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The critical success factors for a travel application service provider evaluation and selection by travel intermediaries

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HIGHLIGHTS

- This study develops a multifaceted evaluation framework and identifies the critical success factors (CSFs) for an application service provider (ASP) adoption.
- Different types of travel operations have different evaluation considerations for an ASP adoption.
- ASPs can allocate limited resources through focusing on these CSFs to maintain inter-organizational partnerships.

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ABSTRACT

Current application service provider (ASP) is an emerging type of information technology outsourcing service that offer a comprehensive of information technology services for small and medium-sized enterprises (SMEs) to obtain information capabilities and maintain competitive advantage. Although numerous academics and practitioners have recognized the importance of information service suppliers, few studies has been conducted on decision analysis related to an ASP selection. Thus, this study combines two multiple criteria decision making tools to develop a multifaceted evaluation framework and identify the critical success factors (CSFs) for an ASP adoption by travel intermediaries in Taiwan. The empirical results implied different types of travel operations have different evaluation considerations for an ASP adoption. Travel intermediaries can devote to their core competencies, and acquire information support services through an ASP. On the other hand, ASPs can use differentiation strategies and allocate limited resources through focusing on these CSFs to enhance inter-organizational collaboration in travel supply chain.

1. Introduction

With the advance of the Internet, adoption of information technology (IT) offers substantial opportunities for tourism intermediaries (Bigne, Aldas, & Andreu, 2008; Stamboulis & Skayannis, 2003). Today, IT is generally viewed in a wide sense as it refers to any artifact whose underlying technological base is consisted of computer or communications hardware and software (Cooper & Zmud, 1990). To keep and sustain a competitive advantage, developing an evaluation framework for IT adoption is an integral aspect of the current organizational strategy, and plays an important role in firm success and performance (Alford & Clarke, 2009). In this context, numerous travel and tourism practitioners are attempting to understand the effects of IT applications, such as the Internet, information system (IS), and online electronic commerce (e-commerce), to effectively manage and distribute travel products and services. With the rapid development of information and communication technology, travel and tourism related businesses, one of the largest industries using IT, have widely implemented various IT applications to reduce costs, advance operational efficiency, and most importantly to improve service delivery and maintain customer relationships (Law, Leung, & Buhalis, 2009; Park, Gretzel, & Sirakaya-Turk, 2007). According to the World Travel & Tourism Council (WTTC, 2012), 50% of leisure trips and 40% of business trips are booked online, and global online travel and tourism sales continue to grow and will reach nearly US$830 billion by 2017. This data indicates that IT applications are both flourishing and necessary for the survival of travel and tourism businesses. As a

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result, IT applications in the travel industry have primarily been devoted to the distributing travel products and handling online booking services (Law, Leung, & Wong, 2004; Lewis, Semeijn, & Talalayevsky, 1998; Spencer, Buhalis, & Moital, 2012; Tsai, Huang, & Lin, 2005; Wang & Cheung, 2004).

The development of IT is increasingly dynamic, and the capability to use such technology is considered crucial within the competitive travel market. Therefore, numerous travel and tourism businesses must spend a large amount of corporate resources to maintain their IS operations. However, travel intermediaries tend to be small and medium-sized enterprises (SMEs) with access to limited resources, and thus most of them focus on developing their core business of travel products and services. To maintain sustainable competitive advantages, information technology outsourcing (ITO) has become an increasingly crucial corporate strategy in the past few decades. In general, ITO refers to using a third party provider to offer IT services that were previously provided in-house (DiRomualdo & Gurbaxani, 1998; Han & Mithas, 2013). That is a firm typically outsources their IT functions and IS operations to application service providers (ASPs). In this context, current ASPs are engaged in a rental-based software business that can assist their clients in improving IS operations, maintaining sustainable competitive advantages, and increasing firm performance (Currie & Seltsikas, 2001).

Although IT has opened up new marketing channels and created a travel electronic marketplace (Chen & Yung, 2004; Wu & Chang, 2006), so far few studies offer an evaluation decision analysis for an ASP adoption in the tourism literature. Furthermore, previous studies have examined the adoption of IT applications in the travel and tourism industry (Bigne et al., 2008; Lacity, Hirschheim, & Willcocks, 1994; Ma, Buhalis, & Song, 2003; Ronnie, Jerrold, Lee, & Hu, 2005; Stamboulis & Skayannis, 2003; Wu, Wei, & Chen, 2008), many critics have argued that numerous firm executives are confronted with the problem of how to make decisions regarding information service supplier selection by using an evaluation mechanism from the multi-faceted perspective (Melville, Kraemer, & Gurbaxani, 2004; Yao, Watson, & Kahn, 2010). A corporate strategy for supplier selection can exert a positive effect on sustainable competitive advantage and organizational performance (Hsu, Kannan, Leong, & Tan, 2006; Ku, Yang, & Huang, 2013; Tsaur & Lin, 2014). Thus, an evaluation mechanism for an ASP adoption may provide useful and valuable insights that can assist managers in making decisions with limited resources.

In addition, previous studies were focused on the general factors related to the adoption of IT services by using factor analysis, or multiple regression methods. It is noted that the importance of each criterion used to make a decision for supplier selection is unequal, and human judgments are subjective and ambiguous (Chou, Hsu, & Chen, 2008; Lin & Fu, 2012; Tsaur & Lin, 2014; Tsaur & Wang, 2007). For the practitioners, these empirical results (e.g. factor loading and β value) still have some weakness that could not provide the enough precise information regarding these factor weights and its priority among all influencing factors. As a result, it also could not offer a reliable reference when firm executives attempt to making decisions with limited resources. To extract more precise results regarding the weights and priorities of evaluation decisions for supplier selection, this study aims to investigate the decision analysis for an ASP adoption by using hybrid multiple criteria decision making (MCDM) methods. The fuzzy analytic hierarchy process (AHP), which have been widely applied to establish priorities and allocate resources (Van Laarhoven & Pedrycz, 1983), was used to calculate the weight and priority of each criterion in this study. Sequentially, the acceptance advantage concept of VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) (Opricovic, 1998; Opricovic & Tzeng, 2004) was used to objectively identify the critical success factors (CSFs) for an ASP adoption. From the Pareto principle view (Koch, 2011), it is imperative for the decision-makers to realize 20 percent of the inputs create 80 percent of the results. That is, few key factors can help the firm executives to allocate limited resources and create higher firm performance. Through uncovering the CSFs for supplier selection, ASPs can allocate their limited resources on travel intermediaries' most concerns and develop appropriate marketing strategies to improve their information service quality, maintain their inter-organization collaboration, and co-create value with their travel intermediaries in travel industry. The remainder of this paper is organized as follows. Section 2 reviews the theoretical background and relevant literature. To objectively examine such supplier selection, this study combined the fuzzy AHP and VIKOR methods to identify the CSFs for an ASP adoption. The following empirical analysis and conclusion are presented at the end of the paper.

2. Literature review

2.1. Application service provider (ASP)

From the resource-based view (RBV), a firm must focus on services operation argued that the sources of sustainable competitive advantage have to be valuable, rare, inimitable, and non-substitutable (Barney, 1991; Barney & Zajac, 1994). Thus, IS/IT operation and management has generally viewed as an imperative work that related to business survival and success (Del Aguila-Obra & Padilla-Melendez, 2006; Gunasekaran & Ngai, 2004). However, this is also a difficult task for SMEs that own limited resource to develop IS operations and IT applications in the increasing complexity of business environment (Heart & Pliskin, 2002). By outsourcing their IS/IT, a firm can acquire information service provider's information support with expertise and experience that would be difficult to obtain or costly to develop in-house (Jharkharia & Shankar, 2007). In this context, an emerging type of information technology outsourcing service, application service provider (ASP), that has become one of the strategic choice for SMEs to obtain relevant information capabilities and to minimize the cost of IS maintenance, repair, and operation (MRO).

The ASP is a form of selective outsourcing, where a third-party organization commonly rents packaged hardware/software applications and related information services (Bennett & Timbrell, 2000). Leem and Lee (2004) also indicated that an ASP is a type of information service supplier that encompassing hardware, software, IT applications, business networks, and information products and services through the Internet. An ASP can thus help SMEs to create an e-business environment and offer various types of IT applications (Currie, 2004). Currently, ASPs mainly offer enterprise-application-hosting services for SMEs and provide an efficient approach to remotely accessing data (Currie, Joyce, & Winch, 2007). It is noted that numerous large enterprises are beginning to outsource their IS operations and enterprise resource planning (ERP) through an ASP (Bennett & Timbrell, 2000).

Although ASPs have been extensively associated with ITO, the term has not been clearly defined (Ma, Pearson, & Tadisina, 2005), primarily because an ASP conducts diverse and complex IT functions, such as customer relationship management, business intelligence systems (Shen & Ding, 2008), enterprise resource planning (Bryson & Sullivan, 2003; Olson, 2007; Trimi, Lee, Olson, & Erickson, 2005), electronic data interchange (Smith & Kumar, 2004), and business-to-business e-commerce (Heart & Pliskin, 2002). For example, there are many ASPs exist in Taiwan, such as Abacus (www.abacus.com.tw), Cowell (www.cowell.com.tw), and ITTMS (www.ittms.com.tw/web/). Most of them mainly offer