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The other side of technology adoption: Examining the relationships between e-commerce expenses and hotel performance

Nan Hua[a,*], Cristian Morosan[b], Agnes DeFranco[b]

[a] Rosen College of Hospitality Management, University of Central Florida, United States
[b] Conrad N. Hilton College of Hotel and Restaurant Management, University of Houston, United States

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ABSTRACT

As information technology (IT) increasingly permeates all aspects of the contemporary society, hotels have spent millions of dollars to deploy electronic commerce (e-commerce) tools and develop appropriate strategies to attract and retain guests. Yet, while the literature reflects the drivers of adopting certain e-commerce tools, it does not provide a conclusive answer regarding the effectiveness of e-commerce expenditures. Specifically, it is unclear whether such expenditures affect performance in terms of revenue and gross operating profit, or whether such effects are consistent over time and across different chain scales. Based on financial data reported by a sample of 275 hotels from 2007 through 2012, this study found that e-commerce expenses significantly and positively impacted rooms revenue for all sample years, except in 2007. When subgroup analyses were performed by chain scale, it was found that e-commerce expenses significantly contributed to the gross operating profit for midscale and upscale hotels but not for the luxury, upper upscale, and the upper midscale categories.

1. Introduction

The natural evolution of the business environment has driven the hotel industry toward an information technology (IT) intensive environment (Law et al., 2014), in which the majority of business-to-business (B2B) and business-to-consumer (B2C) processes and interactions are digitized (Beldona et al., 2012). While several decades ago, businesses in general focused on promotion (1960s), product development and marketing research (1970s), and revenue management (1980s) (Dev et al., 2010), nowadays they center their attention on the Internet and its associated IT-mediated business processes, including the social activities emerging from consumer-to-consumer (C2C) interactions (Morosan et al., 2014). Gradually switching from mini- and personal computers to today's mobile and social networking business-related technology (Berkus, 2013), such digital processes have been steadily implemented within the industry as technology advanced and the business models accommodated the increased use of IT (Law et al., 2014). Following their own evolutionary course, most contemporary digital processes in the hotel industry eventually converge toward providing guests with a holistic experience (Nyheim and Connolly, 2012), predominantly characterized by ease of use, usefulness, and playfulness (Morosan and Jeong, 2008).

While IT stays at the foundation of most guest-related processes as the core facilitating tool, in reality, such processes are transactional from a business viewpoint, thus carrying a full commercial connotation. Since it is difficult to conduct commercial acts in the absence of IT in the contemporary world, electronic commerce (e-commerce) can be viewed as a complex process that facilitates the design, communication (e.g., promotion), delivery/fulfillment, and evaluation of today's hotel experience. Specifically, for the hotel industry, according to the Uniform System of Accounts for the Lodging Industry, e-commerce includes the cost of website development, maintenance, website registration fees, link costs, and also the cost of producing a virtual tour (Hotel Association of New York City, 2006).

Given the degree of complexity of e-commerce activities and the ubiquity of such activities and processes among the B2B, B2C, and even organization-facilitated C2C settings (e.g., an organization-managed Facebook page where consumers exchange knowledge), it is expected that hotel organizations with a strong guest-orientation would deploy substantial resources toward e-commerce activities and processes ("Marriott's website named fastest in industry", 2011; "The Hilton Worldwide eCommerce Program", 2014). While the evaluation of the effectiveness of such activities is often difficult, the degree in which e-commerce

* Corresponding author. Tel.: +1 4079038095.
E-mail address: nan.hua@ucf.edu (N. Hua).

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expenses of an organization contribute to the organization's overall financial performance remains, to date, unknown. Although several scholarly efforts are notable in their attempts to examine the relationships between certain functional area expenses and performance (e.g., marketing in O'Neill et al., 2008; CRM in Josiassen et al., 2014), no study to date has examined the impact of e-commerce activities on hotel performance. Moreover, although research identifying drivers of organizational IT adoption exists in the literature (e.g., Ham et al., 2005), such body of research focuses on specific e-commerce elements and are not able to capture the overall role of general e-commerce tools and strategies that are deployed to produce financial performance. Yet, an understanding of the effectiveness of e-commerce expenses within a hotel organization would allow decision-makers to deploy e-commerce resources more efficiently, which is vital to an organization's survival and prosperity in the current market environment (Bilgihan et al., 2011; Law and Cheung, 2006). Such knowledge could stimulate the balance of strategic deployment of capital toward e-commerce versus other areas of the organization, given the resource scarcity constraints faced by many. Filling this critical void, the main purpose of this study is to examine the relationship between e-commerce expenses and financial performance in the hotel industry. Specifically, this study has two objectives: (1) to examine the influence of e-commerce (and other marketing) expenses on hotel performance; and (2) to examine the effects of hotel typology (namely, location and chain scale) in the relationship between e-commerce expenses and hotel performance.

2. Literature review

2.1. The role of IT in the managerial practice

The research found on IT in the business literature, including hospitality, is predominantly adoption-based (Wang et al., 2013), focusing on the decisions leading to the use of a specific IT. Research in this area is usually examined through the prism of attitudinal-behavioral empirically tested conceptual models, in which attitudes toward an IT system are primarily influenced by users' system beliefs (e.g., Davis, 1989). The literature on the institutional use of IT in hospitality and tourism also reflects a predominant adoption orientation, through multitude of empirical studies that investigated either intentions to adopt or actual adoption behaviors (e.g., Herrero and San Martin, 2012; Kim et al., 2008, 2009).

The abundant literature in IT productivity and business value can be characterized into two main streams (Barua and Mukhopadhyay, 2000): (1) production-economics-based research and (2) the process-oriented research. The first stream of research employed production functions to investigate the input–output relationship driven by IT and generally provided empirical evidence of a positive relationship between IT and productivity (e.g., Chan, 2000). The second stream of process-oriented research examined whether investments in the IT process can improve the intermediate operational performance, which in turn can enhance financial performance of a higher level (e.g., Barua and Mukhopadhyay, 2000). For example, in an earlier study, Mukhopadhyay et al. (1995) investigated the business value of electronic data interchange (EDI) in a manufacturing setting and found that EDI enabled effective coordination of material movements between the manufacturer and its suppliers, leading to significant cost savings and inventory reduction. However, given the explosive development and the associated irreversible changes in the business models, the scholarly community found that the examination of the relationship between IT and business performance cannot be dissociated from its temporal context.

In the early stages of IT deployment by firms, tools such as EDI contributed to creating competitive advantages (Mukhopadhyay et al., 1995), which were sustainable to a certain extent in multiple industries (Santhanam and Hartono, 2003). Generally, IT deployment in the 1990s was characterized by predominant use of proprietary systems, offering advantages to resourceful firms (Wang, 2010). Such industry contexts were reflected in the early scholarly work, which generally pointed to a direct relationship between the IT capabilities of firms and their performance (Bharadwaj, 2000). In the 2000s, however, IT becomes more mainstream due to the emergence of various vendors, the decrease in the cost because of a global economy and outsourcing, and a plethora of choice of IT tools (e.g., web IT, ERP) (Masli et al., 2011). Moreover, the 2000s generally marked a more extensive standardization of IT tools within the context of a rapid and unprecedented deployment of web IT (Wang, 2010), allowing less resourceful organizations to minimize the IT capability gaps relative to their more resourceful counterparts (Masli et al., 2011). Consequently, large-scale transformations, both internal and external, were induced by IT; and this changed organizations and their relationships with employees, customers, and suppliers. In this newer context, the scholarly community began expressing skepticism (e.g., Carr, 2003), as the more recent research found inconclusive results on the role of IT and its influence on performance (Chae et al., 2014). Such inconclusive results could be explained by the current more dynamic strategic structure of firms and their value chains (Chae et al., 2014). Thus, it is unclear whether the economic impact of IT can be directly extended to the Internet-based electronic business (Tallon and Kraemer, 2007; Zhu and Kraemer, 2002).

The strategic management literature offers an additional angle for the examination of the IT-performance relationship: the popular resource-based view (RBV) of competitiveness (Chae et al., 2014). According to the RBV, resources can be utilized to create unique organizational capabilities within a firm only when accompanied by other resources, such as appropriate skill sets and productive, effective organizational cultures (Bharadwaj, 2000). Thus, superior capabilities in the area of IT would make an organization an IT leader, which can lead to performance advantages (Nevo and Wade, 2010) that can manifest via differentiation or cost advantages (Bharadwaj, 2000). This paradigm has been applied to the hospitality industry as well. Specifically, Chathoth (2007) proposed, but not tested, a set of relationships outlining the role of IT in enhancing full service hotel performance. Others tested relationships between certain IT-mediated tasks and measures of performance and revealed inconclusive results regarding the direct relationship between IT deployment and performance. For example, in an earlier study, Sigala (2003) found that IT does not directly result in firm performance, but rather performance can be seen as a function of a firm's capability to fully exploit networking and informalization. Later, Cohen and Olsen (2013) found that the system of IT resources deployed to support customer service in hotels has significant direct effects on hotel performance when mediated by employee outcomes.

Within the context of a swiftly changing business environment, the dynamic capabilities perspective (DCP), which predicates the development of dynamic capabilities to match rapidly changing environments (Eisenhardt and Martin, 2000; Teece et al., 1997), could also offer insight into understanding a firm's ability to gain new forms of competitive advantages (Chae et al., 2014). According to the DCP, firms that use IT become more agile and entrepreneurial, and can adapt quickly to changing business environmental conditions to realize superior performance (Sambamurthy et al., 2003).

While important, such literature seems grounded in the belief that once adopted, IT would bring the expected benefits to the organization, which can eventually translate into competitive advantages and long-term profitability. However, in order to gain a