normative pressures and intensity of e-business adoption

Normative pressures are pressures on an organization to adopt certain behaviors for reasons of conformity and legitimacy (Homburg *et al.*, 1999). These pressures arise from entities in the external environment such as customers, suppliers, or the general public (Wu *et al.*, 2003). Normative pressures are partly caused by the cumulative level of adoption of a particular innovation among neighboring organizations (Burns and Wholey, 1993). In the context of e-business, the rapidly increasing adoption of the Internet by consumers and businesses has come to a fast-growing realization that all organizations must have an effective Internet presence to prosper, or possibly even survive (Chaffey *et al.*, 2006). Moreover, numerous articles in the popular press predicted that businesses would be left hopelessly behind if they did not accelerate their movement into the e-business arena (Wu *et al.*, 2003). All these developments in the environment exercise a significant pressure on organizations to adopt e-business practices. Further, Srinivasan *et al.* (2002) suggest that an organization's early and extensive adoption of e-business technologies signals its technological astuteness and provides social legitimacy with its stakeholders. For hotel companies, an additional pressure to adopt e-business arises from the strong presence on the web of all major players in the travel and tourism industries (e.g. travel agents, tour operators, airlines, car rental services). Wu *et al.* (2003) find a strong positive relationship between normative pressures and intensity of e-business adoption.

H6. Increasing normative pressures serve to intensive e-business adoption.

3.7 Adhocracy culture and intensity of e-business adoption

Organizational culture has received heightened research attention in the marketing literature (e.g. Deshpandé *et al.*, 1993; Deshpandé and Webster, 1989; Moorman, 1995) because of its key role in influencing various organizational values and outcomes, such as market orientation, innovativeness, and business performance. Deshpandé and Webster (1989, p. 4) define organizational culture as "the pattern of shared values and

beliefs that helps individuals understand organizational functioning and that provides norms for behavior in the organization.” Deshpandé *et al.* (1993) develop a conceptual framework of organizational culture that comprises four cultural types: adhocracy, market, hierarchy, and clan. A thorough review of the characteristics of each cultural type indicates that adhocracy culture is the most relevant for explaining the intensity of e-business adoption. Specifically, adhocracy culture values flexibility and competitive position in the marketplace and emphasizes entrepreneurship, creativity, and adaptability. Thus, adhocracy cultures foster innovation and risk taking. No previous study has empirically examined the relationship between organizational culture and e-business adoption. However, Srinivasan *et al.* (2002) report a significant, positive relationship between adhocracy culture and technological opportunism, which is a key determinant of e-business adoption.

H7. The stronger the prevalence of adhocracy culture, the greater is the intensity of e-business adoption.

3.8 Intensity of e-business adoption, e-business performance, and organizational performance

Hotel companies can realize substantial benefits from e-business adoption (e.g. Carroll and Siguaw, 2003; Garcés *et al.*, 2004; Liang and Law, 2003). These benefits can be classified into four broad categories: cost reduction, increased revenues, customer satisfaction, and relationship development. Hotel companies that adopt e-business to a greater extent are in a better position to realize these benefits and, thus, to achieve superior e-business performance. Moreover, superior e-business performance is expected to have a significant, positive effect on a hotel’s overall performance.

H8. The intensity of e-business adoption is positively related to e-business performance.

H9. E-business performance is positively related to organizational performance.

3.9 Adhocracy culture and organizational performance

Adhocracy culture emphasizes innovation, entrepreneurship, flexibility, adaptability, and risk taking (Deshpandé *et al.*, 1993; Moorman, 1995). Previous studies have proposed a positive influence of adhocracy culture on business performance (Deshpandé and Farley, 2004; Deshpandé *et al.*, 1993). A strong focus on adhocracy culture is particularly important for the hotel industry, which is characterized by high market turbulence, fierce competition among hotel companies, changing customer needs, easily substitutable service offerings, and decreasing brand loyalty (Ottenbacher and Gnoth, 2005). Therefore, hotel companies possessing strong elements of adhocracy culture are likely to achieve superior organizational performance.

H10. Adhocracy culture relates positively to organizational performance.

4. Research method

4.1 Research context

The present study examines the antecedents and performance outcomes of the intensity of e-business adoption by hotel companies in two small European Union

countries – namely, Greece and Cyprus. Both countries depend greatly on the tourism industry for economic growth and development. In 2006, the tourism sector contributed 17 and 13 percent to the gross national product of Greece and Cyprus, respectively (Greek Ministry of Economy and Finance, n.d.; Cyprus Ministry of Finance, n.d.). The hotel industry provides a suitable setting for investigating issues related to e-business adoption because the internet and related technologies have dramatically altered the way hotel companies conduct their business, raised customers' expectations, and established new purchasing habits. Moreover, although the internet supports worldwide connectivity and e-business is a global phenomenon, most existing studies in this area have focused on developed countries, in particular the US (Zhu *et al.*, 2006). Thus, scholarly research on e-business adoption in developing countries is needed to help practicing managers and public policy makers exploit the possibilities offered by technological innovation (United Nations Conference on Trade and Development, 2005).

4.2 Measures

Measures for most study constructs were available in the literature, and they were appropriately adapted to suit the current setting. The proposed conceptual framework was based on Wu *et al.*'s (2003) work, and thus the measurement scales they developed were initially examined, along with the original scales from which they drew their measurement items. Preliminary scales were developed by rephrasing most scale items for compatibility with the hotel industry context. Subsequently, the study involved interviews with senior managers in ten hotels to pre-test these scales. From the feedback received, the measures were refined, and some new items were developed. Table I provides a full list of scale items. All constructs were measured with seven-point strongly disagree/strongly agree scales, except for organizational performance, whose scale anchors were much worse/much better.

4.3 Questionnaire development

Data collection was based on a highly structured questionnaire. The questionnaire was initially developed in English. Then, the services of two professional translators were employed. The first professional translated the questionnaire into Greek, and the second one re-translated the questionnaire into English. This procedure resulted in small revisions to the Greek version of the questionnaire. Two academic marketing researchers who were fluent in both Greek and English then evaluated the quality of the Greek translation. Finally, the research instrument was extensively pre-tested with senior managers who were responsible for the e-business activities of their hotels; no specific problems appeared with respect to the measures, the clarity of the questions, response formats, or the length of the questionnaire.

4.4 Sample and data collection

The study sample consisted of three-, four-, and five-star hotels operating in Greece and Cyprus. Lower-class hotels were excluded because a preliminary screening indicated that the majority of them did not maintain a website. In Cyprus, the "Guide to Hotels and Other Tourist Establishments," published by the Cyprus Tourism Organization, was the sampling frame. From the information provided in this directory, 137 hotels that satisfied the sampling criteria were identified. However, 43 of these hotels were

Constructs and Items ^a	Standardized loadings ^b	Reliability
<i>A. Antecedents</i>		
<i>Top management emphasis</i>		
Top management in our hotel continuously emphasize that our hotel must adapt to the internet-related marketing trends	0.71 (7.37)	$\alpha = 0.83, CR = 0.83$
Top management in our hotel often advise employees to be sensitive to competitors' initiatives with regard to internet use	Dropped	
Top management in our hotel keep telling people that they must bring more of their practices online in order to meet customers' future needs	0.79 (8.54)	$\alpha = 0.79, CR = 0.81$
Top management are willing to try to provide the necessary resources for implementing internet-based business practices	0.75 (7.89)	
Top management in our hotel often advise employees to keep track of the latest developments in internet technology and internet-related business practices	Dropped	
According to top management in our hotel, incorporating internet-based practices is a very important task	0.72 (7.58)	
<i>Organizational learning ability</i>		
Our hotel is quick to learn about new technologies	0.55 (5.56)	$\alpha = 0.82, CR = 0.84$
Various departments and people in our hotel exchange information freely and frequently	0.53 (5.40)	
Our hotel invests substantially in advanced business and technical training for our managers and other personnel	0.88 (10.08)	
Our hotel invests substantially in Research and Development and knowledge acquisition	0.86 (9.81)	
<i>Customer orientation</i>		
The business objectives of our hotel are driven by customer satisfaction	0.58 (5.89)	$\alpha = 0.81, CR = 0.82$
We closely monitor and assess our level of commitment in serving customers' needs	0.69 (7.23)	
Our competitive advantage is based on understanding customers' needs	0.76 (8.11)	
Business strategies of our hotel are driven by the goal of increasing customer value	0.76 (8.12)	
We frequently measure customer satisfaction	0.67 (6.99)	
We pay close attention to after-sales service	0.63 (6.42)	
<i>Competitor orientation</i>		
The managers in our hotel often exchange information and views about our competitors	0.68 (7.11)	$\alpha = 0.81, CR = 0.82$
We respond rapidly to competitive actions	0.82 (8.92)	
Our top managers regularly discuss competitors' strengths and weaknesses	0.83 (9.09)	
We believe that analyzing and responding to competitors' actions is crucial to maintain our competitive advantage	0.56 (5.58)	

Table I.
Measurement items,
confirmatory factor
analysis, and reliability

(continued)

Constructs and Items ^a	Standardized loadings ^b	Reliability
<i>Customer power</i>		
Many of our customers are keen that our hotel should implement internet-based practices	0.65 (6.76)	$\alpha = 0.85, CR = 0.86$
Our relationships with our major customers would have suffered if we had not implemented internet-based practices	0.79 (8.67)	
Our customers may consider us as backward if we do not implement internet-based practices	0.80 (8.89)	
Our major customers demand that we establish strong internet-based relationships with them	0.84 (9.50)	
<i>Normative pressures</i>		
A large number of our competitors and business partners have already adopted internet-based business practices	0.53 (5.24)	$\alpha = 0.80, CR = 0.82$
In the hotel industry, firms that do not readily adopt new technologies will be left behind	0.76 (8.13)	
We would be considered technology deficient if we do not implement internet-based practices	0.81 (8.78)	
It is important that we are seen as a cutting-edge business that adopts innovative technologies	0.68 (7.09)	
In the hotel industry, most firms will ultimately end up adopting a wide range of internet-based practices	0.65 (6.68)	
<i>Adhocracy culture</i>		
Our hotel is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks	0.74 (8.06)	$\alpha = 0.87, CR = 0.87$
The head of our hotel is generally considered to be an entrepreneur, an innovator, or a risk taker	0.80 (8.94)	
What holds our hotel together is a commitment to innovation and development. There is an emphasis on being first	0.85 (9.75)	
Our hotel emphasizes growth and acquiring new resources. Readiness to meet new challenges is important	0.79 (8.74)	
<i>B. Intensity of e-business adoption</i>		
In our hotel, we use the internet to:		$\alpha = 0.95, CR = 0.95$
<i>Internal communications</i>	0.76 (7.53)	
Facilitate internal communication between employees in different departments and different locations	0.84 ^c	
Regularly update employees about developments within the organization	0.90 (13.16)	
Facilitate discussions and feedback on various issues of importance to our hotel	0.90 (13.20)	
Coordinate and control activities within the hotel	0.90 (13.14)	
Coordinate teams working on the development of new services	0.87 (12.31)	

(continued)

Table I.

Constructs and Items ^a	Standardized loadings ^b	Reliability
<i>Customer communications</i>	0.77 (5.61)	$\alpha = 0.78$, CR = 0.78
Provide customers with general information about our hotel	0.62 ^c	
Allow customers to locate and send information to appropriate contacts with the hotel	Dropped	
Send customers regular updates about new services, offers, and other developments concerning the hotel (e.g. via e-mail)	0.72 (6.02)	
Provide solutions to customer problems (via web-based service solutions)	0.80 (6.38)	
Provide information in response to customer questions or requests (e.g. via searchable online databases)	0.61 (5.38)	
<i>Online reservations</i>	0.52 (3.98)	$\alpha = 0.65$, CR = 0.69
Accept reservations electronically from customers (online reservations)	0.67 ^c	
Accept payments electronically from customers (online payment)	0.56 (4.53)	
Allow customers to track/confirm their reservation and submit any related inquires	0.72 (4.88)	
<i>Internal administration</i>	0.83 (7.69)	$\alpha = 0.88$, CR = 0.88
Perform financial and managerial accounting	0.80 ^c	
Provide reimbursement and manage payrolls	0.86 (10.39)	
Manage employees benefits (e.g. life and medical insurance)	0.85 (10.24)	
<i>Procurement</i>	0.59 (5.21)	$\alpha = 0.86$, CR = 0.87
Search and locate potential suppliers online	0.71 ^c	
Place and track orders with suppliers electronically (e.g. online order placement)	0.84 (8.53)	
Allow suppliers to submit bids online	0.75 (7.71)	
Use online markets to source supplies	0.87 (8.79)	
Make payments electronically to suppliers (online payments)	0.59 (6.07)	
<i>C. E-business performance</i>		
As a consequence of internet-based practices adoption by our hotel:		
<i>Efficiency</i>	0.75 (7.43)	$\alpha = 0.89$, CR = 0.89
The costs of our operations and transactions have been substantially reduced	0.90 ^c	
The costs of general management activities have been substantially reduced	0.94 (14.52)	
The costs of coordinating with suppliers, customers, and business partners have been substantially reduced	0.80 (10.88)	
The costs of marketing the hotel (e.g. advertising and promotion costs) have been substantially reduced	0.64 (7.53)	
The costs of acquiring new customers have been substantially reduced	Dropped	

Table I.

(continued)

Constructs and Items ^a	Standardized loadings ^b	Reliability
<i>Sales performance</i>		
The occupancy rates of our hotel have increased	0.71 (7.17)	$\alpha = 0.90, CR = 0.91$
The revenues of our hotel have increased	0.95 ^c	
The prices we offer have changed	0.94 (17.00)	
The number of new customers that we are able to acquire has increased	Dropped	
The number of existing customers that we are able to retain has increased	0.73 (9.74)	
	Dropped	
<i>Customer satisfaction</i>		
Overall, our customers are more satisfied with our hotel.	0.89 (8.08)	$\alpha = 0.78, CR = 0.81$
Our customers encourage other people to stay in our hotel	0.83 ^c	
Our customers are more loyal to our hotel than before	0.71 (7.47)	
	0.76 (8.03)	
<i>Relationship development</i>		
Our hotel has been able to strengthen its existing business relationships with partners and suppliers	0.80 (7.88)	$\alpha = 0.94, CR = 0.93$
The relationship between our hotel and its suppliers and business partners are likely to last longer	0.92 ^c	
	0.95 (13.70)	
<i>D. Organizational performance</i>		
Hotel's performance in comparison with major direct competitors, during the past year, with respect to:		$\alpha = 0.93, CR = 0.94$
Average occupancy rates	0.92 (11.64)	
Total revenues	0.93 (11.90)	
Profitability	0.88 (10.91)	

Notes: ^aIn the actual questionnaire, the phrase "hotel/hotel chain" was used instead of the word "hotel"; ^bThe *t*-values are in parentheses; ^cFixed parameter

Table I.

members of ten hotel chains that operated an umbrella website for all their hotels. Thus, the investigators contacted the headquarters of these chains to verify that the e-business activities of all their hotels were centrally developed and managed. Therefore, the effective sample for Cyprus consisted of 104 hotels and hotel chains (for reasons of brevity, from this point forward we use the word "hotel" to refer to both hotels and hotel chains). The investigators telephoned each hotel to pre-notify them about the research study and to identify an appropriate key informant who would be qualified to provide the required information. Subsequently, a research assistant delivered the questionnaire in person to all key informants, along with a pre-addressed, postage-paid return envelope. By the cutoff date, 63 of the 104 hotels had completed the questionnaires, for a response rate of 61 percent.

The "Greek Hotels Directory," published by the Greek Tourism Organization, was the sampling frame for the Greek hotels. Overall, 508 hotels/hotel chains that satisfied the sampling criteria were identified (395 independent hotels and 113 hotel chains). Data collection in Greece was based on a mail survey. The investigators telephoned all hotels to pre-notify them about the research study, to identify a key informant, and to ensure that the correct contact details were available. This process resulted in the elimination of 89 hotels that reported a corporate policy of non-participation in external

research projects or that were unwilling to complete the survey for various reasons. Therefore, the final sample in Greece included 419 hotels. Key informants received a survey packet, including a cover letter, the questionnaire, and a pre-addressed, postage-paid return envelope. By the cutoff date, 91 usable responses were received, for a response rate of 22 percent. Thus, the final data set included observations obtained from 154 hotels. To eliminate the possibility of non-response bias, respondents and non-respondents were compared on key hotel characteristics, such as the number of employees and capacity. No significant differences were found between the two groups. Moreover, following Armstrong and Overton's (1977) guidelines, we compared early respondents (the first one-third) with late respondents (the last one-third) on all study constructs. The non-significant *t*-test results confirm that non-response bias is not a major issue of concern in the study.

4.5 Key-informant quality

A single key informant was selected in each hotel company on the basis of a pre-survey telephone screening. Huber and Power (1985) suggest a protocol for using the key-informant technique, and the present study followed these guidelines. This procedure involved performing various cross-checks to gauge whether survey participants adequately met the key-informant criteria. A section of the questionnaire was devoted to descriptive characteristics that included a series of questions that assessed respondents' job titles and the extent of their "knowledge of the hotel's e-business activities," "involvement with the hotel's e-business activities," "responsibility for the hotel's e-business activities," and "confidence in answering the questions of the survey instrument." The overwhelming majority of respondents described themselves as general managers (51 percent), followed by marketing managers/executives (22 percent) and information technology managers (16 percent). In addition, the scores for these statements indicated that potential sources of measurement error attributable to the key informant were minimized.

5. Analysis and results

5.1 Measure validation

In line with Gerbing and Anderson (1988), the internal consistency of the scales was initially examined, using a combination of exploratory factor analysis and item-to-total correlations. As a result of these procedures, several items that exhibited low item-to-total correlations or loaded on multiple factors were dropped (see Table I). The remaining items were then subjected to confirmatory factor analysis (CFA) to verify the hypothesized factor structure. Given the large number of constructs and items and sample size restrictions, estimating a single measurement model was not possible without violating the recommended five-to-one ratio of parameter estimates to observations (Bentler and Chou, 1987). Therefore, four smaller CFA models were estimated. This analysis was performed with the EQS statistical package (Bentler, 1995) using the elliptical reweighed least squares procedure.

Table II provides a summary of CFA, indicating the constructs included in each CFA model, the hypothesized factorial structure, and fit statistics. With the exception of the chi-square statistic, whose sensitivity to sample size is widely recognized (Bagozzi and Yi, 1988), all other fit indexes (i.e. the ratio of chi-square to the degrees of freedom [χ^2/df], comparative fit index [CFI], non-normed fit index [NNFI], and root

Model	First-order constructs	Second-order construct	χ^2	df	p-value	χ^2/df	CFI	NNFI	RMSEA
CFA model 1	Top management emphasis, organizational learning ability, customer orientation, competitor orientation, adhocracy culture	–	329.57	199	0.00	1.66	0.95	0.94	0.068
CFA model 2	Customer power, normative pressures	–	36.42	26	0.08	1.40	0.99	0.98	0.052
CFA model 3	–	Intensity of e-business adoption; Internal communications; Customer communications; Online reservations; Internal administration; Procurement	234.88	165	0.00	1.42	0.98	0.98	0.053
CFA model 4	Organizational performance	E-business performance; Efficiency; Sales performance; Customer satisfaction; Relationship development	126.17	85	0.00	1.48	0.98	0.98	0.06

Table II.
Summary of CFA results

mean square error of approximation [RMSEA]) suggest that the four measurements models fit the data well. Moreover, all first-order and second-order factor loadings were large and significant (Table I), providing evidence of convergent validity. Discriminant validity was tested using Anderson and Gerbing's (1988) guidelines. First, all possible pairs of constructs were assessed in a series of two-factor CFA models. Each model was run twice: one constraining the phi coefficient to unity and the other freeing the parameter. In all pair-wise comparisons, the difference in chi-square value was greater than the critical value of 3.84 (based on a 1 degree of freedom difference). Second, the confidence interval (± 2 standard errors) around the correlation estimate of all pairs of constructs was estimated. In none of the cases did the confidence interval include 1.0. These results provide sufficient evidence for discriminant validity between each possible pair of constructs. The constructs' reliability was assessed by calculating Cronbach's alpha coefficient and composite reliability score. As Table I shows, the alpha values and the composite reliability scores for all constructs were above (or very close to) the commonly recommended minimum levels (i.e. alpha value greater than 0.70 and composite reliability score greater than 0.60), indicating good reliability. Overall, the results of these procedures indicate that all study constructs possessed adequate measurement properties. Table III provides descriptive statistics and inter-correlations for the research constructs.

5.2 Structural model estimation

A structural model was estimated to test the research hypotheses. To achieve a higher ratio of observations to the number of free parameters to be estimated, summated scales were used to represent the study constructs. To account for measurement error, the measurement loading of each first-order factor was set to the square root of its reliability estimate (i.e. coefficient alpha) and its error term to the product of the scale variance and one minus the scale reliability (Hunter and Perreault, 2007). The two higher-order constructs – intensity of e-business adoption and e-business performance – were aggregated to have five and four indicators, respectively, by summing the items of their corresponding first-order factors. Table IV presents the results obtained from the estimation of the structural model. Although the chi-square statistic is significant ($\chi^2_{(106)} = 193.66, p < 0.001$), all other fit indexes indicate a good model fit: $\chi^2/df = 1.83$, CFI = 0.96, NNFI = 0.95, and RMSEA = 0.07. Seven paths were statistically significant and specified in the expected direction. Thus, *H1*, *H2*, *H5*, *H6*, *H8*, *H9*, and *H10* were supported. In contrast, no evidence was provided in support of *H3*, *H4*, and *H7*.

More specifically, the intensity of e-business adoption is positively influenced by top management emphasis (*H1*: $\beta = 0.25, t = 1.97$), organizational learning ability (*H2*: $\beta = 0.37, t = 2.16$), adhocracy culture (*H5*: $\beta = 0.27, t = 2.30$), and customer power (*H6*: $\beta = 0.50, t = 3.46$). The intensity of e-business adoption has a positive effect on e-business performance (*H8*: $\beta = 0.74, t = 5.68$). E-business-performance has a positive effect on organizational performance (*H9*: $\beta = 0.22, t = 2.02$). Finally, adhocracy culture results in higher levels of organizational performance (*H10*: $\beta = 0.28, t = 2.64$). Contrary to expectations, customer orientation (*H3*: $\beta = 0.02, t = 0.21$), competitor orientation (*H4*: $\beta = -0.07, t = -0.60$), and normative pressures (*H7*: $\beta = -0.09, t = -0.65$) have no significant influence on the intensity of e-business adoption.

Constructs	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Top management emphasis	5.96	0.96	-															
2. Organizational learning ability	5.35	1.18	0.55	-														
3. Customer orientation	6.30	0.79	0.33	0.44	-													
4. Competitor orientation	5.62	1.03	0.35	0.54	0.40	-												
5. Adhocracy culture	5.85	1.05	0.43	0.54	0.49	0.49	-											
6. Customer power	4.66	1.43	0.48	0.36	0.38	0.33	0.22	-										
7. Normative pressures	5.93	0.93	0.48	0.32	0.15	0.37	0.26	0.61	-									
8. Internal communications	4.19	1.99	0.37	0.51	0.28	0.37	0.43	0.47	0.28	-								
9. Customer communications	5.35	1.36	0.49	0.46	0.43	0.44	0.46	0.46	0.39	0.47	-							
10. Online reservations	5.88	1.28	0.41	0.22	0.15	0.14	0.20	0.27	0.33	0.29	0.34	-						
11. Internal administration	3.79	1.99	0.46	0.50	0.41	0.31	0.39	0.52	0.34	0.59	0.55	0.34	-					
12. Procurement	4.11	1.64	0.26	0.31	0.34	0.34	0.30	0.26	0.18	0.45	0.37	0.29	0.41	-				
13. Efficiency	4.29	1.57	0.38	0.36	0.25	0.34	0.44	0.41	0.30	0.45	0.43	0.21	0.52	0.44	-			
14. Sales performance	5.08	1.41	0.38	0.25	0.15	0.17	0.29	0.23	0.31	0.28	0.35	0.27	0.32	0.32	0.57	-		
15. Customer satisfaction	5.35	1.28	0.43	0.44	0.36	0.34	0.41	0.37	0.31	0.43	0.41	0.19	0.45	0.41	0.55	0.56	-	
16. Relationship development	4.59	1.67	0.38	0.36	0.29	0.26	0.23	0.40	0.23	0.50	0.42	0.28	0.43	0.55	0.49	0.47	0.69	-
17. Organizational performance	5.01	1.14	0.27	0.31	0.17	0.22	0.37	0.32	0.13	0.28	0.20	0.02	0.31	0.11	0.33	0.25	0.21	0.25

Notes: Correlations greater than 0.16 are significant at the 0.05 level; Correlations greater than 0.22 are significant at the 0.01 level

Table III.
Descriptive statistics and correlations

Hypothesized paths	Expected sign	Standardized coefficient	<i>t</i> -value	Hypothesis test
H1 Top management emphasis → Intensity of e-business adoption	+	0.25	1.97*	Supported
H2 Organizational learning ability → Intensity of e-business adoption	+	0.37	2.16*	Supported
H3 Customer orientation → Intensity of e-business adoption	+	0.02	0.21	Not supported
H4 Competitor orientation → Intensity of e-business adoption	+	-0.07	-0.60	Not supported
H5 Adhocracy culture → Intensity of e-business adoption	+	0.27	2.30*	Supported
H6 Customer power → Intensity of e-business adoption	+	0.50	3.46**	Supported
H7 Normative pressures → Intensity of e-business adoption	+	-0.09	-0.65	Not supported
H8 Intensity of e-business adoption → E-business performance	+	0.74	5.68**	Supported
H9 E-business performance → Organizational performance	+	0.22	2.02*	Supported
H10 Adhocracy culture → Organizational performance	+	0.28	2.64**	Supported

Table IV.
Standardized path coefficients and *t*-values for the structural model

Notes: Fit statistics for structural model: $\chi^2_{106} = 193.66$, $p < 0.001$; $\chi^2/df = 1.83$; CFI = 0.96; NNFI = 0.95; RMSEA = 0.07; * $p < 0.05$; ** $p < 0.01$

5.3 Common method bias

As with any empirical study of this kind, potential sources of bias may exist. Although the present research conformed to the well-accepted practices for survey design and administration, this issue can never be conclusively dismissed. We conducted a statistical test for common method variance with the Harman one-factor method (Podsakoff and Organ, 1986). In particular, we performed a principal component analysis of all measures. For the purposes of this analysis, the dimensions of the two second-order constructs (i.e. intensity of e-business adoption and e-business performance) were represented with their summated scales. Ten factors were extracted with eigenvalues greater than 1.0, which accounted for 71 percent of the variance. Moreover, no general factor existed in the unrotated factor structure, and the first factor accounted for only 21 percent of the variance. These results suggest that common method bias is not a major concern and does not explain alone the observed relationships among the study constructs.

6. Discussion and implications

E-business adoption is a major undertaking that transforms existing business models, organizational structures, and processes, as well as inter-firm relationships with customers, suppliers, and other business partners (Chatterjee *et al.*, 2002; Srinivasan *et al.*, 2002). As a consequence, some companies adopt a conservative approach toward this innovative technology, missing important market opportunities and losing their competitive edge. Therefore, understanding the factors that facilitate e-business adoption and providing clear evidence regarding its impact on operational efficiency,

competitive agility, and organizational performance are critically important (Zhu *et al.*, 2006). This study contributes to the existing literature by developing and empirically testing an integrative model of the antecedents and performance consequences of e-business adoption in the context of the hotel industry.

With respect to antecedent factors, the findings reveal that customer power has the strongest influence on the intensity of e-business adoption. These results can be attributed to the tremendous growth in internet penetration and usage in recent years. In particular, an increasing number of consumers and organizational travel planners use the internet extensively to access multi-media information regarding travel-related products and organizations around the world and to make reservations instantly, inexpensively, and interactively (Garcés *et al.*, 2004). Thus, hotel companies face increasing pressure to adopt e-business processes to satisfy the needs and expectations of their customers and to enhance operational efficiency and competitiveness. The results also indicate that the intensity of e-business adoption is greater in hotel companies with an adhocracy culture. Given their strong emphasis on innovation and adaptation, organizations with an adhocracy culture are more likely to sense the opportunities (and threats) posed by the internet and to adopt e-business to support their value chain activities and strengthen their competitive position.

The findings provide further support for the strategic role of organizational learning in contemporary organizations by indicating a significant, positive relationship between organizational learning ability and the intensity of e-business adoption. In particular, technology is changing rapidly, and therefore companies must develop a systematic process for acquiring and processing information about technological developments and establish an internal mechanism for disseminating this information across different organizational units and departments. The open sharing of information and the exchange of ideas within the company will ensure that all parties involved become aware of and familiar with the new technology, and any resistance to adoption is minimized. Finally, top management emphasis also emerged as a significant determinant of e-business adoption. E-business is a radical technology that alters existing business models and processes (Srinivasan *et al.*, 2002). As a consequence, decisions regarding the magnitude, the domain, and the speed of a company's response to this new technology should be made at the top management level (Lee and Grewal, 2004).

Contrary to expectations, neither customer orientation nor competitor orientation significantly influenced the intensity of e-business adoption. Along with inter-functional coordination, these constructs represents the key components of marketing orientation, as conceptualized by Narver and Slater (1990). Therefore, market orientation might not be related to the intensity of e-business adoption, at least in the context of the hotel industry. A likely explanation for these unexpected results is that market orientation advocates a proactive, forward-looking approach to business that aims to improve long-term performance (e.g. Han *et al.*, 1998). However, the internet and related-technologies have expanded very rapidly, leaving companies with almost no time to plan a formal reaction. In addition, the internet has created a transparent environment, enabling companies to monitor closely and inexpensively the initiatives of their competitors and the online behavior of their customers. Thus, the benefits that are often associated with a customer- and competitor-oriented approach may be less significant in the case of internet-based activities. The findings also indicate that normative pressures have no significant influence on the intensity of

e-business adoption. These results suggest that hotel companies' decisions to invest in this new technology were not motivated by external pressures for conformity and legitimacy or by the fear of being left behind and losing competitiveness. The considerable resources required and the important consequences for organizational structure and processes restrained firms from adopting e-business on account of such pressures. Moreover, innovation adoption that is driven by normative pressures may yield few benefits and limited competitive advantage to the adopting organization (Wu *et al.*, 2007). Therefore, companies seem to follow a more rational approach in deciding whether to adopt a new technology by emphasizing the potential benefits in term of operational efficiency, competitiveness, and long-term performance.

The results indicate a strong positive relationship between the intensity of e-business adoption and e-business performance. In particular, hotel companies that use the internet to a greater extent to perform a wide range of relevant business processes, including internal and customer communications, online reservations, internal administration, and procurement, derive the maximum benefit in terms of efficiency, sales performance, customer satisfaction, and relationship development. As customers' sophistication regarding internet usage is increasingly enhanced, companies must offer them a unique online experience to meet their expectations and to satisfy their needs at every stage of the buying process. Furthermore, study findings provide evidence for a significant, positive influence of e-business performance on organizational performance. In particular, when successfully implemented, e-business can offer firms significant benefits in terms of revenue generation, cost reduction, customer satisfaction, and relationship building. Most important, however, the internet and related technologies enable companies to penetrate new markets, to develop further their existing markets, and to offer new products and services in ways that the resulting benefits are incremental to what they would be able to achieve otherwise.

6.1 Managerial implications

The findings of this study provide several important implications for managers. First, managers who strive to improve the performance of their value chain activities through e-business adoption should focus on enhancing the organizational learning abilities of their firms. In particular, they should emphasize the acquisition of knowledge regarding relevant technological innovations, the dissemination of this knowledge within the organization, and its meaningful utilization in transforming business processes. Firms should establish a formal knowledge acquisition process by assigning specific responsibilities to individuals or departments within the organization that possess the necessary expertise. The organization of training seminars should also be considered as an effective method for knowledge diffusion within a company. Second, firms should develop an effective monitoring system that will provide the necessary input for assessing and understanding the online behavior of customers. This study shows that customer power has the greatest influence on the intensity of e-business adoption. On the one hand, these results denote the emphasis that firms place on responding to online customers' expectations and demands. On the other hand, however, they demonstrate the strong pressure that customers can exercise on contemporary firms, as the internet enables customers to compare competitive offerings and to switch between suppliers easily and inexpensively. Therefore, companies should be equipped to identify changing

patterns in customers' online behavior and to initiate appropriate responses in a timely manner to gain an early-mover advantage.

Third, top managers need to promote an organizational culture that values change, creativity, and innovation. Various formal and informal procedures can be employed toward this aim. For example, the systematic acquisition and dissemination of knowledge regarding new technologies can help employees understand the emerging opportunities (and threats) and appreciate the importance of technology-led innovations for the long-term prosperity of their organization. Moreover, top managers must encourage and reward employees' initiatives that surpass the status quo and present improved ways for performing business processes. They should also explicitly express their support for e-business adoption, as this serves as a powerful signal to lower-level managers and other employees about the importance placed on this technology. Moreover, because e-business initiatives constitute a core component of the strategic planning process in many firms (Wu *et al.*, 2007), top managers should consider appointing an e-business executive and a multi-functional e-business team. This structure ensures that e-business adoption is supported by input from all relevant functional areas, minimizes interdepartmental conflict, and strengthens organizational commitment. The successful implementation of e-business depends also on its acceptance among customers and other stakeholders. Therefore, in developing e-business, firms should consider the needs and wants of all relevant value chain partners and secure their cooperation and support.

Fourth, top management support is critical for the successful implementation of e-business practices. Initial investment in technology infrastructure may be substantial, whereas more funds will be necessary in order to perform regular upgrades to keep pace with technological developments. To be eager to allocate the required resources, top management requires solid evidence regarding the contribution of e-business to the performance of the organization. Therefore, a performance measurement system for e-business activities must be established, capable of collecting and providing timely and accurate information regarding the effectiveness of the online channel and its contribution towards achieving business and marketing objectives. Moreover, to ensure that the necessary financial resources will be available for developing e-business activities, a specific provision should be made in the company's annual budget.

Finally, e-business success depends greatly on the enthusiasm of customers and other stakeholders to use the internet as their preferred channel for communicating with the company and performing their transaction and other activities. Given the significant benefits that a hotel company can realize from carrying out business operations through its website rather than using traditional channels (e.g. cost reduction, efficiency in communications, relationship building, operational control) significant incentives should be provided to customers and other value chain partners to encourage more extensive use of the online services. In particular, customers expect quicker response, detailed information, real time problem solving, lower prices and charges, and other extra benefits when performing their transaction through a company's website rather than the traditional offline channels. Therefore, it is imperative that the quality of the website meets or exceeds customers' expectations. Moreover, since website user's satisfaction is the key factor that determines repeat visits, online customers' surveys must be regularly conducted in order to identify weaknesses and initiate corrective actions. Given the global scope of the internet, the

use of benchmarking (i.e. comparison of a company's practices with those used by world-class organizations) is also an effective approach for identifying problematic areas and improving e-business effectiveness.

7. Limitations and future research directions

The findings of this study should be interpreted in light of certain limitations. First, this study employs a cross-sectional research design that restricts the ability to make causal inferences. Because the relationships examined are dynamic in nature, future research could contribute to existing knowledge by using longitudinal data to examine cause-and-effects relationships, particularly between the intensity of e-business adoption and performance outcomes. Second, the measures are exclusively perceptual in nature. Although for most study constructs, particularly those pertaining to antecedent factors, no objective data sources exist, objective measures regarding e-business performance and organizational performance are highly desirable. The measurement of organizational performance in particular requested respondents to use a reference point (i.e. major direct competitors) which introduces a further element of subjectivity. Moreover, we used a single respondent from each company. Although we placed great emphasis on targeting appropriate informants, and we find no evidence of common method bias, the use of multiple raters in future studies might enhance the reliability of the measures.

Third, this study examined various organizational and environmental antecedent of e-business adoption, whose relevance and importance was determined in previous research. To gain a more in-depth understanding of the factors that influence e-business adoption, future studies should investigate the role of additional organizational and managerial variables. For instance, the present study employed a narrow conceptualization of organizational learning, by focusing on organizational learning ability. Future studies should undertake a holistic assessment of the organizational learning process which involves procedures relating to information acquisition, information dissemination, and shared interpretation (Slater and Narver, 1995). Moreover, because e-business is increasingly viewed as an integral part of a company's strategic planning process, and multiple managers with varying interpretations regarding the role of Web technologies influence the adoption decision (Chatterjee *et al.*, 2002), future studies should examine issues relating to interdepartmental coordination and likely conflict. Finally, this study focuses on a single industrial sector and used data gathered from two small developing countries. As a result, any attempt to generalize from the study findings should be made with caution. Future studies should examine the antecedents and consequences of e-business adoption in different industry and national contexts.

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