Factors Affecting Electronic Supply Chain Management adoption in Egyptian Travel Agencies
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Abstract
Electronic supply chain management (e-SCM) is an innovative dimension emerging from the supply chain management concept. E-SCM has developed as a consequence of the evolution of the information technologies. The main objectives of this study are to identify the extent of the current adoption of e-SCM in Egyptian travel companies, to shed light on the range of factors that have an effect on the implementation of e-supply chain management, and then to propose a model that explains the relationship between the theoretical factors and adoption of e-SCM. Since the main aim of this study is to identify the factors that have greater association with e-SCM adoption within the travel companies; several groups of variables related to the success or failure of e-supply chains are exposed. The relationships between these variables and the adoption of e-supply chains in travel agencies are captured in the proposed model. The findings of this study prove that travel agencies use e-SCM tools, but they are still used to a limited extent. Moreover, the factors that affect the adoption of e-SCM in travel agencies are as follows: Innovation, internal business environment, e-SCM supporting infrastructure, organizational factors, external business environment, and government rules and regulations.

Keywords: Supply chain management, e-SCM, e-commerce, travel agencies.

Introduction
The tourism industry is considered the most important industrial sector in the world with doubled growth over the previous 30 years (Walker, 2009). The very competitive environment of the industry has enforced tourism organizations to look for ways to improve their competitive advantage (Zhang et al., 2009). For instance, there has been an extensive growth in the adoption of new information technologies and in new commercial formats such as e-Tourism. In addition to these technological measures, one of the strategies that tourism firms could implement to increase their competitiveness is effective tourism supply chain management (TSCM) (Zhang et al., 2009). Broadly, the supply chain encompasses all of those activities associated with moving goods from the raw-materials stage through to the end user (Zigiaris, 2000). Despite the importance of SCM in the tourism industry, few researches have examined this concept (Gengeswari et al., 2012, Simon and Roy, 2009, and Rusko et al. 2009). Actually, it has been revealed that there are two stages of tourism supply chain management studies: 1) Only conceptual-framework papers, in the era before 2007; 2) more practical studies (Gengeswari et al., 2012).

Information Technology is considered the backbone of the supply chain management practices since it is difficult to improve supply chain business processes without the presence of IT (Jaharkharia and Shankar, 2005). Wagner et al. (2003) have exposed that despite the importance of IT utilization in the supply chain (SC) practices, only 23% of the organizations in the whole industry would enjoy enormous benefits. Moreover, the multifaceted nature of tourism industry has further necessitated the application of information technology infrastructures in tourism supply chain (TSC) practices (Gengeswari et al., 2012). Business transactions and relations will be easier if they are done automatically in the tourism sector (Buhalis and Law, 2008) with stakeholders and consumers spread worldwide. As a result, the addition of sophisticated IT infrastructures to the tourism supply chain business process produces an enhanced overall tourism supply chain implementation (Gengeswari et al., 2012).
Therefore, the main objectives of this study is to identify to what extent e-SCM is adopted in the Egyptian travel companies, to define the factors that affect the implementation of electronic supply chains in tourism, and to propose a model that shows the relationship between the supposed factors. It also aims to identify the adoption factors that have greater association with e-SCM adoption within the travel companies.

Literature Review

Overview of Supply Chain Management

Historically, supply chains (SC) development over the years has been slow. Some definitions of SC are given for better understanding (Lancioni et al., 2000). Ganeshan and Harrison (1995) define a supply chain as “a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers” (p. 1). Moreover, other researches describe the supply chain as an interconnected series of activities concerned with planning and controlling raw materials, components, and finished products delivered from suppliers to the final consumers (2006 Diaz). Based on these definitions, Zigiaris (2000) has constructed a meaningful definition of SC as the connected network of facilities and activities which perform the functions of product development, procurement of materials, movement of materials between facilities, manufacturing of goods, distribution of finished goods to customers, and after-market support. At the same context, Lee (2008) gives a brief definition of the supply chain as an integrated manufacturing process wherein raw materials are converted into final products then delivered to customers.

The term “Supply Chain Management (SCM)” was revealed in the late 1980s, and then it was exposed to the whole world in 1990s. Before that time, different terms were used to refer to “Supply Chain Management” in the business fields, such as “logistics” and “operations management” (Hugos and Thomas, 2006). Actually, despite the popularity of the concept of SCM, both in the academic and practical fields, there is no commonly accepted definition of SCM. The most popular definition is that given by Simchi-Levi et al. (2007) who have defined it as “a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements” (p. 11). latterly, SCM has been defined as “the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders” (Giménez & Lourenço, 2007: p. 313).

E-business and Supply Chain Management

Information and communication technology (ICT) is considered one of the very important technological enablers that can provide supply chains with the much-needed advantage over their competitors. The easy and cheap access to ICT, such as the Internet, presents new possibilities in reforming the supply chains for enhanced performance (Mukhtar, 2009). Such access to the Internet, in particular, has opened up a large number of possibilities for individuals, organizations, and their supply chains. It has made it available for organizations to redesign their business processes and participate in e-business applications such as e-procurement, e-sell, e-auctions, e-marketplace, and infomediaries (Chakravarty, 2005). This has given birth to e-supply chains and e-supply chain management (van Hoek, 2001). E-business refers to the use of information and
communications technologies to conduct and support business processes. Categories of e-business applications include: E-marketplaces, where buying and selling of goods and services takes place; inter-organizational systems, which facilitate inter and intra-organization flow of goods, services, information, communication, and collaboration; and finally customer service, which includes sales and customer service and support (Cagliano et al., 2005).

In order to attain a combined optimization of key SCM decisions, it is preferable that there should be a free flow of related information across the entire chain leading to an inclusive analysis. E-business technologies smooth the progress of information sharing in supply chains using a number of technologies similar to enterprise resource planning, point of sale, and/or vendor managed inventory (Hussain & Subramoniam, 2010).

Supply chain management advocates a close association between partners via information sharing and information visibility. Advances in information and communication technologies provide the tools necessary to attain such association. Consequently, there is a variety of e-initiatives that are seen nowadays. In fact, new models of e-business are endlessly being developed. The existence of various e-business applications presents problems to organizations in deciding on the most suitable e-business application (Mukhtar, 2009).

Electronic-Supply Chain Management (e-SCM)

Electronic-supply chain management (e-SCM) is a new dimension derived from the former SCM concept and developed as a result of the evolution of the information technologies as well as reengineering of the organizations’ business processes towards partners’ cooperation enabled by the Internet. Numerous definitions have explained the e-SCM concept. Today, the Internet technology has changed the SCM concept and has added new dimensions to the work transforming SCM into e-SCM. This transformation has developed since the year 2000 until present, marking the beginning of a new phase (Ross, 2003). The phases of the e-SCM evolution are shown in Figure (1).

Many academic studies concerned with e-SCM have tried to define electronic supply chain management. According to Lankford (2004), e-SCM refers to using the internet and the supply chain management together supported by sequence operations to keep balance between them. Ivanovska & Kaleshovska (2013) provide a more comprehensive definition of e-SCM. They have discussed that the concept of e-SCM can be expressed as a network of independent partners who are responsible for distributing certain products and services in the supply chain; they also affect the demand process and control the synchronization of...
capabilities and resources in the whole supply chain. Moreover, Wang (2003) has defined e-SCM as “the use of Internet based technologies to facilitate continuous automated exchange of information between supply chain partners” (P.65). It is used to merge different aspects of the supply chain and to add to the value delivered to the customer. This is achieved through providing a series of practical improvement concepts to release this value (Abou Kamar, 2011). Therefore, e-SCM aims to combine the activities across and within organizations in order to provide customer value. Such integrated supply chain involves coordination and information sharing among all stakeholders throughout the process. This is considered the key element for achieving the utmost benefits of an integrated supply chain. Consequently, further opportunities for competitive advantages are expected (Ivanovska&Kaleshovska, 2013).

Generally speaking, e-SCM is the collaborative use of the Internet to reinforce business-to-business (B2B) and business-to-customer (B2C) processes and enhance speed, real-time control, and customer satisfaction. Furthermore, e-SCM is a concept that enables the organization to operate more rapidly and cost-effectively by incorporating the processes of different partners at all three levels—strategic, tactical, and operational. The main goals of e-SCM are to minimize total system cost, meet service requirements, and integrate purchasing, customers' needs, manufacturing, and warehousing in a business. In addition, e-SCM focuses on collecting all information, either from customers or suppliers, and making it easy to manufacture products in order to meet the sustaining requirements of the global environment or market place (Khan et al., 2014).

The tourism industry has no exception with regard to the issue of implementing supply chain. Tourism supply chains (TSC) involve many main components, such as accommodation, transport, sightseeing, and technical issue like waste disposal and the infrastructure that supports tourism in destinations (Roy et al., 2015). On one hand, much of the SCM literature is mainly concerned with the manufacturing industry. On the other hand, little attention is given to the service sector. The tourism industry is surprised that research does not pay much attention to this area. By the beginning of 1975, the United Nations World Tourism Organization (UNWTO) published a report on the distribution channels of the tourism industry (Zhang et al., 2009). Researchers and industrial sectors have not paid enough attention to tourism supply chains that goes on the same feet along with the quick changes in the tourism industry recently. However, a number of studies have become more concerned with these supply chains, including those of Buhalis and Laws (2008); Page (2003); and Zhang et al. (2009). One of these studies is by Tapper and Font (2004) who define TSC as a chain that “comprises the suppliers of all the goods and services that go into the delivery of tourism products to consumers.” TSC is also defined as “a network of tourism organizations engaged in different activities ranging from the supply of different components of tourism products/services such as flights and accommodation to the distribution and marketing of the final tourism product at a specific tourism destination, and involves a wide range of participants in both the private and public sectors” (Zhang et al., 2009:p.347).
Tourism, like all other supply chains, operates through a business-to-business process. Implementing SCM guarantees both sustainability performance improvements and strong financial performance; this is done through improving each supplier's business operations in the supply chain. Moreover, in the tourism sector, tourists travel to the product and purchase a product with a high service component. Expressly, in the tourism sector, a larger proportion of people are engaged in the prompt production of the holiday experience. This in particular differentiates tourism supply chains from those of any other sector (Roy, 2015).

Based on the special characteristics of the tourism industry, Zhang et al. (2009) have identified seven keys management in TSCM issues: Demand management, two-party relationships, supply management, inventory management, product development, TSC coordination, and information technology.

Furthermore, the developments of IT have deeply affected tourism service supply chain management. Buhalis and Law (2008) have researched with interest the effect of IT application on tourism development in recent 20 years. So, it is manifested that there are many studies on the importance of applying IT in supply chain management and how to improve the efficiency of applying it (Huang et al., 2012).

IT implementation level within the tourism supply chain can be determined depending on the focus of its functions either within the organizations, between organizations, or with customers (Buhalis, 2000). IT can facilitate a certain level of integration between different internal business operations. Therefore, it empowers several intra-organizational processes. Organizations use IT, at the intra-organizational level to increase their productivity and enhance efficiency, especially in strategic and operational management (Egziabher, 2001). On the other hand, at the inter-organizational level, IT is used to promote the communications and interactions between individual tourism organizations (Pease and Rowe, 2005), such as hotels' operators and tour operators or airlines' operators and tour operators.

Furthermore, there are two levels of IT implementation. First, there is a basic IT implementation level achieved when the tourism firms are using only computers and Internet in their SC business processes. Second, there is the advanced IT implementation level achieved when firms are using Intranet, Extranet, LAN, WAN and remote access to practice their TSC business processes (Gengeswarie et al., 2012).
The Benefits of Tourism E-Supply Chain Management

A firm can achieve better performance in case it considers its supply chain, both upstream with its suppliers and downstream with its customers (Frolich 2001; Tan 2001). Actually, nowadays, this is not recognized as a competitive advantage any more but only as a consumer expectation (Baddely and Font, 2011).

According to Tapper & Font (2004) and Cucchiella et al. (2002), in tourism, business benefits from adopting good practices in e-supply chain management. These benefits may include retention of clients, increased revenue, reduced costs, improved operational efficiency, being competitive to evaluate and deal with risks and opportunities in the market, managing of logistic requirements, developing staff performance, achieving better recruitment and staff retention, enhancing brand value, keeping firm reputation and market share, and improving company image, particularly for companies publicly quoted on stock markets.

Lancioni (2000) also has reached the conclusion that e-supply chain systems aim at achieving better communication among supply chain companies, and becoming more flexible with regard to delivery and response time.

Implementing SC in the tourism industry can be complex. However, it has many benefits. Essentially, in procurement, it enhances better relationships among suppliers, the local community, and other stakeholders. It may also help tour operators reduce operating costs, improve customer service and add value to the whole SC, minimize risk, and achieve a competitive advantage.

According to Turban et al. (2008), information technology is used to improve the operations of supply chain activities such as procurement and the management of the supply chains. In contrast, e-SCM is not about technology change but it involves changes in management procedure and policies, organizational culture, business processes, performance levels, and organizational structure across the supply chain.

Factors Influencing the Adoption of E-SCM in Tourism

In order to recognize how an e-supply chain works, it is vital to identify the factors affecting e-supply chain management. The significant factors that influence the agility of tourism firms in managing their e-supply chains can be classified into six groups: Organizational factors, innovation, internal business environment factors, external business environment factors, supporting industries or supporting infrastructure, and government rules and regulations.

First, organizational factors are defined from the nature and characteristic of the firm itself, usually making it exclusive to the firm (Shemi, 2013). Various organizational factors have been recommended to impact the adoption of e-SCM (Patterson et al., 2003). In this paper, the researchers focus their attention on three key variables: Travel agent readiness, ICT knowledge, and technical support and company management support. Second, innovation is considered one of the most frequently studied factors in IT adoption studies (Chong, 2009). Innovation is defined as “the creation of a new product and the process of acceptance and implementation of the new product” (Quesada, 2012: P.56). In this research, the variables that are related to innovation include: Perceived compatibility, complexity, and perceived benefits. Third, internal business environment factors are events that occur within an association; generally speaking, they are easier to control than external environmental factors. The current study focuses on two key variables: Information-sharing culture and e-SCM process risks. Obviously, sharing of information is important since the success of SCM in a firm would depend upon the exactness and speed of the information which every business partner provides (Li and Lin, 2006). Fourth, external business environment constructs have been widely studied and
found to be significant in many IT adoption/diffusion studies (Khazanchi, 2005; Davis, 2008; Nelson & Shaw, 2003). The supply chain readiness construct is used to evaluate whether the firm has the essential attributes that guarantee the general readiness toward adopting e-commerce in the supply chain. Similarly, competitive pressure on the company to adopt e-commerce in the supply chain would be felt from the entire industry. Another attribute related to the external environment factor employed in the current study is the expectations of market trends from the e-commerce technology (Chou et al., 2004; Chong et al., 2009). Fifth, supporting industries or supporting infrastructure through the continuous emerging of technologies change the way business is performed. The infrastructure of telecommunications has become increasingly important for the adoption of e-SCM (Wymer & Regan, 2005). Sixth, the role of government in providing various forms of intervention, presented in stating rules and regulations, has been cited as a catalyst for the development of adopting electronic supply chain management. The government enacts favorable e-commerce laws and protects consumer privacy (Martinsons, 2008; Scupola, 2010; Shemi, 2013).

**Methodology**

Based on previous researches in the area of e-SCM adoption (Chuang & Shaw 2000; Hoppe et al., 2001; Cucchiella et al., 2002; Wymer & Regan, 2005; Chong et al., 2009; Alam 2011; Abou Kamar, 2011; Quesada et al., 2012; Kenneth et al., 2012 and Shemi, 2013), the current study is designed to investigate the current adoption of e-SCM in Egyptian travel companies. It also aims to identify the factors that have greater association with e-SCM adoption within travel companies. In order to achieve these objectives, descriptive and causal researches have been used. Descriptive research is used in order to determine the characteristics of the population used for the study, while causal research is used to determine the cause-effect relationships between e-SCM and the factors affecting e-SCM adoption.

**Research Design**

This research is divided into two phases. In **phase one**, the researchers have reviewed a considerable number of studies, such as World Tourism Organization (2001); Tan and Teo (2000); Lee and Whang (2001); Wang and Tsai (2002); Patterson et al. (2003); Wagner and Johansson (2003); Ross (2003); Siau and Tian, (2004); Wymer and Regan (2005); Khemthong and Roberts (2006); Teo et al., (2009); Alam (2011) and Abou Kamar (2011), to identify the features and activities of e-SCM. As a result of this reviewing, about ten items were collected to determine the degree of usage of e-SCM tools, from the basic e-mail system to specific and advanced systems such as inventory allocation and management systems. In phase **two**, a conceptual model is developed to examine the relationship between adoption factors and e-SCM adoption. The model suggests that the greater the extent to which these adoption factors are present, the higher will be the adoption of e-SCM in the travel companies. The supposed link between adoption factors and e-SCM adoption are shown in Figure 3. Furthermore, the factors affecting the adoption of e-SCM in this research framework are independent variables, and e-SCM adoption is a dependent variable, respectively.
As mentioned above, to generate the initial research conceptual model, an extensive review of literature has been conducted in the broad contexts of e-SCM and management information systems, together with preliminary interviews with several logistics professionals. Through these processes, 80 initial items have been generated in attempting to cover the critical factors for the implementation of e-SCM. Items that are not relevant to the travel industry or to e-SCM adoption have been deleted based upon the definitions of each dimension as well as the researchers’ own understanding of the content area. To increase credibility, the collected items are identified and categorized by the two researchers. For judging the reliability of the sub factors and classification of items, kappa statistics are calculated to measure the agreement between the two raters (Smeeton, 1985).

\[
\kappa = \frac{Pr(a) - Pr(e)}{1 - Pr(e)},
\]

- Where \( Pr(a) \) is the relative observed agreement among raters, and \( Pr(e) \) is the hypothetical probability of chance agreement, using the observed data to calculate the probabilities of each observer randomly saying each category. If the raters are in complete agreement, then \( \kappa = 1 \). If there is no agreement among the raters (other than what would be expected by chance), then \( \kappa \) group \( \leq 0 \) (Smeeton, 1985). The classifications of the collected items is compared by an inter rater reliability analysis using the Kappa statistic to determine consistency. The inter rater reliability for the raters is found to be \( \kappa = 0.74 \).

As a result, a total of 70 items have been developed to cover the main six factors, including 14 items supporting organizational factors, 25 items for innovation, 9 items regarding internal business environment, 11 items supporting external business environment, 5 items covering e-SCM supporting infrastructure, and 6 initial items for measuring government rules and regulations.
Data Collection

Research Instrument
The conceptual model is presented as a self-administrated questionnaire. The questionnaire instrument is chosen as it has appeared to be the most effective and practical method, given the time and monetary constraints imposed. This questionnaire consists of three sections. The first section is designed to elicit information related to the characteristics of the surveyed travel agencies. The second section is concerned with the agencies' adoption level of e-SCM; it has been measured on a 5-point Likert Scale: 1 = unaware, 2 = aware, 3 = shown an interest, 4 = committed and 5 = deployed, based on the given e-SCM tools. Finally, the third section includes the factors associated with the adoption of e-SCM where the travel agent are asked to identify them on a 5-point Likert Scale ranging from 1 = strongly disagree to 5 = strongly agree.

The initial questionnaire has been prepared and a pre-test has been conducted and presented to a number of samples (N=15) of travel agents. The purpose of the pre-test is to detect any potential problems in the questionnaire design, clarity, or wording. Moreover, travel agents have been asked to complete the questionnaire and give their overall comments about the questionnaire. They have commented positively on the overall layout, instruction, and design of the questionnaire. They also have had no serious problem with clarity, or wording. However, a few items have been reworded after the pilot exercise to improve the comprehensibility and clarity of the questionnaire. The re-probe coefficient of the questionnaire equals 73.2. This verifies the reliability of the questionnaire.

The Target Population and Sampling
The target population of this study is travel companies category "A" in Egypt. This category of travel companies has been chosen in order to obtain a meaningful data since they are believed to be more knowledgeable and to have a basic understanding and association with the topics of this research. Furthermore, large companies are likely to have more resources and concerted effort toward the use of e-SCM. According to Egyptian travel agents Association (2013) there are a total of 2098 travel agents in category "A" in Egypt. Also, Greater Cairo has been selected as the studied area because it is convenient for the researchers due to time and cost concerns.

The sample has been randomly drawn from the directory of the Egyptian Travel Agents Association (2013). A total of 350 travel agents have been invited to participate in the study. Only 289 travel agents have agreed to provide access to their employees. The survey has been administered to 600 managers and executives from the top management, purchasing, or IT departments of the chosen companies. The mail survey is the main form of data collection. Data collection was carried out during the period from June 2015 to October 2015. There have been 482 responses received, indicating an estimated response rate of 80.3 percent. However, only 367 of the questionnaires are usable..

Data Analysis
Different statistical techniques using SPSS 17 have been applied to analyze the data. The statistical analysis has been carried out through two ways: (1) The descriptive statistics mean and standard deviation to describe the data; (2) the Analysis of Variance (ANOVA) to test significance between groups of respondents in order to indicate if there is any difference among the means of two or more groups (Decoster, 2006). Moreover, LISREL 8 is used in this study to analyze the research model. The measurement model of all constructs has assessed the adequacy of each multi-item scale in capturing its construct. In this research, internal consistency, reliability, convergent validity, and discriminate validity have been tested via the causal model (Anderson and Gerbing, 1988).
Results and Discussion

Sample Characteristics
It is notable that about 57% of the questionnaires are completed by the managers. More than one quarter (27%) of respondents are senior managers; and approximately 16% of managers with responsibility for IT have responded to the questionnaire. Also, about three-quarters (76%) of the respondents have over 15 years of work experience, 11% have 11 to 15 years of experience, 8% have 7 to 10 years of experience, 5% have 3 to 6 years of experience, and none have < 3 years of experience. These results suggest that the respondents are generally professionals, well educated, and experienced.

A summary of the characteristics of the surveyed travel agents is presented in Table 1. It is noticed that 29% of the investigated travel agents have annual revenue ranging from 5 to less than 10 million/year. Travel agents with annual revenue more than 10 million/year are about only 15%. On the other hand, the results reveal that the majority of the travel agents (57%) participated in this study have 30 to 70 employees.

Table 1 also shows the total number of suppliers involved in travel agents supply chains. The study detects a noticeable variance between travel agents in such point. This noticeable variance is related to the fact that travel agents differ greatly in their business size. The study finds that the lower limit of such number is ranged from 5 to 10 suppliers with 9.5%, while the upper limit is found to be 11 to 20 suppliers with 56% of the total travel agents.

Utilization Degree of the E-SCM Tools
All the investigated travel agents implement Internet-enabled technologies in SCM to support daily operations in the supply chain. However, level of adoption or the extent to which travel agents use e-SCM technology is more interesting and meaningful to investigate than the issue of whether to adopt e-SCM technology.

The results clearly indicate that travel agents use e-SCM tools, but the extent to which e-SCM tools are used is still limited compared to a number of other tools. The most commonly used e-SCM technology tools are "e-mail", "extranet", and "electronic payment" with mean ranged from 4.2 to 4.8. On the other hand, the least commonly used e-SCM tools are "order management solution", "supply chain replenishment", and "delivery and tracking tools" with mean ranged from 1.9 to 2.3. Finally, the moderated used tools are "checking price quotation of suppliers", "purchase items of suppliers' online lists /catalogs", "collaboration planning", and "delivery and tracking tools" with mean ranged from 2.9 to 3.3.

Table 1. The Difference between Travel agents in Applying E-SCM according to their Size

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>Sig</th>
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<tbody>
<tr>
<td><strong>Average annual revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Less than 2 million</td>
<td>106</td>
<td>2.67</td>
<td>0.893</td>
<td>6.127</td>
<td>0.001</td>
</tr>
<tr>
<td>• 2 to less than 5 million</td>
<td>99</td>
<td>3.90</td>
<td>0.891</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 5 to less than 10 million</td>
<td>108</td>
<td>4.31</td>
<td>0.659</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• More than 10 million</td>
<td>54</td>
<td>4.65</td>
<td>0.978</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No. of employees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Less than 30</td>
<td>76</td>
<td>3.24</td>
<td>1.281</td>
<td>5.973</td>
<td>0.004</td>
</tr>
<tr>
<td>• 30-70</td>
<td>206</td>
<td>3.87</td>
<td>1.306</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 70-100</td>
<td>54</td>
<td>3.93</td>
<td>1.322</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>4.55</td>
<td>1.124</td>
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</tbody>
</table>
It is obvious from Table 1 that the size of the travel agent is an important determinant for applying e-SCM. Also, one way ANOVA results show significant difference regarding applying e-SCM according to the average annual revenue (F=6.127, p value= 0.00), number of employees (F= 5.973, p value = 0.004), and number of key suppliers (F= 15.675, p value =0.000). Furthermore, a summary of means and grand means scores clarifies the extent of significance. The smallest size organizations have scored the least mean; and the largest one have scored the highest mean.

**Constructs Validity and Reliability**

The scales used in this study went through several analyses before being used for model testing. This study first conducts description statistics and assesses the reliability of the construct measures. Regarding reliability, this study utilizes the coefficient developed by Cronbach, and follows the determination norms addressed by Cronbach (1951). Values exceeding 0.70 indicate high credibility, those between .35 and .70 indicate middle credibility, and those lower than .35 indicate low credibility. Table 2 lists the description statistics and reliability for each measurement and correlations among measures. The value exceeds .70 for each variable and structural aspect in this study (range.71–.91), as listed in Table 2. A value above 0.70 is recommended by Nunnally and Bernstein (1994), and it indicates that the questionnaire in this study achieves considerable internal consistency. In addition, it is also important to verify whether the validity of the measurement is acceptable. This research refers to the prior literature to design questionnaire items. This study undertakes two rounds of pretests, so the measurement of this study is acceptable in content validity. Moreover, this study applies Fornell and Larcker (1981) measure of average variance extracted (AVE) to access the discriminative validity of the measurement. The AVE measures the amount of variance captured by the construct through its items relative. The composite reliability (CR) of measurable variable is between 0.83 and 0.93. A value above 0.6 is recommended by Bagozzi and Yi (1988) and Fornell and Larcker (1981), revealing that the research variables are in the acceptable range.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s alpha</th>
<th>AVE</th>
<th>The square root of AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption of e-SCM</td>
<td>0.90</td>
<td>0.792</td>
<td>0.890</td>
</tr>
<tr>
<td>Organizational factors</td>
<td>0.91</td>
<td>0.832</td>
<td>0.912</td>
</tr>
<tr>
<td>Innovation</td>
<td>0.89</td>
<td>0.679</td>
<td>0.824</td>
</tr>
<tr>
<td>Internal business environment</td>
<td>0.93</td>
<td>0.646</td>
<td>0.803</td>
</tr>
<tr>
<td>External business environment</td>
<td>0.71</td>
<td>0.654</td>
<td>0.982</td>
</tr>
<tr>
<td>E-SCM supporting infrastructure</td>
<td>0.89</td>
<td>0.765</td>
<td>0.872</td>
</tr>
<tr>
<td>Government rules and regulations</td>
<td>0.87</td>
<td>0.675</td>
<td>0.732</td>
</tr>
</tbody>
</table>

Then, descriptive statistics which include the mean and standard deviation have been calculated to classify the sets and determine how homogenous or discrepant (inconsistent) the sample is, regarding all research variables. The mean value for the adoption of e-SCM

<table>
<thead>
<tr>
<th>No. of suppliers</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 100</td>
<td>15.675</td>
<td>0.000</td>
</tr>
<tr>
<td>5-10</td>
<td>3.41</td>
<td>0.604</td>
</tr>
<tr>
<td>11-20</td>
<td>3.68</td>
<td>1.120</td>
</tr>
<tr>
<td>20-30</td>
<td>4.00</td>
<td>0.987</td>
</tr>
<tr>
<td>More than 30</td>
<td>4.61</td>
<td>0.789</td>
</tr>
</tbody>
</table>
in travel agencies is 3.9, and the standard deviation is 0.792. The highest mean achieved among all the independent variables is for external business environment with standard deviation 1.057. On the other hand, the lowest mean is for internal business environment with a standard deviation 1.016.

Table 3: Mean Rating of E-SCM Adoption Level and the Factors affecting it

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption of e-SCM</td>
<td>3.9</td>
<td>0.792</td>
</tr>
<tr>
<td>Organizational factors</td>
<td>3.3</td>
<td>1.122</td>
</tr>
<tr>
<td>1. Travel agent readiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a- There is an availability of financial resources to apply e-SCM.</td>
<td>3.4</td>
<td>1.225</td>
</tr>
<tr>
<td>b- There is an availability of human resources to apply e-SCM.</td>
<td>3.5</td>
<td>1.017</td>
</tr>
<tr>
<td>c- The management emphasis is put on e-SCM adoption.</td>
<td>4.2</td>
<td>1.056</td>
</tr>
<tr>
<td>d- The competitive attitude of the company is toward applying e-SCM.</td>
<td>3.0</td>
<td>0.956</td>
</tr>
<tr>
<td>2. ICT knowledge &amp; technical support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a- Our travel agency has high bandwidth connectivity to the Internet.</td>
<td>3.4</td>
<td>0.914</td>
</tr>
<tr>
<td>b- Our Travel agency has the necessary technical, managerial, and other skills to implement e-SCM.</td>
<td>4.7</td>
<td>0.876</td>
</tr>
<tr>
<td>c- Our travel agency has a good understanding of e-SCM business models that are applicable to our business.</td>
<td>3.5</td>
<td>0.912</td>
</tr>
<tr>
<td>d- E-SCM systems are too easy for our staff to use.</td>
<td>3.2</td>
<td>0.743</td>
</tr>
<tr>
<td>e- We have sufficient experience with e-SCM based applications.</td>
<td>2.7</td>
<td>1.342</td>
</tr>
<tr>
<td>3. Management support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a- Management is supportive of the use of e-SCM in business operations.</td>
<td>3.2</td>
<td>1.227</td>
</tr>
<tr>
<td>B- Management support influences the perception of employees to usefulness of e-SCM to the business.</td>
<td>3.0</td>
<td>1.652</td>
</tr>
<tr>
<td>c- Our vision of electronic commerce activities is widely communicated and understood throughout the organization.</td>
<td>3.4</td>
<td>1.292</td>
</tr>
<tr>
<td>d- Our business has a clear vision on e-SCM.</td>
<td>3.5</td>
<td>0.876</td>
</tr>
<tr>
<td>e- Management is interested in the use of e-SCM.</td>
<td>2.5</td>
<td>1.561</td>
</tr>
<tr>
<td>4. Innovation</td>
<td>3.3</td>
<td>1.097</td>
</tr>
<tr>
<td>a- E-SCM fits well our Organizational beliefs and practices.</td>
<td>3.0</td>
<td>0.851</td>
</tr>
<tr>
<td>b- Our organization has a strong relationship with suppliers and customers.</td>
<td>2.9</td>
<td>0.763</td>
</tr>
<tr>
<td>c- Our organization has a positive attitude toward e-SCM.</td>
<td>4.3</td>
<td>0.981</td>
</tr>
<tr>
<td>d- Innovation is perceived as consistent with existing values, needs, and past experiences of the adopter.</td>
<td>3.9</td>
<td>0.836</td>
</tr>
<tr>
<td>2. Complexity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a- E-SCM is perceived as not difficult to use and implement.</td>
<td>3.4</td>
<td>1.213</td>
</tr>
<tr>
<td>b- Interacting with e-SCM is/would be flexible.</td>
<td>3.5</td>
<td>1.760</td>
</tr>
<tr>
<td>c- The interaction with e-SCM is/would be clear and understandable.</td>
<td>3.2</td>
<td>1.228</td>
</tr>
<tr>
<td>d- It would be easy for me to become skillful at using e-SCM applications.</td>
<td>2.9</td>
<td>0.987</td>
</tr>
<tr>
<td>3. Perceived benefits</td>
<td>4.3</td>
<td>1.268</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>a- E-SCM technologies reduce cost of business operations.</td>
<td>4.5</td>
<td>1.321</td>
</tr>
<tr>
<td>b- E-SCM technologies improve customer service.</td>
<td>4.3</td>
<td>1.675</td>
</tr>
<tr>
<td>c- E-SCM technologies improve distribution channels.</td>
<td>3.9</td>
<td>1.028</td>
</tr>
<tr>
<td>d- E-SCM technologies reap operational benefits.</td>
<td>3.8</td>
<td>1.165</td>
</tr>
<tr>
<td>e- E-SCM technologies improve data accuracy.</td>
<td>3.9</td>
<td>0.965</td>
</tr>
<tr>
<td>f- E-SCM technologies improve operations efficiency.</td>
<td>3.9</td>
<td>0.491</td>
</tr>
<tr>
<td>g- E-SCM technologies improve eSCM efficiency.</td>
<td>4.0</td>
<td>0.812</td>
</tr>
<tr>
<td>h- E-SCM technologies improve travel agency competitive advantage.</td>
<td>4.3</td>
<td>1.821</td>
</tr>
<tr>
<td>i- E-SCM technologies shorten the lead-time period.</td>
<td>3.1</td>
<td>1.091</td>
</tr>
<tr>
<td>j- E-SCM improves travel agency relationship with partners.</td>
<td>2.9</td>
<td>1.439</td>
</tr>
<tr>
<td>k- Applying e-SCM exceeds the benefits of previous system(s).</td>
<td>4.0</td>
<td>0.871</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal business environment</td>
<td>1.016</td>
</tr>
</tbody>
</table>

1. Information-sharing culture
   a- Travel agency has a trust in sharing information. | 2.1 | 0.851 |
   b- Travel agency shares confidential information with external parties. | 2.8 | 0.896 |
   c- Travel agency provides information interpretation. | 1.6 | 0.654 |
   d- Travel agency delegates some decision-making rights to their partners. | 1.9 | 0.871 |

2. E-SCM process risks
   a- E-SCM provides opportunities for hackers to paralyze firm Operations. | 1.9 | 1.181 |
   b- E-SCM is at risk of potential loss of proprietary and confidential information. | 1.9 | 1.711 |
   c- E-SCM proprietary/confidential purchasing data may end up in competitors’ hands. | 2.0 | 0.872 |
   d- Lack of faith in transaction and data integrity. | 2.1 | 0.762 |
   e- E-SCM is at risk of potential loss of control and segregation of duties. | 1.8 | 0.926 |

External business environment | 1.632 |

1. Supply chain readiness
   a- We believe our business partners are ready to conduct business on the Internet. | 3.6 | 1.057 |
   b- Respected number of supply chain partners are using e-business applications. | 3.7 | 0.832 |
   c- The complexity of transactions and suppliers allow an electronic conduct of business. | 4.0 | 1.018 |
   d- Business partners have recommended using e-SCM. | 4.3 | 0.632 |
   e- Majority of travel agency partners have requested to use e-SCM. | 3.9 | 0.948 |

2. Competitive pressure
   a- E-SCM is a competitive pressure from other Internet adopters | 3.1 | 0.865 |
   b- E-SCM is a competitive pressure from other Internet adopters | 3.0 | 0.698 |

35
within the industry.
b- E-SCM is a vital application for addressing competitive forces.
c- E-SCM may lead to downward price pressure on vendors.
d- E-SCM may create quality issues.

3. Expectations of market trends
a- There are positive expectations of market trends based on using
SCM.
b- Failure to adopt e-SCM may lead to inability to trade with a major supplier.

d- E-SCM may lead to downward price pressure on vendors.

4.1 3.2 3.5 4.1 3.3 3.2

Then, a correlation analysis is conducted to find out the relationship between the variables of the study. The results of the correlation are shown in table 4.

Table 4: Correlation Matrix and Descriptive Statistics

<table>
<thead>
<tr>
<th>Observed variables</th>
<th>Mean</th>
<th>SD</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A- Adoption of e-SCM.</td>
<td>3.9</td>
<td>0.792</td>
<td>1</td>
<td>0.63*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B- Organizational factors</td>
<td>3.3</td>
<td>1.122</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C- Innovation</td>
<td>3.3</td>
<td>1.097</td>
<td>0.55*</td>
<td>0.81*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D- Internal business environment</td>
<td>2.0</td>
<td>1.016</td>
<td>0.70*</td>
<td>0.79*</td>
<td>0.79*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E- External business environment</td>
<td>3.6</td>
<td>1.057</td>
<td>0.23*</td>
<td>0.65*</td>
<td>0.34*</td>
<td>0.13</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F- E-SCM supporting infrastructure</td>
<td>3.0</td>
<td>1.115</td>
<td>0.54*</td>
<td>0.43*</td>
<td>0.76*</td>
<td>0.55*</td>
<td>0.32*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>G- Government rules and regulations</td>
<td>2.5</td>
<td>0.968</td>
<td>0.34*</td>
<td>0.65*</td>
<td>0.54*</td>
<td>0.32*</td>
<td>0.12</td>
<td>0.06</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: * P <0.05
The correlation matrix in Table 4 indicates that most of the adoption factors are positively high correlated with the e-SCM adoption level. Organizational factors are significantly and positively associated with the adoption of e-SCM in tourism ($r = 0.63$, $p < .05$). There is also a significant and positive relationship between innovation and the adoption of e-SCM in travel agents business, ($r = 0.55$, $p < .05$), and between internal business environment and the adoption of e-SCM in tourism ($r = 0.070$, $p > .05$).

**Structural Equation Model (SEM)**

This study utilizes structural equation modeling (SEM) to verify the research framework. SEM, in comparison with CFA, extends the possibility of relationships among the latent variables (organizational factors, innovation, internal business environment, external business environment, e-SCM supporting infrastructure, and government rules and regulations). A structural model is estimated. Fit indices provided by Lisrel8 indicate that the model have an acceptable fit. Chi-Square is 454.959 with 205 degrees of freedom ($p < .001$). CFI = .921, IFI = .929, TLI = .920, and a root mean square error of approximation (RMSEA) = .066

**Table 5: Standardized Parameter Estimates for Structural Model**

<table>
<thead>
<tr>
<th>Structure path</th>
<th>Standardized estimate</th>
<th>T-value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Organizational factors</td>
<td>Adoption of e-SCM</td>
<td>0.552</td>
<td>1.986</td>
</tr>
<tr>
<td>2 Innovation</td>
<td>Adoption of e-SCM</td>
<td>0.861</td>
<td>3.322</td>
</tr>
<tr>
<td>3 Internal business environment</td>
<td>Adoption of e-SCM</td>
<td>0.753</td>
<td>1.311</td>
</tr>
<tr>
<td>4 External business environment</td>
<td>Adoption of e-SCM</td>
<td>0.531</td>
<td>2.431</td>
</tr>
<tr>
<td>5 E-SCM supporting infrastructure</td>
<td>Adoption of e-SCM</td>
<td>0.624</td>
<td>4.211</td>
</tr>
<tr>
<td>6 Government rules and regulations</td>
<td>Adoption of e-SCM</td>
<td>0.332</td>
<td>3.021</td>
</tr>
</tbody>
</table>
Figure 4: Structural Equation Model for Factors Affecting E-SCM Adoption

- Travel agent readiness
- ICT knowledge
- Management
- Perceived
- Complexity
- Perceived benefits
- Perceived relative operational
- Information-sharing
- E-SCM process
- Supply chain readiness
- Competitive pressure
- Expectations of market trends
- The telecommunication
- Effective laws telecommunication
- Protect consumer
- Organization factors
- Innovation
- Internal business environment
- External business environment
- E-SCM supporting
- Government rules and regulations
- Adoption of e-SCM
Discussion
The results obtained from the previous analysis reveal the factors affecting the adoption of e-SCM in the travel agents' business. In this study, the size of a travel agency, presented in its revenue and number of employees, is positively related to e-SCM adoption level. This result is congruent with the studies of (Liao et al., 2003; Garces et al., 2004; AbouKamar, 201) which have concluded that the business size influences the adoption of new technologies. This result may be due to the financial ability of these travel agencies and the large number of their suppliers, since they have a greater need to facilitate their business transactions.

The main objective of this study is to rank the factors contributing to e-SCM adoption. According to the data analysis, the "innovation" factor is the most significant in the adoption of e-SCM in the travel agency business. This result matches with the study of (Patterson et al., 2003) which has concluded that innovation is remarkable in the formation of the positive adoption attitude.

The results also clearly demonstrate that higher levels of perceived compatibility are associated with increased intentions to adopt e-SCM in the businesses. This result couple with studies like those carried out by Tan and Teo (2000); Hoppe et al., (2001); Alam et al., (2011) which have generally shown that perceived compatibility of an innovation has a positive influence on the adoption of e-SCM.

Furthermore, the result of this study presents the "internal business" factor (Information-sharing culture and e-SCM risk process) as the second factor related to overall e-SCM adoption level in travel agencies. Actually, it is difficult to imagine a coordination between a travel agency and its suppliers without information sharing. The collaboration among partners and information sharing contribute to an improvement in forecasting and planning and, thus, reduction of the risk and problems with business flow. Therefore, companies that report higher than average profits are the ones who are engaged in higher levels of information sharing (Lee and Whang, 2001). As an illustration, sharing of information is important since the success of e-SCM in a travel agency would depend upon the accuracy and value of the information which every business partner provides. Therefore, travel agencies need to adopt the culture of sharing information before they can fully implement e-SCM.

In this study, "e-SCM infrastructure" occupies the third rank with regard to the factors affecting e-SCM implementation. This result supports the study of (Ernst and Young, 2001) which has concluded that the cost of adoption is an important factor in the implementation and utilization of the e-SCM. The costs of e-SCM infrastructures in travel agencies usually include many items such as networks, PCs, data storage, servers, software/hardware, and etc. Also, this result confirms the study of (Alam et al., 2011) that has concluded that e-SCM cost is expected to negatively affect e-SCM adoption. In other words, the more expensive the e-SCM is, the less likely that it will be adopted by the organization (Wang and Tsai, 2002). Moreover, travel agencies have demonstrated that there should be an efficient and affordable technical and financial support from the local IT industry to support their move to implement e-SCM.

The results of this study also show empirical evidence that there is a moderated degree of positive correlation between both the "organizational factor" and "external factors" and the level of e-SCM adoption. Regarding the organizational factors, this study finds that organization readiness is important from a resource point of view. According to Nelson and Shaw (2003) the resources include both a financial and technical level. This finding is in line with Kenneth et al. (2012) who believes that businesses adopt electronic commerce only if the benefits outweigh the costs of developing and maintaining the system. In this case when costs are reduced it implies an increase in profit; however, the profits must
exceed cost reduction and cost of the development and maintenance. Expressly, cost considerations are positively related to the overall e-SCM adoption level. These cost considerations include the potential administrative and implementation costs that will be incurred as travel agents utilize e-SCM (Khemthong and Roberts, 2006). Other costs include training costs associated with using e-SCM applications. This result may be due to the fact that that non-interested business organizations that do not adopt e-commerce may think it is not necessary for their businesses, since it is too expensive to implement at the early stage of e-commerce adoption (Abu Kamar, 2011). Kenneth et al., (2012) explain that electronic commerce adoption is hindered by the lack of sufficient resources. Moreover, the findings show that top management of travel agents play an important role with regard to the intention of applying e-SCM. This is consistent with the results of the study of Liao et al. (2003) on the factors affecting the adoption of e-SCM which have revealed that top management support correlates significantly with the success of e-SCM adoption. Top management support can be through both financial and technical resources. In a similar manner, top management support is found to be associated with e-procurement assimilation (Khemthong and Roberts, 2006). Also, adopters of e-procurement received higher level of support from top management and functional managers than that for the non-adopters. To sum up, management support for an organization’s IT initiative is essential in determining its adoption (Teo et al., 2009 and McDonnell, 2002).

Concerning the "external business environment" factor, the findings are consistent with the study of Siau and Tian, 2004 who believe that an effective and efficient supply chain will increase the competitiveness and the survival of an organization. Thus, the implementation of an effective SCM via IT technologies, such as collaborative commerce tools, will enable the industry to gain and maintain its competitive advantage (Chong et al., 2009). In addition, it is noticed that companies with higher adoption of e-SCM have been pressured by the demands of their business partners and the industry to adopt e-SCM. The expectations of market trends are also viewed as an important external environment factor. In the long term, with the continued business pressure and the fast business trends move toward the implementation collaborative commerce for a collaborative supply chain, more and more travel agencies will adopt e-SCM (Kenneth et al., 2012).

In addition, the "government rules and regulations" factor is ranked as the factor with the least influence on e-SCM adoption. On the contrary, many previous practical researches have suggested that contributions of government play an important role in facilitating the use of electronic commerce for the tourism industry and in increasing their ability to gain the benefits (UNCTAD, 2004; WTO, 2001; Kenneth, 2012).

Finally, a survey conducted by Price Water house Coopers show that concern about security/privacy is perceived by small and medium enterprises (SMEs) as the third most important barrier to the use of e-commerce. It is observed that the fear of losing trade secrets will make travel agencies unwilling to consider entering the e-commerce business field (Killikanya, 2000). Furthermore, many studies have suggested that perceived security/confidentiality is also found to be negatively associated with the adoption of e-SCM since it is a major impediment to the adoption of e-commerce (Alam et al., 2004; Alam, 2011).

**Conclusion**

In the modern economy, having an effective supply chain management represents a vital element in creating a competitive advantage for a travel agency. In tourism business it has become evident that the usage of the Internet has enhanced the advantages of supply chain management. Therefore, using the Internet in SCM facilitates information sharing in real time as well as great possibility for improving the cooperation among the partners involved.
in the supply chain as a significant competitive differentiator. Based on reviewing a considerable number of studies, travel agents will need to rapidly adopt e-SCM in the near future, or they will be left behind because the old ways of communicating and sharing information are no longer fast or cost effective.

Moreover, the findings of this study determine the current levels of e-SCM adoption in travel agencies and identify and create an understanding of the adoption factors that have greater association with e-SCM implementation. Also, travel agencies that would like to adopt e-SCM or raise the level of adoption will be able to take managerial decisions and apply successful strategies based on the findings from this research.

On the other hand, the results show that although travel agents use e-SCM tools, the extent to which a number of tools are used is still limited. Tools with poor implementation are such as "order management solution", "Supply chain replenishment", and "delivery and tracking tools".

In addition, the data analyzed sheds light on the factors that are associated the most with the adoption of e-SCM in travel agencies. Besides, when ranking these factors according to their influence, it is found that the most important factors are "innovation", "internal business environment", and "e-SCM supporting infrastructure". "Organizational factors" and "external business environment" are found to achieve a moderated influence. On the contrary, "government rules and regulation" is ranked as the least factor associated with the adoption of e-SCM.

Based on the data analysis, the travel agency that would like to adopt e-SCM will need to change its philosophy in terms of sharing of information. Furthermore, they should be ready and prepare the technical and financial resources necessary to the implementation of e-SCM. They should also focus on building trust with their supply chain partners. Furthermore, for the tourism industry and electronic commerce to maximize benefits and minimize risks, governments in partnership with the private sector should apply a more comprehensive and dependable policy approach.

Finally, this research provides a number of contributions to travel agency management. However, managers and researchers who wish to use the results in relation to specific strategic decisions should note several characteristics of the study that may limit its applicability. Further research is clearly needed. For example, there may be still some other factors influencing the adoption of e-SCM that have not been identified in the conceptual framework of this study. This research focuses only on top managers' perception of e-SCM adoption factors in travel agencies and does not measure employees' perception. Moreover, the technique used in the current study is restricted by the sample size. Therefore, it is recommended to enlarge the sample size in further studies. It is also valuable to choose other categories of travel agencies in order to have a more comprehensive view.

References


